THE SINGAPORE EXCEPTION: A SPECIAL REPORT

The Economist

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A disastrous deal for Greece

The internet of things, a hacker's paradise

Mexico's great escape

Faster, higher, stronger: measuring sport

What's big, grey and sniffs landmines?

Hiyatollah!

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Tel: 020 7830 7000

Rue de l'Athénée 32
1206 Geneva, Switzerland
Tel: 41 22 566 2470

750 3rd Avenue, 5th Floor, New York, NY 10017
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Politics

Iran and the five permanent members of the UN Security Council and Germany reached a deal to lift sanctions in exchange for Iran accepting limitations on its enriching of uranium and allowing inspections of nuclear and military sites. Some hailed the deal as a historic one that will bring Iran in from the cold and strengthen the hand of reformers within the country. Others called it a historic mistake that will pave the way for Iran to develop nuclear weapons.

Nigeria's president, Muhammadu Buhari, sacked all of his senior military commanders after suffering setbacks in the fight against Boko Haram, a jihadist insurgency. Mr Buhari is soon to meet Barack Obama in Washington.

Burundi postponed presidential elections that were to have taken place on July 15th, amid violence and protests against a bid by Pierre Nkurunziza, the president, to run for a third term in office.

Walker runs

Scott Walker officially announced that he is running for president. The governor of Wisconsin joins a big field of Republicans, but he is a top-tier candidate who could provide a challenge to Jeb Bush, should the front-runner stumble. Senior Republicans, meanwhile, vented their frustration that Donald Trump is hogging the limelight. The property tycoon and bon vivant has topped a couple of polls that ask Republican voters who they would like to see win the nomination.

Barack Obama commuted the prison sentences of 46 drug offenders, arguing that their sentences didn't match their crimes. This came as he proposed a raft of reforms to America's **criminal-justice system**, including a review of sentencing guidelines, especially for non-violent crimes, ahead of his visit to a federal prison, the first ever by an American president.

Making progress

Colombia's president, Juan Manuel Santos, said the government would scale back attacks on the FARC, a left-wing guerrilla army, in response to the group's unilateral ceasefire. To speed up peace talks, which are taking place in Havana, Mr Santos said negotiators would deal with all outstanding issues at once. He will review the talks in November.

Joaquín Guzmán, the boss of the Sinaloa drug-trafficking mob, escaped from **Mexico's** highest-security prison. A mile-long tunnel equipped with ventilation and a motorcycle led from his shower to a newly built house. It was the second time Mr Guzmán, also known as *El Chapo* (Shorty), had escaped. Also this week, Mexico opened its oil sector to private and foreign investment. Alas, the first auctions of rights to explore 14 shallow-water blocks attracted few bids; only two contracts were awarded.

María Corina Machado, a leader of **Venezuela's** opposition, said the country's comptroller-general has barred her from holding political office for a year. That would disqualify her from running in the country's parliamentary election, to be held in December.

The pivot to America

The lower house of **Japan's** parliament passed bills aimed at deepening its military alliance with America. Shinzo Abe, the prime minister, says the bills will help Japan shoulder its international defence obligations. The attempt to legislate for "collective defence" has united most constitutional scholars against his coalition government, however, and has triggered protests.

More than 100 civilians, including many women and children, were killed or injured in **Afghanistan** over two days in a series of terrorist attacks in a bazaar and at mosques.

At least 27 people were killed in a stampede in the **Indian state of Andhra Pradesh**, at the start of a religious festival in which pilgrims come to bathe in the Godavari river. A stampede also killed 23 people in **Bangladesh**, in an area north of the capital, Dhaka, where clothes were being distributed free.

Myanmar's election commission set November 8th as the date for a general election. Aung San Suu Kyi, the leader of the main opposition party, the National League for Democracy, confirmed that it would take part, although the poll will be held under a constitution that it regards as undemocratic.

Narendra Modi, **India's** prime minister, met his Pakistani counterpart, Nawaz Sharif, at a summit of regional powers in Russia. Mr Modi accepted an invitation to pay a visit to **Pakistan** next year, which will be the first by an Indian prime minister since 2004.

Police in **China** arrested around 120 civil-rights lawyers as well as more than 50 other staff, family members and activists. It released many of them. The government objects to lawyers who publicise abuses by officials, and wishes to discourage them. Meanwhile, police in the northern Chinese province of **Inner**

Mongolia arrested 20 foreign tourists—including people from Britain, India and South Africa—accusing them of watching "terrorist propaganda" videos in a hotel room. They later released 11 of them and deported several.

The Greek saga

With petrol bombs flying nearby, **Greece's** parliament agreed to accept an exceptionally tough package of economic measures as the minimum precondition for an €86 billion ($94 billion) bail-out package offered by its euro-zone partners. Alexis Tsipras, the prime minister, said he did not believe in the measures but made clear it was the only way to keep Greece in the single currency. The tax rises, pension cuts and privatisations were agreed earlier at a summit in Brussels. At least 38 of the 149 MPs who sit for the ruling far-left Syriza party refused to back the measures.

At least 23 **Russian soldiers** were killed when their barracks collapsed in the Siberian city of Omsk. Investigators are looking into repairs that were carried out on the building.

Victor Ponta, the prime minister of **Romania**, was charged with tax evasion and money-laundering pertaining to matters that occurred before he took office in 2013. He denies any wrongdoing.

An event commemorating the 20th anniversary of the massacre of 8,000 Bosnian men and boys by Bosnian Serb forces at **Srebrenica** was marred when the Serbian prime minister, Aleksandar Vucic, was attacked by the crowd. Mr Vucic was hit by stones before being whisked away to safety.

Business

The Federal Reserve remains on course to raise **interest rates** this year, according to Janet Yellen, the central bank's chairwoman. She made the remarks in testimony to Congress, pointing out that an increasingly robust labour market and signs that inflation may be ticking up made a rate increase necessary, despite the Greek crisis and turbulence in China's stockmarkets. Ms Yellen didn't say when rates would rise, but many investors are betting on September.

Preparing the markets

Ms Yellen's British counterpart, Mark Carney, the governor of the **Bank of England**, reiterated that it is also "moving closer" to raising interest rates in the coming months. This, he said, is because there are signs that the economy is "growing faster than its historical trend". Average weekly pay, excluding bonuses, jumped by 2.8% at an annual rate, official data showed, the fastest pace since early 2009. But Britain's annual inflation rate dropped to zero in June, having increased by 0.1% in May and fallen by -0.1% in April.

The **Bank of Canada** is going in the opposite direction. It cut its main interest rate for the second time this year, from 0.75% to 0.5%. Weak business investment and exports have caused the central bank to lower its outlook for the Canadian economy.

China's GDP grew by 7% in the second quarter, which was higher than had been expected. Some questioned the veracity of the 7% figure, which matches the government's official growth target. A spokesman said 7% "objectively described" the economic situation. **China's stockmarkets** fell sharply after the GDP data were published, ending several days of gains and reigniting fears that the government's mighty efforts to bring an end to the recent turmoil in the markets may not be enough.

America's **big banks** began to report their earnings for the second quarter. Net profit at Wells Fargo came in at $5.7 billion, which was broadly similar to what it made in the same period last year. JPMorgan Chase saw its income increase by 5%, to $6.3 billion. But at Bank of America it more than doubled, to $5.3 billion, mostly because of a huge reduction in its legal costs.

Chips and spin

Reports emerged that Tsinghua Unigroup, a state-owned Chinese firm, was planning to bid for **Micron Technology**, an American maker of memory chips. At $23 billion it would be by far the biggest takeover of an American company by a Chinese one, though any offer would run into stiff resistance in Congress, which views America's semiconductor business as a strategic asset.

Britain's Financial Conduct Authority dropped its investigation into Bruno Iksil, a former trader at JPMorgan Chase nicknamed the **"London Whale"**. Mr Iksil has been linked with trades that led to a $6.2 billion loss at the bank in 2012. In America he had already reached an immunity deal with prosecutors in exchange for information.

Marathon Petroleum agreed to take over **MarkWest Energy**. The two American firms valued the transaction at $20 billion, making it one of the biggest deals in the energy industry since last summer's slump in oil prices.

Lower oil prices helped **Delta Air Lines** boost its quarterly profit to $1.5 billion. The sharp reduction in fuel expenses offset its nearly $600m in losses on fuel-price hedging.

The European Commission approved the takeover of **Aer Lingus**, Ireland's national carrier, by International Airlines Group. This came after Ryanair capitulated and agreed to sell its 30% stake in Aer Lingus to IAG, which owns British Airways. Ryanair had tried for years to buy Aer Lingus itself but it was ordered by Britain's competition authority recently to reduce its holding.

Starbucks said that it will open its first coffee shop in South Africa next year, which will also be its first in sub-Saharan Africa. Starbucks is joining other international retailers by piling into the country, providing a shot in the arm to an economy that has suffered from power blackouts and labour disputes.

Nine-and-a-half years after its launch, the *New Horizons* American space probe sent its first pictures back to Earth of the surface of **Pluto**. The stunning images revealed mountain ranges more than 3km high and canyons 10km deep.

It's no yolk

News emerged that Belgium, famous for its chips and **mayonnaise**, wants to reform a law from 1955 decreeing that the sauce should be at least 80% fat. That puts local producers at a distinct disadvantage in these health-conscious times. "After years of discussions" between the producers and mayonnaise traditionalists, the consumer minister is whisking them away for talks, at which he should give them a good dressing down.

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

Hiyatollah!

The nuclear deal with Iran is better than the alternatives—war or no deal at all

IT WAS historic: everyone can agree on that. But whereas some say the deal done in Vienna this week between Iran and six world powers plus the European Union was a breakthrough that keeps nuclear proliferation at bay and begins to mend a 36-year feud with America, others are convinced it was, as Israel's prime minister, Binyamin Netanyahu, says, a "stunning historic mistake" that sets up Iran as a nuclear power and finances its aggression abroad. Which of those is closer to the truth depends on two things: the quality of the agreement and its effect on Iran's behaviour.

With Iran, backers as well as critics—especially in America's Congress, which now has 60 days to scrutinise the deal—both tend to lapse into magical thinking. The critics argue that, if only the world tried hard enough, Iran would give up the guts of its nuclear programme. But the regime sees mastery of the nuclear-fuel cycle as both a badge of national power and insurance against American military attack, so the critics risk holding out for a bargain that never comes. Backers play down the Iranian regime's antagonism towards America and Israel, its determination to exert influence abroad and its willingness to use violence. They place too much reliance on a transformation of the Iranian regime that may never come about.

With or without an agreement, the world is stuck with an Iran that continues to run a big nuclear programme and remains slippery and dangerous. The real test of the deal is whether it is better than the alternatives. It is.

A nuclear balance-sheet

The critics are right that the agreement legitimises Iran as a threshold nuclear state. If it keeps its word and avoids further restrictions on its programme, Iran will have the know-how and eventually the capacity to arm itself. Yet it will also face greater restraints than it does today (see page 19). Iran's ability to enrich uranium, the fuel for a bomb, and to develop a weapon will be severely constrained for somewhere between ten and 15 years. After that, it will be subject to the full force of the international treaty against proliferation. The government has agreed to intrusive monitoring of all its nuclear facilities and to inspections on request of its military sites, under a system of "managed access". Sanctions, which are to be lifted as a result of the agreement, can be reimposed if Iran violates it.

For those who oppose this deal, the alternatives are to wait for a better one, or to go to war. Some argue that since sanctions won concessions, more sanctions will win more concessions. Yet if America walked away now, China, Russia and the EU would lose faith in the process and sanctions would crumble instead. Moreover, to think that Iran would surrender the heart of its programme is a reckless gamble. Threatened, it would be more likely to dig in its heels. Iran's nuclear expertise has grown since 2000, and would expand further still in the years before talks were possible once again. Delay could thus end up making an ambitious agreement even harder.

Some critics may believe that attacking Iran is the only option. But war is a poor form of arms-control. Even if America had the stomach for a months-long campaign, and even if it could take out all of Iran's many nuclear sites, bombing cannot destroy nuclear know-how. Instead the programme would go underground, beyond the reach of monitors. An attack would thus be a route to a nuclear-armed Iran. Should Iran dash for the bomb, war might make sense as a last resort, but that option will not disappear just because of this week's agreement.

Get real

But the deal brings dangers that its backers are slow to acknowledge. Although the economy is hard-pressed, Iran devotes precious resources to Iraq and Syria; it sponsors Hizbullah, the Lebanese militia-cum-party; and whips up emotions in Bahrain and Yemen. Relieved of sanctions, a richer Iran would surely spend money extending what is mostly a malign influence. Iranian violence abroad may well worsen, as a sop to hardline opponents of the deal in Tehran and as a gesture to show the world that Iran has not gone soft. The perception that the United States is a declining power, which alarms Israel and America's allies in the Gulf, may feed Iranian ambitions.

That is not the whole story, however. The nuclear deal binds Barack Obama, America's president, into the Middle East. This is his foreign-policy legacy and he is its enforcer-in-chief, just as his successors will be. Iran's "empire" is in turmoil—roiled by jihadists (including Islamic State), war with Saudi Arabia in Yemen, and a failing regime in Syria. Extra money will help Iran's efforts, but as America discovered in Iraq, dominance is not determined by resources. If the United States buttresses its oversight of the agreement with sustained regional diplomacy, needed anyway after the Arab spring, then it can help contain Iran.

Although the deal will make Iran more powerful, it will also lead the country to become more open. As in China, the Iranian theocracy rules over a population that long ago lost its revolutionary zeal (see page 21). The regime agreed to constrain its nuclear programme because, again as in China, it calculated that it is more likely to survive if Iranians feel that they have a shot at prosperity. Unlike North Korea's Kim dynasty, which cheated on its nuclear pact, Iran's supreme leader, Ayatollah Ali Khamenei, decided that being a pariah was worse for his regime than rejoining the world.

That choice only makes sense if Iran can now attract trade and investment. The more Iran trades with the rest of the world, the more susceptible it will grow to international pressure. As the country becomes enmeshed in the global economy, interest groups will emerge within Iran's complex, factional politics who will argue that the country's future is better served by decent relations with foreigners than by bad ones. The more Iranians benefit from ties with the outside world, the stronger those moderating voices will become.

A country of Iran's size and sophistication will get a bomb if it really wants one. Nothing can change that. But this pact offers the chance of holding Iran back and shifting its course. The world should embrace it, cautiously. ■

A bad week for Mexico

Of prisons and petroleum

The opening of Mexico's energy market and the busting open of its top-security jail are linked

RARELY has a moment of glory been so cruelly sabotaged. On July 15th Mexico flung open its long-closed energy sector with an auction of oil-exploration rights that ends the 77-year monopoly of Pemex, the state-owned oil company (see page 53). It is part of a reform package that will add more than two percentage points to economic growth, the government hopes. As the bidding took place, the country's president, Enrique Peña Nieto, was on a state visit to France with much of his government in tow. No doubt, he was hoping to be toasted as the man behind today's thoroughly modern Mexico.

The toasts must have left a bitter taste. The first round of energy auctions was a flop. Just two of the 14 blocks on offer were sold, to a Mexican-British-American consortium; eight received no bids at all. The government may blame low oil prices for the weak demand. The odds are that badly written rules and the finance ministry's inflated idea of the revenue it could collect also played their part.

These problems can be fixed, with luck in time for the next round of auctions in September. Harder to correct will be the spectacular escape of Mexico's most notorious drug lord, who broke out of its highest-security jail just before Mr Peña landed in Paris (see page 30). Joaquín Guzmán (pictured), otherwise known as *El Chapo* (Shorty), disappeared through a mile-long tunnel, leading from the shower in his cell, that was equipped with ventilation tubes and a motorcycle mounted on rails (it may have been used to carry out dirt). The stylishness of the escape route was almost as much of a humiliation as the escape itself, Mr Guzmán's second. Mr Peña had resisted pressure from the United States to extradite the leader of the Sinaloa drug-trafficking gang after he was recaptured in 2014. To let such a prize slip away again would be "unforgivable", Mr Peña declared at the time. The interior minister, Miguel Ángel Osorio Chong, rushed back from Paris to lead the manhunt.

The escape of *El Chapo* is proof that the rule of law in Mexico is still shaky. He could not have broken out of the Altiplano prison without inside help—its security features include communications-blocking technology and a no-fly zone. Three senior prison officials have been dismissed; many more are being questioned.

Mexico will have to do better if it wants to carry off reforms needed to lift it to the status of developed country. Corruptibility and incompetence pervade the criminal-justice system. While some police and the army go after drug kingpins—25 of the 37 most wanted were killed or captured under the previous president, a policy Mr Peña has continued—others connive with them. Murders have fallen, from 23,000 in 2011 to about 16,000 last year, but are still 50% higher than in 2007. Lesser crimes, from extortion to petty graft, gnaw at enterprise and corrode civility. Disorder does not always deter investors who can afford armoured cars and bodyguards, but it puts off smaller businesses, Mexican and foreign. A lawless teachers' union has disrupted a vital education reform. Unless the sanctity of contracts is respected, the energy reform could fail altogether.

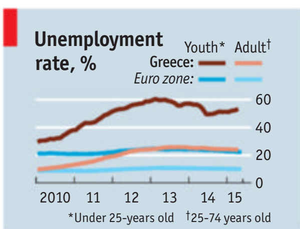
Get Shorty

The president has been a wobbly champion of the rule of law. He once dismissed corruption as a "cultural" issue. His wife bought a house with financing from a businessman who won large contracts from the government. He manages security through an ineffective clique. The progress Mr Peña has secured—a revised criminal code to make trials fairer and a new system of independent watchdogs to reduce graft—will come to nothing unless he changes his security team. If *El Chapo*'s escape brings that about, it will have at least done a little good. ■

The euro zone

Pain without end

A deal between Greece and Europe averts one disaster, and hastens the next



"WE HAVE an a-Greekment," declared Donald Tusk, president of the European Council, on the morning of July 13th. Mr Tusk's little joke seemed forgivable at the time: after talking through the night, euro-zone leaders had thrashed out a deal that averted Greece's imminent exit from the single currency. The reality is grimmer. A decent deal would have put Greece on the path to sustainable growth and taken the prospect of Grexit off the table. Instead, Europe has cooked up the same old recipe of austerity and implausible assumptions. The IMF is supposed to be financing part of the bail-out. Even it thinks the deal makes no sense.

True, some ideas are useful. In exchange for talks on a package estimated at €82 billion-86 billion ($90 billion-94 billion), the creditors have put structural reforms higher up the agenda than in the two previous bail-outs. That is welcome: opening closed-shop industries to competition is a surer path to growth than austerity is. But even if they are carried out, structural reforms take a long time to pay off. In the meantime, the Greek economy is suffocating because of bank closures and capital controls. The agreement does too little to ease this chokehold.

The creditors are concocting a bridge-financing package designed to prevent Greece from defaulting to the European Cen- ▸▸

tral Bank (ECB) on July 20th. But money will not flow until reforms have gone through the Greek parliament (a first batch was passed on July 15th) and the details of the bail-out are settled. Money will also be made available to recapitalise the banks, but the extent of their capital shortfall will only be clear after the summer. The ECB can meanwhile keep the banks afloat with emergency financing, but capital controls will remain. Given the possibility that losses will be imposed on creditors, the incentives to put money into Greek banks are non-existent. The IMF increased its estimate of Greece's financing needs by €25 billion after only two weeks of banking limbo; as today's misery drags on, the hole will deepen.

Even now, there is a huge financing gap to fill. One hope is privatisation: the agreement requires Greece to transfer assets to an independent fund that will generate €50 billion by selling them off. Fat chance. Over the past five years Greece's government has managed to raise a grand total of just €3 billion from asset sales.

In another triumph of wishful thinking, the deal also reckons Greece can soon borrow in private markets. Although previous bail-outs have greatly reduced the burden of interest payments to euro-zone creditors, which start only after 2020, Greece's debt stock is now projected to peak at 200% of GDP. No private creditor is going to lend money to Greece at reasonable rates when its debt load is unsustainable. The only option—one that has, miraculously, united Alexis Tsipras, the Greek prime minister, and the IMF—is debt relief. Yet the euro zone has ruled out forgiving any debt outright, and put off the decision of whether to extend maturities for another day.

That leaves the old standby of austerity. Among the initial measures passed by the Greek parliament on July 15th was one leading to "quasi-automatic spending cuts" in the event of shortfalls in Greece's budget targets. If those cuts were ever enacted, they would only harm the economy further. The politics are little better. Marshalling ongoing domestic support for the bail-out in Greece, with his own left-wing Syriza MPs in revolt, will be an enormous problem for Mr Tsipras (see page 41). Years more hardship will only radicalise a country that is already a haven for the hard left and the fascist right.

The hokey-cokey currency

If Greece trips up, whether in the coming days or quarters, Grexit will immediately hove back into view. This week Mr Tsipras saw what a strong negotiating position really looks like, as Germany's irascible finance minister, Wolfgang Schäuble, openly dangled plans for a temporary Grexit. That idea was excised from the final agreement, but too late. Germany's unshakable commitment to the irrevocability of the single currency has gone and it cannot be reinvented. Greece must toe the line, or get out. The summit made it clear that Greek membership of the euro is transactional and contingent.

Plenty have called the agreement a coup d'état; Mr Tsipras himself talks of having had a knife at his throat. That conveniently ignores his own culpability in sowing mistrust among the other 18 euro-zone members: his decision to break off negotiations and call a referendum earlier this month squandered any political capital he had left in Brussels.

The summit has deepened the tension between sovereignty and stability that bedevils the euro. If it is to work, the euro zone requires more fiscal centralisation. But the Greek referendum and this week's deal have laid bare the trade-offs involved, away from national self-determination and towards more intrusive external control. Saving Greece is hard enough; securing the euro will be tougher still. ■

Embedded computers

Hacking the planet

The internet of things is coming. Now is the time to deal with its security flaws

COMPUTER security is tricky. Just ask America's Office of Personnel Management: on July 9th it admitted that hackers had purloined the sensitive personal information of 22m government employees. Or Anthem, a big insurance firm which reported in January that 80m customer records had been stolen. Or the National Security Agency, which in 2013 suffered the biggest leak in its history when Edward Snowden, a contractor, walked out with a vast trove of secret documents.

Unfortunately, computer security is about to get trickier. Computers have already spread from people's desktops into their pockets. Now they are embedding themselves in all sorts of gadgets, from cars and televisions to children's toys, refrigerators and industrial kit. Cisco, a maker of networking equipment, reckons that there are 15 billion connected devices out there today. By 2020, it thinks, that number could climb to 50 billion. Boosters promise that a world of networked computers and sensors will be a place of unparalleled convenience and efficiency. They call it the "internet of things".

Computer-security people call it a disaster in the making. They worry that, in their rush to bring cyber-widgets to market, the companies that produce them have not learned the lessons of the early years of the internet. The big computing firms of the 1980s and 1990s treated security as an afterthought. Only once the threats—in the forms of viruses, hacking attacks and so on—became apparent, did Microsoft, Apple and the rest start trying to fix things. But bolting on security after the fact is much harder than building it in from the start.

Pay up, or the fridge gets it

The same mistake is being repeated with the internet of things. Examples are already emerging of the risks posed by turning everyday objects into computers (see page 65). In one case a hacker found he could remotely control the pump that dispensed his drugs. Others have disabled the brakes and power-steering on new cars. Cyber-criminals are a creative lot. In the future a computerised washing machine or fridge might be subverted to send out spam e-mails, for instance, or to host child pornography; or a computerised front door might refuse to let you in until you hand over a bitcoin ransom.

Three things would help make the internet of things less

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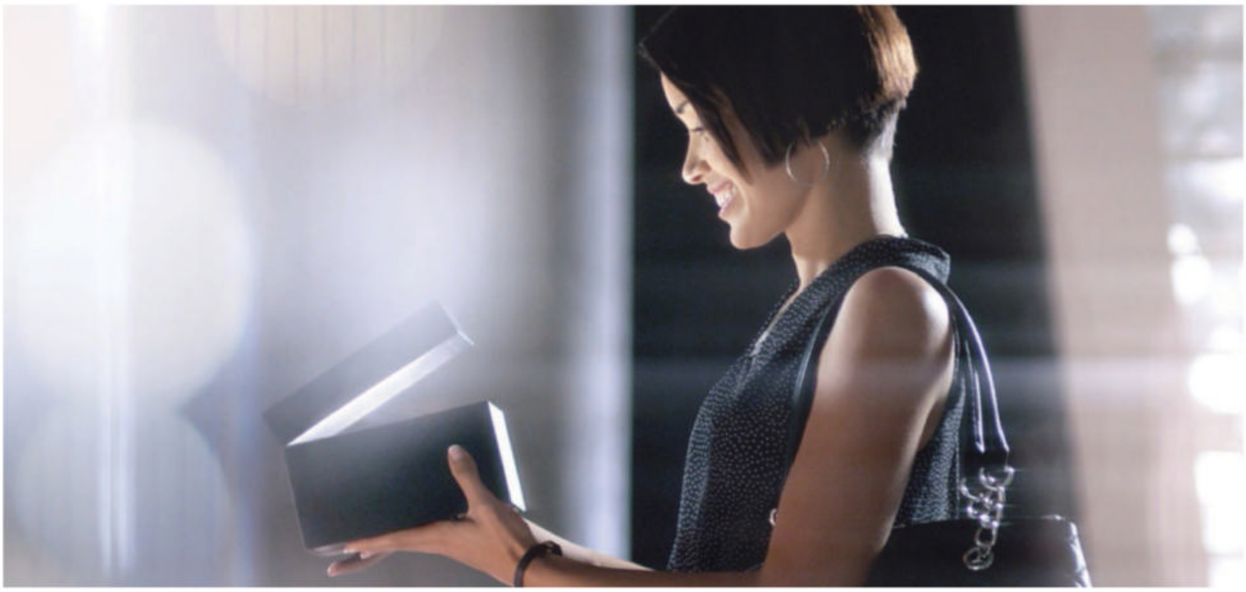

INNOVATION IN THE AGE OF EXPERIENCE

We live in an age where businesses need to look beyond the aesthetics of a product or the practicalities of a service…where consumer engagement and loyalty count far more than features and benefits alone…where consumers expect to interact with or even influence suppliers – not just be sold to.

Products are no longer enough for today's consumers who value experience over all else.

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It enables everyone within a company to play an active role in experience development.

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It's time to ask the right questions, understand the present and navigate the future – now made possible with the **3D**EXPERIENCE platform.

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The **3D**EXPERIENCE Platform Explained

The **3D**EXPERIENCE platform is a business experience platform. It provides software solutions for every organization in your company – from engineering to marketing to sales – that help you, in your value creation process, to create differentiating consumer experiences.

With a single, easy-to-use interface, it powers INDUSTRY SOLUTION EXPERIENCES, based on 3D design, analysis, simulation and intelligence software in a collaborative interactive environment. It is available on premise and in public or private cloud.

It takes a special kind of compass to understand the present and navigate the future.

About Dassault Systèmes Dassault Systèmes, the **3D**EXPERIENCE Company, provides business and people with virtual universes to imagine sustainable innovations. Its world-leading solutions transform the way products are designed, produced and supported. Dassault Systèmes' collaborative solutions foster social innovation, expanding possibilities for the virtual world to improve the real world. The group brings value to over 190,000 customers of all sizes, in all industries, in more than 140 countries.

vulnerable. The first is some basic regulatory standards. Widget-makers should be compelled to ensure that their products are capable of being patched to fix any security holes that might be uncovered after they have been sold. If a device can be administered remotely, users should be forced to change the default username and password, to prevent hackers from using them to gain access. Security-breach laws, already in place in most American states, should oblige companies to own up to problems instead of trying to hide them.

The second defence is a proper liability regime. For decades software-makers have written licensing agreements disclaiming responsibility for any bad consequences of using their products. As computers become integrated into everything from cars to medical devices, that stance will become untenable. Software developers may have to agree to a presumption of how things should work, for instance, which would open them to legal action if it were breached. It is never too early for insurers, manufacturers and developers to begin to thrash out such issues.

Third, companies in all industries must heed the lessons that computing firms learned long ago. Writing completely secure code is almost impossible. As a consequence, a culture of openness is the best defence, because it helps spread fixes. When academic researchers contacted a chipmaker working for Volkswagen to tell it that they had found a vulnerability in a remote-car-key system, Volkswagen's response included a court injunction. Shooting the messenger does not work. Indeed, firms such as Google now offer monetary rewards, or "bug bounties", to hackers who contact them with details of flaws they have unearthed.

Thirty years ago, computer-makers that failed to take security seriously could claim ignorance as a defence. No longer. The internet of things will bring many benefits. The time to plan for its inevitable flaws is now. ■

Asian values

Happy 50th birthday, Singapore

The uptight island-state has much to celebrate. But to thrive in the future, it will have to loosen up

NEXT month Singapore will be throwing the biggest party in its short history, to mark the 50th anniversary of its independence. The tiny island-state has every reason to celebrate. In 1965, when it was expelled from a federation with Malaysia, its very survival seemed uncertain. Now it is one of the world's richest countries, admired for its clean government, orderliness and efficiency. It combines low taxes with good public services, and regularly leads global rankings of the ease of doing business. Yet it also faces problems, such as a rapidly ageing population that is insufficiently creative and startlingly reluctant to have babies (see our special report in this issue). To address them, it will need fresh thinking.

Singapore's success came despite long odds. This month an interviewer reminded the prime minister, Lee Hsien Loong, that his father, Singapore's founding leader, Lee Kuan Yew, had once called the notion of an independent Singapore "a political, economic and geographic absurdity". It had no resources—not even enough water—no hinterland and a population made up of a combustible mix of Chinese (about three-quarters), Malays and Indians. It had parted brass rags with a neighbour five times more populous (Malaysia) and faced a campaign of "confrontation" from one 50 times bigger (Indonesia).

Singapore's leaders still feel vulnerable, and this fact explains many of the country's oddities: the secrecy that enshrouds its national finances, the requirement that all men serve two years in the armed forces, the government's dogged support for manufacturing and its tight restrictions on speech and assembly. Yet Singapore is far more secure than its rulers imagine. Relations with Indonesia and Malaysia are excellent. Singapore's territorial integrity is not under threat.

So nothing can justify the way the state curtails its citizens' freedom. A combination of a tame press, strict electoral rules and the frequent resort to defamation laws have stunted the growth of a credible opposition. Granted, even without one, government has remained clean, nimble, pragmatic and imaginative in its policymaking. For this, much of the credit goes to Lee Kuan Yew, who set high standards that have outlasted him (he died in March). But Singapore cannot assume that the leaders of the ruling People's Action Party (PAP), the only political party in the rich world never to have been out of power, will always be wise. In the long run the country needs stronger institutional checks and its voters need a real choice.

In the most recent election, in 2011, the PAP recorded its worst post-1965 performance. To its credit, the party reacted not by shrugging off the result but by acknowledging it as a rebuke and changing policies. It has become less stingy in dispensing benefits, especially to the elderly. Less creditably, it has curbed immigration, which was a cause of disgruntlement.

Helping mums and grandparents

In providing benefits it can afford to go further. The budget surplus last year was 5.7% of GDP, estimates the IMF (the government says it was 1.1%, but it uses needlessly conservative accounting methods). Singapore is nowhere near the "slippery slope" to European-style, work-discouraging welfarism that its leaders dread. It could make its old people more comfortable, and it could do more to encourage Singaporeans to have children. The fertility rate, at 1.25, is one of the world's lowest. By 2030 there will be 2.1 workers for every citizen over 64, down from six last year. To avoid demographic collapse, the country needs to help women combine motherhood and a career.

Singapore has become an international hub for several reasons: it enjoys the rule of law, it speaks English and Mandarin and it is a gateway to Asia. It is also a place where clever people like to live and work—and that is something the government cannot take for granted. The young chafe against outmoded rules, such as the bans on selling chewing gum or having gay sex. And knowledge-workers, among others, feel stifled without free speech. For its next half-century to be as successful as its first, Singapore will have to loosen up. ■

Life and death situations

Throughout the debate on doctor-assisted dying ("The right to die", June 27th) disabled people across Britain have told us that they fear the implications of a change in the law. Almost two-thirds believe that such a legal regime would put pressure on them to end their lives prematurely, so that they can stop "being a burden" to their families and loved ones. In Washington state, where assisted suicide is legal for those who are terminally ill, 61% of people given lethal drugs to end their lives said that being a burden was one reason for wanting to die.

Arguments in favour of assisted dying are rooted in the belief that the lives of sick and disabled people are not worth as much as other people's. Why is it that when people who are not disabled want to commit suicide we try to talk them out of it, but when a disabled person wants to commit suicide, we focus on how to make that possible?

The conversation must move away from how we make suicide possible for vulnerable people, and think instead about how their lives have meaning.

MARK ATKINSON
Interim chief executive
Scope
London

If respect for autonomy means, as you put it, that "The criterion for assisted dying should be a patient's assessment of his suffering, not the nature of his illness", then why legalise assisted dying only for the ill? Why not also allow doctors to prescribe lethal drugs for healthy adults whose assessment of their own suffering makes them opt for death?

A policy that allows doctor-assisted suicide for the ill or disabled but not for the healthy devalues the ill and disabled by mandating that they get less protections from their suicidal desires than healthy people. That is discriminatory.

FELICIA NIMUE ACKERMAN
Professor of philosophy
Brown University
Providence, Rhode Island

The appalling lack of care for the elderly and vulnerable in Britain's care homes and hospitals is well documented. In 2011 the Health Ombudsman reported cases where patients had not received the basics of food or water in a number of hospitals. Adding organised death to this mix is utterly misguided.

The state acts as an impediment to euthanasia not out of archaic cultural conservatism but because it has a duty to protect all its citizens, not just those who wish to die. When the Abortion Act was passed in 1967, the public were assured there would be safeguards in place. Today these are routinely ignored. There is no reason to think that euthanasia will be any different.

ANDREW GRAY
Norwich

As an anaesthesiologist I have engaged in "end-stage" treatments for both the mind and the body. A clear distinction should be made between the two. The deleterious effects of multi-organ dysfunction on the body are profound: cardiovascular collapse, hepatorenal syndrome, progressive neurodegeneration, blood dyscrasias, respiratory distress, malignancies. We refer to this as systems failure, and when enough systems fail treatment becomes supportive, the outlook dismal and the quality of life virtually nonexistent. Depriving these terminal patients of the right to determine their own fate and level of suffering breaches our basic humanity.

The mind is different. One of the final stages of treatment on patients with refractory major depression, bipolar disorder and schizophrenia (if drugs and cognitive behavioural therapy have little effect) is electro-convulsion therapy. This is a medically induced seizure administered with anaesthesia and electrical stimulus to targeted areas of the brain.

An overwhelming majority of these patients have had suicidal ideations. Ladder-like scars cloak their forearms from failed suicide attempts. But many of them stabilise or incrementally improve after ECT treatment.

JOHN DICARLO
Atlanta

Children with life-limiting or life-threatening conditions have been largely excluded from the arguments about assisted dying. In the Netherlands children over the age of 12 can request euthanasia, but Dutch doctors are pushing for that to be extended to younger, competent children. This would bring the Netherlands into line with Belgium, where minimum-age limits have been scrapped.

We are not saying children should be given this right automatically, but we are well aware of the maturity and insight that such children may have, regardless of their chronological age. We think that maturity, rather than some arbitrarily determined age cut off, ought to determine access to assisted dying or euthanasia if they are lawful in a jurisdiction. Safeguards to prevent coercion or exploitation would be required.

The right-to-die argument is complex and emotive, especially where children are involved. It deserves a more wider-ranging discussion.

MAGGIE WEARMOUTH
JOE BRIERLEY
VIC LARCHER
Consultant paediatricians
Eastbourne and Great Ormond Street Hospital, London

Reading your articles brought to mind the depressing situation of my 100-year-old mother. She has been in a care home near Oxford for almost two years, bedridden, increasingly deaf, virtually unintelligible and with failing eye sight. She is not terminally ill, just old and suffering.

I last had a meaningful conversation with her a year ago and she kept asking, "Why can't I die?" I was unable to provide an answer that made any sense to her.

WILLIAM CHISLETT
Madrid

As a senior citizen getting more senior every day, I am uneasy at letting doctors become involved in assisted suicides. A sensible system would create a non-medical government agency that could accept online applications, conduct personal interviews to establish the absence of outside coercion and provide the necessary drug with guidelines for taking it. It could also offer advice on pre-suicide matters such as inheritance.

BRYAN DUNLAP
New York

Death can be a comfortable end, as portrayed in "Soylent Green", a film from 1973. That is better than riding an aeroplane into a mountain with screaming passengers. And far better than having brain cancer and slowly dying in agony.

GARY HEDQUIST
Kewaunee, Wisconsin

I largely agree with you about allowing doctor-assisted suicide. I have seen too many people die horrible deaths. But I have one reservation. No one who stands to benefit financially from the death of the sick person ought to have a role in advising or in making the decision. There is too much opportunity for mendacity.

Living wills should be required when one is terminally ill. I have one. Not that my estate would matter much to anyone. But even paranoid people have enemies.

TED FARAONE
New York

Letters are welcome and should be addressed to the Editor at
The Economist, 25 St James's Street, London SW1A 1HG
E-mail: letters@economist.com
More letters are available at:
Economist.com/letters

European Commission

DIRECTOR-GENERAL
(grade AD15)

Directorate-General for Justice and Consumers, Brussels
COM/2015/10360

The Directorate-General for Justice and Consumers aims to vindicate and strengthen the rights of people living in the European Union, whether they are acting as citizens, as entrepreneurs, as consumers or as workers, wherever they are in the EU.

The European Commission is seeking to appoint a Director-General for its Directorate-General for Justice and Consumers, whose main responsibilities will reside in the strategic direction, management and governance of the DG.

Your responsibilities:
- To provide overall strategic direction and lead the policy development of the European area of justice and consumers;
- To ensure effective planning and management of the activities of the Directorate-General, providing guidance, supervising and controlling its performance;
- To ensure coherence and consistency of the policies of the Directorate-General with the overall policy objectives and priorities of the European Commission.

Your skills:
- Excellent leadership and managerial skills to direct and motivate a team of highly competent professionals;
- A high level of negotiating skills and experience being able to represent the European Commission at senior level and to develop and maintain excellent relationships with all stakeholders;
- Experience of policy development and implementation, being able to understand the challenges in the fields of justice, consumers and equality.

Please consult the Official Journal C218A of 3/7/2015 for the detailed vacancy notice as well as the eligibility and selection criteria.

Registration for applicants: https://ec.europa.eu/dgs/human-resources/seniormanagementvacancies/

The closing date for registration is **31/7/2015, 12.00 noon Brussels time.**

European Commission

DEPUTY SECRETARY-GENERAL
(grade AD15)

Secretariat-General of the European Commission, Brussels
COM/2015/10361

The Secretariat-General is one of the central services of the European Commission, facilitating its smooth and effective functioning. It is at the service of the President, of the College, and of the European Commission's Directorates-General, managing decision-making processes and ensuring the alignment of EU policies with the political priorities of the European Commission.

The European Commission is seeking to recruit a Deputy Secretary-General to support the overall activities of the service. The successful candidate's particular responsibility will reside in the oversight of the European Commission's relations with other institutions, as well as in protocol matters.

Your responsibilities:
- To represent the European Commission at CoRePer and the European Parliament and to liaise with the Economic and Social Committee, the Committee of the Regions and national parliaments;
- To ensure the overall management of the Directorate in charge of relations with other institutions and the Protocol Service.

Your skills:
- Strong background and professional experience as a manager and communicator, being able to lead and motivate large teams, set priorities and take decisions;
- Outstanding level of strategic judgment, high professionalism and conceptual ability;
- Excellent negotiation skills, preferably combined with experience of high-level international negotiations;
- General knowledge of the European Union's activities and relations between the different Institutions.

Please consult the Official Journal C218A of 3/7/2015 for the detailed vacancy notice as well as the eligibility and selection criteria.

Registration for applicants: https://ec.europa.eu/dgs/human-resources/seniormanagementvacancies/

The closing date for registration is **31/7/2015, 12.00 noon Brussels time.**

Together to End AIDS

International HIV/AIDS Alliance

Together to end AIDS

Executive Director
Brighton, UK

The International HIV/AIDS Alliance ("the Alliance") is seeking a new Executive Director to lead it in realising its vision of a world without AIDS.

The Alliance works with communities through local, national and global action on HIV, health and human rights. Since 1993, it has supported over 3,000 projects, in over 40 low and middle income countries, reaching millions of people.

The new Executive Director will join a strong organisation, with a pre-eminent role in coordinating and resourcing civil society's response to the HIV/AIDS pandemic. The Alliance intends to build on its successes, re-energise the fight against HIV/AIDS, augment its donor base, and develop new means and new funding sources to meet needs in vulnerable communities. A concerted effort in the next five years could ensure that by 2030 AIDS is no longer a public health threat. The new Executive Director will ensure the Alliance plays its part in making this a reality.

Candidates for the role will bring experience of senior positions in networked organisations. They will be committed to working internationally, with deep understanding of developing countries and the partners in government, multi-lateral and bilateral donor agencies, civil society and locally-based communities with which the Alliance works. An inspiring leader and accomplished manager of complex programmes, relationships and competing priorities, the next Executive Director will be a compelling advocate for the Alliance with audiences in both the global North and South.

The Alliance has retained Russell Reynolds Associates to assist with this appointment. For further information on the position and additional details on qualifications, requirements, terms and conditions of service and how to apply, please visit: **www.rraresponses.com**

The closing date for applications is 10th August, 2015.
Interviews are expected to be held in London on 28th August, 2015.

The International HIV/AIDS Alliance is committed to equal opportunities and welcomes applications from appropriately qualified people from all sections of the community. Qualified people living with HIV are particularly encouraged to apply.

Russell Reynolds ASSOCIATES

Transforming Ideas into Impact

GLOBAL INNOVATION FUND

New Board Members

The Global Innovation Fund (GIF) intends to appoint new board members. They will join a group of directors who already encompass public, private, and third sectors in experience. They will help guide GIF in bringing new capital, both intellectual and financial, to the improvement of the lives of the world's poorest people.

GIF is a $200 million joint initiative of the international development departments of the governments of the UK, US, Australia, Sweden and in partnership with the Omidyar Network. Its mission is to support the development and rigorous testing of innovations that will benefit people living on less than $5 a day. It will also help successful innovations to achieve impact at scale. GIF defines 'innovation' broadly to include new business models, policy practices, technologies, behavioural insights, or ways of delivering products and services that benefit the poor in developing countries, in short any solution that has potential to address an important development problem more effectively than existing approaches. GIF supports innovations based on a judgment of their impact, potential to scale, rigorous metrics of success, and the quality of their teams. These investments are divided among innovations at three stages of their evolution: pilot; test and transition; and scaling up.

One of the new Board members will have a strong public sector background. Another, who will chair the Audit and Finance Committee, will bring a strong finance, audit, or compliance track record. A third board member will have made a career in a civil society context. Female candidates and those from the global south are particularly encouraged to apply. In addition, candidates should bring clarity of thought and expression and the ability to be fully engaged board members, with a clear appreciation of the proper role of the non-executive.

GIF has retained Russell Reynolds Associates to assist with this appointment. For further information on the position and additional details on qualifications, requirements, terms and conditions of service and how to apply, please visit: **www.rraresponses.com**

The closing date for applications is 9th August 2015.

Russell Reynolds ASSOCIATES

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Director (grade AD14)

European Institute of Innovation and Technology, Budapest
COM/2015/20008

The European Institute of Innovation and Technology (EIT) aims to be a flagship for excellence in European innovation. Acting as a catalyst for economic growth and job creation throughout the EU, the EIT drives change by collaborating closely with European universities, research institutions, small businesses and large enterprises.

The EIT is seeking to appoint a Director, whose particular responsibilities will reside in the development, organisation and management of the EIT's activities, as well as in the legal representation of the Institute. The Director is directly accountable to the Governing Board on all strategic, financial and operational matters.

Your responsibilities:

- To take ownership of all matters concerning the organisation, administration and implementation of the EIT's activities and processes;
- To ensure the implementation of effective performance monitoring and evaluation procedures and to safeguard the interests, goals, autonomy and coherence of the EIT;
- To prepare and draft strategic documents, work programmes, annual reports and budgets for submission to the Governing Board.

Your skills:

- Excellent analytical, managerial and organisational skills and an ability to develop long-term strategies, to lead and motivate large teams, set priorities and communicate objectives;
- Strong communication and negotiation skills and a proven ability to cooperate effectively and efficiently with EIT stakeholders on all levels;
- Proven experience in policy and practice relevant to higher education, research, business or innovation with experience of leadership in one of these areas.

Please consult the Official Journal C222A of 7/7/2015 for the detailed vacancy notice, in particular the eligibility and selection criteria.

Registration for applicants:

https://ec.europa.eu/dgs/human-resources/seniormanagementvacancies/

The closing date for registration is **4/9/2015, 12.00 noon Brussels time.**

A body of the European Union

eit European Institute of Innovation & Technology

European Commission

European Investment Bank
The EU bank

The **European Investment Bank** finances projects that drive sustainable growth and employment – and affect the lives of people across Europe and beyond.

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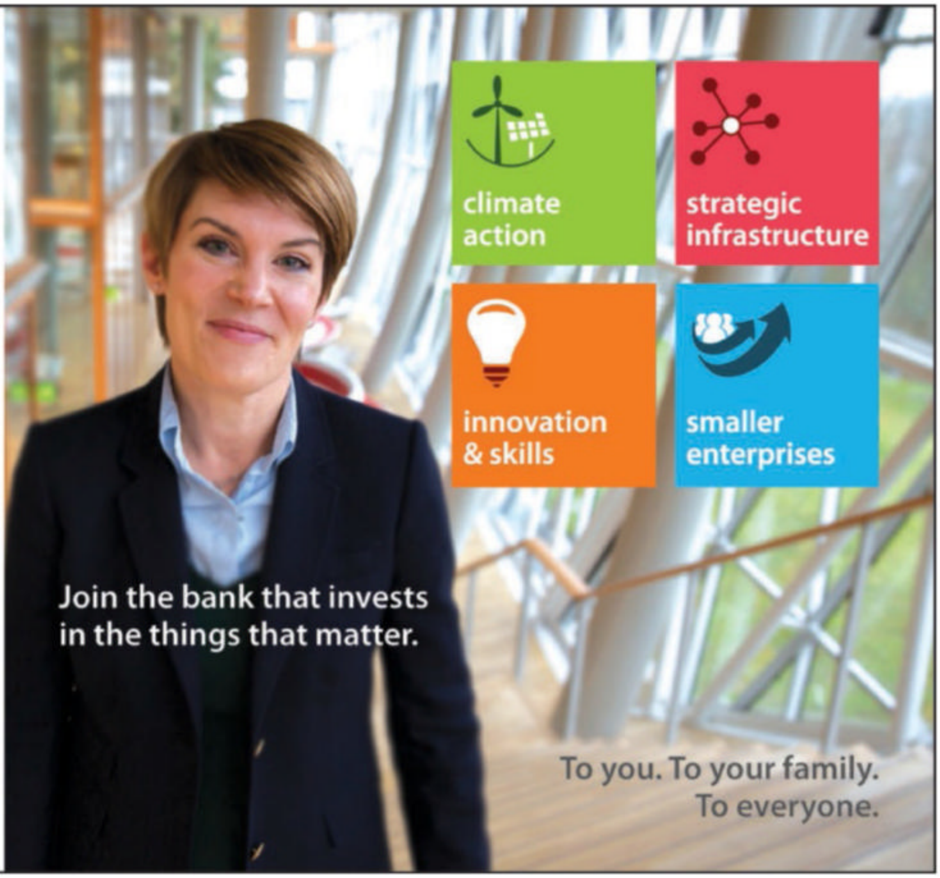

European Investment Bank

The EU bank

Call for Expressions of Interest

Selection of independent experts as members of the European Fund for Strategic Investments (the "EFSI") Investment Committee

Pursuant to Regulation (EU) 2015/1017 of the European Parliament and of the Council on the European Fund for Strategic Investments (EFSI), the European Investment Advisory Hub and the European Investment Project Portal, which entered into force 04/07/2015, the European Investment Bank (EIB) has published a **call for expressions of interest** in the Official Journal of the EU to set up a list of independent experts as members of the EFSI Investment Committee.

The Investment Committee shall be accountable to the EFSI Steering Board and shall be composed of eight independent experts and the Managing Director. The Investment Committee shall be responsible for examining, in a transparent and independent manner, potential projects in line with the EFSI investment policies and for approving the support of the EU guarantee for EIB operations for projects that comply with the requirements of the Regulation.

Further details available at **http://www.eib.org/about/procurement/calls/jj-1273.htm**

CHANGING THE GAME FOR AFRICA

AFRICA50

FINANCING AFRICA'S INFRASTRUCTURE
POUR LES INFRASTRUCTURES EN AFRIQUE

Chief Executive Officer

Africa50, Casablanca, Morocco

Africa50 is a landmark investment vehicle, focused exclusively on Africa's infrastructure development opportunities. Africa50 was incorporated in Casablanca, Morocco in September 2014. It is an African-led initiative with early capital commitments from African governments, and African Development Bank as its cornerstone investor.

Africa50 will invest in large scale, transformative, commercially and developmentally sustainable infrastructure projects. Africa50 will target investments in the energy, transport, ICT and water sectors.

As a commercially oriented financial institution, Africa50 will seek to preserve and grow its capital base as well as provide a return to shareholders. It will have three broad groups of investors: i) African Countries, ii) the AfDB and other major development financiers, iii) institutional investors such as sovereign wealth and pension funds.

The job of the CEO is to implement the vision of Africa50 Infrastructure Fund, to facilitate and accelerate infrastructure delivery in Africa, by creating and establishing the organization from the ground to ensure its structure and operations are successful. Together, the Board and CEO will assure Africa50 Infrastructure Fund's relevance to the communities of Africa, and the accomplishment of the organization's mission and vision, as well as accountability to its diverse constituents and shareholders.

Russell Reynolds Associates has been retained to assist with this appointment. For further information on the position and additional details on qualifications, requirements, and how to apply, please visit: **www.rraresponses.com**

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unite for children

unicef

UNICEF Programme Division

Seeking Senior Managers in Health and Immunization

Location: New York Headquarters • **Closing Date:** 27 July 2015

The United Nations Children's Fund (UNICEF), the world's leading organization working for the rights of children, is seeking dynamic and highly qualified individuals for the following senior positions in its Programme Division:

Associate Director, Health (D-1): to provide intellectual, technical, managerial and advocacy leadership in UNICEF in the formulation and implementation of its health strategy and programmes at global, regional and country level within UNICEF's overall mission of promoting the rights of every child, everywhere. The Associate Director, as member of the Programme Division Management Team, contributes to effective management of the Division. The post also advises the Executive Director and senior management on related policy matters and maintains strategic relations with key partners in the sector.

Minimum Requirements:

- Advanced university degree in Medicine, Public Health or in the other social sciences.
- At least 13 years of professional experience, including in developing countries and at the international level, as well as in senior leadership and management positions; demonstrated capacity to lead teams; wide recognition in the profession.

Principal Adviser, Immunization (P-6): to provide strategic and technical leadership and direction in the area of Immunization. Serve as the Organization's top position for generating dialogue within UNICEF and among the international community, for developing and maintaining partnerships with governments, alliances, development agencies, and others active in the field of immunization. Provide technical leadership for Organization's programming around Immunization to achieve better equity outcomes. Provide policy and management guidance in the implementation of context relevant strategies through interaction with regional and country office staff. This position is critical for the achievement of the organization's long-term results in Immunization and equity.

Minimum Requirements:

- Advanced university degree in public health (MD + MPH, PhD or equivalent); peer reviewed publications in the field of child health, immunization a definite asset.
- Minimum of 13 years of solid work experience in field of Health / Immunization at the national and international level, including in a developing country context. Recognized expertise and experience in programming and management of immunization programmes required.

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The special Ramadan feast

TEHRAN

A momentous day for Iran as it signs a nuclear deal with America that may yet transform the Middle East

AFTER the day of fasting comes the night of feasting. For Iranians, the familiar rhythm of the Muslim holy month of Ramadan brought an entirely different sort of celebration on the night of July 14th. With the breaking of the fast after sundown, the streets of Tehran burst with jubilant cheering, flag-waving and the blasting of car horns to rejoice at the signing of a momentous nuclear accord between Iran, America and five other world powers. As one celebrant put it, Iran had endured a political and economic fast lasting 36 years; it was at last rejoining the world.

The normally perfunctory state television and radio gave live coverage to the closing days of the arduous negotiation in Vienna. And when the deal was signed, it broadcast not only the comments of the suave, ever-smiling foreign minister, Mohamad Javad Zarif, but also those of Barack Obama, the American president. The message was clear: sanctions and diplomatic isolation were coming to an end.

The interior ministry, usually suspicious of uncontrolled crowds, declared the streets open for celebrations. Revellers danced past midnight. Even outside the old American embassy, the "den of spies" that had been taken over by students after the Iranian revolution in 1979, people sounded their horns. "This is the end of 'death to America', and the start of a rapprochement," said a Tehran-based analyst, Ramin Mostaghim, who joined the crowds.

All sides in the negotiation insist that the accord is limited to resolving the crisis over Iran's nuclear programme, at least temporarily. But all believe it is about much more than uranium-enrichment centrifuges and the modalities of inspections, important as these may be (see next article). The potential to normalise relations between Iran and America, embittered since the revolution, could change the balance of power in the Middle East, transform America's role and, perhaps, change the course of Iran's politics.

During his inaugural address in 2009, Mr Obama told Iran that America "will extend a hand if you are willing to unclench your fist". Now after much bargaining the two sides have shaken hands—even though the ayatollahs have yet to unclench their fist at home, sheath the sword abroad or abandon their nuclear ambitions (which Iran claims are peaceful and the West says are aimed at developing the ability to make atomic weapons). If it works, the accord will contain Iran's nuclear capability for at least 10-15 years. The hope is that, in the meantime, Iran and the region will have changed profoundly.

The most obvious consequence will be economic. Unlike its richer Gulf neighbours, Iran is not an oil-soaked rentier state, but a regional power with an industrial economy and lots of educated people who work.

A new economic motor

Alone in the Gulf, it manufactures (and even exports) its own cars. For all its petrodollars, Saudi Arabia could not match Iran's nuclear programme without outside help. Mismanagement under the hardline former president, Mahmoud Ahmadinejad, as well as corruption, sanctions and the collapse in oil prices, have shrunk economic output from $248 billion in 2011 to $231 billion in 2014 (in constant 2005 dollars); export revenues have fallen by a third in the same period. Yet isolation has also fostered self-reliance. When Peugeot, a French carmaker, withdrew as a result of sanctions Iran engineered its own (cheap but substandard) parts. Iran's largest petrochemicals manufacturer boasts 44,000 employees, all of them Iranian.

For most Iranians, the nuclear deal of- ▸▸

fers the promise of prosperity. Under its terms, the world would unfreeze over $100 billion in assets and let Iran sell its oil worldwide. Iran predicts it will be able to double its oil exports within six months. The harshest sanctions will not be eased until early next year, after the international inspectors verify Iran's compliance. The supreme leader, Ayatollah Ali Khamenei, has set a target of 8% average annual growth for the next five years, up from its current 2.5% (see chart). Some Western diplomats and financiers in Tehran reckon that, within a decade, Iran's GDP might surpass that of Saudi Arabia and Turkey, the regional economic powerhouses.

So many Western delegations have turned up in Iran in anticipation of a bonanza that its airport has opened a Commercially Important Persons lounge, alongside its VIP one. Iran plans to unveil new oil-exploration tenders at a conference in London in September. The bedraggled national airline has been holding videoconferences with Boeing every week, gripes an official from its European rival, Airbus. Logistics and Islamic tourism holds much promise. The biggest prize is hydrocarbons: Iran has the world's fourth-largest oil and second-largest gas reserves, but sanctions and antiquated technology make these hard to extract.

The China model, not the Russian one

Western supporters of the accord hope that, over time, the opening of the economy and diplomatic normalisation will also open up its political system and release the pent-up pro-Americanism of Iran's urban classes. In contrast with the Arab world, religion in Iran is conspicuous by its retreat from public life; relatively few people fast during Ramadan. Mr Khamenei seems to be counting on prosperity having the opposite effect—that of consolidating the regime. Rouzbeh Pirouz, who heads Turquoise Partners, an investment house, says the leader is trying to engineer a Deng Xiaoping moment, not a Mikhail Gorbachev one. He may be succeeding. "The negotiations have brought the people and the regime closer together," says one reform-minded ex-official. "Never has the regime looked so strong."

In a sense, the nuclear deal is the culmination of a seven-year process of narrowing the gap between the regime and its people. After the near-rupture of 2009, when the regime ensured the re-election of Mr Ahmadinejad and crushed the protests known as the Green revolution, the ayatollahs have rolled back some of their more heavy-handed policies. They have eased the intrusions by the Basij, the paramilitary force responsible for public morality. Where once it enforced a ban on short-sleeves, the Basij now hands out black T-shirts to members. "It's a bit overzealous to hide one's elbows," explains a local leader.

President Rouhani, a relative centrist elected in 2013, has curbed the profligacy of Mr Ahmadinejad, who emptied state coffers, parcelled out over $700 billion of assets to loyalists (especially the Revolutionary Guards) and triggered inflation topping 40%. Senior figures around Mr Ahmadinejad have been detained on charges of embezzlement. And the regime has embarked on what the supreme leader calls "heroic flexibility" in the nuclear negotiations (starting with secret talks in Oman in 2012, before Mr Rouhani's election). In return Iran's reformists have refrained from directly challenging clerical rule and mostly back Mr Rouhani. Today's nonconformists lead rebellious private lives, rather than public ones.

Here and there, too, there are pockets of hardline scepticism. A large poster hung on the side of a building in Tehran still compares Mr Obama to Shemr, a seventh century villain in Shia Islam, albeit through the grime accumulated over two years. The most vociferous hardline newspaper, *Keyhan*, quickly called on parliament to scrutinise the deal to see whether it had crossed any of the supreme leader's declared red lines (which it has). Others warned Iranians against celebrating a "false victory".

Yet such objections are muted. One reason is that the supreme leader has made clear his support for the deal, wasting no time in praising the negotiators and hosting them for a Ramadan breaking of the fast. Another reason is that at least some hardline factions stand to gain from the lifting of sanctions. So extensive has the conservatives' network of banks, mobile-telephone companies and oil firms grown in the absence of Western competition that foreign firms seeking access to the Iranian market may have to knock on their doors.

Many suggest that the "new horizons" that Mr Rouhani speaks about go well beyond financial matters. Cries of "Death to America" are still chanted at Friday prayers. But these sound hollow amid the euphoria of Iran's "deal with America". One hotel receptionist abandoning his desk to join the jubilant crowds said: "It's over. We will have peace, and after a month America will reopen its embassy and the good man, President Obama, will visit Iran."

That is certainly too optimistic. But words like "game-changer", "huge deal" and "reorientation" trip from the tongues of officials. Even before a nuclear deal was in the bag, Iranian officials posited the idea of negotiating a counter-terrorism deal.

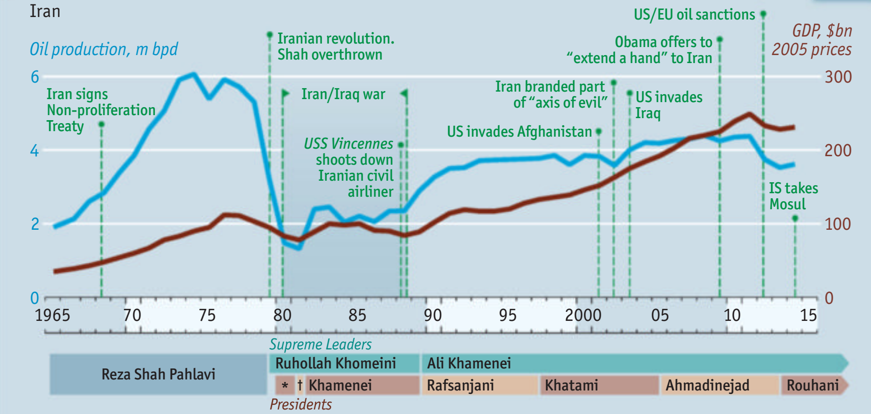
Iranian officials argue that, for all the enmity, Iran has been a more reliable partner for America than its Arab allies. It acquiesced in the toppling of the Taliban in Afghanistan—though they are now hosting them in Iran as potential bulwarks against the jihadist tide of Islamic State (IS)—and co-operates on the ground in Iraq against IS. America and Iran worked together to replace the Iraqi prime minister, Nuri al-Maliki, with a more pliable successor, Haider al-Abadi. Some think co-operation may yet extend to finding a way of replacing Syria's president, Bashar Assad. Iranian officials hold out the prospect of a gas pipeline via Turkey to Europe, easing Europe's dependency on Russian gas.

Iran is not as unfamiliar with the West as it may seem. Mr Rouhani's cabinet boasts more American doctorates than Mr Obama's. Hossein Moussavian, a former Iranian nuclear negotiator, wrote this week in the *Daily Telegraph*, a British newspaper, that the nuclear agreement will give America "an option that it has never had before: the opportunity to escape the total reliance it has had for decades on its freeriding regional allies", ie, Israel and Saudi Arabia. Indeed, the prospect of even a partial American realignment helps to explain the public denunciation by Israel, and the private but no less vehement comments from Gulf rulers.

And yet, without change from Iran on the question of Israel and Palestine, any rapprochement will be limited. Some already detect a quiet shift. Where once the

More than an oil giant

Iran



Sources: World Bank; Thomson Reuters

*Banisadr †Ali Rajai

supreme leader spoke of a "resistance front" against Israel, his advisers more readily deploy the term against IS.

The real ideological venom is now directed towards Saudi Arabia. Senior Iranian figures openly call for the overthrow of the House of Saud, and suggest that rather than striking IS, the junior Wahhabi entity, it should target its Saudi "parent". Iran shows no sign of easing the military and diplomatic support it offers its clients in various regional conflicts, from Mosul in the north to Aden in the south—and it may increase support once sanctions are lifted. "Those who have lost prestige and power internally may try to regain it elsewhere in the region," says Kevan Harris of the University of California, Los Angeles.

For all the anticipation of better times, decades-old mistrust is institutionalised. In the eyes of some Iranians, America is following the model it used to oust Saddam Hussein in Iraq: apply harsh sanctions on oil exports, demand intrusive inspections, use them to infiltrate intelligence agents and then exploit violations to bring down the regime. Nor do such hardliners believe compliance will offer much of a safeguard: Muammar Qaddafi's decision entirely to dismantle Libya's nuclear programme did not stop Western countries from helping his foes to overthrow and kill him.

Sky-high hopes at home, too, could easily turn sour. Sanctions are only one of the problems bedevilling Iran's economy; grinding corruption and bureaucracy could similarly hamper foreign investment. With parliamentary elections only seven months away, conservatives are already expecting to capitalise on discontent should the promised fruits from sanctions relief be slow in ripening.

Remember the betrayal of Ali

Set against the prospect of their comeback, though, is the ineluctable dimming of Iran's revolutionary ardour. In the last days of the nuclear talks in Vienna, ideologues clad in black crammed into a modest living room in north Tehran, turned the lights low and mourned the killing 1,354 years ago of Imam Ali, whom Shias regard as the Prophet Muhammad's first righteous successor. The gathering included university lecturers, writers and international lawyers. They wept, wailed and beat their breasts. Bemoaning the latest dark turn of events, they called on God "to help us now". Just as Ali was betrayed, said one participant, "we know that the West will deceive us".

But after the lights came back on, and the gathering feasted on dollops of fesenjan, a stew of pomegranates and soft walnuts, one lawyer admitted: "Eighty-five percent of Iranian women no longer wear a proper veil. Even the hardliners aren't radicals anymore." ■

The Iran nuclear accord

Making the world a bit safer

An imperfect deal that is better than the alternatives

WHEN Barack Obama welcomed the nuclear deal with Iran, declaring that it would cut off "every pathway" the Islamic republic could take to gaining a nuclear weapon, he remarked: "You don't make deals like this with your friends."

Arms-control agreements, such as those reached with the Soviet Union during the cold war, do not necessarily end mutual suspicion or hostility. Precisely because the signatories do not trust each other, they depend on verification that is rigorous enough to make cheating unattractive. Negotiating such deals is difficult and technically complex. The test of their worth is whether they make the world any safer.

In Iran's case, that judgment rests on three questions. Does it make Iran less likely to try to produce a nuclear weapon in the lifetime of the accord? Is it robust enough to make cheating foolhardy both in terms of the likelihood and the consequences of being caught? Is there a reasonable chance that it will produce a lasting solution to the Iranian nuclear problem? The short answers are yes, probably and possibly.

The clumsily named Joint Comprehensive Plan of Action (JCPOA) adheres closely to a framework agreed on in Lausanne last April, while resolving a number of tricky issues, any one of which could have scuppered the enterprise. It seeks to stretch from about two months to at least a year the "breakout" time that Iran would need, should it choose to abandon all caution, to produce enough fissile material for a single nuclear weapon.

The deal reduces Iran's capacity to enrich uranium by two-thirds, from nearly 20,000 centrifuges (about half of which were operating) to just over 6,000 at its Natanz facility for ten years. It will cut its stockpile of low- and medium-enriched uranium (from which the weapons-grade stuff is spun) by 96%, to no more than 300kg, by diluting it or selling it abroad for 15 years.

Fordow, an enrichment facility built under a mountain that seemed invulnerable to conventional munitions, will be converted into a physics research laboratory open to international collaboration. The core of a heavy-water reactor at Arak will be removed and redesigned so as not to produce weapons-grade plutonium. All of its spent fuel will be shipped out for the life of the reactor. No new heavy-water reactor will be built for 15 years.

Shaking hands, for now

Several stumbling blocks have been overcome, on such matters as: the access required by inspectors of the International Atomic Energy Agency (IAEA) to confirm that Iran is keeping its promises; the need for Iran to give a full account of any "possible military dimensions" of its nuclear programme; the penalties for violating the agreement, including a mechanism for the reimposition of sanctions; whether the arms embargo would be lifted along with economic sanctions; and how much research and development on advanced centrifuges Iran would be allowed to conduct during the first ten years of the agreement.

The talks have hammered out solutions that largely meet the concerns of Western negotiators. That reflects the stamina and skill of the negotiators (and the spine-stiffening role played by European allies). Iran appears to have withdrawn its objections to the IAEA investigating previous research related to weaponisation, which should allow the agency to complete its report by December 15th. Iran will not publicly own up to its past misdeeds. But establishing a baseline of what took place where and when will help the agency monitor Iran's future behaviour.

Iran will now reluctantly allow the IAEA's monitors to visit any sites they deem suspicious, including military facilities. That is a key provision of the Additional Protocol (AP) of the nuclear Non-Proliferation Treaty. Iran will implement the AP on a voluntary basis before legislating to ratify it in eight years' time, when the IAEA ▸▸

hopes to conclude that Iran's programme is wholly peaceful.

Inspectors will not be able to conduct the "anywhere, any time" visits that critics of the deal have demanded. But access to suspicious sites can be made mandatory by a joint commission consisting of representatives of all the parties to the deal (Iran, the five permanent members of the UN Security Council, Germany and the EU), which will have a built-in Western majority of five to three. Inspectors must provide grounds for their concerns about prohibited activities and give Iran an opportunity to deal with them. But refusal to grant access will be deemed a violation.

Although the process is convoluted, it still smashes through one of the red lines set out by Iran's supreme leader, Ayatollah Ali Khamenei. His face may be partly saved by the requirement that the monitors all come from countries with which Iran has diplomatic relations—in other words, no American "spies".

Sanctions will only start to be lifted as Iran makes good on its commitments. And there is a "snapback" mechanism to reimpose sanctions automatically in case of violations. If there are allegations that Iran is cheating, the joint commission will seek to resolve the dispute for 30 days. If that effort fails, it will be referred to the UN Security Council, which will have to vote to continue sanctions relief. A veto by a permanent member will therefore mean that sanctions are reimposed. The whole process will take 65 days.

Tooling up

The embargo on sales of conventional offensive weapons to Iran will remain in force for a further five years, while the ban on any technologies relating to ballistic missiles will stay in place for eight years. That means that the Russians, for example, will be able to go ahead with the sale of the S-300 air-defence system, but presumably not of strike aircraft or tanks.

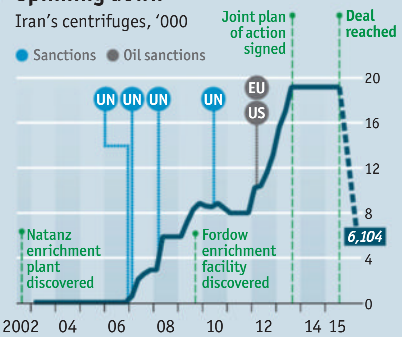
Iran will be able to begin deploying advanced enrichment centrifuges after the first ten years of an agreement, but for 15 years it will have to keep its stockpile of low-enriched uranium below 300kg. After that, Iran will be able to develop the industrial-scale enrichment it seeks. Its breakout time to a bomb will in theory be much shorter. But its obligations under the AP are permanent, ensuring that an expanded nuclear programme will be more transparent than in the past.

None of this will satisfy the critics, who include Republicans (plus some Democrats) in Congress, and Binyamin Netanyahu's government in Israel (who called it a "bad mistake of historical proportions"). Their minds were made up long ago that anything short of the complete dismantling of Iran's nuclear infrastructure would be an abomination.

Privately, senior Israeli military and intelligence officials take a more nuanced view than the prime minister: they reckon that, if only for tactical reasons, the Iranian regime has accepted a hiatus in its nuclear ambitions of at least ten years; if implemented properly, the agreement can ensure this breathing-space. The consensus is that Israel's top security priority is now the volatile situation with the Palestinians and the threat from Hizbullah, Iran's proxy militia-cum-party in Lebanon.

For now, the agreement's survival depends on American politics. Some of the fiercest reaction has come from Republicans hoping to succeed Mr Obama as president. Governor Scott Walker of Wisconsin vowed to "terminate" the deal on his first day in the Oval Office, put in place "crippling" sanctions on Iran and convince allies to do the same. Jeb Bush, another front-runner, said the deal was not the product of diplomacy but of "appeasement".

Spinning down



Capability	Before deal	After*
First-generation centrifuges installed	19,138	6,104
Advanced centrifuges installed	1,034	0
Breakout time	1-2 months	1 year
R&D of new centrifuge technology	unconstrained	constrained
Stockpile: Low-enriched uranium†	19,211 lbs	660 lbs
Medium-enriched uranium‡	430 lbs§	0 lbs

Sources: IAEA; Belfer Centre for Science and International Affairs; Harvard University; Joint Comprehensive Plan of Action

*Next ten years †Up to 3.67% ‡20% §Nov 2011 peak

The next president could certainly derail the deal. But the immediate threat comes from Congress. Mr Obama expects Republicans to oppose him and has promised to veto any bill that seeks to undo his diplomacy. But he must worry about Democrats who might side with Republicans, giving opponents the two-thirds super-majority that they would need to override his veto. In the Senate 13 Democratic defections could kill the Iran deal.

Mr Obama received an early boost when Hillary Clinton, the Democratic presidential front-runner, declared the deal to be an "important step in putting the lid on Iran's nuclear programme"; she has in the past sounded more hawkish. Some Democrats have expressed unhappiness about concessions granted to Iran, notably over the relaxing of arms embargoes and the inspection of military sites. One sceptic, Senator Robert Menendez of New Jersey, called on Mr Obama to declare categorically that if Iran seeks a nuclear weapon America would take "any actions necessary" to stop it.

At a press conference on July 15th, Mr Obama urged Congress to evaluate his Iran deal based on facts, not politics, and challenged members to offer a better alternative. On this Mr Obama has a point. Even if the sanctions regime could have been maintained—a big if—the idea that it would bring Iran to the point of accepting national humiliation was always implausible. Sanctions may have brought Iran to the table, but more pressure is unlikely to induce it to give up its programme. In any case, it is far from certain that more pressure can easily be applied. Were America to tear up the accord, European allies would be unlikely to reimpose sanctions.

Unintended consequences

Some worry that the deal will destabilise the region and encourage nuclear proliferation. Yet it is hard to see why any of Iran's regional rivals should feel more threatened than they do now. Israel has overwhelming nuclear and conventional military superiority. Saudi Arabia may try to build an enrichment programme as big as Iran's constrained one. But it does not want to become a pariah state by coming close to developing a nuclear weapon. If it wants a deterrent against Iran, all it needs is to call in past favours and park a few nuclear-capable Pakistani F-16s at an airbase. Nobody need know whether they are armed or not.

While Iran will have more resources to make trouble, only some of what it does now depends on conventional military power or money. Even after the lifting of the arms embargo, it will take Iran decades to match the Gulf Co-operation Council countries, which outspend Iran on defence by seven to one and field some of the most advanced Western weaponry that money can buy.

The big unknown is what happens when the provisions of the deal start winding down in 10-15 years' time. Iran may continue to want to keep its nuclear "hedge", but will it want to throw away all that it has gained and risk military attack by a less restrained American president than Mr Obama? Until then, the world should be a slightly safer place than it was. But the ultimate test of whether this is a good deal will not come until well into the 2020s. ■

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Las Vegas

Viva again

LAS VEGAS

Recovering Las Vegas is a colourful microcosm of America

FOR a picture of America's pre-crisis economy, pay a visit to the south-east corner of Las Vegas. Where the valley begins to rise into the high desert, a Chinese developer has carved the top off a mountain. A wide, empty, road rises into what looks like the remnants of an Inca city. The project, named "Ascaya", was once America's biggest excavation site. The idea was to sell the plots to Las Vegas's elite, whose mansions would enjoy a view over the desert in one direction and the bacchanalia of the Strip ten miles away in the other.

Instead, in 2009, Las Vegas's economy died. For five years the project appeared doomed to become a monument, carved into rock, to an unsustainable housing boom. Now however, construction has restarted—not just on this site, but on several hundred others at the city's edge. House prices, like employment, visitor numbers and gambling revenues, are creeping up again. Las Vegas's economy is recovering—fitfully, but in a way that is more sustainable than its previous boom was. The city, unique though it is, is an exaggerated microcosm of America at large.

Las Vegas is, even by American standards, a new city. In 1971, when Hunter S. Thompson examined the American dream, and a lot of drugs, in Las Vegas, the city was little more than an outpost of seedy casinos baking in the desert. Then, the population of Clark County, which covers the city's sprawl, was just 290,000. It is now more than 2m. Visitors to the Strip staring out of their skyscraper hotel windows see a vast sprawl of freeways, strip malls and terracotta-roofed suburbs. In most older cities, aeroplanes land at the edge. In Las Vegas, they fly practically into downtown, because the airport was built before the sprawl spread out from it.

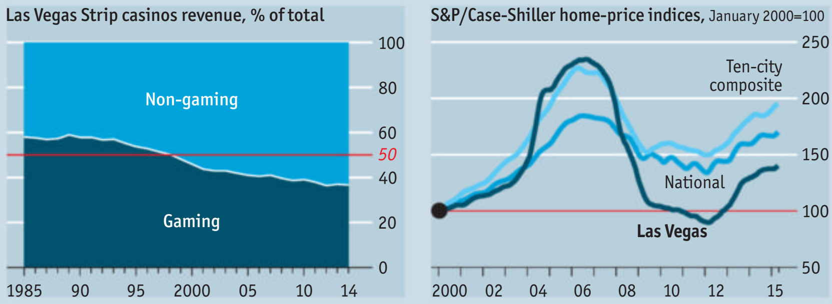
The engine of this growth was, and remains, tourism. Among American cities, only Miami and New York attract more foreign tourists, according to Euromonitor International. Domestic tourists too are legion. Before the crisis, hotels on the Strip were routinely blown up to build newer, bigger, replacements. The ground floors of these palaces, with their vast smoky halls of card tables and slot machines, generated some $9.6 billion of revenue in 2014. Over a third of Las Vegas's workers are employed directly serving visitors. Those jobs, which paid good wages to people of modest education, helped to draw thousands of new workers from surrounding states to live in the desert every year.

When banks' own gambling on subprime mortgages turned sour and the recession hit in 2008, this machine ground to a halt. The number of tourists dropped precipitously—and those who came spent far less. Revenues tumbled, and population growth fell to almost nothing. "We got crushed" says Jonas Peterson, the head of the Las Vegas Global Economic Alliance, a local business development outfit. At the same time, the city housing bubble, which had been inflated by cheap subprime loans to casino workers, imploded. Property prices plunged by nearly two-thirds; over 70% of Nevada's homeowners fell into negative equity (see chart on next page). Housing construction, which had been running at 30,000 homes per year—much more than in the whole of New York city—fell to almost a tenth of that.

Patrick McCracken, a 23-year-old construction worker, says that when he left school at 16, just before the crash, he walked straight into a job. Then, labourers without high-school degrees on the Strip made as much as $50 per hour. Shortly afterwards he was laid off, and his father's construction business went under. He started using drugs and ended up in prison. Unemployment in the city, which had long been below 5%, rose to 14%. Casinos stopped construction, laid workers off and cut wages. Many smaller outfits at the fringes of the Strip and in the city's downtown went bust. "It used to be the case that going to college in Vegas didn't make much sense, because you could make $50,000 a year parking cars or bringing drinks", says Stephen Miller, an economist at the University of Nevada, Las Vegas. That is a harder argument to make now.

And yet in the past few years, life has improved. The old jobs have not come back but there is work. Mr McCracken now makes $18 per hour working on an energy project outside the city—enough, when combined with his wife's income from her work as a stripper, to raise a one-year-old son. The city's unemployment rate has fallen below 7% and the promise of a decent life for ordinary Americans once again seems in reach. Just 22% of Las Vegas's residents have degrees, sharply less than the national figure of 29%. But average household income in the city has crept back up to ▸▸

America, only more so



Sources: UNLV Centre for Gaming Research; Standard & Poor's

$51,000, only marginally below the national figure. Population growth, though not what it was before the crisis, has climbed back up. New housing construction is edging upwards. Most of it takes the form of enormous houses at the edge of the city.

As it has recovered, Las Vegas's economy has diversified. A growing number of businesses have little to do with the traditional gambling industry. One of the new employers in the city is Switch, a secretive firm which manages data for thousands of America's biggest companies. With its brushed metal interiors, the firm's campus near the city's airport resembles an alien base in a video game. Burly tattooed men in sunglasses, equipped with tasers—and should they need them, assault rifles—guard a series of buildings in which hundreds of thousands of servers hum quietly. Enough fuel and food is stored on site to keep going for several days without the need for outside help. Anyone who plays video games, uses online banking or shops online, in all likelihood has personal information stored there.

Las Vegas is a fine place to put such a centre, says Missy Young, a vice-president at Switch. Thanks to an ill-fated investment by Enron in the late 1990s, Sin City has a better fibre-optic network than almost anywhere else in America (the network was bought out by Rob Roy, Switch's founder). Casinos, which have vast amounts of data to manage, make for good local clients, and thanks to their history of building crazy temples in the desert, talented construction workers are easily found. Unlike California or the East Coast, the city is at little risk of powerful earthquakes or hurricanes which might knock out power. The desert air, though hot in summer, is dry and, on average, in fact rather cool, which is useful for keeping Switch's kit humming.

As well as the 450 or so workers Switch employs directly, the firm's clients often send their staff to Las Vegas to manage their servers on site, adding several thousand more employees to the city's labour force. Switch is one of two big internet firms in Las Vegas. Zappos, an online clothing shop that is owned by Amazon, also has its headquarters there. Its boss, Tony Hsieh, who likes to shuttle employees to parties in a fleet of converted school buses, has invested in reviving Las Vegas's downtown, which, despite multiple attempts by the city's government, used to be mostly known for shabby casinos, dodgy motels and the possibility of being mugged. Elements of that still exist, but washed-out drug addicts and ancient gamblers now share space with yuppies, who wander around a new mall made up of shipping containers and guarded by an enormous, fire-breathing metal insect.

Shout a seven

Even the traditional casino business is changing. Big resort operators have moved to attract richer customers, who still have money to spend, and to protect themselves from the growing competition of gambling in other states. Since the crash, the average age of a visitor to Las Vegas has fallen from 51 to 45. Older people, who come mostly to play slot machines, are being crowded out by younger visitors who have little interest in gambling but instead spend their days getting drunk and sunburnt at poolside "day clubs" and their nights at enormous nightclubs. Thanks to this, charges on the Strip for hotel rooms, shops, drinks and so on now make twice as much money as gambling does—almost two-thirds of the total, up from just over two-fifths in 1990.

To attract high-spending yuppies—the males decorating the strip in brash shirts, the females in tight black dresses and precarious heels—casino operators are going as far as to hide the gambling. "In the old days, we designed casinos like supermarkets", explains Bill Hornbuckle, the permatanned president of MGM Resorts International, one of the biggest operators. "We built a big room, put a door in the front and put the milk—the hotel room elevators—in the back, so that people had to schlep through the casino". Now, he says, casino operators across the Las Vegas Strip are redesigning their entrances to make them more appealing to people who do not like gambling. In Las Vegas, where even pharmacies and petrol stations usually contain slot machines, some newer hotels do not even have casinos at all.

Las Vegas's recovery, like America's, seems to have to come to the wealthiest first. The new houses being built, such as those at Ascaya, are mostly targeted at the wealthy; many of the poor still remain underwater. The same is true of the city's main industry: smaller, less modern casinos, which do not have the money to invest in redevelopment, will continue to die, as their older patrons wither away and are not replaced by newer, younger gamblers. Even as the recovery grows, gambling jobs will not return to the generous salaries that they used to pay for a long time, nor will the same profits be made flipping houses or putting up new casinos. The city's frenetic pace of growth will probably never reach its pre-crisis peak.

But Sin City's recovery shows the enduring ability of America to make improbable ideas work. Some 2m people live in a glittering, sprawling city deep in the desert and hardly think that this is strange. And with its mix of tech-obsessed yuppies, ageing baby-boomer gamblers and thrusting Hispanics, its demography resembles America's future. That future might not be as bright as it seemed a decade ago, but it is a little more stable. Perhaps what happens in Las Vegas, far from staying there, spreads to the rest of America. ■

The lost city of Ascaya


THEY SAY
your data is at risk
WE CONTEND
it's already
been compromised
Assuming the infrastructure housing your data has already been breached is how KPMG helps your enterprise adapt to the new world of data insecurity. By striking a careful balance between security and accessibility to data, we offer both protection from cyber threats, along with ways to help your company recover quickly if and when a breach happens. To learn how KPMG can help secure your business, visit kpmg.com/us/cyber.
KPMG

Educating technologists

Business high school

NEWBURGH, NEW YORK

Companies struggling to find talent are looking to teenagers

RADCLIFFE SADDLER began working at IBM, where he analyses market trends, on July 13th. He applies his programming and technical skills to a digital platform that provides market research to his colleagues. It is a good job: he makes $50,000 a year, has a health-care package and a pension plan. Mr Saddler is 18 years old. He earned his high-school diploma last month. A few weeks before finishing school, he also received an associate degree in computer systems technology.

Mr Saddler was a pupil at P-Tech (Pathways in Technology Early College High School), an unusual school in the Crown Heights neighbourhood of Brooklyn which blends a public high-school education with community college courses and paid work experience. He, along with five other pupils, finished the six-year programme two years early. Three of the graduates are going on to four-year universities. The remaining other two will join Mr Saddler at IBM.

P-Tech, which opened in the autumn of 2011, was developed by IBM in partnership with New York city and the City University of New York. It aims to shake up education and change what vocational education means. Unlike most American high-schools, it is a six-year programme instead of the usual four. At the end of six years, if not before, pupils will finish with an associate degree at no cost to the student. In a country with $1.2m trillion in college debt, 40m student loan borrowers and average student debt of $35,000 that is no small thing. When they finish school, pupils will have a shot at joining Big Blue.

The technology giant helped develop the curriculum, which focuses on science, technology and maths. P-Tech teaches all the usual subjects, like English and history, but its pupils learn coding as well as Shakespeare's "Julius Caesar". IBM also provides mentors and paid internships. Stan Litow, the architect of IBM's schools programme, says the model is an improvement on chequebook philanthropy because it creates a path to a career.

Businesspeople involving themselves in education is not in itself news. Hedge fund sorts sit on charter school boards. Some companies have foundations that give generously to school districts. PwC, an accountancy firm, sends employees to schools to teach financial literacy. Mark Zuckerberg, founder of Facebook, gave $100m to schools in Newark, New Jersey.

Little blue

What sets P-Tech apart is how hard-headed it is. Most of the pupils in Brooklyn's P-Tech are the first in their families to go to college. And most come from low-income and minority homes—96% of the students are black and Latino. About 80% of the students qualify for free or cheap lunches. It has an open admissions policy and operates within the existing school district budget. But IBM is not being completely altruistic: 30% of companies in America report difficulty filling open jobs; IBM is no different.

Other districts and states are following suit. More than 40 schools have signed on, including ones in Chicago and Connecticut. In her recent budget Gina Raimondo, Rhode Island's governor, proposed a P-Tech programme. Colorado intends to open its first P-Tech school in the 2016-2017 school year. IBM expects more than 100 schools with 100,000 pupils, will be operating by 2016. The company gives the "P-Tech formula", which was designed to be replicable and scalable, away at ptech.org to encourage their spread.

More than 70 small and large companies, including Microsoft, Verizon and Lockheed Martin have adopted or are working with schools to adopt the model. Consortia made up of advanced manufacturing firms have also partnered with school districts, as have some hospitals.

The pupils are doing well. In Chicago 17 students are on track to earn their associate degree by the end of 2016. In Newburgh, a troubled city 60 miles north of New York city, which opened its P-Tech school a year ago, more than half of the pupils are on the honour roll. In Brooklyn, 75% of fourth-year pupils have already met the state's standard of college readiness, compared with 39% of pupils across the city. Mr Saddler, who was a star pupil, has not ruled out getting a four-year degree at some point. Although he now earns more than most 30-year olds, has met Barack Obama and visited the White House, he says taking his first community college course, when he was 15 years old, is the most thrilling thing that has happened to him. ■

Selling sex

Hold the Backpage

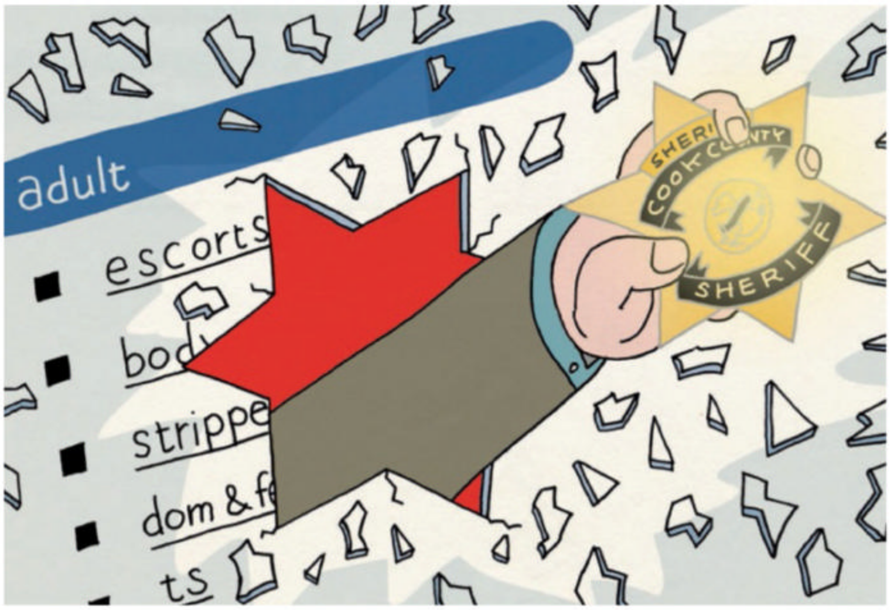
CHICAGO

A sheriff takes on the biggest marketplace for prostitution

THE self portraits, some on pink paper decorated with colourful glitter and pinned to the bare walls of a meeting room of Cook County jail, America's largest, resemble the drawings of a ten-year-old. A few have oversize teardrops rolling down their cheeks. "I lost my childhood," says Patrice, an African-American inmate, who is being held on charges of identity theft. Patrice was raped at the age 12, started to work in a strip club on the West side of the city when she was 14 and was lured into prostitution in California by the man she then thought of as her boyfriend at the age of 16.

Patrice is one of about 150 women in Division 17, a part of the jail for mostly young women, many of them mothers or pregnant, held on relatively minor charges. Most of them were prostitutes, many have mental-health problems and nearly all are recovering addicts. Katie, a woman in her 20s of Puerto Rican descent, dropped out of school when she was 14, got pregnant by a gang member, had an abortion and started to drink heavily. A few years later she was hooked on crack and heroin and worked as a prostitute for "Josh and John", who put her up in a hotel room, took her earnings (up to $1,700 a day) and supplied her with drugs in exchange.

Katie gave birth to three children, two of whom were taken away by social workers because of her addictions. Her oldest, a nine-year-old boy, is living with his father. And then there is Hannah, who comes from a prosperous, white family on Chicago's North side. Hannah has been on drugs since she was 15, though she still managed ▸▸



to graduate with honours from New Trier, one of the county's most prestigious high schools, and subsequently got a degree from Tulane University. To feed her own heroin habit and that of her addicted boyfriend, she sold herself for sex, sometimes even taking clients into her parents' home.

Patrice, Katie and Hannah have all been advertised on the adult section of Backpage.com, a classified advertising website, which includes subdivisions that range from "escort", "domination & fetish" to "body rubs". Prostitution is illegal in the United States, in all but a few counties in Nevada, but Backpage, which is owned by two former journalists, Jim Larkin and Michael Lacey, is by most estimates the biggest online marketplace for buying and selling sex in America. It has been under attack for several years from activists and politicians, who accuse the site of facilitating the pimping out of under-age girls. In 2011, 46 attorneys-general sent the firm a letter demanding that it do more to fight sex trafficking on its website.

Backpage has defended itself with reference to the Communications Decency Act, a federal law passed in 1996 that says that internet-service providers are merely hosts and not publishers, which means they cannot be held liable for whatever is posted on them by a third party. The site's supporters make a less legalistic defence: women who advertise themselves on the website do not have to walk the street, with all the dangers that brings. Sites like Backpage may also make it easier for law-enforcement officers to identify those who are under-age, or have been coerced, and to track down those responsible.

Thomas Dart, the sheriff of Cook County, does not see it that way. He says that he has tried for years to work with Backpage to help the company clean up its adult section, which is where around 70% of all sex adverts are posted. (The site became the market leader after Craigslist.com, another classified ad site, was pressed into shutting down its adult division in 2010.) In just one recent month in spring Backpage.com posted more than 1.4m ads in its "adult escort" section, of which perhaps less than 1% are for something other than sex.

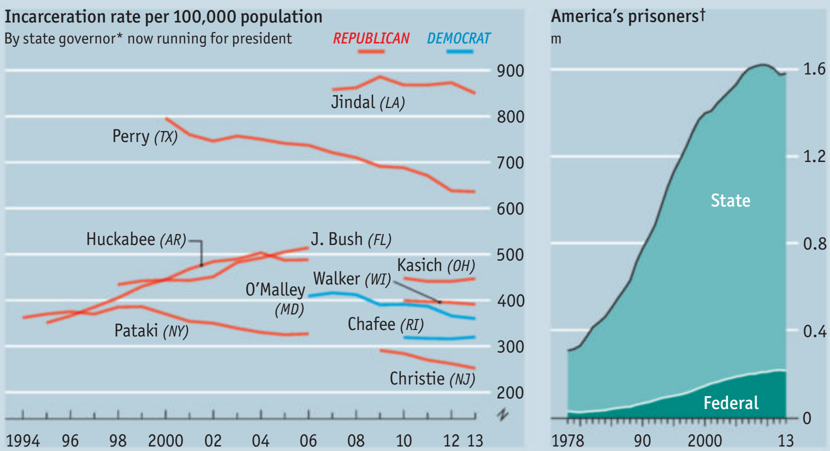
After his appeals for co-operation were ignored, the sheriff went on the offensive. On June 29th he sent a letter to MasterCard and Visa asking the two credit-card companies to stop immediately the use of their cards to place ads on the adult section of Backpage. To the sheriff's surprise, both companies reacted almost instantly and 48 hours after Mr Dart's letter was made public MasterCard and Visa had stopped processing ad purchases on Backpage. (American Express, another big credit-card company, stopped doing business with Backpage earlier this year.)

The firm is not responding in public to its ostracism by the credit-card behemoths, but on July 7th it gave them the finger by making all advertising on its adult section free. Yet this is almost certainly only a temporary solution while Backpage works out how it can be paid easily in cash or with Bitcoin, a digital currency, because the sex ads are so lucrative. According to conservative estimates, Backpage rakes in $9m-10m every month from its adult section. Mr Dart says he is not so naive as to imagine that he can end prostitution. "This is not a moral crusade," he says. But he wants to stop sex trafficking, especially when it involves children.

His next move will be to target men who buy sex from prostitutes. In 2011 he launched an annual "National Day of Johns Arrests", a two-week operation across America targeting the clients of prostitutes and pimps. The sheriff would like to shift attention further to the demand side of prostitution. Cook County now arrests more buyers of sex than sellers. In America as a whole, by contrast, more than 90% of those arrested for taking part in the business are prostitutes. ■

Presidential penitentiary

As *The Economist* went to press, Barack Obama was scheduled to travel to El Reno in Oklahoma, thus becoming the first sitting president to visit a federal prison. The trip is a sign of how far the politics of punishment have changed. Up until recently most Democrats were wary of looking any softer on crime than Republicans. Now it is almost orthodox in both parties to say that America, which has less than 5% of the world's population and almost 25% of its prisoners, locks up too many people. Yet the limits of what a president can do are clear: most of the imprisoning in America is done by the states. Many of the governors now running for president are taking stands on prison reform. The chart below shows what they actually did while in office.



Source: Bureau of Justice Statistics *Incarceration rate for first to last full year in office †Excludes 730,000 in jails, most awaiting trial

Maternal mortality

Exceptionally deadly

PHILADELPHIA

Death from childbirth is unusually common in America

FOR most of human history, pregnancy has come with a significant risk of death. Up until the early 1930s in America, nearly one woman died of related complications for every 100 live births. Thanks to advances in obstetric medicine and widened access to better care, the maternal-mortality rate declined by almost 99% over subsequent decades—one of the great public-health achievements of the 20th century. By 1987, fewer than eight women died for every 100,000 live births. Over the past quarter of a century, however, America's maternal-mortality rate has been creeping back up (see chart).

By 2013 the rate had ticked up to 18.5 women for every 100,000 births (these numbers include women who die within 42 days of childbirth). This makes America an international outlier. Between 2003 and 2013 it was one of only eight countries, including Afghanistan and South Sudan, to see its maternal-death rate move in the wrong direction. American women are now more than three times as likely to die from pregnancy-related complications as their counterparts in Britain, the Czech Republic, Germany or Japan.

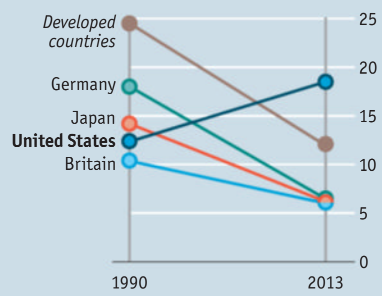
What is going on? Some suggest that the country is simply getting better at counting maternal deaths. In 1999 America adopted a new cause-of-death coding system, and in 2003 states began including a pregnancy check-box on death certificates. But this does not explain why the rate has more than doubled over the past quarter-century and continues to go up, says William Callaghan of the Centres for Disease Control and Prevention (CDC), which collects maternal-mortality data. There may even be some undercounting, as states categorise deaths differently.

One theory is that the rise reflects the changing age profile on the maternity ward. More women are getting pregnant later in life, which makes childbirth riskier. Women who were 35 or older made up fewer than 15% of live births between 2006 and 2010, but accounted for more than 27% of pregnancy-related deaths, according to the CDC. Yet similar trends can be seen in other parts of the world, such as Western Europe, where mortality rates have continued to fall.

Others point to the fact that nearly a third of all American births now involve a Caesarean section, up from nearly 21% in 1996. Any surgery increases the risks of complications and multiple C-sections make these problems worse. (Women who undergo C-sections are often encouraged by doctors to use the procedure for subsequent births.) "Most of us think the C-section rates can be reduced," says Michael Lu, who oversees maternal and child health at the federal Health Resources and Services Administration.

Odd one out

Maternal-mortality rate, per 100,000 live births



Source: Kassebaum *et al*, *Lancet*

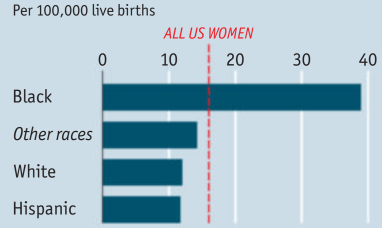
But the most compelling explanation is that more American women are in poorer health when they become pregnant, and are failing to get proper care. Chronic health conditions, such as obesity, hypertension, diabetes and heart disease, are increasingly common among pregnant women, and they make delivery more dangerous. Indeed the traditional causes of pregnancy-related deaths, such as haemorrhage, thromboembolism and hypertensive disorders, have been declining in recent years, whereas fatalities from cardiovascular conditions and other chronic problems have been on the rise.

These health conditions are more common among black women, 40% of whom qualify as obese, compared with 22% of whites. African-Americans are also more likely to be poor, have limited access to health care and have higher rates of unexpected pregnancies: this may explain why they are nearly four times more likely to die from pregnancy-related complications than white women, almost double the discrepancy that existed 100 years ago.

The colour of risk

United States maternal mortality rate, 2006-10

Per 100,000 live births



Sources: Creanga *et al*, *Obstetrics & Gynecology*

Though such deaths are still rare, they are only the tip of the iceberg, says Dr Lu. For every woman who dies, he estimates there are roughly 75 who experience a near-fatal emergency during pregnancy or childbirth such as heart attacks, kidney failure or profuse bleeding. These obstetric crises have also increased in recent years.

Golden State copiers

There is nothing inevitable about the rise in maternal mortality: California, where one out of eight American births take place, has reversed it. In 2007 a study of the state's maternal deaths found that more than 40% were avoidable. In response, state agencies, hospitals, doctors and midwives came up with new ways to manage obstetric haemorrhage and pre-eclampsia, the two leading preventable causes of maternal death. California introduced these plans in 2010, and the state's maternal-mortality rate has since plummeted to just over six deaths per 100,000 pregnancies, from nearly 17 in 2006.

Inspired by California's success, federal, state and professional organisations including the CDC and the American College of Obstetricians and Gynecologists, have got together and introduced plans for handling obstetric haemorrhage, severe hypertension (extremely high blood pressure) and venous thromboembolism, the three most treatable causes of maternal death. The aim is to have procedures in place everywhere babies are born around the country within three years, and to halve maternal deaths within five years.

But while getting hospitals to adopt new emergency protocols is a proven way to reduce maternal deaths, there is still the matter of women who are entering pregnancy in poor health. Medicaid already pays for almost half of all births in America, but millions of new mothers lost coverage 60 days after delivery, with the result that many entered their next pregnancy in bad shape. Some hope that the expansion of Medicaid in 29 states under the Affordable Care Act will result in healthier mothers-to-be. There are also plenty of charities trying to help. A non-profit group in Philadelphia called the Maternity Care Coalition recently launched a scheme which pairs at-risk pregnant women with health workers until six months after childbirth. This project is one of several around the country, part of a larger ten-year, $500m investment in reducing maternal mortality around the world from Merck, a pharmaceutical company. "We expected to be doing all our work in developing countries," notes Priya Agrawal of Merck. ■

Lexington | What would Reagan do?

Scott Walker is a serious addition to the 2016 field, with a blind spot about a changing America

EVERY four years, when presidential primary season rolls around, Republican voters long to find a new Ronald Reagan. This year a striking number of conservatives wonder if Governor Scott Walker of Wisconsin might fit that bill—in such numbers that Mr Walker shot into the top ranks of a crowded Republican field, as soon as he made his White House run official on July 13th.

Activists are not on a literal-minded quest: their new Reagan need not look dashing on a horse, or flash a film-star smile. That is lucky for Mr Walker, a Sunday-schoolish preacher's son whose own supporters, at his campaign launch, hailed him as an "Everyman", and—in a moment of high Midwestern praise—"like a Boy Scout". Republican primary voters mean something more specific when they sigh for Reagan. They long to believe that they can win national elections without being asked to compromise on conservative principles. They think the key is finding a new Great Communicator, with the knack of making self-reliance and low taxes sound better than free stuff from the government.

At Mr Walker's campaign launch, held in Waukesha, a rock-ribbed Republican suburb of Milwaukee, the word "Reaganesque" saw heavy use. Activists called their governor a masterful advocate for limited government, traditional family values and thrift. They all cited the largest political fight of his career: his move to restrict the powers and funding of public-sector unions, prompting Democrats and leftist allies to mount furious counter-protests and finally to call a special election to sack him in 2012, which Mr Walker won easily. Supporters contrasted this with Mitt Romney's failure to win Wisconsin in the presidential election five months later. Disastrously, Mr Romney had appealed to moderates, explained a retired teacher at the rally: "You have to stick to your views and draw people to you."

Vying to stand out in a Republican field that currently numbers 15 presidential hopefuls, Mr Walker presents himself as Reagan's true heir. He calls himself a reforming governor with a record of both fighting and winning, drawing a contrast with his rivals from the Senate, who—in his telling—fight Barack Obama in Congress but cannot stop him, and his fellow governors, who know how to win elections but seem unwilling to fight. In his 40-minute announcement speech, delivered from memory, he listed such conservative achievements as his battles with the unions, curbs on abortion, looser gun laws, a total of $2 billion in tax cuts and the imposition of drug tests for welfare recipients. If such reforms can work in a Democratic-voting "blue" state like Wisconsin, they can work anywhere in America, he declared.

Mr Walker certainly has a Reagan-like talent for humanising policy debates. In a section denouncing Mr Obama's nuclear diplomacy with Iran, he told a story about tying ribbons round trees as a child during the American Embassy siege in Tehran. He then informed the crowd, to delighted cheers, that a former hostage from Wisconsin who was freed "on President Reagan's first day in office", was among them at the rally.

That folksy style combined with a hard conservative edge has served Mr Walker well in such early primary campaign states as Iowa, where he leads opinion polls. Yet Mr Walker is selective in his memories of Reagan. It was not just wordplay when Reagan was called a "happy warrior". Reagan did not just love America as a patriot, he liked it, viewing Americans with a boundless optimism. True, Reagan attacked welfare cheats and big government. But he also told Republicans that even as they reformed America, they could not "leave anyone behind," notes Arthur Brooks in "The Conservative Heart", a new book. Mr Brooks, who runs the American Enterprise Institute, a think-tank, argues that Reagan is misremembered when modern conservatives recall only what he was against, from high taxes to red tape. (Mr Brooks does not say, but might have, that Reagan was also perfectly willing to compromise when he saw a greater good, regularly enraging the doctrinaire right). In his book Mr Brooks cites Reagan's speech to the Republican National Convention in 1980, in which the future president talks of caring for the needy and stimulating new opportunities for the jobless, "particularly in the inner cities."

On the stump Mr Walker essentially ignores inner-city voters, younger voters or non-whites: growing blocks with whom Republicans fare poorly. In his 2016 announcement, he did not even touch on immigration. Too often, he sounded like a scold. "Work, that's what we stand for," he declared at one point. He flatly asserted that in America opportunity is equal for all, with final outcomes up to each individual—as if worklessness is a choice. His audience, many of them grey-haired pensioners, lapped it up.

The 80s revival

There is a logic to Mr Walker's approach. At the age of 47, he has spent his whole political career in what amounts to a demographic time-warp. Mr Walker may love to talk of winning in a left-wing state, but in fact Wisconsin is only reliably Democratic once every four years, when a presidential election brings out hundreds of thousands of additional voters, many of them blacks from Milwaukee. In governor's elections, electorates are consistently smaller, less urban and more conservative. In 2014 Mr Walker won re-election as governor of Wisconsin with 56% of the white vote, in an 88% white electorate (he won just one-in-ten black votes). In a neat coincidence, Reagan won the 1980 presidential election with 56% of the nationwide white vote in an 88% white electorate. The problem for Republicans is that America as a whole no longer looks like Wisconsin: in 2012 whites were less than three-quarters of the national electorate.

Scott Walker is a formidable addition to the Republican field. He is better placed to unite such party constituencies as evangelical Christians, blue-collar conservatives and business bosses than any other candidate. But until he has more to say to the America of 2016, how can he call himself Reagan's heir? ■

Also in this section

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Mexico's great escape

The long arm of the lawless

MEXICO CITY

A drug lord leaves behind an empty cell and a trail of awkward questions

EVEN before he broke out of what was supposed to be Mexico's most secure prison on July 11th, Joaquín Guzmán was known to be fond of tunnels. For decades his drug-trafficking organisation, based in the northern state of Sinaloa, bored tunnels to move drugs, people, money and guns across Mexico's border with the United States. When navy special forces closed in on him last year they found a network of underground passages connecting safe houses in Culiacán, the state's capital, via the city's drainage system.

The gang's subterranean masterpiece is undoubtedly the tunnel through which Mr Guzmán, also known as *El Chapo* (Shorty), fled little more than a year after his capture. Nearly a mile long, and high enough for the diminutive drug baron to traverse without stooping, it was equipped with ventilation tubes and a motorcycle mounted on rails, which was apparently used to haul away dirt. It led from Mr Guzmán's jail-cell shower to a newly built house on a hill with a view of the jail and a nearby military base. The middle-aged capo raced through it, smashing light bulbs as he went. The pursuing police fumbled about in the dark.

This was "an extraordinary action that breaks the security protocol paradigm of any prison in the world," declared the jargon-loving interior minister, Miguel Ángel Osorio Chong. It spoiled a state visit to France by Mexico's president, Enrique Peña Nieto (he was on his way when he heard the news). And it distracted attention from the opening up of Mexico's energy sector on July 15th (see page 53).

Mr Guzmán leaves a trail of painful questions. The biggest: what does it say about Mexico's institutions that its most famous criminal can break out of a federal prison that is protected by a no-fly zone?

Tunnel vision

The authorities can claim that overall Mexico has done a better job in recent years of keeping its prisoners locked up (see next story). But after *El Chapo*'s spectacular breakout, few Mexicans will be impressed. "What we are facing today is a problem of state," wrote Jesús Silva-Herzog Márquez, a political analyst, in an essay on the escape. "But can you call something a state that cannot even apply the law in its own prisons?" This is the second time *El Chapo* has broken out of a Mexican jail; in 2001 he fled either dressed as a prison guard or in a laundry truck (no one is sure). Upon his recapture in 2014, Mr Peña said another escape would be "unforgiveable".

It will sour relations with the United States, which had wanted Mexico to extradite Mr Guzmán after his recapture. And it raises questions about the future of the Sinaloa outfit, the country's most powerful drug gang, whose members are notorious for killing and sometimes chopping up their enemies. Even if the fugitive is found, most of the questions will remain, along with the humiliation of his disappearance.

The problem, suggested Mr Osorio, who was sent home from Paris to lead the manhunt, is rules that let inmates bathe in private. That, he knows, is the least of it. Everything points to the connivance of prison officials, though whether they were bribed (Mr Guzmán is thought to have a fortune of $1 billion), threatened or both is unclear. The government has dismissed three and has taken in 18 for questioning.

If no one more senior is held responsible, the shaky credibility of Mr Peña's government will suffer further. The government has been consistently reluctant to take responsibility for endemic corruption and institutional weakness. After 43 students disappeared last September in the southern state of Guerrero, apparently murdered by a small drug gang in league with local police, the government blamed only the local authorities, as if that sort of corruption were not pervasive at all levels of the state. That, as much as the crime itself, fuelled public outrage and led to mass protests. After the latest disaster pressure will mount on Mr Peña to sack Mr Osorio, who has concentrated virtually all law-enforcement power in his ministry. So far, there is no sign that he will.

If he stays in the job, Mr Osorio will have to placate an angry American government, whose law-enforcement agencies were instrumental in nabbing *El Chapo* last year. The Drug Enforcement Administration (DEA) knew about two earlier escape plans in 2014, according to documents leaked to the Associated Press. Mexico has denied any knowledge of that intelligence. If Mr Guzmán is recaptured, the United States will push to have him sent to an American jail, far away from the places ▸▸

where his gang wields power.

While *El Chapo* was behind bars, the Sinaloa cartel conducted business as usual. His return to active duty, if that is what he intends, could escalate Mexico's drug wars. After his previous escape the group expanded onto other traffickers' turf. That triggered a war between gangs and with the police that has left perhaps 100,000 people dead over the past eight years.

Today, many of the Sinaloans' rivals have been weakened by arrests and the deaths of their leaders. "It is the perfect moment for *Chapo* to seek to take over the territories of other cartels, like the Zetas," says Mike Vigil, a former DEA chief of international operations. "There will be more violence and more drugs moving into the US," he predicts. No doubt through Mr Guzmán's well-built tunnels. ■

Comparing prisons

Breaking out is hard to do

NEW YORK

But not that much harder in the United States than in Mexico

"WE PREFER a grave in Colombia to jail in the United States." That was the slogan of *Los Extraditables*, a group of 1980s drug lords who mounted a campaign of violence to get Colombia to ban extradition. At home they could run their businesses from behind bars until they escaped or bribed a judge into releasing them. A prison sentence abroad, they feared, meant doing real hard time.

Mexico's chief *extraditable* was Joaquín *El Chapo* (Shorty) Guzmán, the world's richest trafficker. After his capture in 2014, American officials lobbied in vain for him to be sent to the United States: he had already snuck out of a Mexican jail once. Now that he has fled again, the Americans must settle for saying "I told you so."

El Chapo's was not the only recent high-profile jailbreak. A month earlier, two murderers left a maximum-security facility via a steam pipe—in upstate New York. Other daring escapees of recent vintage include the "Texas Seven", who bludgeoned and connived their way out of prison in 2000, and Kenneth Conley, who rappelled 17 storeys down the wall of a high-rise jail in Chicago in 2012 using a rope made of bedsheets. Are American lockups really much more secure than Mexico's?

In fact, Mexican prisons are not especially porous. Official figures show that 1,146 inmates escaped from December 2006 to September 2012, a rate of one flight per 1,100 prisoners per year. Breakouts have become rarer still during Enrique Peña Nieto's presidency: just 82 (one per 7,500 inmates per year) were recorded from December 2012 to May 2015. Almost all have occurred in state facilities: just three inmates escaped from federal prison during the 14 years between Mr Guzmán's two successful attempts.

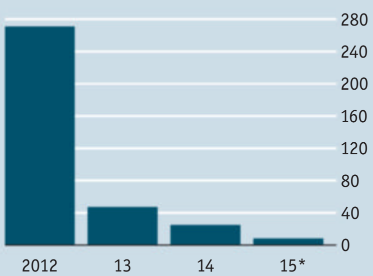
At first glance, American jails actually look leakier: the Bureau of Justice Statistics (BJS) reported 2,001 unauthorised departures in 2013, or one per 700 inmates. Despite Mexico's reputation for dodgy data, it is the American numbers that are woolly. States' definitions of what counts as an escape vary: a third of the national total for 2013 comes from Alabama, which includes "walkaways" from unsecured buildings.

A more reliable benchmark is the BJS census of correctional facilities, which was last conducted in 2005. Among respondents that provided data on escapes, the flight rate was one per 3,750 inmates. However, most of the 329 escapes that year were not from actual prisons: 74 occurred from just two halfway houses. The rate at medium-security structures was one in 10,000, and at higher-security ones it was one in 24,000. The 16 best-protected facilities were escape-free. Indeed, no one has wriggled out of the "super-max" prison in Colorado since it opened in 1994.

What does set Mexico apart are mega-jailbreaks, which imply that criminals have taken over the entire power structure of a prison. In May 2009 a group of armed men wearing the uniforms of Mexico's federal investigation agency entered a prison and freed 53 members of the brutal Zetas mob. In December 2010 151 inmates simply walked out of the door of a jail on the Texas border and rode away in waiting vehicles. The head of the prison vanished as well. In February 2012 guards at a jail near Monterrey opened the cells of 37 gangsters, letting them kill 44 inmates from a rival mafia and flee on a rope dropped from the guard tower. Mr Guzmán's latest escape was almost certainly aided by complicity from prison officials. If anyone could escape from a maximum-security American prison, it would be the slippery *Chapo*. But he would have to get out with far less help than he received at home. ■

Leaking less

Prison escapees in Mexico



Source: Órgano Administrativo Desconcentrado Prevención y Readaptación Social

*To May 31st

Local politics in Argentina

How the other half votes

BUENOS AIRES

The "point people" who lubricate elections in the capital's slums

HORACIO RODRÍGUEZ LARRETA, a Harvard MBA who wants to be Buenos Aires's next mayor, has a good story to tell. He is the handpicked candidate of the current mayor, Mauricio Macri, who created a rapid-transit bus network and festooned the city with cycle lanes. The polls say Mr Larreta will win in a run-off on July 19th. Mr Macri hopes that will be a springboard for his own campaign to become Argentina's next president later this year.

But in Buenos Aires's shantytowns Mr Larreta's boasts ring hollow. Electricity is erratic and flooding is frequent; ambulances and the police take hours to arrive. The candidate has not given up. Posters extolling him appear amid the aluminium-and-brick shacks of Villa 31, a slum that borders the posh neighbourhood of Retiro. But traditional campaigning will not suffice in the city's 56 *villas*, which collectively house 275,000 people, about a tenth of the population. To win votes in such service-starved neighbourhoods Mr Larreta and his rival, Martín Lousteau, a congressman, will quietly rely on local power brokers called *punteros* (point people).

Punteros are well-known figures who act as problem-solvers, and occasionally as saviours, for the locals. They run football teams, clinics and soup kitchens. In Villa 31 one fills bags with biscuits for women to take to their imprisoned husbands. During a flood in a *villa* in San Miguel, a suburb of Buenos Aires, a *puntero* used a boat to fetch an inhaler for a boy suffering from an asthma attack. Such good deeds are part of a lucrative triangular trade. *Punteros* deliver the votes of grateful citizens to politicians, who in turn find ways to pay the *punteros*. The more votes a *puntero* can mobilise the higher the salary.

Such "clientelism" is not unique to Buenos Aires (it is more entrenched in the suburbs) or to Argentina. But Argentina has done less to fight it than other Latin American countries. The governments of Mexico and Brazil, for example, do a better job of distributing benefits and services as a matter of course rather than in exchange for political support, says Rebecca Weitz-Shapiro, a scholar at Brown University in the United States. "Argentina has been a relative laggard in that respect," she says.

Some *punteros* cross the line between exchanging favours and committing electoral fraud. Rodrigo Zarazaga of CIAS, a Jesuit research institute, who wrote a doctoral thesis on clientelism, says that of the 120 *punteros* he interviewed 22 admitted to stealing the ballots of opposing candidates. A political broker in one poor suburb recalls that by six years old his son had become adept at shuffling around ballots. He would wait until the vote counters "dozed off or something, and then—whoosh!" In Buenos Aires's mayoral election, which uses electronic voting, that is less likely to happen. *Punteros* rarely affect the results unless the margin is razor-thin, in part because they cannily gravitate toward the likely winners. But candidates do not like to take chances.

Both Mr Larreta and Mr Lousteau portray themselves as crusaders against clientelism. As mayor, Mr Macri tried to "urbanise" shantytowns by improving municipal services, which would have sidelined the *punteros*. But many slum-dwellers complain that the programme merely brought eye-catching projects like football pitches and public squares, while leaving untouched such ills as poor drainage, impassable roads and violence. So *punteros* are in no danger of losing their jobs just yet. ■

Bello | Transatlantic reflections

Populist parallels between Europe and Latin America

THE late Carlos Fuentes, a Mexican writer, compared the exercise of mutual influence between Spain and its former colonies to "a mirror: looking from the Americas to the Mediterranean, and back". Those transatlantic reflections continue—and reach far across Mare Nostrum—in ways that would have seemed surprising only a few years ago.

Seen from Latin America, the agonies of the euro zone arouse a sickening sense of déjà vu. The limits on withdrawals from Greek banks mimic the *corralito* ("little fence") imposed by Domingo Cavallo, Argentina's finance minister in 2001, in a doomed attempt to preserve his country's currency board, which pegged the peso at par to the dollar for a decade.

Argentina is Exhibit A for those who argue that Greece would be better off outside the euro. Denunciations of austerity and the IMF by Alexis Tsipras, Greece's prime minister, and his far-left Syriza party attract the sympathy of Latin America's leftist-populist leaders. Yet the parallel is somewhat misleading: Argentina recovered strongly from 2003 onwards not just because it defaulted and devalued but because world prices for its farm exports surged. And Greece has swallowed vast lumps of concessional credit provided by Europe's taxpayers, not usurious loans from the financial markets. Mr Tsipras's last-minute deal suggests he realises that Greece is not Argentina.

Less remarked is the political inspiration that Europe's new far-left movements derive from Latin America. Mr Tsipras's recourse to a referendum to shore up his domestic support echoes the tactics of Venezuela's late Hugo Chávez, who called six in 14 years in power. So does the overblown claim that Greece is the victim of a "coup", the agitprop device that *chavismo* uses to disqualify all opposition.

In the case of Podemos, Spain's would-be Syriza, the links with *chavismo* were much closer, though recently downplayed by both sides. A foundation linked to its leaders received €5.2m ($5.7m) over the 12 years to 2014 from the governments of Venezuela and Ecuador, according to *ABC*, a Spanish newspaper. "We've seen enormous parallels," Pablo Iglesias, Podemos's leader, told Ecuador's president, Rafael Correa, last year. "We will seek your advice on many things." Mr Iglesias is also a fan of Ernesto Laclau, an Argentine theorist of radical populism who died last year.

On both sides of the Atlantic, economic and political chaos brought populists to power. In Argentina it was the austerity of "internal devaluation" to restore export competitiveness under Mr Cavallo that eventually led to the presidency of Cristina Fernández. In Venezuela a stable two-party system was brought down by the collapse of the oil price in the late 1980s, and the corruption this exposed. Mr Correa's rise followed the implosion of Ecuador's political parties and its currency. Likewise, the exhaustion of Greece's two-party system brought Mr Tsipras to power. Mr Iglesias, with his denunciation of *la casta* (the political caste of the two main parties) is counting on something similar in Spain.

Time was when the southern European left gave Latin America advice on democracy. The demise of the Franco dictatorship in Spain helped to inspire a wave of democratisation in Latin America. In Mexico in 1991, Bello recalls listening to an eloquent plea from Felipe González, then Spain's socialist prime minister, for the Latin American left to abandon revolution and embrace democracy.

In June Mr González was back in the region to support two opposition politicians jailed in Venezuela. At a press conference on his return, he was questioned about the implications of Podemos. "In Spain the regime will not be liquidated by some kind of alternative adventure," he declared.

That is a reasonable bet. For all their problems Europe's political systems are still more robust than many of those in Latin America. Thanks to Spain's economic recovery and a new centrist rival, Podemos's appeal has probably peaked. Unlike Chávez, Mr Tsipras shows no sign of using a Rousseauesque appeal to "the popular will" in referendums as a justification for gutting democratic institutions.

Latin America shows that Europe's leaders cannot afford to be complacent, especially with regard to political corruption. But for all its failures the European Union provides an exoskeleton of institutions, and shows a commitment to democratic norms, that Latin America lacks. Time and fiscal irresponsibility are taking their toll on Latin America's far-left regimes. If anyone in Europe needs reminding, the likes of Venezuela—with its slump, hyperinflation and repression—prove that populism is a poor remedy for the diseases of austerity and corruption.

Also in this section

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Afghanistan and the Taliban

Distant hopes

KABUL

Optimism flickers about the prospects for peace

EVEN by Afghanistan's murderous, war-torn standards (see chart) it has been a gory week. More than 100 civilians were injured or killed in acts of terrorism in just 48 hours. Yet, after the first meeting in years this month between an Afghan government delegation and senior leaders of the Taliban insurgency, the prospects for peace actually look better than for a long time.

That is mainly thanks to Afghanistan's president, Ashraf Ghani. He has taken big risks to improve relations with Pakistan, whose influence can sway the Taliban. But also the pressures on the Taliban have changed. The rise of other extremists loyal to Islamic State (the blood-drenched group that controls parts of Iraq and Syria) has made the Taliban zealots appear almost moderate by comparison.

Both sides face challenges from their own sides. Mr Ghani's courtship of Pakistan, an arch-enemy detested by many Afghans, has allowed his predecessor, Hamid Karzai, to emerge as a spoiler. Portraying himself as a protector of Afghan sovereignty, Mr Karzai is thought by some to be plotting a return to power. He presided over a regime so corrupt that the Taliban were able to pose as liberators. Yet some Afghans are now nostalgic for his rule.

Taliban leaders are also divided. Some field commanders, fed up with what they see as feeble leadership, have defected to Islamic State. Their sanctuaries are under threat. After an attack on a school in Peshawar in Pakistan in December by the Pakistani Taliban, which killed more than 140 people, the Pakistan army has grown less tolerant of insurgent havens.

The Taliban have changed since they were driven from power in Kabul in 2001, and now accept that they are unlikely ever again to rule the whole country. As Franz-Michael Mellbin, the EU's ambassador in Kabul, puts it: "They fully understand that if their goal was to re-establish the regime from 2001, they might as well close up shop." So their best chance of winning legitimacy is to enter politics. It is also the best hope of ending the war, though to what extent Mr Ghani is willing to share power is uncertain. Many Afghans would find the idea of the Taliban joining the cabinet repellent, but would accept it if it brought an end to a conflict that has spluttered on for nearly four decades.

The mounting cost

Afghanistan, '000

Sources: UNAMA; Global Terrorism Database, University of Maryland

*To April 30th

Such considerations are still distant. At their meeting in the hill town of Murree outside Islamabad, the two sides did little more than size each other up. A spokesman for Mr Ghani called it a "brainstorming session". All they agreed on was to meet again after Ramadan, the fasting month, with a "comprehensive list of concerns and demands". But that is progress. The Taliban have in the past refused direct talks with the Kabul government, which they denounce as an American puppet.

Another cause for optimism is the involvement of China, which has encouraged the talks, and has a powerful influence over Pakistan. Nervous about the spread of radicalism among members of the largely Muslim Uighur minority in its western region of Xinjiang, China has an interest in a stable Afghanistan. In May it facilitated an informal meeting in Xinjiang's capital, Urumqi, between the Taliban and Afghan officials.

Anything more than tentative optimism would be premature, however. It is not even clear whom the Taliban delegation at Murree represented. Its members were said to have close links to Pakistan's spy agency, the ISI. They were swiftly denounced after the meeting by the Taliban's political office in Qatar, though a statement purportedly from the group's overall leader, Mullah Omar, later endorsed the talks. Nor is it known how closely Taliban leaders hiding in Pakistan (such as Mullah Omar, spooks suspect) co-ordinate operations in Afghanistan. Since the withdrawal of most foreign troops from Afghanistan last year, Taliban field commanders have stepped up attacks on the Afghan army. No one expects a swift let-up in the violence. Military gains would strengthen the Taliban's position in any serious negotiation. So even optimists in Afghanistan see no end soon to its long, bloody nightmare. ■

Vietnamese literature

Writers' block

HANOI

A literary schism highlights restrictions on speech

PORTRAITS of writers hang in a new literature museum in Hanoi, Vietnam's capital. The ruling Communist Party of Vietnam (CPV) deems them the best Vietnamese scribblers of the past millennium. Recent ones belonged to the Vietnam Writers' Association (VWA), formed in 1957 on the lines of cultural associations in the Soviet bloc. Its unwritten credo is that writers who challenge the CPV's dominance over Vietnamese political life are to be punished and ostracised.

At the VWA's five-yearly conference, which ended on July 11th, the honoured guest was Dinh The Huynh, the CPV's propaganda chief. Mr Huynh said the association's development should hew to the Party's view of Vietnamese culture—ie, toe the party line. Yet dissent is growing within the VWA's ranks. In May 20 of its members quit, in one of the largest Vietnamese literary insurrections in years.

Fifteen VWA defectors now belong to an alternative organisation, the League of Independent Vietnamese Writers. Pham Toan, a member, says he is "allergic" to the VWA and other state-affiliated associations, adding that, after so many years of Communist rule, "the term 'talent' has gone." The 80-odd members of the League, founded in 2014, tend be less confrontational than democracy activists and political dissidents. Yet compared with most card-carrying VWA writers, says Bui Chat, a League poet, they are generally less supportive of CPV dogma and more inclined to publish online or in private presses.

The authorities are not pleased. Mr Chat says spies eavesdrop on the League's bimonthly meetings in Ho Chi Minh City. The VWA's vice-chairman, Nguyen Quang Thieu, declared on July 3rd that Vietnamese writers may not belong to two writers' organisations at once. The directive sounds absurd, but it may have a chilling effect: the VWA controls the country's main publishing houses—and hence hundreds of writers' (paltry) earnings. A poet or novelist who falls foul of Vietnam's state-controlled literary machine may find that his writing has far fewer outlets.

Such tactics seem old-fashioned. Vietnam now has one of South-East Asia's most wired societies. The proliferation of political commentary on Vietnamese-language Facebook pages makes it increasingly hard for spooks to keep misbehaving writers—professional and otherwise—in check. The CPV, as it grapples with assertive Chinese nationalism, is also keen to deepen trade and security ties with America; its general secretary, Nguyen Phu Trong, met Barack Obama, America's president, in Washington on July 7th. Ramping up domestic repression is no way to convince Mr Obama that Vietnam respects free speech.

Yet nasty old habits die hard. In December Nguyen Quang Lap, an award-winning mainstream novelist and screenwriter, was arrested in Ho Chi Minh City under a vague national-security law used to criminalise dissent, apparently for having written articles critical of the Party on his blog, which had received more than 100m views. He was released in February—to house arrest—and still has a huge fan base. The VWA will have to decide whether his politics should keep his portrait out of the literature museum. ■

The South China Sea

See U in court

A tribunal ponders China's claims

IT IS hard to have an argument with only one person in the room, but the Philippines is having a go. On July 13th a tribunal in The Hague concluded a first week of hearings related to its bitter dispute with China over maritime boundaries in the South China Sea. China insists that its claim, which covers most of the vast and strategically vital sea, is not a matter for foreign judges, and was not represented.

Such has been China's position ever since the Philippines lodged a case in 2013 at the Permanent Court of Arbitration in The Hague, arguing that the U-shaped, nine-dashed line used by China to define its claim is illegal. But in its anxiety to dismiss the validity of the case, China may have blundered. The tribunal has ruled that documents issued by China to explain its objections "constitute, in effect, a plea". The tribunal has sent all the relevant papers to the Chinese government and given it time to respond. China has become a participant in the case, despite its absence.

The most significant document noted by the tribunal is a lengthy "Position Paper" published by China's foreign ministry last December. This repeated China's frequent assertion that it has "indisputable sovereignty" over the islands of the South China Sea and "adjacent waters". Chinese officials did not formally submit the paper, which would have risked implying acceptance of its arbitration. But the tribunal is considering it anyway.

The tribunal will not rule on ownership of the dozens of reefs and islands in the South China Sea and the waters around them. Instead, its ruling is sought on whether features in the sea that are claimed by China could be used as a basis for the claims it makes. The United Nations Convention on the Law of the Sea (UNCLOS) sets out how different maritime features generate claims to territorial waters and "exclusive economic zones" (EEZ). A reef submerged at high tide generates nothing, while a rock above water has a 12-nautical-mile (22km) territorial claim around it. A habitable island generates an additional EEZ of up to 200 nautical miles from its shore.

The Philippines argues that none of the features China occupies in the Spratly Islands is an island. At best, it says, each is entitled only to a 12-nautical-mile claim and none generates an EEZ. For almost the past two years China has been frantically reclaiming land around these features and expanding their size, adding buildings and, in some cases, new airstrips and harbours. But UNCLOS is clear: man-made structures do not count.

The Philippines hopes that if the tribunal accepts its argument, then China's U-shaped line would look even more far-fetched than it does already. China would at best be able to claim a few small circles drawn around a few tiny features. Other claimants, including the Philippines, which also have claims to some or all of these features, would continue to dispute even these little dots.

The tribunal must first decide whether it has the jurisdiction to hear the case at all. If it concludes that it does, which may not be known until late this year, a verdict may take several more months. If the Philippines wins, China will almost certainly refuse to accept the decision. Even the hope that a moral defeat would have a chastening effect on China's behaviour seems a little tenuous, given the gusto with which it is filling in the sea. ■

Banyan | The lose-lose election

An election in Myanmar may produce more questions than answers

A DATE has now been set for an election that will mark a defining moment in Myanmar's slow march away from military dictatorship and towards democracy. On November 8th voters will go to the polls for the first free national ballot since 1990. Aung San Suu Kyi, the country's most popular politician and leader of the main opposition, the National League for Democracy (NLD), has confirmed that her party will compete. In 2010 it boycotted the previous election, a tawdry, rigged affair that produced a parliament dominated by soldiers who had swapped their uniforms for *longyis* (Burmese sarongs) and stood for the Union Solidarity and Development Party (USDP). The shift in power that has been promised since 2011, when President Thein Sein, a former general with a winning manner, took office, seems at last to be at hand.

Understandably, many potential foreign investors are biding their time, waiting to see what kind of political order emerges. Yet among many Burmese politicians and analysts, the mood is far from euphoric. The fear is that the election will not be the happy culmination of democratic reforms. Rather, it will usher in a period of acute uncertainty and unpredictable political horse-trading. It will also disappoint almost everyone.

Much of the blame for the gloom lies with Myanmar's constitution, an army-drafted monstrosity. This was notionally "approved" by 94% of voters in a referendum with a 97% turnout held in 2008. It was conducted just a week after Cyclone Nargis had devastated the country and killed perhaps 150,000 people. Indeed, the constitution probably received more votes than there were voters, since a census taken last year revealed Myanmar's population was just 51m, 6m fewer than was thought at the time.

Amending this constitution has been the NLD's main preoccupation since it responded to Mr Thein Sein's overtures by joining the legislature, winning 43 of 45 seats in by-elections in 2012. In particular it has wanted to lower the "threshold" for changing the charter, currently set at over 75% of votes in the parliament. That is not an arbitrary level: 25% of seats are unelected, reserved for serving soldiers. To no one's surprise, the parliament has in recent weeks blocked almost all proposed changes to the constitution, including one to lower the threshold to 70%. That makes it very hard to amend other clauses, such as one, apparently included with Miss Suu Kyi in mind, that bars those with foreign spouses or children from becoming president (Miss Suu Kyi's two sons are British citizens, like her late husband).

Until now, Miss Suu Kyi had kept the NLD's options open about whether to take part in the election. But another boycott was always going to be hard, even after the push for constitutional reform had failed. The NLD expects to do well, and many of its potential candidates are champing at the bit. In the 1990 election, whose result the army disregarded, it won about 60% of the vote, and, thanks to a first-past-the-post system which still applies, over 80% of the seats. The 2012 by-elections suggested that its popularity—or rather, that of its leader—was undiminished.

However, it faces obstacles in replicating that success. The USDP has deep pockets, and can if it chooses focus its efforts on constituencies with smaller populations. Some rigging is inevitable, though with foreign observers to be allowed to monitor voting, a much cleaner election is expected than the one in 2010. In many areas around the periphery of the country, parties representing ethnic minorities are expected to fare well. And, because of the army's unelected seats, to win an overall majority the NLD needs to win two-thirds of those contested.

Even if it achieves that, however, its voters may not secure what they want: a government led by Miss Suu Kyi. The president, who appoints the cabinet, is chosen by an electoral college, made up of the two houses of parliament. Three candidates stand, one chosen by each house and one (of course) by the army. The two losers become vice-presidents. The NLD has no obvious candidate other than Miss Suu Kyi. So, unless the army, improbably, relents and agrees to amend the constitution between the election and the convening of the electoral college next February, it may have to back a non-NLD candidate. Miss Suu Kyi would have to satisfy herself with the post of parliamentary speaker.

Despite retaining their influence, the army and the USDP may also be feeling unhappy. They would be reduced to a small rump in the legislature and confronted yet again with proof of their unpopularity and the illegitimacy of their veto on political change. To complete the circle of disgruntlement, the ethnic parties may demonstrate the support they enjoy in their own areas, but have little clout in the national parliament. The federal system they want and a political settlement that would bring peace with the various armed ethnic insurgencies would be no closer.

Hard choices

Disappointment is also likely in those foreign countries so quick in 2012 to welcome Myanmar into the democratic fold and to drop economic sanctions against it—and among foreign politicians, such as Hillary Clinton, who have boasted of their role in the country's transformation. Already doubts have set in over the brutal persecution of the Muslim Rohingya minority (who lack full citizenship and this year lost the right to vote). To pander to the Buddhist majority and nationalistic monks whipping up religious intolerance, Myanmar's parliament has passed ugly laws meant to discriminate against all Muslims, not just Rohingyas.

If the election yields another government dominated by retired soldiers and beholden to serving ones, disillusionment may be intense. Yet it was always delusional to believe that Myanmar would become a proper democracy in less than five years. For all its flaws it remains a more hopeful place than under the old junta, which locked up and tortured thousands of political prisoners. In the months that hope will be sorely needed. ■

Mining safety

Shaft of light

Also in this section

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BEIJING

The coal that fuels China's boom is becoming less deadly to extract

FOR decades China's coal mines served as tragic showcases of greed, corruption and contempt for life: thousands died in accidents every year and many more after prolonged agony from dust-clogged lungs. In 2003 Wen Jiabao, who was then about to become prime minister, went down a shaft to have dumplings with miners. He told local officials that safety was the Communist Party's priority. Over the next three years, however, just as many coalworkers died in mines—more than 18,000, by official counts—as in the preceding three years. Mr Wen's words rang hollow.

Then a striking turnaround began. Chinese coal mines became far safer even as they more than doubled output to fuel the country's economic boom—they produced 3.9 billion tonnes in 2014, about half the world total. Last year 931 miners were killed in coal-mine accidents. It was the 12th year in a row in which the death toll reportedly fell. By one measure of mining safety—deaths per million tonnes of coal produced—China's record had improved twenty-fold since 2002, to 0.24 (see chart on next page). That is still about ten times worse than in the developed world. Officials say safety conditions remain "grim". But the coal industry is also labour-intensive. China has 5.8m miners; America, the world's second-largest producer, has only 80,000. Measured by deaths per 100,000 coalminers, China's annual rate of 16 compares favourably with a total of 20 deaths in America in 2013.

There are reasons to be sceptical about China's apparent safety improvements, however. Official statistics can be as dodgy as a $20 Rolex watch. Deaths from pneumoconiosis, a disease known as black lung which is caused by inhaling dust particles, still far exceed the numbers killed in accidents. In 2013 nearly 14,000 new cases were recorded—probably only a fraction of the true number (doctors are often reluctant to make a diagnosis without proof of mining employment, which many workers lack). That year the government called for greater efforts to prevent and treat black lung. The number of hospitals dedicated to it is due to double to 80 in the next five years. It will take time for any changes resulting from this to show up in statistics.

There has already been clear improvement, however, in the prevention of coal-mining accidents. Ones claiming more than 50 lives used to be common. It has now been six years since such a disaster (there were three in 2009, each involving more than 75 fatalities). The government has cracked down for a variety of reasons. One is embarrassment. Soaring deaths a decade ago tarnished the party's image even as it boasted of its efforts to create a "harmonious society". With the spread of the internet and social media it became much more difficult for censors to cover up accidents. The government fretted about their impact on "social stability". ("Happily, happily, go to work" urges the slogan at the mine pictured.)

Risking life to fuel China

Tim Wright of Sheffield University believes that Mr Wen, who retired as prime minister in 2013, may have played a bigger role in fixing the problem than the spate of disasters following his mine trip suggested. Mr Wright notes that mentions of "coal-mine safety" spiked upwards from 2001 in the *People's Daily*, the party's mouthpiece. He credits a personal interest taken by Mr Wen, a geologist by training.

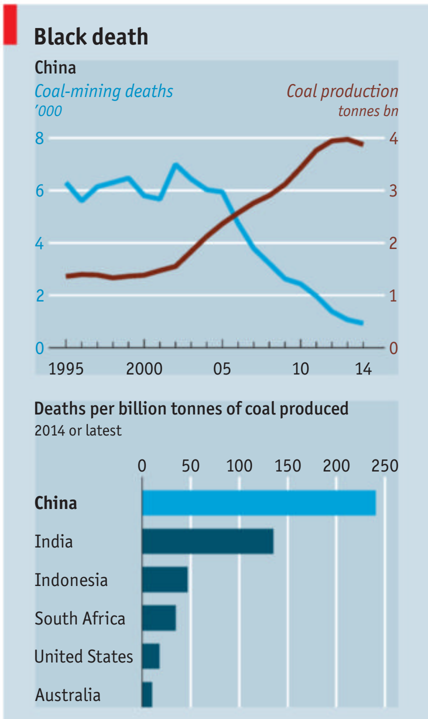
Safety also improved because the government closed lots of small mines, which happened to be the deadliest ones. It wanted to concentrate the industry in the hands of larger, more efficient and supposedly less dirty state-owned firms rather than a profusion of tiny operators, some linked to rural governments and some in private hands. Between 1980 and the mid-1990s, production by such "township mines" had soared from less than one-fifth of total coal output to around 45%. Tens of thousands of new ones had opened. Large state-owned enterprises (SOEs) welcomed the consolidation: it meant all the more profit for them at a time of soaring demand.

Robbing the robber barons

It was not easy closing the small ones. Often they were secretly reopened by local officials. But in 2008 the government began stepping up its efforts as part of a broader policy aimed at tightening state control over the energy sector (it had started earlier in the decade with the seizure of thousands of privately run oil wells). The acquisitions were often on terms that small private owners likened to robbery. But the state had chosen its targets well. Many were robber barons themselves who had snapped up shoddy government-run mines in rural townships, invested little in them and profited handsomely.

Remaining township mines are now safer. In 2001 they were 12 times more deadly than big state-owned mines, with 15 deaths per million tonnes produced. By 2008—the last year such detailed data were kept—their death rate was still far worse than that of large state mines (they often used rural migrants with little experience and shoddy equipment: gas detectors were sometimes switched off or ignored so that work could continue). But safety had improved considerably to 2.4 deaths per million tonnes.

At the government's urging, state-owned coal firms have made big investments in safety after years of neglect. From 1992 to 2007 the country's largest state-owned firms—operating the least danger- ▶▶



Sources: BP; China Coal Industry Yearbook; national statistics; *The Economist*

ous mines—had a death rate three times worse than comparable large mines in India over roughly the same period. Some of the improvements they made were ones that most countries had managed decades earlier, such as installing better equipment for methane detection and ventilation. Large state-owned coal mines can now at least claim to be safer than Britain's were in the 1960s and 1970s.

Harsher penalties for the operators of accident-prone mines, and their local-government supervisors, may have helped too. Since 2004 local leaders have been under orders to keep mining deaths in their areas within specified limits: failure to do so can affect promotion prospects. Alas, punishing officials on a per-death basis may have the perverse effect of encouraging cover-ups. A dead miner's family can expect to receive at least 600,000 yuan ($96,600) in a typical accident, or several times more in exchange for silence. Officials have sometimes bribed state media not to report on accidents. But a fierce campaign against corruption, launched by Xi Jinping when he took over as leader in 2012, may have curbed such practices.

As China's economy now begins to slow, coal prices are falling. This may make it easier to prise dangerous mines from the hands of private and local-government operators. To help reduce excess capacity, the government this year banned the opening of new mines in some parts of the country. For the first time in a decade, production fell last year—by 2.5%. In helping to reduce the number of deaths, economic headwinds may prove a blessing. ■

Human rights

Uncivil

BEIJING

China says that by locking up lawyers it is defending the rule of law

SOME were taken from their homes in the middle of the night. Others had their offices raided, or were summoned to "take tea" at the local police station—a euphemism for being interrogated. According to Amnesty International, around 120 lawyers, as well as more than 50 support staff, family members and activists, have been rounded up across the country since the pre-dawn hours of July 9th. Many have been released, but as *The Economist* went to press at least 31 were still missing or were believed to remain in custody.

The round-up has been remarkable for its speed, geographic extent and the number of people targeted. Teng Biao, a Chinese lawyer and activist currently in America, says it includes nearly all of China's civil-rights lawyers. They are a harassed lot at the best of times, but this is the most concerted police action against them since such lawyers began to emerge in the early 2000s as defenders of the legal rights of ordinary people in cases against the state. In the past few days state media have vilified them, describing them as rabble-rousers seeking "celebrity and money".

The police have focused particular attention on Fengrui, a law firm in Beijing. It was set up in 2007 and is known for defending dissidents as well as suing on behalf of people forcibly evicted from their homes and victims of miscarried justice. The police have accused some Fengrui staff of being part of a "major criminal gang" whose members stirred up discontent about the government in more than 40 incidents of "public disorder" in the past three years. They cite the case of a "lawful" police shooting in the north-eastern province of Heilongjiang in May, which they accuse Fengrui's lawyers of "hyping up" through social media and by organising a demonstration against it. Wang Yu, the first lawyer to disappear (her husband and 16-year-old son were taken too), worked on this case.

Civil-rights lawyers in China often publicise disputes because they do not trust the legal system. The judiciary is not independent, judges are often beholden to local interests and the law is not applied even-handedly. Popular sentiment can help to sway court decisions. Since taking office in 2012 Xi Jinping, China's leader, has stressed the need for the "rule of law", but has made it clear that he means something different: shoring up the party's control, not holding it to account. Several years ago the party tolerated civil-rights lawyers. Now it treats them as seditious. Some of those detained recently were warned not to get involved in "sensitive" cases. Veiled threats were made to their families.

The sweep follows a particularly dispiriting few months for civil rights in China. Earlier this year five feminists were held for five weeks for campaigning against sexual harassment on public transport (several of their lawyers, who include Ms Wang, are among those interrogated in recent days). This month a bill was passed which could provide a legal basis for the government to define almost anything as a threat to national security. Finding a good lawyer in China may become harder. ■

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Africa's jihadists

Jihafrica

ABUJA, BAMAKO AND KHARTOUM

The biggest threat to African peace and prosperity comes from a dangerous idea

THE descent from tourist destination to no-man's land has been a short one on Kenya's coast. The only foreign visitors of interest on the beach in recent months are Somali jihadists. They have taken over mosques, installed hate preachers and raised black flags. Local youngsters are joining their ranks by the hundred. Christians have been lined up in gravel pits or pulled off buses and shot by the dozen. The governor of Mandera, an ethnic-Somali Kenyan county, Ali Roba, describes the situation as "extremely hopeless". At this rate the coast may come to resemble northern Nigeria. One Nairobi-based ambassador frets about the "birth of a Kenyan Boko Haram" (a reference to Nigeria's most brutal group of Islamists).

After recent attacks in Tunisia, Europeans began worrying about extremists taking aim at them across the Mediterranean. But it seems more likely that the jihadist superbug will turn south. The Sahel, an arid belt on the southern fringe of the Sahara desert that stretches from the Atlantic Ocean to the Red Sea, has already caught the fever from Algeria and Libya.

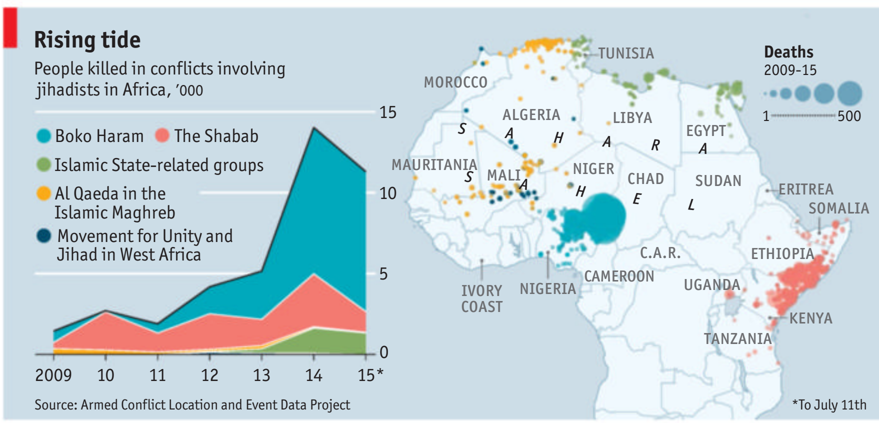
Ever more places in sub-Saharan Africa are no-go zones, including parts of Cameroon, Chad, Nigeria and Niger. Northern Mali has been off-limits to outsiders (and especially Westerners) since an Islamist-backed uprising in 2012, despite a French military intervention in 2013 that stopped the jihadists from advancing on Mali's capital. Recent attacks by Boko Haram have killed hundreds in Nigeria and Chad, prompting Nigeria's president, Muhammadu Buhari, to dismiss his military chiefs.

On the continent's eastern side, violent Islamism has crossed south of the equator, spreading as far as Tanzania. Using home-made bombs, handguns and buckets of acid, extremists have attacked Christian leaders and tourists. Tanzania has also become a transit point for European extremists. "Jihadi John", a British member of Islamic State (IS) known for beheading people on camera, passed through Dar es Salaam, Tanzania's biggest city, before heading to Syria.

More than a dozen sub-Saharan countries are now dealing with jihadism at home (see map). They include Cameroon, the Central African Republic, Chad, Eritrea, Ethiopia, Kenya, Mali, Mauritania, Niger, Nigeria, Somalia, Sudan, Tanzania and Uganda. Jihadist attacks in many places are a daily or weekly occurrence. Weapons are widely available, often left over from secular civil wars. Tens of thousands have died.

Sudan is a crossroads through which many extremists groups combine or swap men, material and know-how. A coup in 1989 brought to power a group of generals allied to high-minded Islamists of an earlier vintage who, two decades ago, played host to Osama bin Laden. Since then the regime has grown suspicious of unbridled Islamism, though it is not averse to co-opting it, too. The main university in Khartoum, the capital, has been a magnet for radical students. Some have moved on to battlefields to the north and east, following in bin Laden's footsteps.

The two major brands of violent jihadism, IS and al-Qaeda, compete for the allegiance of various groups of African jihadists. Yet the connections between groups are more complex than mere pledges of fealty. Cross-border links often originate paradoxically not when extremists are strong, but when they are weak. During a crackdown on Boko Haram in 2009 many of its ▸▸



leaders went to Chad, Sudan and Somalia. Since then Sudanese Arabic voices have been heard in Boko Haram propaganda videos. The group's main maker of car-bombs is Somali-trained. Mobile military tactics learned in Chad (known as "Toyota warfare") have transformed Boko Haram's modus operandi. When the group was in the ascendant last year, it turned its gaze across Nigeria's border to the east, having recruited Cameroonians in leaner times.

Local defeats of Islamist groups, followed by their flight, are accelerating a continental metastasis. The cancer of jihadism in sub-Saharan Africa will probably spread outward from conflicts now underway involving groups in Libya and Nigeria; their members are likely to flee into the sandy expanse that covers much of Africa above the equator, as happened after French forces tried to wipe out extremists in northern Mali in 2013.

Borders in the Sahel have never had much meaning, and politics has long been intertwined with commerce. Jihadist groups such as Ansar al-Sharia, the Movement for Unity and Jihad in West Africa (MUJAO) and al-Qaeda in the Islamic Maghreb (AQIM) grew out of trans-Saharan smuggling networks. They are capable of traversing vast distances following centuries-old but obscure desert trade routes. "Their map is not one we know," says an intelligence officer in Nigeria.

Although the extremist groups are backed by well-financed elites, they could not survive without popular support. Every one of them taps into well-known local grievances. From Mali and Nigeria to Kenya and Tanzania the story is the same: extremists emerge from and woo Muslim populations on the national periphery who are fed up with decades of neglect, discrimination and mistreatment by their rulers. Jihadists are able to exploit existing religious tensions and latch on to disgruntled Muslim communities.

In addition, the conflicts that they stir up have created ever bigger populations of refugees, who are either vulnerable to radicalisation or likely to cause the sort of resentment that fuels it.

Increasingly what drives African extremism is not just opportunity or firepower but ideology. No grand caliphate stretching from Mosul in northern Iraq to Maiduguri in north-eastern Nigeria is likely to emerge. Yet a distinct flavour of poisonous thinking has spread across thousands of miles. Islamism is the continent's new ideology of protest.

As such it is almost uniquely powerful. African politics tends to revolve around tribal and ethnic loyalties. But that leaves a wide political space unclaimed. A group like the Somalis' Shabab is able to position itself as "above tribe".

Only genuine political competition could change this dynamic. Yet most ethnic and tribal leaders have little interest in upsetting their own hold on power. African and Western governments are thus left to counter jihadism by force of arms. France has set up a 3,000-strong rapid-response force in Chad with six fighter jets and 20 helicopters. America has built drone bases across the continent.

Such brawn has little chance of succeeding alone. In Somalia the Western-aided fight against jihadists has made some progress. The Shabab has lost both members and territory. But it is still lethally active. Once operating purely in Somalia, it now seeps across the border into Kenya.

In this endeavour it has found an unexpected (and unwitting) ally in government forces. In Kenya, as elsewhere, official brutality has been the best recruitment tool for extremists. Armies have locked up and tortured thousands without reason. Everyone knows a victim. More than 20 Muslim clerics have been killed along the Kenyan coast in the past two years.

Yet the more governments feel under threat, the freer the rein they give their generals. This dynamic not only stirs opposition but also turns "fragile states into brittle ones", warns Alex Vines of Chatham House, a British think-tank. ■

Mine-detecting elephants

The whiff of danger

Some elephants appear to have learned to avoid landmines

ELEPHANTS had it rough during Angola's long civil war. Rebels shot them for food and ivory that they traded for arms. When fighting ended in 2002, few elephants remained. But others have since migrated in from countries such as Botswana, where there are so many jumbos that they scarcely have room to swing a trunk.

When they first galumphed into Angola, the elephants faced an unfamiliar menace: the millions of landmines left over from the country's decades-long conflict. José Agostinho, who works for the HALO Trust, a demining charity, recalls arriving in the south-eastern town of Mavinga in 2004 to help demine an area not much larger than 15 football pitches. On it, he saw the carcasses of three elephants killed by landmines.

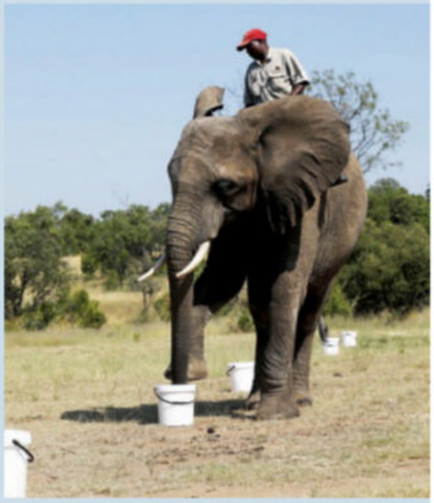
Since then, however, it seems that elephants in Angola have learned to sniff out and avoid landmines, says Mr Agostinho. The number killed by them was high in the early years after the war, but it has fallen sharply, says Roland Goetz, a wildlife adviser to Angola's government.

The landmine-death rate has fallen even as the elephant population has increased in Angola's most heavily mined province, Kuando Kubango in the south-east. Elephants tracked using GPS collars walk through mined areas in Angola "successfully and repeatedly", says Werner Myburgh, the head of South Africa's Peace Parks Foundation, a partly government-funded outfit that helps establish cross-border wildlife sanctuaries in the region.

Intrigued by this, the US Army's Research Office has been testing the ability of a group of tame elephants in South Africa to find traces of TNT, an explosive, amid decoy odours of bleach, petrol, soap and tea. The elephants passed with "flying colours", says Jessica Brown, who ran the project. The results of the experiment will be published this year.

An elephant that has survived or seen a landmine blast can alert an entire herd to the danger with a gesture or very-low-frequency rumble, says Joyce Poole of ElephantVoices, an American-Norwegian NGO.

It can take a long time for knowledge gleaned from accidents to spread through a large, dispersed population. As a ranger in Namibia's Etosha National Park in the 1980s, Mark Paxton often encountered elephants whose trunks had been partially blown off when they inquisitively sniffed a mine. Today elephants seem warier of them, says Mr Paxton, now the owner of Shamvura Camp, a Namibian game lodge near the Angolan minefields. Sadly, much of their hard-earned knowledge may be lost because of a surge in elephant poaching—a danger that is less easily sniffed out and avoided.



Gently does it

Israel and the world

Netanyahu pivots to Asia

JERUSALEM

Fractious relations with the West are prompting Israel to turn elsewhere

THE outcome of a vote on July 3rd at the United Nations Human Rights Council was never in doubt. In all, 41 nations voted for a report criticising Israel for its conduct in the Gaza conflict. Only America voted against it. The surprise, however, was that among the five nations abstaining was India. "For the first time in a major anti-Israel vote, India didn't vote with the Arabs," said one astonished Israeli diplomat.

UN voting patterns are not the most reliable gauge of geopolitics but India's abstention is yet another small sign of Israel's shifting relations with the rest of the world. After decades of focusing most of its diplomatic and trade efforts on Europe and America, Israel is pivoting to Asia. The shift is not entirely new, but previously low-profile diplomacy is now moving out of the shadows. It is being pulled by the rise of centre-right governments in India and Japan, the weakening clout of Arab oil-producing regimes and China's spending spree on high-tech. It is also being pushed by a feeling in Israel that once-warm relations with traditional allies have cooled.

Indian diplomats once asked their Israeli counterparts, rhetorically: "why should you care about votes in the UN when India is buying $7 billion of Israeli arms?" But under Narendra Modi, India's prime minister, arms deals are just part of the relationship. After Binyamin Netanyahu, Israel's leader, won an election in March, Barack Obama openly chided him for appearing to disavow the "two-state solution" (the idea that Israelis and Palestinians should live side-by-side in separate states) and for saying disparaging things about Israel's Arab citizens. Mr Modi, by contrast, was quick to congratulate him on Twitter in Hebrew. His office is already trailing a planned visit to Israel next year, the first ever by an Indian prime minister.

Japan's prime minister, Shinzo Abe, is also keen to forge closer ties with Israel, which would mean softening his oil-importing nation's traditionally pro-Arab stance. Mr Netanyahu may be unpopular in the West, but his hardline views on Islamist terrorism have won him admirers in much of Asia. Small wonder he is sending more diplomats there and urging his ministers to visit. An Israeli official recalls a very cordial 90-minute meeting Mr Netanyahu had with an Asian head of government. "At the end the Asian leader read a minute-long statement on the Palestinians which his foreign ministry had obviously prepared for him. Bibi didn't respond and the leader said: 'Right, let's have lunch.' "

With China the ties are all about business. Dozens of Chinese businessmen and officials from all levels of government visit Israel each month. Last year Chinese companies invested nearly $4 billion in Israel, snapping up Tnuva, Israel's largest food manufacturer, as well as a handful of high-tech start-ups. "About 40% of the money in our latest investment fund is from Chinese investors" says Fiona Darmon, a partner in a venture capital company. "They received a general blessing from Beijing to invest."

Not everyone is overjoyed. Israeli securocrats want more scrutiny of deals with China; former Mossad chief Efraim Halevi has warned that the involvement of Chinese companies in local infrastructure projects has "strategic" implications and that China is also an ally of Israel's enemy, Iran. During the talks on Iran's nuclear programme China has joined Russia in calling for the international arms embargo on Iran to be lifted immediately.

Israel's government is still trying to work out what technologies and companies it would be unwise to sell to China. Meanwhile it is full speed ahead for companies like Shengjing, a Beijing-based consulting firm which received $10m from the Chinese government to facilitate investments in Israeli technology. "There are no strings attached," says Xueling Cao, a Shengjing director who has visited Israel 15 times in the past two years. "Our government just wants more investments in Israel." That is music to the ears of Israeli diplomats, who in the West hear strident calls for boycotts and divestment. ■

Pollution in the Gulf

A dust-up over dust

CAIRO

Does the United Arab Emirates really have the dirtiest air in the world?

THOUGH it is often cloaked in a fetid smog, China does not have the most toxic air in the world. Nor does India, despite its congested roads and belching power-stations. The most polluted air hangs over the United Arab Emirates. So says the World Bank, at least. It claims that the UAE's air is a bit worse than China's and more than twice as bad as India's, if one measures particulates of 2.5 microns or smaller, known as PM2.5 (see chart). These tiny particles can penetrate deep into the lungs.

The UAE protested. Granted, it is the world's eighth largest emitter of carbon dioxide per capita. Cement manufacturing, power generation, desalination and cars all add to its pollution. But one of the biggest contributors of PM2.5 in the region is dust made of sand, kicked up by construction or windstorms. This skews the data, say UAE officials.

Fahed Hareb, the director of air quality at the ministry of environment and water, says carbon-based particles and dust should be viewed differently. Otherwise it is unfair to countries with deserts. The UAE has 46 monitoring stations and reckons that even with the dust, its average PM2.5 levels are "not even half of what [the World Bank] stated," he says.

Dust is probably not as dangerous as man-made pollutants, which are often carcinogenic. But most scientists think PM2.5 is toxic regardless of its source or composition. "Whether it contains dust or not, there is a severe health effect," says Johann Engelbrecht of the Desert Research Institute in America, adding that the bank's measurements are "in the ballpark" of those previously taken in the region. Studies have found that exposure to wind-generated dust is associated with higher hospital-admission rates for respiratory illnesses and other problems.

A stronger criticism is that the bank's data need updating. It relied on the Institute for Health Metrics and Evaluation (IHME), which combined satellite imagery, ground-level monitoring and atmospheric modelling to produce the PM2.5 numbers. Michael Brauer, who led the effort, says the data were then weighted to come up with a national average. But many of the measurements are a decade old and the bank admits the methodology "has its limitations".

An update is already in the works. The new numbers will benefit from more monitoring stations, including in the UAE, which has taken steps to curb emissions. They will also reflect lower-than-expected dust levels in the Gulf. That's good news for the UAE, but its air is still among the worst, says Mr Brauer.

The Economist

SPECIAL REPORT
SINGAPORE
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The Singapore exception

The Singapore exception

To continue to flourish in its second half-century, South-East Asia's miracle city-state will need to change its ways, argues Simon Long

AT 50, ACCORDING to George Orwell, everyone has the face he deserves. Singapore, which on August 9th marks its 50th anniversary as an independent country, can be proud of its youthful vigour. The view from the infinity pool on the roof of Marina Bay Sands, a three-towered hotel, casino and convention centre, is futuristic. A forest of skyscrapers glints in the sunlight, temples to globalisation bearing the names of some of its prophets—HSBC, UBS, Allianz, Citi. They tower over busy streets where, mostly, traffic flows smoothly. Below is the Marina Barrage, keeping the sea out of a reservoir built at the end of the Singapore River, which winds its way through what is left of the old colonial city centre. Into the distance stretch clusters of high-rise blocks, where most Singaporeans live. The sea teems with tankers, ferries and container ships. To the west is one of Asia's busiest container ports and a huge refinery and petrochemical complex; on Singapore's eastern tip, perhaps the world's most efficient airport. But the vista remains surprisingly green. The government's boast of making this "a city in a garden" does not seem so fanciful.

Singapore is, to use a word its leaders favour, an "exceptional" place: the world's only fully functioning city-state; a truly global hub for commerce, finance, shipping and travel; and the only one among the world's richest countries never to have changed its ruling party. At a May Day rally this year, its prime minister, Lee Hsien Loong, asserted that "to survive you have to be exceptional." This special report will examine different aspects of Singaporean exceptionalism and ask whether its survival really is under threat. It will argue that Singapore is well placed to thrive, but that in its second half-century it will face threats very different from those it confronted at its unplanned, accidental birth 50 years ago. They will require very different responses. The biggest danger Singapore faces may be complacency—the belief that policies that have proved so successful for so long can help it negotiate a new world.

In 1965 Singapore was forced to leave a short-lived federation with ▸▸

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A list of sources is at
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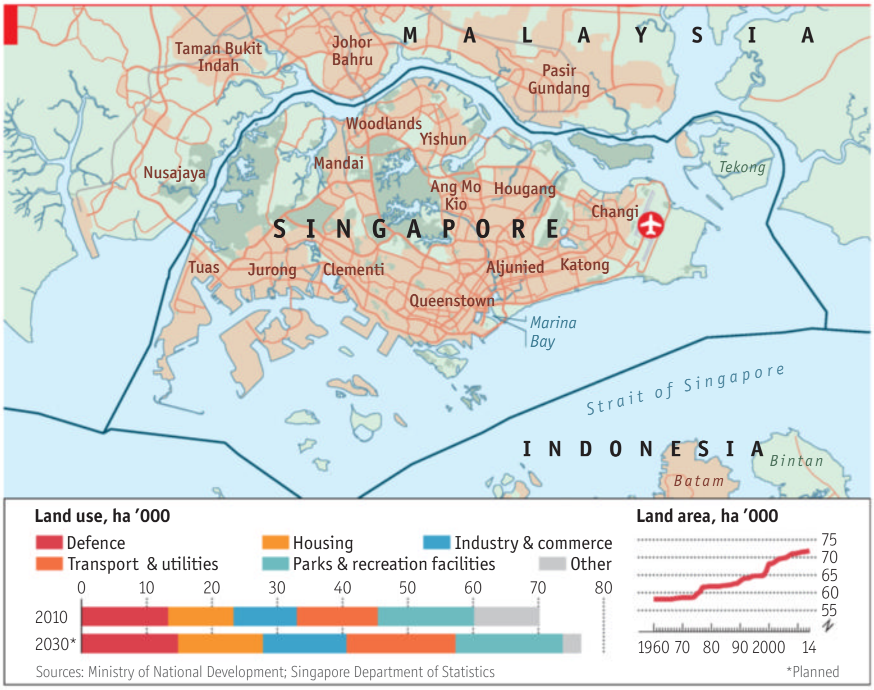


▸ Malaysia, the country to its north, to which it is joined by a causeway and a bridge. Lee Kuan Yew, Lee Hsien Loong's father, who became Singapore's prime minister on its winning self-government from Britain in 1959, had always seen its future as part of Malaysia, leading his country into a federation with its neighbour in 1963. He had to lead it out again when Singapore was expelled in 1965. By then he had become convinced that Chinese-majority Singapore would always be at a disadvantage in a Malay-dominated polity.

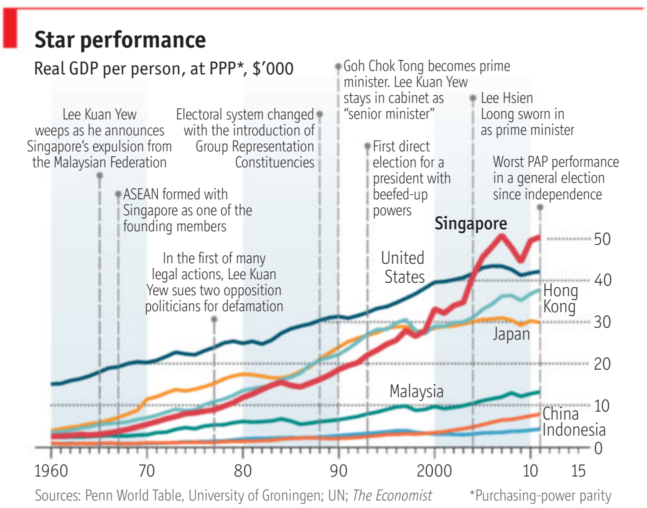
Mr Lee's death in March this year, aged 91, drew tributes from around the world. But Mr Lee would have been prouder of the reaction in Singapore itself. Tens of thousands queued for hours in sultry heat or pouring rain to file past his casket in tribute. The turnout hinted at another miracle: that Singapore, a country that was never meant to be, made up of racially diverse immigrants—a Chinese majority (about 74%) with substantial minorities of Malays (13%) and Indians (9%)—had acquired a national identity. The crowds were not just mourning Mr Lee; they were celebrating an improbable patriotism.

Lee Kuan Yew himself defined the Singapore exception. As prime minister until 1990, he built a political system in his image. In line with his maxim that "poetry is a luxury we cannot afford," it was ruthlessly pragmatic, enabling him to rule almost as a (mostly) benevolent dictator. The colonial-era Internal Security Act helped crush opposition from the 1960s on. Parliament has been more of an echo-chamber than a check on executive power. No opposition candidate won a seat until 1981. The domestic press toes the government line; defamation suits have intimidated and sometimes bankrupted opposition politicians and hit the bottom line of the foreign press (including *The Economist*).

Singapore, it is sometimes joked, is "Asia-lite", at the geographical heart of the continent but without the chaos, the dirt, the undrinkable tap water and the gridlocked traffic. It has also been a "democracy-lite", with all the forms of democratic competition but shorn of the unruly hubbub—and without the substance. Part of the "Singapore exception" is a system of one-party rule legitimised at the polls and, 56 years after Mr Lee's People's Action Party (PAP) took power, facing little immediate threat of losing it. The system has many defenders at home and abroad. Singapore has very little crime and virtually no official corruption. It ranks towards the top on most "human-development" indicators such as life expectancy, infant mortality and income per person. Its leaders hold themselves to high standards. But it is debatable whether the system Mr Lee built can survive in its present form.

It faces two separate challenges. One is the lack of checks and balances in the shape of a strong political opposition. Under the influence of the incorruptible Lees and their colleagues, government remains clean, efficient and imaginative; but to ensure it stays that way, substantive democracy may be the best hope. Second, confidence in the PAP, as the most recent election in 2011 showed, has waned somewhat. The party has been damaged by two of its own successes. One is in education, where its much-admired schools, colleges and universities have produced a generation of highly educated, comfortably off global citizens who do not have much tolerance for the PAP's mother-knows-best style of governance. In a jubilant annual rally to campaign for lesbian, gay, bisexual and transgender (LGBT) rights on June 13th, a crowd estimated at 28,000 showed its amused contempt for the illiberal social conservatism the PAP has enforced. Younger Singaporeans also chafe at censorship and are no longer so scared of the consequences of opposing the PAP.

The PAP's second success that has turned against it is a big rise in life expectancy, now among the world's longest. This has swelled the numbers of the elderly, some of whom now feel that the PAP has broken a central promise it had made to them: that in return for being obliged to save a large part of their earnings, they would enjoy a carefree retirement. And it is not just old people who have begun to question PAP policies. Many Singaporeans are uncomfortable with a rapid influx of immigrants. These worries point to Singapore's two biggest, and linked, problems: a shortage of space and a rapidly ageing population. ■



Land and people

Seven million is a crowd

Space on the island is getting tight. Singaporeans fear that foreigners are taking up too much of it

WHEN SINGAPORE SEPARATED from Malaysia, says Tan Kong Yam, an economist at the Lee Kuan Yew School of Public Policy, it was as if a brain had been deprived of its lungs and legs. An urban centre with a hinterland became a country with none, depending on Malaysia for its water supply and on the outside world for its food. As a country, it was acutely short of space. One solution has been to add some: since independence Singapore has expanded by over one-fifth, from 58,000 hectares (224.5 square miles) to nearly 72,000, by filling in the sea with imported sand. Marina Bay Sands itself, a number of massive office blocks and a golf course are all on land that used to be sea. The government expects the land area to grow by a further 8%, or 5,600 hectares, by 2030. But there is a natural limit to this growth.

Another option—to seek a hinterland elsewhere—has proved tricky. Wong Poh Kam, an economist at the National University of Singapore's business school, points out that Johor, the Malaysian state just over the strait, could be to Singapore what southern mainland China has been to Hong Kong, offering land and labour at far lower prices. Johor and Singapore are already closely linked economically. Every day an estimated 50,000 Malaysians commute to work in Singapore from Johor Bahru, the state capital. Increasing numbers of Singaporeans and expatriates do the same, from new dwellings that offer more space at lower rents. But although relations with Malaysia have been excellent in recent years, Singapore does not want to be dependent on goodwill that has at times proved fickle.

Nearby Indonesian islands also provide room for Singaporean investment. Great hopes were once placed in Batam, for example, an island in the Riau archipelago as big as Singapore but with less than one-fifth the population, where over 400 Singaporean firms have operations. However, optimism has faded as Indonesia has seen an upsurge in labour militancy. Farther afield, in the 1990s Singapore had heady visions of replicating itself as a manufacturing power in China, on 8,000 hectares of an industrial park outside the ancient Chinese city of Suzhou. It was an unhappy experience, culminating in Singapore's ceding control of the project to the Suzhou authorities.

The shortage of land is compounded by government policy on how it is used. One-fifth of the total, mainly secondary jungle, is reserved for the armed forces. Once space is allocated for industry, reservoirs, housing, roads and parks (including golf courses, which cover about 2% of the country), the squeeze is obvious. Yet the population, of about 5.5m now, has doubled in the past 30 years and is still expanding. In 2013 a government white paper forecast that it would increase to 5.8m-6m by 2020 and 6.5m-6.9m by 2030.

The immigration dilemma

This, however, assumed that Singapore would continue to take in large numbers of immigrants. Of these, between 15,000 and 25,000 each year would become new citizens, but the total number of foreigners coming in would be much higher. By 2030 the population of long-staying "permanent residents" would climb from about 500,000 now to around 600,000, and the number of "non-resident" foreign workers would increase from the present 1.6m to 2.3m-2.5m, covering both the low-paid migrant workers who dominate the building industry, for example, and high-paid Western "expats".

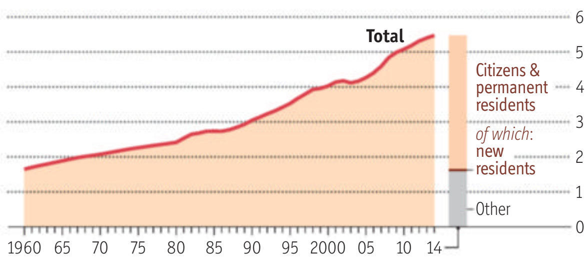
These projections have caused alarm. Already, probably more than half the people living in Singapore were not born there. That proportion seems likely to rise. Singapore has always been an immigrant society, quick to assimilate newcomers. But that openness and tolerance has frayed as some Singaporeans have felt crowded out, and foreigners are blamed for pushing up property prices and holding down wages.

The government argued the proposed levels of immigration would be necessary to maintain even moderate growth because Singaporeans are not reproducing themselves. Last year the "total fertility rate" (TFR), a notional estimate of the number of babies a woman will have over her lifetime, was 1.25, way below the replacement rate of about 2.1. Singapore is tumbling off a demographic cliff. From 2020 the number of working-age Singaporeans will decline, and by 2030 there will be only 2.1 workers for every citizen over the age of 64, compared with 6 last year.

Within the region, Hong Kong, Macau, South Korea, Taiwan and some mainland Chinese cities such as Shanghai have similar rates (Japan, a better-known example, is actually a little more fecund). What is exceptional about Singapore's TFR is that it has stubbornly resisted efforts to change it, stretching over more than 30 years, in contrast to other issues on which the government has focused its attention. In that time the country's Chinese citizens, ▸▸

It's getting crowded

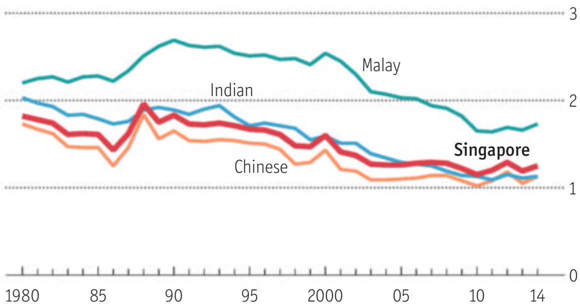
Singapore, population, m



Sources: Singapore Department of Statistics; NPTD, Prime Minister's Office
*Data not available pre-1980

Baby bust

Singapore, residents' fertility rates by ethnicity



Source: Singapore Department of Statistics

for example, have learnt Mandarin, which hardly any of them spoke as their first language. Many children, fluent in English and Mandarin, struggle to communicate with their grandparents, who speak other regional Chinese languages.

For such a persuasive government, the failure of the campaign to raise fertility suggests a lack of will. It has tried to make parenthood more attractive by offering "baby bonuses" and improved maternity and paternity leave, but if the aversion to babies has its roots in the economic cost of parenthood, maybe it is being sustained by an ideological opposition to increasing state support for child-rearing and by the psychological effects of living on a small, increasingly crowded island. Whatever its cause, it has presented the government with one of its biggest political challenges: high immigration. This has become a source of great discontent, but there is no plan B. ■

Politics

Performance legitimacy

When it comes to elections, the PAP leaves as little as possible to chance

DISCONTENT ABOUT IMMIGRATION contributed to an election result in May 2011 that was seen as a watershed, even though the PAP as usual romped home, securing 60% of the popular vote and 93% of elected seats in parliament (see chart, next page). After more than half a century in continuous office, an incumbent government could have figuratively shrugged and asked where else in the world a ruling party could secure such a ringing endorsement in an unrigged vote. Instead it acknowledged the result—its worst since 1965—as a serious rebuke.

Lee Hsien Loong promised some "soul-searching", and indeed the government seems to have listened to Singaporeans' biggest concerns, introducing some curbs on foreign labour and improved benefits for the less well-off and the elderly. It hopes this will help it at the next election, due by early 2017 but expected earlier, perhaps in September or October this year. The PAP may hope that the lavish celebrations to mark its birthday, dubbed "SG50", will remind everyone what a good job it has done; and the patriotic glow that followed Lee Kuan Yew's death in March will not have faded yet.

Voting is compulsory and secret, elections are held regularly and there is no ballot-box stuffing, blatant vote-buying or intimidation, so it is remarkable that the PAP always wins by a huge margin. Lee Kuan Yew once said he was not intellectually convinced that a one-man, one-vote system was the best ("results can be erratic," he explained). Yet that was what Singapore inherited from the British and it has been faithfully followed, with subtle modifications, despite the fear of what is spoken of as a "freak" result: an opposition win.

Voters are well aware of the phenomenal economic advances PAP rule has brought. In a country where most of the population lives in homes bought from the government on long leases, the incumbent government also benefits from the power of its agencies to invest in improving housing estates. Moreover, the PAP has taken full advantage of the rule allowing the government of the day to choose the date of an election within the five-year term of a parliament. Incumbency helps in other ways too. The electoral-boundaries review committee, for example, is suspected of tinkering with constituencies to favour the PAP. It does not convene until just before an election, so the fragmented opposition parties are often not able to divide up constituencies among themselves until just before the campaign period, which is usually very short; in 2011 it was just nine days.

A decision in 1988 to move from a system of single-seat constituencies to one where most seats are filled by Group Representation Constituencies (GRCs) was justified by the need to ensure that ethnic minorities would be represented, which was done through a rule that slates of candidates must include at least one member of a minority. But it also made it harder for small opposition parties to come up with credible slates, and it enabled the PAP to have its own callow recruits swept into parliament on the coat-tails of cabinet ministers. In 2011, all but 12 seats were subsumed into four- to six-member GRCs. One reason that election was seen as transformational was that for the first time an opposition party, the Workers' Party, won a GRC, in the district of Aljunied, defeating a slate led by the foreign minister, George Yeo.

The winners then found themselves up against another hurdle. Also in 1988, the government had taken away some of the functions of running its housing estates, such as basic maintenance, from the Housing Development Board (HDB) and handed them to new town councils, led by local MPs. In Aljunied, the Workers' Party has found itself accused of financial irregularities, and it admits to making mistakes. Its supporters feel it has fallen into a trap.

The government also benefits from a tame mainstream press that is largely hostile to the opposition and rarely covers it between elections. During the campaign itself it tends to favour the government in the crudest way. "Is S'pore ready for a gay MP?" asked a headline in 2011 in the *New Paper*, a tabloid, about an opposition candidate.

The tenor of political debate, however, has been transformed by online and social media. The country boasts high rates of internet and, especially, smartphone penetration (with more than one phone per head of population). Facebook, too, is ubiquitous, with nearly 4m registered users. Most younger people follow the news (if at all) through social media. Where the official press is stuffy, tame and sanctimonious, cyberspace seethes with sarcasm and irreverent diatribes against the "gahmen" (government). This in turn has influenced the mainstream media.

Singapore's government was swift in the 1990s to spot both the importance of the internet and the dangers it posed to its control over information. Early efforts to block pornography showed how hard it would be to limit access to the internet. But that has not stopped the government from trying to keep control, and cyberspace is no free-for-all. Amos Yee, a schoolboy with a

The late, great Mr Lee

loud mouth and a YouTube account, who this year combined the two in an expletive-laden rant celebrating Lee Kuan Yew's death, has ended up facing a custodial sentence. Roy Ngerng, a mild-mannered former health worker and activist, risks bankruptcy for defamatory blogs posted last year. A popular tabloidish news portal, "The Real Singapore", was shut down in May for sins such as whipping up "anti-foreigner sentiment". Defamation and contempt-of-court laws apply online as well as off. Bloggers are deemed responsible even for comments by readers on their posts. Sites that regularly cover news about Singapore have to apply for a licence and post a S$50,000 ($37,000) bond.

A career in opposition politics in Singapore has never looked attractive. The late J.B. Jeyaretnam, the first opposition member to win a seat in parliament (in 1981), faced a series of lawsuits and was disbarred from his legal practice, jailed and bankrupted. He also suffered the contempt of Lee Kuan Yew, who said he welcomed an opposition, but "we don't want duds" such as Jeyaretnam or Chee Soon Juan, leader of another opposition group, the Singapore Democratic Party (SDP). Oddly enough, Mr Chee was also bankrupted after failing to pay defamation damages to PAP leaders. "If we had considered them serious political figures," said Lee Kuan Yew in 2003, "we could have bankrupted them earlier." The late prime minister's ways of dealing with opposition were harsh—particularly so in the period before independence, currently much debated, when alleged communists were jailed. Political losers and victims suffered badly, but there were not that many of them. Compared with other countries, the human cost of Singaporean authoritarianism has been low.

PAP leaders have always been unapologetic. They argue that the defamation suits—for slurs that would be ignored elsewhere—were not to suppress opposition but to protect the government's reputation. No writs flew after the 2011 election. This may be because the PAP had concluded that such suits look petty and vindictive and help the opposition. Or it may be that the history of relentless libel action has worked. Politicians know not to impugn the personal integrity of PAP leaders. Suggestions of nepotism are especially likely to result in a suit. To Lee Kuan Yew, success running in families proved not that the system is rigged but that talent is hereditary. Plausibly enough, he argued that the family connection actually delayed his son's accession to the top job until Goh Chok Tong finished his 14-year stint in 2004.

Another deterrent to opposition is the apparent hopelessness of the cause and the petty bickering of a camp that now includes no fewer than eight parties, some little more than vehicles for their leaders. Mr Jeyaretnam's son, Kenneth (who, endearingly, blogs as "Son of a Dud"), an economist, leads the Reform Party his father formed when he fell out with his Workers' Party colleagues. Tan Jee Say, a former civil servant, banker and presidential candidate, left the SDP to form the Singaporeans First party. And so on. There is even a risk that in the next election the opposition may split the anti-PAP vote in three-cornered fights, hampering the Workers' Party's bid to emerge as a serious and credible opposition party.

Looking for a Goldilocks opposition

In keeping with its repeated statements that it would welcome an opposition (just not this opposition), the government in the 1980s also introduced non-elected seats in parliament: at present three opposition legislators sit there as "best losers", alongside seven non-partisan MPs nominated by the president. Lee Hsien Loong has even mused aloud about creating an opposition by unorthodox means, splitting the PAP into two teams. But, he said, the PAP had concluded that Singapore did not have the depth of talent this bifurcation would require.

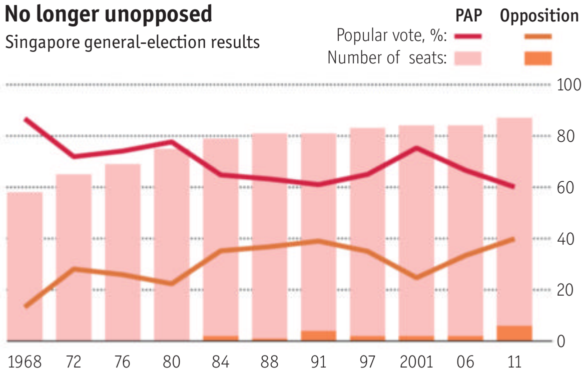
Correspondingly, you would expect the PAP to attract the best and brightest. It has deep roots in the housing estates, and it offers a near-certainty of winning and a chance of a ministerial job. As part of its "meritocratic" philosophy, and to render corruption redundant as well as professionally suicidal, Singapore pays its ministers handsomely, benchmarking their salaries to the senior private-sector jobs to which, it suggests, they would otherwise have risen. Many are drawn from the army or the civil service. Never having known anything else, many civil servants seem to confuse the ruling party with the government. For the party, perhaps the most worrying aspect of recent political developments is that is seems to be having trouble finding a parliament's worth of credible representatives.

In this context, getting 60% of the vote does indeed look like a defeat. The PAP's concern is understandable. Its success has been based on the conviction that it faces enough political competition—and internal discipline—to remain honest and committed to the national interest; but not so much that it might actually lose power. So it can resist pandering to the sort of populist demands that, in Singapore's view, sapped the dynamism from European economies, condemning them to slow growth, social unrest and unaffordable welfare states.

The 2011 result suggests that this delicate equilibrium may be at risk—not in the next election, nor probably the one after that, but soon enough to affect government policy already. Indeed, the changes introduced since the election are radical both in substance and in the tone in which the government has promoted them. It has expressed a new concern for the "Singaporean core" and presented itself less as a strict headmaster than as a benevolent parent caring even for its wayward children. ■

No longer unopposed

Singapore general-election results



Sources: Inter-Parliamentary Union; Singapore Elections Department

Social policy

The social contract

Two big, simple government promises—of a home and a comfortable old age—have become harder to keep

ON A RAINY Sunday morning, Chong Boon market is buzzing. This is "heartlands" Singapore, a housing estate in the district of Ang Mo Kio, row upon row of 12-storey blocks of flats with the usual playgrounds, shops and a market with a food court, where stalls serve local favourites at S$3-4 a meal. One stand serving *char kway teow* (stir-fried rice noodles) is so popular it gives people a queue number.

This is the group constituency of the prime minister, Lee Hsien Loong, though some in the food court say they were not aware of that. Many, however, feel the government has done well by them through two linked policies, on housing and retirement security. Since the 1960s, when the new country inherited a housing crisis, the government's Housing Development Board has built over 1m flats. Now some 80% of Singaporeans live in HDB estates like these, overwhelmingly as owner-occupiers. The estates tend to look alike and they certainly pack people in. But Singapore has no slums and virtually no homelessness, the estates are generally clean and well-maintained, and property values have soared over the years.

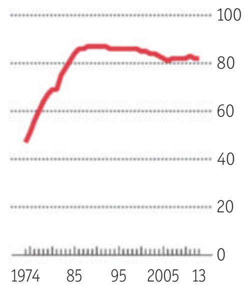
Owners mostly joined the property ladder thanks to the Central Provident Fund (CPF), into which a big chunk of everybody's pay goes each month (at present 37%, made up of 20% from the employee and 17% as the employer's contribution). People can then borrow from their CPF holdings to pay a deposit on a flat. The mortgages for the balance are repaid directly from their accounts. For first-time buyers, the prices of HDB flats, sold on 99-year leases, are heavily subsidised.

"Public housing", says Donald Low, an economist at the Lee Kuan Yew School, "is our de facto welfare state." It is a simple, elegant and effective scheme. A government opposed to handouts has transferred wealth to low-income families on a massive scale. The elderly enter retirement with a place to live and their own savings to live on. Almost all HDB owners aged 65 and over have repaid their mortgages.

However, the arrangement now faces three problems. First, the CPF has been tweaked so much it has become bafflingly complex. Second, many retired people have not saved enough to live on. Originally, people were allowed to withdraw all their savings when they reached 55. Now they have to keep a "basic retirement sum" in their account, calculated as the cost of buying an annuity from the age of 65 to meet the average living costs of those in the "second quintile" of incomes (the next tranche above the bottom 20%). In 2013, 45% of those reaching the age of 55 did not have that basic amount. Third, people's money is tied up in their homes. To generate income, they can sublet part of their home, move to a cheaper flat or sell the final years of their lease back to the government, but many find all these options unpalatable. Singapore will face a growing problem of cash-strapped old people.

Everybody's landlord

Singapore, resident population living in public housing, %



Source: Housing & Development Board

The government has always favoured self-reliance and family support over welfare handouts. Parents can sue children who fail to assist them. Means-tested schemes are available to help the needy and low-paid. The jobless are funnelled into "workfare" and training. Since the 2011 election, however, the government has discovered a new generosity. Last year it announced a package of benefits for the "pioneer generation" (those born before 1950) which it has already financed with an endowment from the government's coffers. It has also introduced modest means-tested pension payments and extended subsidised medical care. But it seems unsure whether to boast about having found a heart or remind the world that its head is still in charge.

New nursing homes are being built and new ways found to care for the elderly at home. In a facility for the destitute in Ang Mo Kio, some 140 older people, including many suffering from dementia, live in part of an HDB estate, three to a two-room rented flat. It is a basic but inspiringly cheerful place, run by a charity, AWWA, but largely financed by the government. Singapore struggles with the idea that it still has some very poor people, but it accepts that some "social needs" remain unmet.

The HDB estates also represent what Singapore's deputy prime minister, Tharman Shanmugaratnam, recently described as both the "most intrusive" and the "most important" of its social policies: the enforcement of racial quotas to prevent the formation of ethnic enclaves. Chinese, Indians and Malays are obliged to coexist at close quarters. Since a spate of race riots in the 1960s, Singapore's government has consistently acted as though the country was just a few drinks and an inflammatory newspaper editorial away from vicious ethnic violence. But the one riot it has suffered, in 2013, was not race-related.

Immigration policy has likewise been managed to maintain the ethnic balance. Since Chinese tend to have even fewer children than Indians and Malays, this has meant an influx of Mandarin-speaking mainland Chinese who are sometimes resented by the Singapore-born. The most common dialect of the older generation of Singaporean Chinese was Hokkien. Mandarin was hardly anybody's first language.

Strict laws prohibit speech or writing that might cause racial or religious offence. In fact, Singapore mostly presents a picture of racial harmony. Some suspect these laws are used to silence government critics. But many Chinese who queued up to pay their respects to Lee Kuan Yew commented that few Malays seemed to join in. Malays are poorer, less well educated and account for nearly half of all arrests for drug offences. A 2012 study of the Malay community at Nanyang Technological University noted fears of the emergence of a "hardened underclass". ■

Singapore has no slums and virtually no homelessness, the housing estates are generally clean and well-maintained, and property values have soared over the years

The economy

The years that were fat

After decades of prudence, Singapore is well prepared for most eventualities

FIFTY YEARS OF breakneck growth have left Singapore's economy in a position of enviable strength. Since 1976, GDP growth has averaged 6.8% a year. The past decade has seen vertiginous swings, from a slight recession in 2009 as the global crisis battered a very trade-dependent economy to a 15.2% leap in GDP in 2010. Since then growth has stabilised in the range of 2-4% a year, which the government expects to continue for the next few years. Unemployment is low, just under 2%, and prices are subdued without stoking worries about deflation. The national finances look just as robust. Thanks to the CPF, Singapore enjoys a very high saving rate: nearly 50% of GDP. With investment averaging a still impressive 30% or so of GDP a year, the country has a structural surplus on its current account which last year reached 19% of GDP, a higher proportion than in any other developed economy. It also maintains a consistent fiscal surplus in conventional terms. The constitution mandates that the budget must be balanced over the political cycle, but ring-fences half of the projected long-term investment income earned on the government's reserves. When all the returns were added in, estimated the IMF, the surplus for the fiscal year ending March 2014 was 5.7% of GDP, compared with the official figure of 1.1%.

The full extent of the country's reserves is a closely guarded secret. They are managed by the Monetary Authority of Singapore (MAS, the central bank) and two sovereign-wealth funds, the Government of Singapore Investment Corporation (GIC) and Temasek Holdings. The government defends the opaque structure as a necessity: should the Singapore dollar ever come under attack, it can keep the assailants guessing. Nevertheless, the secrecy gives rise to occasional rumours that the reserves are smaller—or more probably bigger—than most suspect.

Singapore seems well placed to withstand an external financial crisis. It is a diversified economy with a strong manufacturing base as well as many service industries. But it is, its officials like to say, "at an inflection point". It cannot continue as it has done because a growth model that relies on so many immigrant workers is unsustainable and has already become politically contentious. The government has been trying to prepare for change, with a typically intense focus on the core issue of labour productivity.

A white paper on population in 2013 made a number of assumptions about the productivity of Singaporean workers in order to calculate how many foreigners might be needed. It worked out that, even with the controversially high levels of immigration it projected, Singapore would have to reverse a long-term slide in productivity if it wanted to maintain GDP growth of 2-3% a year between now and 2030. Productivity grew at an annual average of 5.2% in the 1980s and 3.1% in the 1990s but just 1.8% in the 2000s. The White Paper set a target of a 2-3% annual increase in average productivity for 2010-30. If Singapore falls short of that target, it will have to get used either to slower economic growth or even more immigrants.

At the micro level, says Ravi Menon, managing director of the MAS, it is possible to see some "positive mindset shifts to increase efficiency", but "the macro productivity numbers are still not showing it." In 2013 productivity increased by just 0.3%, and last year it actually fell by 0.8%. Some of the structural changes being made to improve it—notably rebalancing the education system towards more vocational and skills training and greater emphasis on creativity—will take years to make a difference. But measures such as the establishment of a S$2 billion fund to help businesses innovate and automate, and an increase in the levies ▸▸

The rich are always with us

But we don't like them that much

MEASURED BY ITS Gini coefficient, Singapore is among the world's most unequal countries. The comparison is unfair: Singapore is also a city, and Hong Kong, New York and London all have higher Gini coefficients than it does. But Singapore measures its coefficient rather differently, excluding shorter-term foreign workers and non-working families. And, understandably, it includes employers' CPF contributions as income. Since these are capped for higher-paid workers, that narrows the income gap.

Egalitarians are troubled by Singapore's reliance on several hundred thousand low-paid foreigners. They are ubiquitous on building sites. Many live in crowded dormitories or worse. The frustrations some suffer were exposed by a riot in December 2013 after an Indian construction worker, on his Sunday off, was run over and killed by a bus. But such events are highly unusual.

Lee Hsien Loong thinks Singapore should not fret overly about its inequality rankings. "If I can get another ten billionaires to move to Singapore," he said in 2013, "my Gini coefficient will get worse but I think Singaporeans will be better off, because they will bring in business, bring in opportunities, open new doors and create new jobs." A generation ago people at all levels of society believed that a rising tide would lift all ships: they were better off than their parents, and knew their children would be better off still.

But that may no longer be true. In April, in one of a stimulating series of lectures to mark SG50, Ho Kwon Ping, a successful businessman, discussed waning faith in meritocracy. He warned that "the original social leveller", the education system, may now "perpetuate intergenerational class stratification". Only 40% of the children in the most prestigious primary schools live in HDB flats, home to about 80% of all children.

Singapore's government, unlike New York's or London's, is its citizens' overall tax authority, and its tax system is regressive. It has no capital-gains or inheritance taxes, and income tax is low: even after a recent rise, the top rate is 22%. In future elections it will face growing pressure to redistribute wealth more actively. At every stage it will balk, wary of the "slippery slope" towards effete welfarism. But it has the resources.

employers must pay to hire foreign workers, might have been expected to provide a boost already.

A big part of the solution, the government hopes, lies in cyberspace. Singapore has invested heavily in the infrastructure of the internet: exchanges and island-wide broadband access at home, and undersea cables that route much of the internet traffic between Japan and Europe through Singapore. But despite high internet usage and smartphone penetration, it scores less well on an "e-intensity" index developed by BCG, a consultancy, than countries such as South Korea, Denmark and even Britain. The index measures the availability of digital infrastructure, internet use by businesses, government and consumers, and spending on online commerce and advertising. Michael Meyer of BCG says Singapore falls short in three "output factors"—the adoption of e-commerce; the use of the internet in small and medium-sized enterprises; and in advertising spending.

One initiative that may help change that is the government's "Smart Nation" drive, involving a further improvement of internet connectivity, the deployment of sensors all over the island to garner more big data and the use of those data to develop new applications. Some interesting ideas are in the works. In transport, these include point-to-point buses on commuting routes where demand is high, and driverless taxis for the "last mile" to the tube station; in health care there is already an app that alerts those trained in first aid of an emergency nearby; and in caring for the elderly, an alert might be sent to family or neighbours if, say, a tap has not been used for a while.

In the retail, hospitality and construction industries especially, the addiction to cheap foreign labour seems hard to kick. Government officials point to promising developments: online check-in for flights; restaurants offering iPads in lieu of waiters; supermarkets moving to self-checkout tills; security guards being replaced with cameras. But counter-examples are also legion: the handyman who used to do the job himself in 30 minutes but now employs two Sri Lankans to do it in an hour; the employers sometimes caught with "ghost" Singaporean workers on their books for whom they pay CPF contributions so they can get a foreign-worker quota. As one government official notes, it is a feature of inflection points that things can go either way. ■

Business and finance

Many spokes to its hub

In managing Singapore's global business niches, the government still seems ahead of the game

THE COMPARISON WITH Hong Kong is inevitable. Both are thriving ports and financial centres; both have Chinese-majority populations and legal systems inherited from the British. But in the past 30 years Singapore and Hong Kong have trodden very different economic paths. With the opening of China, Hong Kong's manufacturing industry shifted over the border, falling from about 20% of GDP in 1980 to just 1% now (see chart). In Singapore, it has dropped from about 28% a decade ago, but only to 19%. That is far below the 30% or so seen in places such as China, South Korea or Taiwan, but far above the levels in other developed countries such as America, Britain, France or Spain, let alone Hong Kong.

Yet Singapore faces many of the same pressures as its main regional rival: land scarcity, a tight labour market and competition from lower-cost neighbours. The decision to retain a manufacturing base has been the government's. It provides 420,000 jobs, many of them high-skilled. Rolls-Royce, for example, a British aerospace and marine-engineering firm, has what it describes as its most modern manufacturing, training and research facility in Singapore. Of the 2,200 people it employs there, 90% are natives, mostly graduates of technical institutes.

The government argues that manufacturing nurtures the "ecosystem"—a favourite word—that sustains a financial and business hub. It also reflects historical insecurities: the yearning for a degree of self-sufficiency. For example, despite having no hydrocarbon reserves, Singapore is the world's third-largest producer of refined oil for export and has expanded into downstream petrochemicals.

Singapore has moved consistently up the value chain. Electronics is one example. In the 1980s, thanks to Seagate, an American firm, and other multinationals, Singapore accounted for 60% of hard-disk drives (HDDs) shipped globally. As production moved to Thailand, Malaysia and China in the 1990s, Singapore became the centre for production of higher-margin "enterprise HDDs". By the early 2000s Singapore had 80% of this global market and had already begun to shift to the next level, hard-disk media, in which it now has a market share of about 40%.

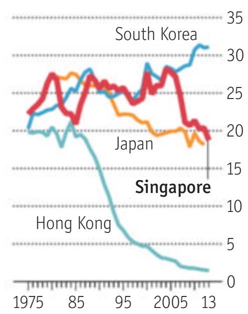
The strategy has been to spot opportunities and to make investment irresistibly attractive for multinationals. Five priorities for future "growth clusters" were listed in this year's budget: advanced manufacturing; aerospace and logistics; applied health sciences; "smart urban solutions"; and financial services. Singapore, says Beh Swan Gin, chairman of the Economic Development Board, which promotes inward investment, is now seeking a "much more expansive role" in the business activities of the firms located there—not just as an offshore manufacturing location but as home to many more of their functions.

When it comes to domestic business, it is striking, in a country that boasts about keeping the state lean, how many of its most successful companies are "GLCs" ("government-linked") in which, through Temasek, the government has a substantial stake. They include DBS (the largest domestic bank); NOL (shipping); SingTel (telecoms); SMRT (public transport); ST Engineering (high-end engineering services); CapitaLand (property); Keppel (marine engineering, such as jack-up rigs, in which Singapore has a 70% global market share); and SembCorp (marine engineering and utilities).

Besides thriving property developers, Singapore does have innovative and expansive private companies, such as BreadTalk, a baker with a presence in 15 countries; Charles & Keith, an international chain of shoe shops; and Hyflux, which is building an export market using Singapore's expertise in power- and water-management. But Singapore's best-known brand remains that of a GLC: Singapore Airlines, its flag-carrier.

There is another, however: its own, as a city that works. It sees great potential in marketing its urban services. Its second governmental joint venture in China, for example, after the ill-starred Suzhou industrial park, is to develop an "eco-city" in Tianjin. And a consortium of Singaporean firms is to design a

Still making stuff
Manufacturing, % of GDP



Source: Thomson Reuters

One of the city's biggest failures has been that its public transport system has not kept up with population growth

According to a report by Deloitte, a professional-services firm, the volume of private wealth under management in Singapore increased by 24% last year, but in global rankings it was overtaken by Hong Kong, with a rise of 140%. Policymakers like to point to the paradox that Singapore's greatest disadvantage is being so far from China, the emerging regional economic superpower, yet that is also its biggest advantage. Over time, Hong Kong is steadily becoming more Chinese, even ahead of its scheduled full absorption into China in 2047. The struggle over constitutional reform also means that political stability there is no longer a given. Shanghai will become an ever more important financial centre, but, like Tokyo, it will be dominated by its local economy.

So in finance as in other businesses, Singapore should be able to keep its pivotal role. With plenty of English- and Mandarin-speakers, it can exploit opportunities with emerging Asia's two biggest economies, India and China. And its development, infrastructure and institutions remain years ahead of other cities in its neighbourhood. South-East Asia is itself a fast-growing region of over 600m people and an aggregate GDP of $2.5 trillion. Singapore still retains the assets that made it an important trading hub in the 14th century, and again after Stamford Raffles selected it as a base in 1819: its geographical location at the end of the Malacca Strait and a fine natural harbour. Indeed, in keeping with Singapore's knack for building to meet expected demand, its harbour, already the world's second-biggest container port (after Shanghai) and busiest trans-shipment port, is being moved to the western end of the island, doubling its capacity. At the other tip of the island, a fourth terminal is being added to Changi airport; a fifth is planned. Capacity, currently 67m passengers a year, will double. (Last year 54m passengers used the airport.)

Given the economy's strengths, Singapore's officials can perhaps be forgiven for seeming smug at times. But they are also, as one of their diplomats puts it, "worst-case-scenario people", acutely aware of what could go wrong. One is that the quality of life—the "soft" factors that make Singapore so attractive to foreign investors—might deteriorate. The city's air is relatively clean (except when poisoned by fumes from forest fires in Indonesia); international schools of all sorts are available; taxes and crime are low; bureaucracy is efficient; things work.

Population growth might threaten that, particularly if it leads to traffic gridlock, "the easiest way to strangle Singapore", according to Kishore Mahbubani, dean of the Lee Kuan Yew School. One of the city's biggest failures, he argues, has been that its public-transport system has not kept up with population growth, despite the hectic pace of underground-railway construction. Buying a car is very expensive, thanks to the rationing and auctioning of licences (currently an excruciating S$66,000 for a small vehicle). But running costs are quite low, despite an electronic road-pricing system that penalises drivers in the centre of town and at peak hours, so there is a perverse incentive to drive. And car ownership is still part of the "Singaporean dream". Taxis are cheap but can be hard to find, especially when it rains. Space for new roads is scarce; precious heritage, such as the old national library, has already been lost to traffic-flow improvements. The government has recognised the dangers. With better public transport, it may be politically possible to steer Singapore away from the car. ■

new capital for the Indian state of Andhra Pradesh.

Singapore is also trying to establish itself as a hub for tech start-ups. This seems ambitious. It is a much more relaxed place than it was, with a lively cultural and entertainment scene, but it lacks Berlin's vibes and Silicon Valley's appeal as a financial and technological hub. Singapore's government is throwing some money at the tech business and has attracted some venture capitalists and incubators as well. Its small size and excellent infrastructure makes it, they point out, a good place to try things out.

One place where they experiment is in Block 71, a once-condemned factory block near shiny new glass-and-steel edifices flaunting Singapore's new-industry ambitions. Block 71 is now full of young start-ups. In the office of the Joyful Frog Digital Incubator, they are working on ventures such as Hijab2go, an app that allows Muslim women to model hijabs on their selfies before they buy. Wong Meng Weng of Joyful Frog says that young Singaporeans are becoming more interested in starting their own businesses. But an anecdotal impression is that Block 71 is dominated by foreigners, attracted in part by government money. As a technology hub, Singapore still lacks critical mass.

The Wimbledon effect

In finance as in manufacturing, Singapore plays host to the world's biggest institutions but rarely wins prizes itself. Its three local banks—DBS, UOB and OCBC—are protected in their local market, a bone of contention when Singapore negotiates free-trade agreements and an irritation to foreign visitors, who find it harder to pinpoint a hole in the wall that will accept their debit cards than they do in Ulaanbaatar or Mandalay. In terms of market capitalisation, Singapore's stock exchange is dwarfed by those in Hong Kong, Shanghai and Tokyo, its main regional rivals as financial centres.

Yet the city has overtaken Shanghai and Tokyo to become the largest centre in its time-zone for foreign-exchange trading, and globally lags behind only New York and London. Asked how it has managed this, Marshall Bailey, president of ACI, the Financial Markets Association, points to its being English-speaking and having high standards of governance. It is also, of course, Chinese-speaking, and is the biggest offshore trading centre for the Chinese yuan outside Hong Kong. Besides that, it is a centre for derivatives-trading and for the insurance industry, as well as home to 14,000 commodity traders and a thriving base for asset management and private banking, fast catching up with Switzerland. It is also gaining in importance as a legal centre for international arbitration.

Foreign policy and national identity

A little red dot in a sea of green

A sense of vulnerability has made Singapore what it is today. Can it now relax a bit?

KISHORE MAHBUBANI'S MOST recent book was called "Can Singapore Survive?". Singaporeans are never allowed to forget that their country is small and its future fragile. If it does not remain exceptional, said the prime minister in that May Day speech, Singaporeans will be "pushed around, shoved about, trampled upon".

Fifty years ago the city state was born out of a row with one of its neighbours, Malaysia. The other, Indonesia, had been waging a campaign of *konfrontasi*—just short of open warfare—against Malaysia and Singapore. Those days seem long gone. The Association of South-East Asian Nations, formed in 1967, boasts of its success in lowering regional tensions. Singapore's relations with Malaysia and Indonesia are excellent. But for how long? The neighbours sometimes give Singapore reason to fret. In 1998 the then Indonesian president, Bacharuddin Jusuf Habibie, was quoted in a newspaper article as saying he did not see Singapore as a friend. Pointing at a map, he went on: "It's OK with me, but there are 211m people [in Indonesia]. All the green [area] is Indonesia. And that red dot is Singapore." Mr Habibie denied saying this. But, with a characteristic mixture of pride and paranoia, Singapore adopted "little red dot" as a motto.

Besides peace with the neighbours, the other pillar of Singaporean security has been the benign, American-led order in Asia and the Pacific that has prevailed since the end of the Vietnam war in 1975. That, however, is now in danger. China seems to see America's security presence as in part intended to thwart its own rise. Under Lee Kuan Yew, Singapore managed to position itself as the best friend in South-East Asia to both America and China. That makes a falling-out between the big powers especially ominous for it. It has already irritated America by joining the new Asian Infrastructure Investment Bank that China has set up. China, for its part, gripes about Singapore's links with Taiwan, where it sends its army to train.

So nervousness about the future is understandable. It is reflected in high defence spending (S$12.4 billion in 2014, or 3.3% of GDP, more than twice as much in money terms as in Malaysia, which has a population more than five times bigger); and in the two years' national service for men which, according to the defence minister, Ng Eng Hen, enjoys 90% popular support among Singaporeans.

Singaporeans are never allowed to forget that their country is small and its future fragile

The sense of vulnerability and hence of the importance of national cohesion, instilled in Singapore's leaders by Lee Kuan Yew and his fellows, is at the root of many aspects of the Singapore exception described in this report: in the fear of tolerating an effective political opposition; in the anxiety about communal tension; in the retention of repressive colonial-era legislation such as the Internal Security Act. It has also influenced economic policy, including the ideological objections to welfare and its debilitating impact on the national psyche.

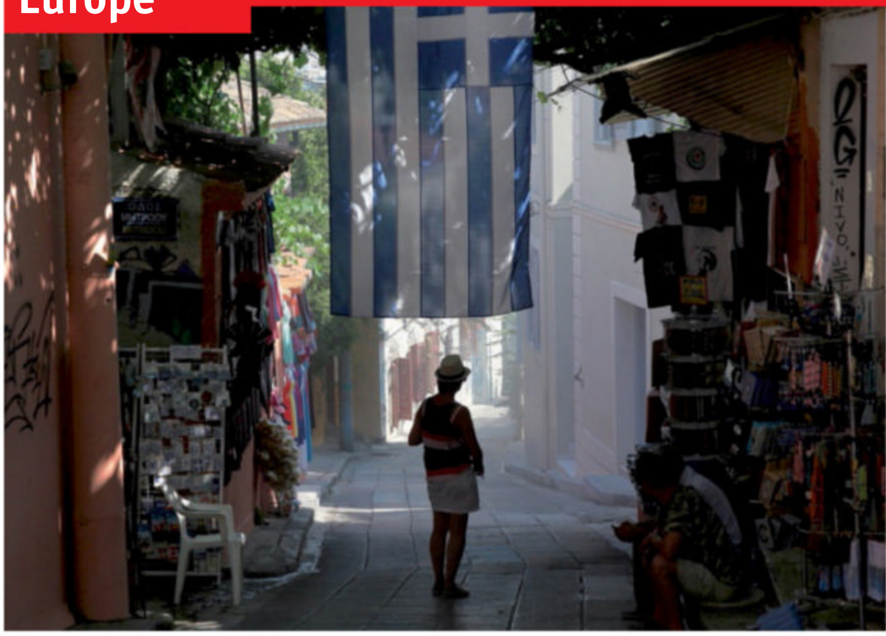
It can even be seen in the tough law-and-order policies for which Singapore is also famous. Its use of the death penalty is repellent to liberals, as is the resort to corporal punishment, for which the official terminology—"caning"—grossly understates the barbarity. But, say many Singaporeans, these policies have worked—and the system made by Lee Kuan Yew is presented as a package, as if the economic growth somehow justified the caning.

Lee Kuan Yew's defining characteristic, however, was pragmatism, a willingness to change his mind. He long opposed allowing casinos in Singapore, but was a member of the cabinet that in 2005 agreed to allow two to open, generating within a few years gaming revenues equivalent to the Las Vegas Strip's. He also, late in life, accepted that homosexuality was "not a choice", though for men practising it remains an offence.

Time for a sonnet

This report has pointed to plenty of reasons to be optimistic about Singapore's economic future—certainly for its well-educated, globally aware young people, who are in one of the best places in the world to ride the wave of Asia's rise. But they and their leaders need to decide what sort of society they want. The danger is that they will no longer be meritocrats sitting atop an unequal yet basically harmonious society, but an elite in a country that relies on increasing numbers of short-term migrants treated with little respect; and where an ageing, less educated group of fellow citizens feel disgruntled and let down.

Many countries in the world face similar dangers, but in Singapore they are especially stark because of its size and its severe ageing problem. As this report has also argued, Singapore is better equipped than most countries to avoid the worst outcomes. It can afford to relax politically without inviting chaos; it can afford to relax socially without causing unmanageable tension; it can afford to provide better for its needy and elderly without pushing the country down a slippery slope of welfare dependence; it can afford, in other words, to be less of an exception, more of a normal country; and, yes, it can afford even poetry. ■



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Greece and the euro

From rage to resignation

ATHENS

A chastened nation, and its leader, face more hard choices

GRIEF, psychiatrists say, has many stages, from denial to acceptance; and Greece seems to have raced through them all. Ten days after 62% of voters rejected the terms of a harsh bail-out package, the country's parliament voted with clenched teeth for an even tougher set of reforms.

After a long, anguished debate, with protesters hurling petrol bombs outside, some 229 members backed the changes needed to unleash a new aid package, while 64 voted against and six abstained. At least 38 of the 149 legislators who belong to Syriza, the ruling leftist party, refused to back the changes, Among the rebels was Zoi Konstantopoulou, the parliamentary speaker, who spoke of a " very black day for democracy in Europe".

Still, rather than cry "betrayal", seven Greeks out of ten accepted that bowing to the European Union's diktat was the right thing to do, according to a poll. A similar number said that Alexis Tsipras, who called the July 5th referendum in a spirit of defiance, but later settled for a much worse deal, should remain prime minister.

Indeed his transformation has been a big shock. The firebrand leader looked chastened after a 17-hour negotiation in Brussels; compatriots who disliked his demagoguery sympathised with him for the first time. During the parliamentary debate, his voice rose again: he said Greeks had a choice between waging an "unfair battle" and "handing in their weapons".

The vote left Greeks who want stability waiting anxiously for several more things, including a lifeline from the European Central Bank and approval from other euro zone parliaments. They also hoped Mr Tsipras would not rock the boat by calling snap elections. A better chance of keeping Greece afloat seemed to lie in teaming up with smaller parties, like the once-mighty Pasok and the centrist Potami (River) or making an even broader coalition.

The euphoria of the July 5th vote has given way to fatigue. "At least we tried," says Anna, a law student who, like most young people, voted "No" but wants to keep the euro. After the roller-coaster they have ridden, Greeks seemed strangely resigned to the hard place where they landed. The nation is suffering from post-traumatic stress, Mr Tsipras told Greeks on July 14th. His tone was conciliatory, calling creditors "partners" and admitting his wild former finance minister, Yanis Varoufakis, might not have been ideal for politics.

Islands hard to reach

But not everyone is convinced by the new Mr Tsipras or the medicine he has swallowed. Pharmacists, municipal workers and others went on strike on July 15th to protest the impact that the reforms will have on their livelihoods. Public sector workers fear for their jobs, with reason.

On far-flung islands, where the writ of Athens does not always run, raising taxes may be an even harder and less desirable proposition than on the mainland. But Xenophon Petropoulos of the Greek Tourism Association said he mostly welcomes the more steady chapter that this week's vote will bring. He admits that tax hikes for his industry will be "very tough" for a country competing with other euro-zone destinations, as well as Turkey. But he craves a Greece stable enough to reassure visitors; and he hopes that after the vote, late bookings (which as of last week were down 30% on 2014) will pick up again.

Kyriakos Mitsotakis, an ex-banker and leading figure in the centre-right New Democracy party, is confident that private capital will start flowing back as soon as political stability returns. But to get to that place, banks will need to achieve some semblance of normality and the political order will have to look more durable.

Mr Tsipras faces a mammoth task: the financial system is creaking, unemployment is rising and the recession will surely deepen. And given the emotional swings that the Greeks have already exhibited in the last few weeks, nobody is sure that the spectre of Grexit has been banished.

"Alexis Tsipras, after coming to terms with reality, now has a historic responsibility," said Niki Kerameus, a New Democracy MP. Much depends on which side of the prime minister's complex persona prevails, and how he deals with leftist rebels.

In the immediate future, if there is any politician who can steer Greece away from the temptations of the hard right, or forces well to the left even of Syriza, he is probably the one. Still, even if he behaves perfectly, and even if Grexit doesn't come back onto the table, it seems hard, to people in Athens as much as Brussels or Berlin, to see how the shattered relationship between the Greeks and their (northern) European neighbours will be repaired. ■

The Greek deal

Hemlock, not champagne

ATHENS

Term set by Greece's creditors raise more questions than answers

THE risk of a chaotic Grexit was averted by the morning of July 13th. But the rest of Europe exacted a price from Alexis Tsipras, the Greek prime minister. To have a chance of a third bail-out, Greece must meet strict terms. And, even if it does, and a three-year programme providing financing of as much as €86 billion ($94 billion) is concluded this summer, many wonder if the deal will really help the country stand on its own feet.

Much depends upon how resilient Greece is after the turmoil of the past month, and the self-harm of early 2015. It has slipped back to a mostly cash economy, with capital controls and shuttered banks. Even before these setbacks, a recovery in the first nine months of 2014 had turned to recession in the final quarter of 2014 and first quarter of 2015. Credit to the private sector dried up as banks faced a drain of deposits, forcing them to rely on "emergency liquidity assistance" (ELA), nominally from the Bank of Greece but controlled by the European Central Bank (ECB).

To jump-start any growth, banks must reopen and start offering trade credits, needed for vital imports. That will require the ECB to raise the cap on ELA, which was fixed at €89 billion on June 28th, soon after Mr Tsipras called his referendum. Some Greek bankers hoped this would happen within a day of parliament accepting the new deal's basic terms; others thought relief might be delayed until July 20th, when the Greek government is due to redeem debt held by the ECB; it must pay €3.5 billion, plus interest of €700m. If the bridge financing needed for this payment is provided (probably through a fund backed by the whole EU) it will be easier for the ECB to raise the ELA cap.

Even if this all happens, reopened banks will not work normally. Strict capital controls will stay in place to stop a further flight of money out of Greece; the cash that depositors can take from their accounts will remain limited, probably still at €60 a day. The banks have been recapitalised once, after the restructuring of Greek government debt (held privately) in 2012; now they must bolster their capital again, given the poor state of their business clients.

Until this recapitalisation exercise, involving stress tests, is done in September, Greek depositors will be wary of returning cash into their accounts for fear that they might be "bailed-in" to meet a capital shortfall. This is what happened to big depositors in Cyprus (notably Russians) two years ago. In fact that is unlikely now because the money affected would be working capital held by small Greek firms, the economy's mainstay. Moreover, the July 13th deal also provides €10 billion-25 billion to help recapitalise the banks.

It will take time for confidence to return to the banks and depositors; that means capital controls will remain in place for a long time. In Cyprus they were not fully lifted for two years. Meanwhile Greece faces a fresh dose of austerity, for example through the rise in VAT, which will raise 1% of GDP. The euro summit did not specify precise budgetary targets for this year and next, but in previous talks creditors had stipulated a surplus on the primary budget of 1% of GDP this year and 2% next year. Gikas Hardouvelis, a former Greek finance minister, says that unless these targets are softened (accepting a deficit this year) the deal will weaken a frail economy.

The structural reforms set out in the accord should help in the longer term. The biggest change is to the pension system, whose vagaries were a huge cause of financial instability, notes Platon Tinios of Piraeus University. First, with immediate effect, minimum pensions will be payable only at 67, the statutory retirement age. Second, many loopholes that let people retire early ▸▸

Small business in Greece

Angry in Athens, livid in Lesbos

ATHENS AND LESBOS

Whatever they feel about Europe, Greeks with energy now feel thwarted

SOME Greeks think Alexis Tsipras, their prime minister, went too far in confronting the EU. Stratos wishes he had gone further. At 26, he is a live wire. He studied economics at university but stopped three exams short of his degree to take an internship at a bank in Athens. A year ago he left his friends there, most of them struggling to earn, say, €650 ($710) a month in retail jobs, and he moved back to the island of Lesbos to help the family restaurant.

Stratos voted "No" in the referendum two weeks ago, but grumbles that the vote was called at "the worst possible time", snarling up the tourist season. Unlike Mr Tsipras, he thinks Greece should return to the drachma. "Now we can't save enough to have a family. I don't want my children to grow up like this," he says. Most local business owners disagree; many in the older generation, and some of his family, favour the EU-minded New Democracy party. They dread the effect that leaving the euro might have on their pensions. Stratos sees things differently. "We have to start from zero and build up again. If we go on like this, we'll always have the Germans on our backs."

Stratos, dreaming of drachmas

Some of this determination to go it alone reflects the self-reliant and wayward spirit of Greece's islands. As he puts it, he has cousins who raise tomatoes and a friend with a dairy farm; if need be, his family can make it on their own.

Michalis, the owner of a modestly flourishing Athenian business, has different complaints. A pro-European "yes" voter, he sells health products to companies and restaurants; clients include a large bank and big fast-food chains. Having started up in 2012, he was beginning to break even at the start of this year.

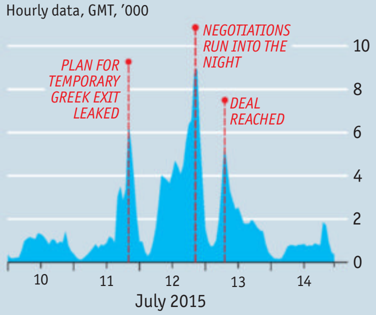
EU-mandated taxes made life hard enough; but the capital controls imposed in recent weeks have wrought havoc. The 37-year-old entrepreneur used to be able to pay suppliers with credit; they now want prepayment, often in cash. Thanks to currency-export curbs he can no longer bring in the imported goods that were 80% of his product line.

Some customers are not paying him at all. Others pay him via bank transfers, to which he has no access because of capital controls. (They do this because they fear a haircut of their deposits.) He has had to send his three employees home for the past fortnight because there is no business to be done, yet he still has to pay their salaries. Despite his pro- EU instincts, he is disappointed by the proposed reform package; he thinks it fails to make the structural changes that Greece needs and instead makes it even harder for businesses to survive. Firms like his will be "taxed to death"—a foolish policy in a recession, he says. He adds that he is "nearing the point where there is no reason to work any more."

Dangerous talk

Number of Tweets* containing Grexit or #Grexit

Hourly data, GMT, '000



Source: Twitter *Includes retweets

will close. By 2023 almost all people will be eligible to retire at the earliest at 62 with payments actuarially reduced from the amount they would get at 67, unless they have contributed for 40 years.

The accord expects €50 billion to come from privatisations, managed by an independent fund. A similar goal was set by the Greek government in 2011; it never came close. The IMF says only €3 billion has been raised in the past five years.

Anyway, privatisation proceeds will hardly dent Greece's total debt which the IMF now expects to peak at almost 200% of GDP. Although the actual burden is much lower because of various forms of relief, such as long maturities, Greece's debts will clearly never be repaid in full. The IMF said this week that its burden could be made sustainable only through steps "that go far beyond what Europe has been willing to consider so far". But the deal of July 13th only allows a stretching of maturities, not outright debt forgiveness. That alone casts a shadow over the new plan. ■

German views of Greece

Austere? Your word, not ours

BERLIN

If anything, Germans are more hawkish on Greece than their leaders

TO HEAR Germany's critics, one would think that the word and the concept of "austerity" was a dubious Teutonic gift to the world. In fact, *Austerität* is rarely used in German. It was borrowed fairly recently from English, which got it from French. The French got it from Latin, and the Romans took it from, of all sources, Greek: *austeros* means bitter.

What others call "austerity", Germans call *Sparpolitik*, "savings policy", which has a much more positive connotation. In the week after the new agreement between Greece and its creditors, many people in Germany felt baffled and angry, but also resigned, at becoming the avatar of unloved austerity. Within a day of the plan, leftists in Greece and elsewhere urged a boycott of all things German.

Wolfgang Schäuble has been the main bogeyman for opponents of Germany's hard line in the debt crisis. A pro-Syriza newspaper portrayed the German finance minister in February as a leering Nazi promising to make soap from Greeks' fat. Though irate, Mr Schäuble took it in his stride, having been in parliament for 43 years, and having suffered much worse before, including an assassin's bullet. He has a long pro-European record, differing mainly with fellow Europeans on how much stress to put on rules and systems, rather than ad-hoc deals.

Nor was Mr Schäuble isolated. A few critics in Germany called his proposal, during the marathon negotiations, for a "temporary" Greek exit from the euro zone reckless and harsh. But some finance ministers from other euro-zone countries supported it. The Social Democratic Party (SPD), with whom Mr Schäuble's Christian Democrats rule Germany in a grand coalition, is more divided. But the SPD's leader, the economy minister Sigmar Gabriel, publicly defended his cabinet-mate, saying that he knew in advance of the temporary-exit plan, and that the only right thing to do was to consider every available option.

Mr Schäuble and Mr Gabriel can read polls. Before the third rescue package was announced, a 51-41% majority of Germans supported Grexit. They appear sanguine about how badly chaos in Greece would affect Germany, with just 27% thinking that a Greek bankruptcy would hurt Germany "badly" or "very badly". In a July 1st poll, some 85% rejected further concessions to Greece, including even 68% of supporters of The Left, a post-communist party and an ally of Syriza, Greece's ruling party.

Marcel Fratzscher, the head of the German Institute for Economic Research, concedes that he is in a minority, among his compatriots, in thinking that the Greek deal was clearly superior to a Grexit.

He thinks that Germans hardened their position when critics raised the question of the debt "haircut" which the war-shattered Federal Republic got from its creditors, led by America, in 1953, as part an effort to relaunch the economy. They feel they have worked hard, in the light of their own dark history, to build a strong Europe, and raising the 1953 deal was a nasty tactic.

In the end, though, as often before, most Germans trusted Angela Merkel, the chancellor. A solid majority thinks she did a good job in the crisis. Although 78% polled just after the deal think the Greeks will not keep their side of it, a bare majority supported the deal anyway. That verdict is a sign of faith in Mrs Merkel. But her reputation for sound judgement will now face the hard test of reality. ■

Migrants in the Balkans

Funnelling them forward

PRESEVO

In the old Yugoslav war zones, new waves of travellers stream north

THE SIGHT of desperate folk treading hard roads is familiar in Macedonia and Serbia. In the Kosovo war of 1999, more than 250,000 ethnic Albanians entered Macedonia; Serbia had to absorb even more of its own kin, for longer, after the Serb cause was defeated in various conflicts. But a new tide of migrants from further afield is startling for both countries.

On a road near Presevo in southern Serbia, once used mainly by farmers, a couple of young women trudge onwards, chattering in Arabic, followed by a larger Middle Eastern group of 20 with children, then a cluster of Africans. Tomor Misini, an ethnic Albanian war veteran, leads a group of local volunteers who help the travellers.

Since early June the number of migrants using this route, having set out from places like Syria, Afghanistan or the Horn of Africa, has risen four or fivefold to about 1,000 a day. Their immediate goal is Hungary, a European Union member whose borders have hitherto been porous.

Several other things have changed very recently. First, Serbia and Macedonia have largely stopped stemming the flow; they just send people north, giving migrants a 72-hour pass to cross each of their territories. Secondly, Hungary started building a giant fence on July 13th, to Serbia's dismay.

A detention centre in Macedonia, where hundreds were locked up, has been emptied. A migrant route from the Aegean to central Europe that was previously clandestine and controlled by traffickers is ▸▸

Taking a train to the heart of Europe

now, at least on this leg, more open.

Until recently, migrants crossing Macedonia were banned from public transport. Many walked along a railway track to Serbia, where 24 died this year. Now they register and get the train to Tabanovce, near Serbia's border. Then they traverse woods and fields to Presevo, where a registration centre opened on July 8th.

They get a Serbian document which notionally affirms their intent to seek asylum within 72 hours. In fact, most will not. With their document they also get a leaflet with train times to help them get to Subotica on the Hungarian border. In the railway station similar instructions are pasted up in English and Arabic. Once in Subotica the migrants walk across another frontier.

According to the UN High Commissioner for Refugees, almost 60% of the refugees are Syrians. Iraqis and Afghans are the next biggest groups. Most are young men, but older folk and young families come too.

At the Macedonian and Serbian borders, the police remain erratic. Sometimes they beat migrants, other times they let them pass. Some who crossed close to Presevo on July 13th said they were beaten; others strolled over. On June 27th ten Hungarian policemen came to help, but this made little difference. It seems that Macedonian and Serbian police quietly told the migrants to cross when their Hungarian colleagues were off duty.

In the first half of 2015 some 37,391 people sought asylum in Serbia. Few want to stay but the application lets them pause legally. The real number of migrants crossing the country could be twice as big, says Rados Djurovic, who runs a Serbian NGO.

In late afternoon migrants who have been "processed" throng Presevo's tiny railway station. In a village nearer the border, new arrivals stop to wash and sleep at a mosque, built by local Albanian Muslims. Groups wandering the roads ask for directions to the station. They are in a hurry, because they know Hungary is building the fence. ■

Russian holidays

Banned from foreign beaches

MOSCOW

As in Soviet days, the state is making it harder for many to holiday abroad

IN COMMUNIST times a summer break usually meant a trip with workmates to a stony beach or a bracing mountainside—within the Soviet motherland. When the red flag came down, Russians flew off en masse on exotic forays to Turkey or Thailand. Now the pleasure of holidaying closer to home is perforce being rediscovered by an ever-growing category of citizens who, to use a very Soviet term, are *nevyezdniye*: forbidden, by virtue of their state employment or access to secrets, from going abroad. As the Kremlin's extreme froideur with the West enters its second year, the number of *nevyezdniye* Russians may surpass 4m.

That is a change from the early years of Vladimir Putin's presidency, when the means as well as the right to travel were hailed as benefits of his rule. In Soviet times travel abroad, usually in highly controlled groups, was rare. But after the Soviet Union fell in 1991, most Russians could freely leave, including officers in the army, police and intelligence services. Many opened bank accounts and bought property abroad. Foreign travel rocketed.

That began to change in 2010, says Andrei Soldatov, an investigative journalist, when America uncovered a network of Russian spies who had lived in America for years. That fiasco made the Kremlin nervous of what footloose, well-connected Russians might give away. The Russian state began to curb the right of those with state secrets to roam the world.

The ranks of Russia's *nevyezdniye* swelled even more last year after Crimea was annexed and war broke out in eastern Ukraine. Russia's foreign ministry warned that American agents were "hunting for Russian citizens". It advised against travel to countries with extradition treaties with America. That put Europe off-limits. The same applied to Egypt and Turkey.

Then it became still harder for an array of state employees. At the interior ministry, workers at a certain level had to hand over their passports. A Communist member of parliament said all his colleagues should be barred from going abroad without special approval. News reports suggested that even railway workers were cancelling trips at the suggestion of higher-ups.

Police without security clearance are given a "recommendation" not to go abroad, says Mikhail Pashkin of Moscow's police union. But there is talk of changing the contracts signed by all officers, even traffic cops, to oblige them to get permission for foreign trips. Mr Pashkin adds that other factors may be at work. The thinking, as he puts it, is that even if money is stolen, "let them spend it here and not there."

Russian tour operators, already reeling from the weak rouble, have been hurt. "We underestimated how many [securocrats] there were," says Irina Tyurina of Russia's Tourism Industry Union. "But they want to have a vacation all the same." So demand has risen for Russia's few seaside resorts, such as Sochi, the site of the Winter Olympics in 2014, and Anapa on the Black Sea—and Crimea. Operators of package tours to Egypt and Turkey have begun organising similar trips to Sochi: charter flights, air-conditioned buses, all meals included. "If a person is used to package tours, he or she won't be disappointed," says Sergei Tolchin of NTK-Intourist. "It's the same model, only if the beaches in Turkey are sandy, then in Sochi there are pebbles." ■

When the French Riviera is off limits, try the Russian one

Charlemagne | The dark clouds of peace

Built to foster friendship, the euro is manufacturing misery instead

UNRAVELLING the tangled logic of Greece's bail-out talks, Charlemagne has learned, is a little like trying to explain the rules of cricket to an American. How to make sense of a process in which Greek voters loudly spurn a euro-zone bail-out offer in a referendum, only to watch Alexis Tsipras, their prime minister, immediately seek a worse deal that is flatly rejected by the euro zone, which in turn presses a yet more stringent proposal to which Mr Tsipras humbly assents? Better, perhaps, not to try.

After six months of this nonsense, little wonder everyone is depressed. The immediate danger of Grexit has at least been averted, after Mr Tsipras and his fellow euro-zone heads of government pulled a brutal all-nighter in Brussels this week. But it comes at the price of a vast taxpayer-funded bail-out for Greece, worth up to €86 billion ($94 billion) over three years, and a humiliating capitulation by Mr Tsipras. Greece's economy is in tatters, its creditors are fuming and Europe's institutions are in despair. Much to Britain's disgust even non-euro countries have been sucked into the nightmare: a bridge loan designed to keep Greece afloat while the bail-out talks proceed looks set to tap a fund to which all EU countries have contributed.

But wasn't this week's agreement a triumph for the shock troops of austerity? Hardly. Finland's coalition, formed only two months ago, tottered at the prospect of funding a third Greek bail-out. The Dutch prime minister, Mark Rutte, has admitted that it would violate an election pledge he made in 2012. One euro-zone diplomat says that 99% of her compatriots would say "no" to the bail-out if offered a Greece-style referendum. Even Angela Merkel, Germany's chancellor and Mr Tsipras's chief tormentor, is damaged. The deal, crafted largely by Mrs Merkel, Mr Tsipras and François Hollande, France's president, has exposed the German chancellor to competing charges: of cruelty abroad and of leniency at home, notably among Germany's increasingly irritable parliamentarians, who must vote twice on the Greek package.

Europe's single currency, designed to foster unity and ease trade between its members, has thus become a ruthless generator of misery for almost all of them. That is why hardly anyone has a good word to say about the new agreement. In private, officials acknowledge that the best to be said for it is that it kept Greece inside the euro. Some would not go even that far. On July 14th, one day after the euro summit, Wolfgang Schäuble, Germany's bristly finance chief, declared that many of his colleagues in Berlin thought Greece would be better off leaving the euro than submitting to its demands. (He did not need to add that he shares that belief.) That evening Mr Tsipras admitted that the deal he had signed was terrible for Greece, but said that he was left with no choice if he wanted to avoid a return to the drachma. This gives the lie to the second sentence of the agreement, which states that "ownership by the Greek authorities is key".

Several more fantasies emerge over the course of its seven pages. In order merely to earn the right to begin bail-out talks, the Greek government, which took office promising to end austerity and restore the nation's battered dignity, must implement an epic list of reforms, from an overhaul of its civil-justice code to the rules governing its bakeries. Some, like a "depoliticisation" of the public administration, have eluded every government since Greece won freedom from the Ottomans in 1832. As the IMF pointed out this week, Greece's creditors assume it can catapult itself from the lowest to among the highest productivity-growth and labour-force-participation rates in the euro zone.

That Mr Tsipras has been obliged to submit so cravenly is largely his own fault. Since taking office his preening government has vaporised the bonds of trust on which a currency union without a central authority must rely. But Europe's hopes for bailed-out Greece now rest in a prime minister who has built his career opposing its bail-out philosophy. If Mr Tsipras does secure his rescue package, its regular reviews will be tortuous affairs. No one in a position of authority, it seems, has any better ideas.

The frustration with Greece is at its most intense in Mr Schäuble's finance ministry, which last weekend floated the idea of a temporary Grexit. The proposal, which made its way into a draft euro-zone finance ministers' document, was quickly scotched at the leaders' euro summit; because a deal was struck, say officials, the doomsday option was not needed. But the foreign tutelage enshrined in the published document hardly represents a shining vision for Greece's future. This newspaper has always opposed a Greek departure from the euro because of the economic shock it would bring and the political chaos that could follow. But faced with a programme that infantilises Greek citizens, endlessly saps its creditors' energies and offers little hope of improvement, it is easy to see why some are tempted by the alternative.

Give Greece a chance

Can anything be salvaged from the wreckage? Perhaps. The boost to confidence that should follow the removal of the Grexit risk might counter the recessionary impact of the agreement's austerity. Mr Tsipras might use his domestic authority constructively, starting by rebuilding his relations with the euro zone and attacking vested interests at home. As for his fellow leaders, having yanked Greece back from the abyss at great cost, they will be keen to make the deal work. They could offer Greece a slightly easier fiscal path than under previous agreements. Following the entreaties of the IMF, they might even make good on their vague pledges of debt relief, though that will be a hard sell.

Yet Charlemagne confesses to pessimism. Interviewed after he signed the deal, Mr Tsipras spoke darkly of an ideological "clash" within Europe that "will become more obvious over time". Other ministers in his government have been freer with their military metaphors. The euro zone's war with Greece has been traumatic enough. The peace could be harder still. ■

Also in this section

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Migration

No milk, less honey

CALAIS AND LONDON

Many migrants think Britain is the promised land. Is it?

HASAN fled Syria across the Turkish border in March, the night before his young son's birthday. A brush with people close to the authorities had convinced the 38-year-old that his days as a free man were numbered. An open boat took him from Turkey to Greece, where he acquired false papers. He made his way to Germany and then to France, arriving three months later in the northern port of Calais.

For the past four weeks he has been sleeping on dirt under plastic in the migrants' encampment in the dunes known as "the Jungle" as he tries to travel the final 20 miles (32 kilometres) to England. His hands bear the scars of daily failed attempts to scramble onto trains and lorries. But at least he lived to try again. On July 7th French authorities announced the second death in as many weeks in or near the Eurotunnel that runs under the English Channel. On July 13th, three migrants received severe electric shocks there.

Is the journey really worth it? France and Britain are comparably rich countries with broadly similar approaches to human rights and welfare. Yet charities say more than 1,000 people have made the risky crossing in recent weeks. French police figures show 3,600 attempts to cross illegally were foiled in June, up from a usual maximum of about 500 per month. More boats crossing the Mediterranean swell the numbers. "Every time a boatload arrives in Italy, 5-10% of them reach Calais eight days later," says a charity worker. Hasan is in no doubt about where he wants to end up. "England is the dream of us all," he says.

This other Eden

Tensions run high in the Jungle. Scores were wounded in June in an outbreak of violence between Eritreans and Sudanese. The camp is also full of people not fleeing for their lives but just wanting to improve them. Only about 40% of the 4,000 residents of the turd-strewn 18 hectares (44 acres) of sand and scrub have a good case for asylum, says Pierre Henry, of France-Terre d'Asile, a charity. The line is increasingly blurred between refugees and economic migrants.

Even as the numbers swell, the British government is implementing new measures to keep them out. On July 14th it announced the construction of a new "secure zone" at Calais, with room for 230 lorries, removing them from the open road where illegal immigrants can climb aboard.

Each has different reasons for stowing away. Hasan speaks English, ran a small business in Syria and is sure he could prosper in Britain. Above all, he has heard that Britain processes asylum applications quickly, which would enable him to bring his family from Syria soon. In Calais, appointments simply to register for asylum in France are being given for October and later. Perhaps one-third of the camp's occupants will seek to stay in France, reckons Maya Konforti of L'Auberge des Migrants, a local migrant charity. But most will push on for Britain even if that means risking injury or death.

Britain's attractiveness is in contrast to its accessibility. Apart from the moat of the English Channel, the sceptred isle is buffered from less happier lands by not having signed the Schengen agreement. This allows free movement between its member states, which include most western European countries. Schengen is one reason why Britain receives fewer asylum applications than other countries. More than 625,000 people applied for refugee status last year in the 28 countries of the EU (Syrians made up one-fifth of them). Only 31,745 of them applied in Britain, half the number for France and one-sixth that of Germany.

Most arrive in Britain by plane, sometimes on fake documents. The few thousand who come through the Eurotunnel are merely the most visible part of a much bigger phenomenon, says Zoe Gardner of Asylum Aid, a charity. Perhaps 600,000 (some say 1m) migrants who are not applying for asylum live illegally in Britain. As the government has tightened the criteria for legal migration, charity workers say some people who would have applied for migrant visas are now seeking asylum.

Many are disappointed when they arrive. The 2014 Immigration Act, which gave landlords and banks new responsibilities to check applicants' migration status, has made it harder for undocumented mi- ▸▸

grants to live and work. And the benefits for asylum seekers are very similar to those in France. "If the streets are not paved with gold for you in France, they will not be here, either," Ms Gardner says.

Once they have lodged an appeal, single asylum seekers are given £36.95 ($58) per week, roughly the same as in France. In both countries they are offered housing, but cannot choose where. In neither are they eligible for many other benefits, although health care and some education are available. Both countries allow those with refugee status to bring their families, and both aim to give a first decision on asylum applications within six months—which often stretches to as long as 18.

Contrary to what Hasan and others believe, the British process is not much quicker than the French. The prospects of being granted asylum, however, seem to be somewhat brighter in Britain. Last year 39% of applicants were granted some form of asylum in the first instance. In France the rate was 22%.

The black economies of the two countries are reckoned to be about the same size. A.T. Kearney, a consultancy, estimated that each was equivalent to about a tenth of GDP in 2013. Yet the widespread perception is that casual jobs are easier to find north of the Channel. Britain has no identity cards and fewer workplace inspections than Europe's more regulated economies. And there are certainly more jobs to be had in general: unemployment, at 5.6%, is a little over half what it is in France.

Demi-paradise?

The application process is complicated by Britain's semi-detached relationship with the EU. Ahmed, a Syrian who arrived in the back of a lorry nearly two years ago, says he came to Britain simply because everyone in his hometown knew someone who had. He spent a year and £16,000 getting to London with the help of smugglers. His brother arrived a few months later. But whereas his brother has already been approved for asylum, Ahmed's application still languishes.

Though it keeps migrants out by not being a member of the Schengen group, Britain is a signatory of the Dublin Regulation, under which it is allowed to return asylum-seekers to the country where they first set foot in Europe. Because Ahmed was detained and fingerprinted in Hungary, Britain is trying to send him back there. With its own growing backlog of asylum applications, Hungary has been trying its hardest not to receive people like Ahmed. On June 23rd Hungary said it would no longer abide by the Dublin Regulation, though it reversed the decision the following day. Officials in Italy and Greece sometimes do not fingerprint migrants, for the same reason. Meanwhile, Ahmed has been in limbo for 18 months.

The flow of migrants to Calais continues, part of a bigger flood of uprooted people for whom any hardship is preferable to the dangers they have fled. A French government report released on July 1st recommended more humanitarian assistance for asylum seekers and a faster asylum procedure. The French are also increasingly testy about an arrangement that allows Britain to vet migrants before they leave French soil, rather than on arrival, penning thousands in Calais. If Britain leaves the EU, says Emmanuel Agius, the deputy mayor of Calais, David Cameron "will have to pick up his border and take it back to Britain where it belongs".

Ms Gardner of Asylum Aid also says Britain needs to do more, not least beefing up its official immigration programmes, including resettlement for Syrians, so that more immigrants can be brought in safely through formal channels. But she admits that popular opinion and political will are flowing in the opposite direction, so the battles at Calais will continue. For the likes of Hasan, it will still be Britain or bust. ■

Power

Softly does it

The awesome influence of Oxbridge, One Direction and the Premier League

HOW many rankings of global power have put Britain at the top and China at the bottom? Not many, at least this century. But on July 14th an index of "soft power"—the ability to coax and persuade—ranked Britain as the mightiest country on Earth. If that was unexpected, there was another surprise in store at the foot of the 30-country index: China, four times as wealthy as Britain, 20 times as populous and 40 times as large, came dead last.

Diplomats in Beijing won't lose too much sleep over the index, compiled by Portland, a London-based PR firm, together with Facebook, which provided data on governments' online impact, and ComRes, which ran opinion polls on international attitudes to different countries. But the ranking gathered some useful data showing where Britain still has outsized global clout.

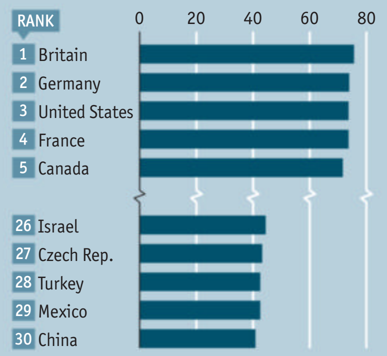
Britain scored highly in its "engagement" with the world, its citizens enjoying visa-free travel to 174 countries—the joint-highest of any nation—and its diplomats staffing the largest number of permanent missions to multilateral organisations, tied with France. Britain's cultural power was also highly rated: though its tally of 29 UNESCO World Heritage sites is fairly ordinary, Britain produces more internationally chart-topping music albums than any other country, and the foreign following of its football is in a league of its own (even if its national teams are not). It did well in education, too—not because of its schools, which are fairly mediocre, but because its universities are second only to America's, attracting vast numbers of foreign students.

Britain fared least well on enterprise, mainly because it spends a feeble 1.7% of GDP on research and development (South Korea, which came top, spends 4%). And the quality of its governance was deemed ordinary, partly because of a gender gap that is wider than that of most developed countries, as measured by the UN. Governance was the category that sank undemocratic China, whose last place was sealed by a section dedicated to digital soft-power—tricky to cultivate in a country that restricts access to the web. The political star of social media, according to the index, is Narendra Modi, India's prime minister, whose Facebook page generates twice as many comments, shares and thumbs-ups as that of Barack Obama.

The index will cheer up Britain's government, which has lately been accused of withdrawing from the world. But many of the assets that pushed Britain to the top of the soft-power table are in play. In the next couple of years the country faces a referendum on its membership of the EU; a slimmer role for the BBC, its prolific public broadcaster; and a continuing squeeze on immigration, which has already made its universities less attractive to foreign students. Much of Britain's hard power was long ago given up. Its soft power endures—for now.

Big softies

Soft power score, 2015



Source: Portland

Bagehot | This house is falling

Our outgoing columnist reflects on the threats to Britain's integrity

THE Palace of Westminster is crumbling. Strolling through its jumbled quadrangles and spiky porticos, Bagehot often marvels at the confidence, ambition and Victorian creepiness they exude. He also notes, spreading like sweat-patches through the damp masonry, from rusted Victorian pipework and bodged Victorian stonework, innumerable black stains, caused by rainwater, air pollution, or worse. The vaulted ceiling of the members' entrance, one of the palace's finest carved chambers, is becoming discoloured and rotted by effluent from a leaky toilet above it.

Are the fates conspiring to dump excrement, as a tabloid newspaper editor once promised John Major, onto the heads of Britain's elected representatives? It seems they are. To restore the palace, according to a recent report, could cost £7 billion ($11 billion) which, in a time of welfare cuts and no love for politicians, is unavailable. Even if it were, it is hard to imagine the Conservative government, whose leader, David Cameron, shares his party's aversion to grand solutions, embracing the project. And yet, plead the report's authors, Tory make-do and muddle-through, which has served the physical and constitutional architecture of Britain's democracy pretty well, won't work. Gargoyles and other blackened edifices of Parliament are thumping to the ground.

It is that complacency, not just falling masonry, which makes the palace such a troubling metaphor for British democracy. And it is evident across the political spectrum—even among the populists, who rage against "Westminster" on the campaign trail yet revel in its quirks and privileges once there. Witness the alacrity with which the swollen cadre of Scottish National Party (SNP) MPs hollers and jeers at Prime Minister's Questions; or with which Liberal Democrat grandees slide into the overstuffed House of Lords they vow to reform. Among Britain's commentariat, too, a strange post-poll calm has descended. Instead of leaving a serious mess, the election produced the usual Tory majority and Labour Party pasting. Are the political times witnessed by your columnist, who will, this week, pass on his nom de plume to Bagehot's next reincarnation, more normal than he thought?

In fact, the election, far from bleeding the radiators of Britain's political plumbing, has raised the pressure. The country's unfair voting system, disgruntled electorate, unaffordable welfare state, membership of the European Union and, above all, the life expectancy of the United Kingdom itself—these great threats and quandaries are now more interconnected and pressing. In the absence of a more skilled plumber than Mr Cameron, they may be explosive: not even in the 1970s, which brought referendums on Europe and Scotland, weak governments and social unrest, did Britain face so many big uncertainties in peacetime.

The political mainstream, represented by the combined Tory-Labour vote, did not collapse in the poll; it remains at a historic low. Turnout among younger voters was poor—and the success of fringe parties a sign of a disenchantment which their wildly disproportionate seat-share will exacerbate. An electoral system that awards the UK Independence Party one seat for its 13% of the vote, and the SNP 56 for its 5%, is unsustainable.

Most troubling, the SNP sweep marked the death of British politics. In nationalist, fantasist Scotland, the debate is as different from that in England and Wales as it is in sectarian Northern Ireland. In England Labour was too left-wing, in Scotland too right-wing. The only national feature of this election was the obliteration of the Liberal Democrats, which also looks fatal.

It seems likely, sooner or later, that the Scots will quit Britain's 300-year-old union. Strip out older Scottish voters and there may already be a majority for independence which, so long as the SNP dominates Scottish politics, will grow. Its post-referendum performance has been brilliantly deceitful. Having wrested from Westminster a promise of vast new powers for the Scottish Parliament, it has sold itself to Scots as at once the hammer of Westminster, which is plausible, and the aggrieved party to a great betrayal, which is not. To counter this, Mr Cameron needs to alert Scots, perhaps by holding a referendum on further devolution, to a truth they seem ignorant of. Their devolved government will soon have power to raise half its revenues, which will mean a corresponding loss in the subsidy it draws from English taxpayers, and, in turn, probably higher taxes. If they like that, they should rush to independence; if not, they might care tae think again.

Fix it, mend it

Trouble is, Mr Cameron is busy with other worries. Some, such as the coming referendum on Britain's EU membership, are of his making; others, such as his effort to mollify the Celt-sickened English, decentralise services and restore sanity to the public finances, including by curbing welfare, are not. Yet all are connected. If Britain leaves Europe—which is unlikely, but possible—Europhile Scotland will leave the union, as eventually Northern Ireland might. If the campaign for English rights leads to its logical conclusion, an English Parliament, Wales might also go; for it could make Westminster irrelevant. So might the Tories' decentralisation plans, which augur regional differences in the provision of even the most basic services. In itself that would be no bad thing. Yet it has grave implications for the union, or what may soon remain of it, which Mr Cameron is blithely ignoring.

It may turn out all right, of course. So long as the economy keeps growing, voters may quit their grumbling, and the two-party system be restored. Mr Cameron will probably get away with his EU gamble. The thrifty Scots may remember their wallets. And even if Britain is in for a shrinkage, it will still be rich, still be diverse, still be humorous—still be great, in a smaller way. Your columnist hopes he worries too much. Yet as he bids farewell to Pugin's crumbling masterpiece, and the political system it stands for, he cannot help wondering how much of it, by the time he has returned from foreign shores, will be standing still. ■

Athletic performance

Citius, altius, fortius, numerus

Everybody knows today's sportsmen are better than their predecessors. But working out how much better requires some fancy maths

WHEN Novak Djokovic beat Roger Federer to win the Wimbledon men's singles championship on July 12th, he gave his supporters fresh ammunition to argue that he is playing better tennis than anyone in history. It was his 14th victory in his past 21 matches against the Swiss maestro.

Younger fans might presume that only Mr Federer's superlative run from 2004-09 could compete with Mr Djokovic's dominance. But those with longer memories could make a compelling claim for Rod Laver, who won a record 200 tournaments from 1956-76, or even Bill Tilden, who dominated the 1920s. Mr Federer's oft-cited status as the best player ever, and Mr Djokovic's as the heir apparent, rest on a widely held but hard-to-prove assumption: because the quality of play has increased so much over time, today's finest sportsmen must be superior to their predecessors.

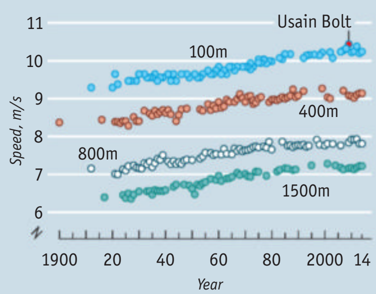
Cross-era comparisons are easiest in sports like running, jumping and weightlifting, which are measured in units like time, distance or mass. In general, performance in such contests has improved substantially over the years: the average top-ten finisher in the men's 100-metre sprint has cut his time from 11.2 seconds in 1900 to just under ten now, and in the marathon from around two hours and 35 minutes in 1939 to two hours and five minutes today. The gains have been greater still in events that require complex equipment or techniques: the current pole-vault world record, at 6.16 metres, is over 50% higher than the best height a century ago.

However, the pace of progress has tended to slow. Most events—with the men's 100 metres an exception—have settled into a plateau, where new world records are set less often and surpass the old marks by smaller margins. For example, the best men's 800-metre time has shrunk by a mere 0.82 seconds since 1981, versus almost four seconds in the 26 years before that. And in a few disciplines, improvement has ground to a halt completely. The average times for female short- and middle-distance runners have not budged in 30 years (though some 1980s records by eastern European competitors may have been aided by performance-enhancing drugs). Some "speed limit" is inevitable—humans will never run as fast as an aeroplane, or jump into outer space—and athletes may be approaching it much faster than is widely believed. Mark Denny of Stanford University calculates that most human race times are within 3% of their potential best.

Getting faster slower

Fastest speed run by men

By distance, average metres per second



Sources: "Limits to running speed in dogs, horses and humans", by M. Denny. The *Journal of Experimental Biology*, 2008; IAAF

Outside athletics, performance is harder to measure. In bowling, for example, the number of perfect 300 games per year in America rose nearly 40 times during the 30 years to 1999. But connoisseurs attribute much of this to strategically oiled lanes that guide the ball towards its target, rather than any broad-based gain in skill. Golf has demonstrated the opposite pattern: in response to better players wielding better clubs, designers have built longer golf courses with more hazards, such as lakes and bunkers (see next article).

Yet even these measurement difficulties pale in comparison with those in interactive sports, in which opponents affect each other. If players improve at the same rate, scoring levels will remain flat. The challenge of comparing players from different eras in games like football—Pelé, Maradona or Messi?—has fuelled many a bar-room brawl. But analysts have devised a few statistical methods to resolve these debates, and estimate how the greats of the past might fare against modern competition.

In a 1985 essay Stephen Jay Gould, a Harvard biologist, proposed using variance among athletes to measure quality of play. If a sport draws on a small population of potential players, mediocre ones will be able to get jobs. Facing inconsistent opposition, the best will produce outstanding results. In contrast, in a sport with a large talent pool, everyone who plays professionally will be reasonably excellent. As a result, the best players will be closer to the average. Gould concluded that the more individual performances in a league differ from each other, the weaker it is likely to be.

This principle underlies a study by Charles Davis, an Australian researcher. He calculated the standard deviation—a measure of how closely clumped together or spread out players' performances are—of cricketers' batting averages in different time periods. He found that variance among batsmen was indeed about 25% lower in 2000 than during the 1930s, when Don Bradman, widely regarded as the sport's greatest player, was at his peak. However, Bradman exceeded the average of his peers by an unparalleled 4.4 standard deviations, making him a one-in-100,000 outlier. That suggests that he would still be in a class of his own today, though his Test-match average might be in the 70s or 80s rather than his actual 99.94.

Another approach is to look for natural experiments buried within interactive sports. Perhaps the best one can be found ▸▸

in baseball. Its pitchers are selected for their ability to throw the ball, but still have to try to hit it a few times per game. They generally make only a token effort to practise batting. As a result, their hitting statistics essentially reflect how a randomly chosen man on the street—albeit a highly athletic one—would perform against major-league opposition. The most convincing evidence for the accuracy of this measure is the second world war: when most of the sport's stars went off to fight, these guinea pigs hit much better against the laggards left behind. If the quality of play has improved over time, then pitchers should bat far worse today than they did in the past. Sure enough, the numbers show a sharp downward trend: a team whose offence declined by the same amount as pitchers' has from 1930 to the present would win about 12% fewer games. Based on those figures, Babe Ruth, baseball's answer to Bradman, would be equal but not superior to today's best hitters.

Fortunately for fans of Mr Djokovic, tennis seems to have improved faster than bat-and-ball games. In 2014 Jeff Sackmann, a statistical analyst, examined the performances of players since 1970 who were ranked in the top 50 for two consecutive years. He found that they scored an average of 2.2% fewer return points against other top-50 opponents in the second season than the first, because the players who entered the group in the second year were better than the ones they had replaced. Compounded over 44 years, that pace of improvement suggests that Mr Laver would struggle to win a single game, let alone a set or match, against Mr Federer or almost any other modern opponent. And unlike the plateaus seen in many forms of racing, the rate of progress has slowed only modestly to 1.5% in recent years. Even Mr Djokovic will probably pale in comparison to future talent. ■

How much have golfers improved?

No gutties, more glory

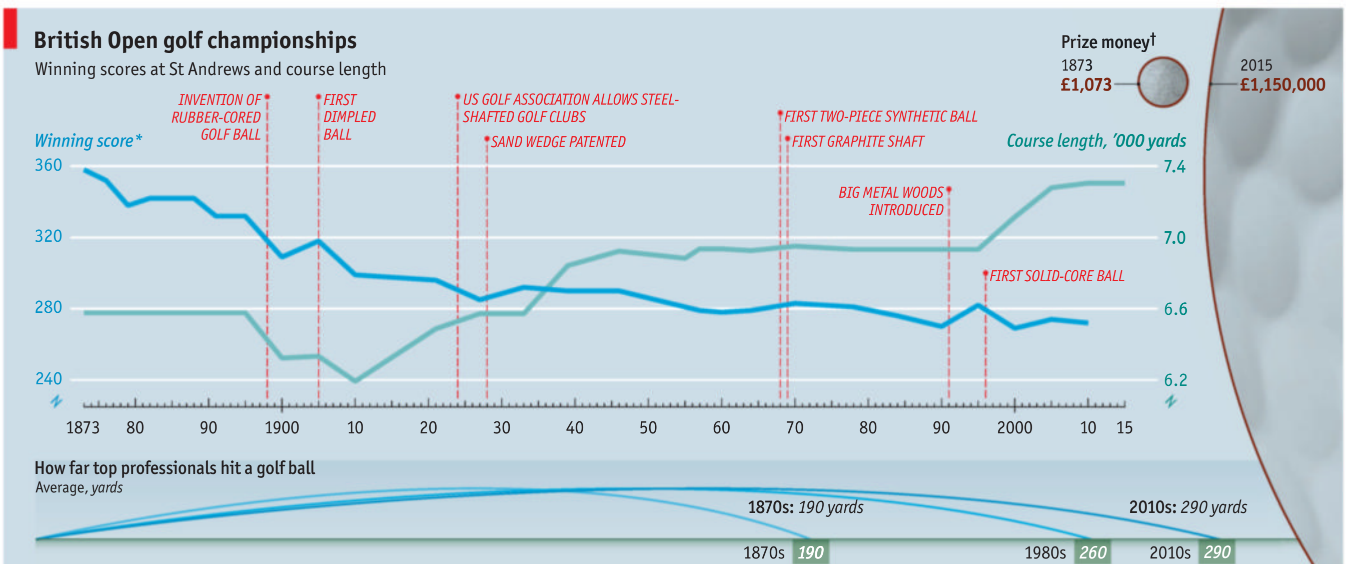
Comparing modern golfers with champions of old is trickier than escaping from a pot bunker with a niblick

THE winner of this year's British Open golf tournament, which started on July 16th on the Old Course at St Andrews, will pocket £1.15m ($1.79m). Golf was not always so lavishly rewarded. The first time the Open was played at St Andrews, in 1873, the first prize was £11 (£1,079 in today's money). There was no sponsorship, no TV (for obvious reasons) and only a handful of spectators braving the blustery Scottish weather. The prize money was a welcome windfall for the champion, a local caddy called Tom Kidd, but he still died poor 11 years later. He is thought to have sold his clubs and his champion's medal to pay for booze.

It is not only the rewards that have improved. Because the Open has been played at St Andrews—the home of golf—more often than anywhere else, it is possible to measure what has happened to scores over a century and a half. They are vastly better today (see chart). Kidd took nearly 90 shots for each 18-hole round he played. Any competent modern amateur could do that. Louis Oosthuizen, the Open champion in 2010, averaged 68 shots a round, even though the course is now 7,305 yards, up from 6,577 in Kidd's day.

Yet the comparison is not fair, says Scott MacPherson, author of a history of St Andrews. In Kidd's day, sheep rather than mowers kept the grass short, so the greens were bumpy and unpredictable. And Kidd played with primitive equipment. Winston Churchill once said that, "Golf is a game whose aim is to hit a very small ball into an even smaller hole, with weapons singularly ill-designed for the purpose." That was certainly true in Kidd's day. He used wooden-shafted clubs (which tended to warp) and a "gutty" ball (made of the solidified sap of the Malaysian gutta-percha tree). Gutties were better than the leather-wrapped, feather-stuffed balls they replaced, which often exploded in mid-air. But nobody could hit one more than about 200 yards—as far as a 12-year-old might hit a modern synthetic golf ball with a graphite-and-titanium club.

Still, today's golfers could almost certainly have beaten yesterday's. They practise longer, lift more weights and use motion sensors to analyse tiny errors in their swings: Rory McIlroy, the pre-tournament favourite until he pulled out with an injured ankle on July 8th, has built a gigantic practice ground in his backyard, complete with a replica of St Andrews' "Road Hole" bunker, a notorious black hole for errant approach shots. They face competition from all around the world. This year's Open features players from 24 countries; in 1873 the field consisted of nine Scots and an Englishman. ■



Sources: "The Majors of Golf" by Morgan G. Brenner; PGA; *The Economist*

*Before 1892 the championship was played over 36 holes; thereafter it was 72. Scores before 1892 have been doubled †2015 prices

ADVERTISEMENT

The Economist Events

Re-inventing Higher Education

Finding economic value

June 17th 2015

In the second of a three-part virtual event series on the future of higher education on June 17th, The Economist Events brought together university and policy leaders to tackle rising college costs—making post-secondary degrees not only more accessible, but affordable.

Mounting student-loan debt coupled with a growing skills gap has put the value of a four-year college degree under scrutiny. To stay afloat in higher education's wave of disruption, colleges and universities in the US must develop new models that deliver better access, outcomes and affordability to students with a diverse range of backgrounds and needs.

Mitchell Daniels, president of Purdue University, attributed skyrocketing tuition fees to a lack of price elasticity. "If [universities purposely] set out to design a system that would cost too much for the purchaser, we couldn't do much better than what we've had," he said.

Jamie Studley, deputy under secretary of education for the US Department of Education, said reduced state funding also played a significant role in the cost crisis. 80% of students attend public institutions, and many of them have been forced to take on more debt than previous generations to compensate for slashed education budgets.

Cost-saving initiatives, like freezing tuition fees and streamlining bureaucratic departments, will be vital to boosting affordability. But to thrive in this new environment, schools will have to prove they can deliver long-term value to students. From STEM fields to the liberal arts, graduates must be equipped with critical thinking, teamwork and quantitative skills in order to compete in a dynamic and global economy.

"The system, for too long, has been focused on inputs—and not focused enough on outputs," said Michael Crow, president of Arizona State University.

Ms Studley said the federal government can help shape the future of higher education by building rigour into the accreditation process, incentivising states to re-invest in education, and requiring more student-loan accountability.

All three panelists agreed that if traditional learning institutions don't innovate, other parties will.

"We're in a Schumpeterian moment," said Mr Daniels. "Creative destruction, many people are predicting, will visit itself on the higher-ed sector as it has on so many commercial sectors."

Mr Crow warned that despite the growing pains associated with the first phase of MOOCs, alternative models are very much viable. (Arizona State will have over 20,000 online students this year.)

He emphasised that a diverse array of education models will be needed, especially as schools seek to create opportunities for low-income students.

Right now, "we have a binary, over-simplified system," Mr Crow said. But in reality, there's 20 pathways."

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Oil in Latin America

The good oil boys club

MEXICO CITY

Latin America's oil firms need more foreign capital, but a historic auction in Mexico shows that investors can be hard to attract

IT SHOULD have been a day of high excitement. A public auction on July 15th marked the end of a 77-year monopoly on oil exploration and production by Pemex, Mexico's state-owned oil company, and ushered in a new era of foreign investment in Mexican oil that until a few years ago was considered unimaginable.

The Mexican government had hoped that its first-ever auction of shallow-water exploration blocks in the Gulf of Mexico would successfully launch the modernisation of its energy industry. In the run-up to the bidding, Mexico had sought to be as accommodating as its historic dislike for foreign oil companies allowed it to be. Juan Carlos Zepeda, head of the National Hydrocarbons Commission, the regulator, had put a premium on transparency, saying there was "zero room" for favouritism.

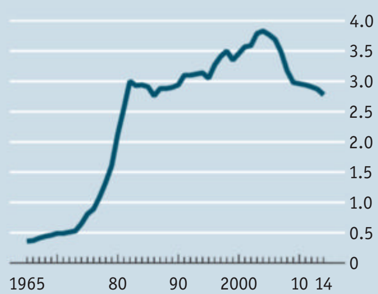
When prices of Mexican crude were above $100 a barrel last year (now they are around $50), the government had spoken optimistically of a bonanza. It had predicted that four to six blocks would be sold, based on international norms.

It did not turn out that way. The results fell well short of the government's hopes and underscore how residual resource nationalism continues to plague the Latin American oil industry. Only two of 14 exploration blocks were awarded, both going to the same Mexican-led trio of energy firms. Officials blamed the disappointing outcome on the sagging international oil market, but their own insecurity about appearing to sell the country's oil too cheap may also have been to blame, according to industry experts. On the day of the auction, the finance ministry set minimum-bid requirements that some considered onerously high; bids for four blocks were disqualified because they failed to reach the official floor.

The private sector often has a better understanding of subsea prospects than the public sector, but Mexico's wariness about fully ceding control may have prevented the government from understanding the true value of the blocks. "They are still having trouble letting go of the old mindset of full control, rather than letting the market decide," says one industry executive. One of the two blocks awarded to the winning consortium (comprising Mexico Sierra Oil and Gas, Dallas-based Talos Energy and London-based Premier Oil) was more hotly contested than the government expected; four groups offered well above the government-mandated minimum.

Oil roiled

Mexican oil production, barrels per day, m



Source: BP

Because of historical sensitivities, Mexico awarded rare profit-sharing contracts between the state and private firms, rather than fully confer ownership of oil reserves to the private sector. It also required a level of corporate guarantee to cover spillages that went beyond international norms. Its potential ability to rescind contracts has alarmed some oil companies, too, lest their wells be expropriated without compensation in the future.

Mexico's auction comes at a time when other Latin American countries—even socialist Venezuela—are rethinking their gut hostility to foreign oil firms, though still hesitantly. Falling prices have played havoc with regional investment plans, and have made the benefits of embracing a dose of private-sector efficiency look more attractive. With capital scarce, the competition for foreign investment has increased.

Pemex has cut its capital expenditure by $4 billion, or around 12%, this year, to $23.5 billion; figures for the next four years are, ominously, "under revision". Mexico desperately needs to plug that shortfall to sustain oil production. Petrobras, Brazil's state-owned giant, said last month it would slash its capital expenditure by more than a third over the next five years, to $130 billion. Investment this year in Colombia, once a darling of the mid-cap oil industry, will be half last year's level, says Ivan Cima of Wood Mackenzie, an energy advisory firm.

Cutbacks will only exacerbate the region's stagnation in oil output. Mr Cima says Colombia will fail to pump 1m barrels ▸▸

per day (b/d) this year. Continuing a decade-long losing streak, Mexico's production, which was recently hit by two rig fires, has fallen to 2.27m b/d this year, well below government projections at the start of the year (see chart on previous page).

The biggest shock came in late June when Petrobras, plagued by a corruption scandal and huge debts, cut a whopping 1.4m b/d off its forecast for 2020. Venezuela, the largest producer and only OPEC member in the group, is also pumping substantially less than it had originally forecast. Pedro Joaquín Coldwell, Mexico's energy minister, wryly notes that in the 1990s, OPEC and non-OPEC countries such as Venezuela and Mexico hammered out sensitive agreements to push up prices by curbing output. Now the cuts are coming all by themselves.

This dismal collective performance is a blot on Latin America's credibility. The rot started in Venezuela in the early years of this century when Hugo Chávez, its late leader, turned PDVSA, a world-class state oil company, into a piggy bank for his free-spending populism, and then scared off foreign investors. After he took power, oil production fell by about a third, although for many years the effect was disguised by high prices. Now its energy officials are travelling cap-in-hand to places like Russia, China and India to beg for investment.

Brazil has also morphed from a potential energy superpower into a virtual pariah. When Petrobras discovered massive oil reserves in subsalt layers of rock deep beneath the Atlantic Ocean in 2007, Brazil's government hoped the country would become one of the world's top five oil producers. But efforts to sustain Petrobras's home-team advantage, such as requiring it to hold a minimum 30% stake and serve as the lead operator on subsalt discoveries, have scared off many foreign partners.

In an effort to woo them back, boost oil production and increase royalties, Brazil's Senate is analysing a draft bill to loosen these obligations on Petrobras. But Dilma Rousseff, the president, and members of her party remain opposed on patriotic grounds. She could veto it even if it does pass Congress.

Mexico's first auction experience suggests that half-hearted liberalisation is not good enough to attract scarce capital. In coming weeks, Mexico will launch the bidding processes for deepwater fields that will be of most interest to the oil majors and for "farm-outs" in which Pemex will set up joint ventures with private firms. It will need to apply lessons from its first flop to attract more interest. Its challenge is to show that it is playing by the rules of a modern, open oil market, rather than a prickly Latin American one. If it is the former, the days of falling production should be numbered, and the region's oil industry will have a better model to follow. ■

Digital maps

Location, location, location

SAN FRANCISCO

Digital-mapping services are increasingly in demand

THE world's oldest map, etched into the wall of a cave in Spain 14,000 years ago, charted the best locations to hunt for food. Today companies are competing in their own hunt to control the future of mapping technology. Nokia, a telecoms-equipment maker, is looking to sell its digital-mapping division, Here, for up to $4 billion, according to reports, and may announce within weeks which of several bidders has won.

Here is coveted prey because it is one of only three firms—the other two are TomTom of the Netherlands and Google—that have mapped the world's streets extensively, at a time when mapping is becoming more important to the future of commerce and transport. Four-fifths of new cars with a built-in mapping system in North America and Europe use Here.

Many smartphone apps rely on mapping technology to locate nearby shops and services, such as where to buy coffee or get a haircut. To build up reliable, usable maps takes a lot of time and money. The biggest mapping firms have sent out fleets of cars to record streets' features in fine detail (see photo). Even Apple, the technology giant that is accustomed to dominating markets it enters, has struggled to offer a credible mapping service. It has only just added public-transport information to its maps, a feature that Google has been offering for years.

When tech firms go up for sale, they rarely attract such a diverse array of prospective buyers. A coalition of carmakers, including Audi, BMW and Daimler of Germany, appear to be the favoured purchasers of Here, though price is reportedly a sticking-point. Nonetheless, they are likely to drive ahead with the deal: they do not want to surrender the future of mapping to Google, which is investing heavily in self-driving cars and in an operating system for vehicles. Private-equity firms have also expressed interest.

Uber, a taxi-hailing company, and Baidu, a Chinese internet giant, reportedly teamed up for their own bid (although the most recent whispers suggest they may be out of the running). Mapping and navigation are core to Uber's business, but drivers find its current mapping services patchy: they are directed to take circuitous routes, or down streets heavy with traffic.

Whichever buyer wins will pay much less than the $8.1 billion that Nokia paid for Navteq, the mapping business that became Here, in 2008, just before the peak of the financial crisis. One reason is that since then the technology to draw digital maps has got better and cheaper. Google, too, has had a hand in pushing down prices: it makes its maps free to consumers and cheap to other companies, because this helps to feed it with the data it needs to sell location-based ads and enhances loyalty to its products. Digital-mapping services may be increasingly important for all sorts of businesses, but with Google acting as a strong deflationary force in the short term, it is not clear that mapmaking in itself is a very profitable business. For profits to rise much for rival mapping firms, Google would probably have to raise its prices.

Nonetheless, demand for mapping keeps expanding, as online commerce grows more reliant on precise location. "Every mile and minute now matters from a business standpoint," says Shiva Shiva- ▸▸

There's a map for that

kumar of Urban Engines, a startup that studies commuting patterns. On-demand companies, like Uber, thrive when they can accurately gauge a customer's location and route a driver or package to them quickly. Recently Uber acquired engineers, cameras and mapping patents from Microsoft, to build up its own capabilities, in case Google stops making its maps available to firms that compete with it in some way. Uber may soon be in that category: on July 6th Waze, a mapping company from Israel owned by Google, announced a trial of a ride-sharing service in Tel Aviv.

Maps will become even more critical if self-driving cars make inroads. They will need to know every pothole and every obstacle in every street, down to the nearest inch. But as John Ristevski of Here points out, they will be packed with sensors that will generate huge amounts of data, in real time, that will help mapping companies keep their maps accurate. In the modern age, maps are "living things" that are constantly updated, says Martin Garner of CCS Insight, a research firm. If only the cavemen could see them now. ■

Detroit's car workers

The state of the union

Negotiating a new labour contract for American carmakers will prove tricky

SMILES and handshakes all around. On July 13th the bosses of General Motors and the United Automobile Workers (UAW) kicked off labour-contract negotiations, which occur every four years, between Detroit's "Big Three" carmakers and the union that represents 140,000 of their workers. When the UAW last negotiated a pay deal in 2011 there was little to grin about. The carmakers were still reeling from the effects of the financial crisis, which drove both GM and Chrysler into bankruptcy—a fate that Ford only narrowly swerved. Then the union was in a conciliatory mood. Now that business is booming the UAW wants a share of the spoils.

America's car industry is back. Over 17m vehicles will roll off dealers' forecourts this year, close to an all-time high (see chart). The Big Three are raking in cash—between them they made net profits of over $7 billion in 2014. The UAW claims that the concessions it made in 2007, when carmakers were already in a deep financial hole, and again in 2011, are part of the reason that the good times have returned and that payment is due.

Dennis Williams, the UAW's leader, has a couple of goals. One is to lift "stagnant wages". Though workers have received bonuses and shares of the profits, basic pay has not risen for a decade. The union also wants to close the gap in pay between workers who were already in place in 2007 and the "second tier" hired afterwards, another concession granted by the UAW to help keep the carmakers in business.

GM, Ford and Chrysler (which has beefed up by merging with Fiat) accept that they will have to award modest pay rises and at least start to narrow the gap between the two tiers of employees. In return they want to find ways to boost productivity to offset the wage increases. They are also sure to demand help with health care by shifting more of the costs of schemes to workers. They want to trim now because in 2018 they face the imposition of an aptly named "Cadillac" tax, a provision of Obamacare that exacts a hefty levy on employers providing generous health insurance.

The carmakers have a point. They complain that their wage bills are still higher than those of many foreign rivals that have opened non-unionised factories in America in the past three decades and have eaten away at the market share of the three in Detroit. The domestic carmakers argue that for them to be able to make investments required to safeguard jobs and to comply with stiffening emissions standards—as well as introducing connectivity and developing self-driving cars—other costs will have to be kept in check.

They also want a more flexible workforce and the ability to close plants when good times turn bad. The "jobs bank", which allowed laid-off workers to carry on drawing full pay indefinitely, was closed in 2009, but there are still generous provisions for unemployed car workers. GM, for example, will pay 75% of their wages for a year and 50% for another twelve months. If, as some analysts forecast, car buying is at a peak and will plateau or decline over the next few years, that could prove costly.

Mr Williams is a pragmatist who recognises that helping Detroit's carmakers to withstand competitive forces is the best way to preserve jobs. But it will be hard for the UAW to make further concessions that more belligerent members will resent. The union needs to appear to fight hard for its members. "Right to work" legislation, in force in Michigan since 2013 and in place in other states where the carmakers operate, prevents unions from forcing workers to remain members, potentially weakening the UAW's clout.

A good deal would also strengthen the UAW's hand in its battle to unionise foreign carmakers' plants in the South and win new members. The union's campaign to represent workers at Volkswagen's factory in Chattanooga, Tennessee, is likely to win over employees if it can drive a hard bargain. But if it does too well VW's management will be less keen to recognise the UAW voluntarily.

Negotiating teams have until mid-September, when the current contract expires, to hammer out a deal. And the UAW has a weapon to wield that it voluntarily laid down after the government bail-outs of 2009: the right to strike. Mr Williams says that to do so would be a sign of failure. At least he recognises that the fates of his union and the carmakers are intertwined. Unfortunately, that will make it no easier to forge a deal that both sides will regard as a victory. ■

Cruising

US car sales by manufacturer, m

Sources: WardsAuto; NADA *Fiat Chrysler, Ford and GM

EBay and PayPal

Better off alone

EBay's split should make investors happy—and corporate divorces more popular

EXAMPLES of failed technology mergers abound, but spin-offs have a better record. The coming months will provide plenty of evidence on why they can be worth it. Several big tech divorces are in the works, as firms try to position themselves to respond more adeptly to new challenges that arise from the growth of mobile and the cloud. First up is PayPal, a leading digital-payment service, which is to split from eBay, an e-commerce giant, on July 17th and will start trading as a separate company a few days later.

Just as divorces can cost more than getting married, spin-offs tend to be more complicated affairs than mergers, says Marco Sguazzin of Deloitte, a professional-services firm that has helped many firms to break up. In corporate marriages many things can only be decided after the deal is closed. In contrast, when firms split, everything needs to be settled up front: how assets will be divvied up, which employees will be on which payroll, how the IT systems will be disentangled, and so on. As a result, separation projects tend to be tedious affairs, keeping hundreds of people busy and costing hundreds of millions. In the case of eBay and PayPal the chief executives were decided early. Devin Wenig, who has run eBay's marketplaces, will take the helm at the parent company, and Dan Schulman, who joined the firm from American Express in 2014, will lead PayPal.

This will not be a demerger of equals. EBay bought PayPal for $1.5 billion in 2002, but now PayPal is the bigger and stronger of the two. Analysts expect PayPal to be worth around $45 billion, with eBay valued at around $30 billion. The decade-long relationship between the firms means they cannot walk away from each other quickly. The two have settled on a long-term separation agreement, which is necessary for interdependent businesses. EBay has agreed to route about 80% of its sales through PayPal for the next five years, about the same share as before the spin-off.

As technology and markets change ever more rapidly, it helps to be independent, and shareholders tend to be enthusiastic about spin-offs. Faced with new competition, such as Apple Pay and Stripe, PayPal needs to be nimbler to reach its goal of becoming, in the words of James Wester of IDC, a market-research firm, the "Switzerland of online payment systems", so that it is able to move money from every digital device to every online merchant. Right now it is most strongly associated with eBay's platform, which limits its expansion because it makes rival e-commerce sites less inclined to partner with it.

These ambitions are reflected in PayPal's recent acquisitions. Earlier this month the company—which already boasts 165m active accounts and annual transaction volume of some $235 billion—announced it would pay $890m for Xoom, which transfers remittances from America to many developing countries. In April PayPal took over Paydiant, which helps retailers to operate mobile wallets. And in late 2013 it spent $800m buying Braintree, which processes transactions for mobile apps and came with Venmo, a popular service to transfer money between phones. More acquisitions are likely: the separation leaves PayPal with a war chest of $6 billion.

For eBay, with its 155m active buyers and goods worth $83 billion being sold on its marketplaces annually, the way forward is less clear. It is more profitable than PayPal, but its revenues are expected to be flat this year. What made eBay one of the winners of the dotcom boom is now holding it back. Having been an early mover in online auctions in the late 1990s, for example, today consumers prefer the certainty of quickly completing an online purchase. Today 80% of items are sold at a fixed price, but many still view eBay mainly as an auction site. Being a marketplace where others list their wares has spared the firm costly investments in warehouses and logistics, but today this lack of "vertical integration" makes it difficult to meet the increasing demands of buyers who expect rapid purchase and delivery, says Mark Mahaney of RBC, a Canadian bank.

It will be no shock then if eBay's share price lags behind PayPal's: parent companies tend to do worse than their spin-offs anyway, says Tom Kirchmaier of the London School of Economics. But eBay's share price could get a bounce because some anticipate that as a smaller, more focused company, it could be a takeover target. Alibaba, a Chinese e-commerce giant that has yet to gain a firm foothold abroad, is most talked about as a potential suitor. Amazon, Google and Microsoft might also bite but are less likely candidates. Some speculate that PayPal, too, could be eyed by banks or Alibaba, although its size makes it less easily digestible.

Spin room

If eBay's split goes off well, it could encourage other tech firms to follow through with their own spin-offs. JDSU, a maker of telecoms equipment, will float its laser and optical-component businesses in the third quarter. Yahoo, an online giant, is still planning to spin off its remaining 15% stake in Alibaba as a separate company in the following quarter, and may hive off Yahoo Japan. On November 1st HP will split itself into a corporate IT vendor and a maker of PCs and printers.

Many big technology firms are said to have spin-off plans in the drawer. Perhaps they will go through a phase similar to the one big industrial conglomerates did in the 1980s. Bloated and bureaucratic after doing various deals in unrelated industries, those firms decided to slim down to be able to focus on their main businesses. Let the auctions begin. ■

eBye

Schumpeter | Boomtown, USA

You do not have to travel to the emerging world to discover emerging markets

EVEN if you expect everything to be bigger in Texas, the north Texas branch of the Nebraska Furniture Mart, near Dallas, is a shock. The megastore, which is owned by Warren Buffett's Berkshire Hathaway, is the size of ten American football fields and employs 2,300 staff. Around 70 delivery trucks arrive every day and 20,000 visitors descend each Saturday. Mr Buffett predicts that the store, which opened only in May, will have a turnover of $1 billion in its first year.

For those disinclined to spend time wandering among the La-Z-Boys and monster grills, there is plenty of other evidence of prosperity in the region, which is variously described as greater Dallas, Dallas-Fort Worth or north Texas, depending on local loyalties. Drive to nearby Plano, and you can watch bulldozers clearing a vast lot to house the new North American headquarters for Toyota, which is moving from southern California. Head farther north to Frisco and you are in America's fourth-fastest-growing town. The mayor, Maher Maso, has five shovels piled in the corner of his office from recent ground-breakings.

It is conventional to divide the world into a slower-growing rich world and a faster-growing poorer world. North Texas, however, is a reminder that there are bits of the rich world that are growing very fast (London and the San Francisco Bay area count among other examples), just as there are parts of the poor world that are stuck in the slow lane.

Last year Texas grew by 5.2%, more than any American state besides North Dakota and more than double the growth rate of America overall. Dallas-Fort Worth added a net 360 people a day in the year to July 2014. The region is among the top hubs for corporate headquarters in America. It hosts 21 companies in the Fortune 500, including American Airlines, Exxon Mobil and J.C. Penney. It is a logistical hub with America's biggest inland port, and is home to high-tech giants such as Texas Instruments, as well as startups. Its aerospace industry employs around 80,000 people. The discovery of shale gas in the Barnett Shale, probably the largest onshore natural gasfield in America, was a bonus rather than a game-changer.

What can other parts of the world that thirst for growth learn from north Texas, and from the state as a whole? Texas is unusual in several respects. It has multiple boomtowns: San Antonio and Austin, as well as Dallas-Fort Worth. Middle-class families are thriving, not just billionaires and supernerds. Mayor Maso points out that 15 years ago Frisco only had five schools. Now it has 61. The egalitarian nature of Texas's growth has fostered a mood of excitement that is seldom found outside developing countries. A 2011 poll of Dallas residents found that 65% felt optimistic about the future; a 2014 poll of north Texas business leaders found that 78% expected the economy to improve.

The locals point to a combination of small government, low prices and pro-business attitudes. Texas is one of only seven American states with no personal-income tax and one of six with no corporate-income tax. Houses are cheap and big: a single-family home in Dallas-Fort Worth is less than a third of one in the San Francisco Bay area. Texas is also an employer-friendly state with weak trade unions and light regulations.

Not just cowboy capitalists

Despite Texas's reputation for anti-government radicalism, local politicians such as Mr Maso of Frisco are happy to embrace government spending and regional planning if it boosts the local economy. The roads and airports are much better maintained than those in California and New York, thanks to a combination of tolls and targeted spending. Frisco in particular has been clever when it comes to rethinking how to design its schools and police force for the age of the internet and dual working-parent households. Texans also understand the power of fierce "co-opetition". They pull together when it comes to trying to attract business from out of state, with the governor acting as a cheerleader for the state, but afterwards they fight like cats and dogs—first for their region, then for their sub-region, and then for their local city.

The virtues of pro-business pragmatism can be seen in Dallas's attempt to revive its downtown and boost its fortunes vis-à-vis the suburbs. The city is doing all the usual things, like investing public money in parks, bicycle paths and free trams, but it is also harnessing the power of small business. Trinity Groves, west of downtown, has been transformed from a no-man's-land of industrial detritus into a bustling urban centre thanks to Phil Romano, the founder of Macaroni Grill. This unlikely hero has created a restaurant "incubator" that provides chef-entrepreneurs with help and training, before launching them into the world.

Texas has a long tradition of busts following booms. The last time the local boosters were so euphoric, in the 1980s, the economy nosedived when the oil price tanked. Today, Texas faces a similar challenge. In the past five years the state's share of American oil production has jumped from 25% to 40%, but the oil price is half what it was a year ago. In time Texas may have to reckon with other setbacks, too. The local habit of competing to offer businesses tax breaks and other inducements to move there may undermine the tax base and infrastructure investment in the long term. The region's all-important cost advantage may soften: house prices increased by around 9% in the year to February. The rise of the right-wing Tea Party could threaten the business-friendly pragmatism that has played a role in Texas's success.

But it is unlikely that such challenges will undermine the boom for long. Previous busts have been followed by rapid recoveries. North Texas has added around 1m people every decade since 1970. A region that can combine the élan and optimism of the emerging world with the pragmatism and infrastructure of the rich world has a lot going for it. ■

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The future of the City

A chance of showers

Financiers in London are always predicting their industry's demise. This time, they may be on to something

UPON joining a panel mulling new regulations for London's financial industry in 2010, Martin Taylor was confronted with "an operatic chorus" of bankers threatening to move elsewhere if oversight became too strict. Moneymen from all sorts of firms told the former boss of Barclays, a big British bank, that they were on the verge of decamping to Switzerland, apparently a paradise of low taxes and sympathetic regulators, safely beyond the reach of the European Union's banker-bashing. "The City", for centuries a mainstay of the British economy, risked losing its status as the centre of global finance, and with it hundreds of thousands of jobs. It wasn't until Mr Taylor learned that the financiers of Zurich and Geneva were simultaneously threatening to relocate to London that his concerns eased somewhat.

The grandees of the City are often accused of crying wolf, pretending that their industry is about to be devoured by taxes and regulation when in fact they are just trying to protect profits. In recent months, the same chorus that greeted Mr Taylor has joined a new crescendo, complaining of everything from a new tax surcharge on banks' profits to London property, which is apparently too expensive even for finance types. Above all, the doom-mongers point to Britain's prospective departure from the EU, the subject of a referendum to be held by the end of 2017. Are their concerns any more plausible this time?

The City appears to be in rude health—and for good reason. Only New York, which is bigger but less international, can credibly be said to rival it. Its trading day spans the planet, making it possible to buy bonds from Asian firms in the morning and sell them to American pension funds in the afternoon. Its workforce is well educated and speaks the world's de facto business language. Britain's flexible common-law system is so popular that it is used even in contracts drafted far beyond its borders. The country is more open to trade and capital than most, and London is a more exciting place to live than mooted rivals such as Frankfurt and Singapore.

Rule, Britannia

London's trading floors dominate the selling of bonds and currencies: twice as many dollars are exchanged there as in America and twice as many euros as in the euro zone. A fifth of cross-border lending is booked in Britain, more than anywhere else in the world. The City boasts more foreign banks than any other financial centre, but banking is just one of its elements. Managers based in London control 18% of the world's hedge-fund assets and 13% of private-equity funds—much less than America's share, but double the proportions of 2001. Over 500 foreign companies are listed on the London Stock Exchange, more than on any other venue.

The financiers are supported by a dense network of professionals: London is teeming with lawyers, accountants and consultants of all stripes. Around 8% of Britain's economic output comes from finance. It generates net exports of $95 billion, almost three times the size of the American industry's, according to TheCityUK, a lobby group. That is useful for a country with a big current-account deficit.

Regulation has tightened in London since the financial crisis—but it has everywhere else too. Though bits of the regulatory set-up are stern, the British government has recently sent some conciliatory signals. It has tried to mollify big multinational lenders based in London with changes to the bank levy, an expensive and ill-conceived tax on their global balance-sheets. It will be halved, and applied only to local operations. The unspoken aim is to stop HSBC and Standard Chartered from moving to Asia, as they have threatened.

Anyway, other financial centres have their flaws. "If you want to speak to the entire Frankfurt financial sector, you can gather them in a large ballroom," one policymaker quips dismissively. Paris suffers from France's leftist politics: François Hollande, its president, declared while campaigning that "the world of finance is my enemy." Brevan Howard, a hedge fund that noisily moved traders to Switzerland in 2010, is quietly sending them back to London, not least because some found Geneva insufferably dull.

New York is too far from Asia and too focused on its domestic market; its regulators also have a particular penchant for levying multi-billion dollar fines. Hong Kong suffers from its small size: if HSBC did move there, its balance-sheet would be nine times the territory's GDP. Shanghai looks destined to grow but cannot thrive while investors struggle to get money in and out of China. Singapore is also expanding, but ▸▸

for the time being remains focused on Asia.

Yet the City is not as impregnable as all this suggests. It has lost chunks of its business in the past. Bits of insurance have largely relocated to Bermuda and other warm spots. Fund-management is gravitating to Dublin and Luxembourg. Switzerland continues to attract private-banking clients, despite no longer offering banking secrecy. Big firms of all sorts have moved their back-office and IT staff to other places, both within Britain and beyond. Last year Deutsche Bank startled the City by moving some trading to Birmingham, two hours north-west, to cut costs.

Moreover, the City faces several unique challenges. For one thing, even the shrinking bank levy (which is being cut only gradually) still makes certain activities unnecessarily expensive. Dealing in government bonds, say, is not all that risky but swells a bank's balance-sheet in a way the levy punishes. To begin with, that may simply prompt banks to set up brass-plate subsidiaries in tax-friendly jurisdictions, to process deals consummated in London. But in time the consequences will grow. "If you move balance-sheet out of somewhere, eventually you move people. Regulators in the new location insist on it," says Jim Cowles of Citigroup, a bank.

The bonds that unbind

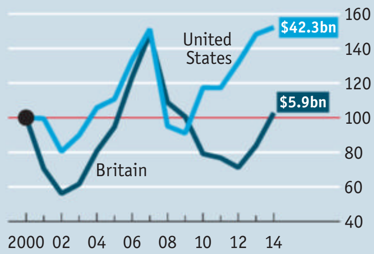
That will compound the problems of the City's biggest business: the trading of bonds and currencies. This has been shrinking since the crisis, although whether for cyclical or structural reasons is unclear. It has also generated a series of scandals and giant fines, many for misconduct that took place in London. City traders rigged currency markets and fiddled LIBOR, a benchmark interest rate (the "L" stands for London). JPMorgan Chase, another bank, lost $6 billion at the hands of an employee called the "London Whale". Regulators have even blamed the 2010 "flash crash" of American equities on a London-based day trader (he denies it).

The world over, banks' trading operations are in retreat. But that is a particular problem for the City, since it has long dominated the business. The other main bit of investment banking—helping firms issue debt or equity and buy one another—is smaller in London than America, since European firms tend to turn to banks, not capital markets, for finance. It has also been growing more slowly because of Europe's economic weakness (see chart 1).

Meanwhile, the sorts of financial institutions that are growing to fill the gaps left by banks—asset managers, insurers, sovereign-wealth funds and other "buy-side" firms—are far less attached to London than the banks. They can be based anywhere, and are: PIMCO, a bond giant, is headquartered in Newport Beach, a Californian backwater. All have presences in London,

Not London's forte 1

Investment banking fees, 2000=100



Sources: Thomson Reuters; Freeman Consulting

*Fees from mergers & acquisitions, equity/debt capital-market and syndicated lending

but not the deep roots of the banks. If bank bosses follow through on their periodic pledges to locate staff near their clients on the buy-side, jobs will flow elsewhere.

The commodities business illustrates the problem. It was once part-and-parcel of investment banks' operations, sitting alongside currency and bond-trading desks. But regulation forced many of the banks to spin these units off, shifting them from the sell-side to the buy-side. Before long, much of the activity had moved to Switzerland, which had long been home to a few big commodity brokers.

The centre of financial gravity is shifting, too. As Asia grows richer and its markets gain heft, companies there will presumably chafe at the use of intermediaries half a world away. A trader in Singapore or Shanghai will seem the obvious option.

The opprobrium for bankers that is now commonplace in the West is much rarer in Asia, in part because the region dodged the worst of the financial crisis (although it did have one of its own, in 1997-98). Bankers cannot help but notice the difference in attitudes. Within hours of HSBC

Prodigal sons 2

Global rank by Tier-1 capital

Source: *The Banker*

announcing it was considering leaving London, Hong Kong's central bank declared that it would take a "positive attitude" to any attempt to relocate there. Such enthusiasm is unthinkable in London. The only financiers who command politicians' affections there are the "fintech" entrepreneurs intent on pinching business from banks. As shallow as it may seem, the sudden shortage of invitations to Downing Street and knighthoods for services to finance rankles with even Masters of the Universe.

In previous centuries, finance houses used to base themselves in London because they were British. But the biggest British banks have become relative minnows in recent years (see chart 2). Nowadays the City is to finance what Wimbledon is to tennis: a British venue where foreigners usually dominate. Access to Europe is what attracted foreign firms in the early 1990s: Margaret Thatcher's "Big Bang" had deregulated Britain's financial markets just as new European rules made it possible for firms based in London to do business anywhere in the EU. That makes the big threat to the City, the prospect of "Brexit", especially worrisome.

City bosses tend not to intervene in politics. Yet a striking number of them have spoken up in favour of continued membership of the EU (the City has few Eurosceptics). Their biggest fear is that firms based in London will lose "passporting" rights, whereby they can do business throughout the EU while being supervised only by British regulators.

In theory, a departing Britain might negotiate a treaty with Europe which retained such privileges. In practice, that is wishful thinking. As it is, other EU members relish imposing rules that the City dislikes. "Without a seat at the table, Britain would get skewered by France and Germany, both of which delight in hobbling the City whenever they can," says one seasoned lobbyist. A survey by CSFI, a think-tank, found that only 42% of City workers imagined that, post-Brexit, firms based in London would get access to European markets on "broadly satisfactory terms".

In the worst-case scenario, Britain would have to negotiate access for its financial firms country by country. EU regulators would doubtless seek to throttle the flow of money to what would be seen as an offshore financial centre. Pressure might be placed on European pension funds, say, to manage their investments within the bloc. At the very least, certain activities, such as the settlement of transactions denominated in euros, would evaporate.

Brexit would make attracting the best employees difficult too. City bosses already gripe about the difficulty of getting work permits for migrants from outside the EU. Brexit would probably strip current and future European employees, of which the City has many, of the right to work in Britain. The immigration system that would replace the current one has yet to be devised, but it would not be as liberal.

Advocates of Brexit talk up the advantages of escaping from meddling European rules on finance. In one or two respects—notably the caps on bankers' pay imposed over British objections—that would be a plus. But Britain has lost its taste for "light touch" regulation thanks to the crisis. If anything, it now adapts edicts from Brussels to make them even more stringent.

Polls suggest that Britain will opt to remain in the EU. Banks are unlikely to start shifting functions as long as that remains the case. "It's not like people are taking their kids out of school," says Mr Cowles. But reports abound of firms that had been considering setting up shop in London, but are holding off until after the referendum.

Should Britain remain within the EU, and the world economy improve, the City's prospects would doubtless begin to look much better. A resurgence in trading of bonds and currencies, which many expect when global interest rates begin to rise, would help London regain some vim. So, if successful, would European regulators' efforts to get local firms to finance themselves with fewer bank loans and more bonds and equity. Moreover, London's greatest asset has long been its ability to adapt, finding new ways of making money in changed circumstances.

But the City's ability to adapt would be tested by a shock as deep as Brexit. Meanwhile, the most sought-after jobs in banking today—drumming up money for Silicon Valley tech outfits or advising Asian conglomerates about which firms to buy—are ones from which the City is largely excluded. "The thing about the boy who cried wolf," one adviser to banks points out, "is that he ends up getting eaten." ■

Buttonwood | Losing a tailwind

The supply of equities may soon stop shrinking

WHEN supply falls and demand is strong, prices tend to go up. So it has been in America's stockmarkets. Short-term interest rates at record lows and minuscule yields on government bonds have boosted investors' demand for equities. And thanks to share buy-backs, the supply of shares has been steadily falling. BCA Research estimates that the number of shares in issue on American stockmarkets has fallen by 6% since 2009. This tailwind for share prices, however, may be starting to fade.

A few decades ago many firms deliberately kept a bit of cash on their balance-sheet as a "rainy-day fund" to help them cope with recessions. That has gone out of fashion, partly due to pressure from activist investors. If firms have no better use for their money, the argument runs, they should return it to their shareholders.

Share buy-backs also help improve a number of financial ratios. Especially at current interest rates, companies earn a low return on their cash. So buying back shares barely dents the company's total earnings, but reduces the number of shares; earnings per share rise. The same arguments apply to measures such as return on assets.

Buy-backs can push up share prices in the short term and help executives meet the targets on which their bonus schemes are based. They also offset the equity issuance represented by managers' options. Dividends don't have the same impact. Increasing the dividend is also a long-term commitment, whereas a buy-back programme can be temporary. Cutting the dividend is a big announcement that can have an adverse impact on the share price. Scaling back a buy-back programme is less embarrassing. Small wonder that executives prefer buy-backs.

But are buy-backs a good thing for the economy as a whole? One reason why the Federal Reserve has kept interest rates so low is to encourage businesses to invest. Corporate profits are close to a post-war high as a proportion of GDP, suggesting that there are lots of profitable opportunities for companies to exploit. But although business investment has risen to 13% of GDP from a low of 11% during the recession, it has not regained previous pre-crisis heights. Money that might have been invested in new plant and equipment has been diverted into buy-backs.

There are tentative signs, however, that enthusiasm for buy-backs may be waning (see chart). In the first quarter of this year, companies spent $144 billion on share repurchases, down from $159 billion in the first quarter of 2014. The most likely reason for the slowdown is that profits have run out of steam, so firms have less cash to deploy. Forecasts suggest that earnings per share declined by 3% in the second quarter compared with the same period of 2014. Some of this is the effect of a lower oil price on the earnings of energy companies; some if it is down to the strong dollar, which reduces the value of multinationals' foreign earnings. But causality also runs the other way: fewer buy-backs contribute to shrinking profits, since buy-backs boost earnings per share.

Pulling back

Announcements of buy-backs at S&P 500 firms*

Source: BCA Research *12-month moving total

There has always been an element of financial engineering about buy-backs. Can it really be good news if a firm feels it has nothing better to do with its money? An enthusiasm for buy-backs creates the sense that executives are more interested in short-term share-price performance than in the company's long-term health.

Further evidence of financial engineering comes from Andrew Smithers, an economist, who finds that, since 2000, the profits of listed companies have become four times more volatile than corporate profits as calculated in the national accounts. In his view, listed firms overstate their profits. Some investors argue that accounting standards have improved over the decades, reducing uncertainty; accordingly, shares deserve a higher valuation than before. But Mr Smithers's calculations suggest accounting standards have deteriorated, not improved: if profits are more uncertain, equities should be afforded a lower, not higher, valuation.

There is another factor to consider, too. Last year was the biggest for new issues on America's stockmarkets since 2000, with 288 companies listing, raising a total of $84 billion. Private-equity firms have been offloading investments, selling $73 billion-worth of shares in the first half of the year, according to Bloomberg—a record for a six-month period. Most of these were stakes in already-quoted companies, rather than new issues.

With the markets near a record high, it is no surprise that a few investors are taking profits. When prices are high enough for long enough, new supply will appear.

Economist.com/blogs/buttonwood

Infrastructure in Brazil

Not many aboard

SÃO PAULO

The sale of transport concessions is unlikely to pep up the economy

WITH Brazil's economy set to shrink by 1.5% this year, and Brazilian bosses more concerned with survival than expansion, Dilma Rousseff, the country's president, is keen to drum up foreign investment. "I have turned into something of a travelling saleswoman," she said recently, between trips to the United States and Italy. She is peddling concessions to upgrade and run important bits of infrastructure, including airports, ports, railways and roads. Ms Rousseff hopes to attract 198 billion reais ($69 billion) in total, including 70 billion reais before she leaves office in 2018.

Brazil's infrastructure is scant and shabby. The World Economic Forum ranks it 120th out of 144 countries for overall quality. Roads and airports are especially ramshackle. The rail network is barely one-eighth as big as that of the United States, a country of comparable size. With a big budget deficit and high borrowing costs, the government is in no position to boost its own investments. So Ms Rousseff has set aside her left-wing instincts to court private investment.

The scepticism among moneymen, foreign and domestic alike, is palpable. Outsiders' appetite for Brazilian assets is waning: foreign direct investment is down from $39.3 billion in the first five months of 2014 to $25.5 billion this year. That is despite a weakening currency, down by a fifth against the dollar since January, which makes Brazilian assets cheaper for foreigners. Alberto Ramos of Goldman Sachs, an investment bank, expects just $55 billion for the whole of this year, little more than half last year's tally.

Overall investment in the economy has been falling for seven straight quarters. It amounts to just 19.7% of GDP, well below the level in other big emerging economies. Carlos Rocca of Ibmec, a business school, has found that between 2010 and 2014 non-financial firms' profits collapsed from around 5.4% of GDP to just 1.4%, weighed down chiefly by rising labour costs. Add the growth-sapping effect of higher taxes and slashed public spending—needed to balance the budget and fend off a painful ratings downgrade—and "it is hard to see how investments are going to pick up", says Daniel Leichsenring of Verde, a hedge fund in São Paulo.

The last time the government sought to lure the private sector with concessions, in 2012, it attracted one-fifth of the hoped-for 210 billion reais, and only after Ms Rousseff gave up trying to micromanage rates of return. Worse, the most alluring opportunities, such as running the international airports in São Paulo and Rio de Janeiro, were sold off then.

Not really the way forward

The government should have little trouble finding buyers for motorways and airports in mid-sized cities. Most of these are already built and generating cash, but need to be expanded and run more efficiently. After nearly two years of deliberations, the national comptroller, an accountability watchdog, has finally approved the sale of cargo terminals in state-owned ports. The first auctions are expected this year.

But as before, half the hoped-for investment is in railways. The plans look suspect—especially a 40-billion-reais scheme to link Brazil to the Pacific via Peru, to be financed partly with Chinese money. It does not help that many big Brazilian construction firms are part of conglomerates mired in a corruption scandal surrounding Petrobras, the state-controlled oil giant.

Moreover, better infrastructure is no panacea for Brazil. As Dani Rodrik of Harvard University points out, a country where services make up more than 70% of GDP should not count on as big a boost to growth from improved transport as more industrialised places. To increase flagging productivity and promote future growth, Brazil needs better schools, simpler taxes, and less red tape, not just more roads. Ms Rousseff has not tackled any of these. Until she does, Brazil will remain a tough sell—both at home and abroad. ■

China's economic data

Right on target

SHANGHAI

Is growth really 7% a year?

IT ALL seems a little too perfect to be true. The Chinese government set a growth target of "about 7%" this year; the economy, ever responsive to the Communist Party's needs, has hit exactly that number for two quarters in a row. Cue a chorus of scepticism.

The first quarter did look suspicious. Growth in industrial production was the weakest since the depths of the financial crisis; the property market, a pillar of the economy, crumbled. China reported real growth (ie, after accounting for inflation) of 7% year on year in the first quarter, but nominal growth of just 5.8%. The only way to arrive at the higher real figure was to put the GDP deflator, a measure of inflation, at -1.1%. That implied the economy suffered broad-based deflation, a bizarre claim given that consumer prices rose by more than 1% at the same time. Had the GDP deflator been more accurate, Chang Liu and Mark Williams of Capital Economics reckon, real growth in the first quarter would have been one or two percentage points lower.

The data for the second quarter are more credible. In nominal terms, growth rebounded strongly to 7.1%. The corollary is that the GDP deflator is now 0.1%, a reading that is much more consistent with rising consumer prices and falling producer prices. There were signs of some tampering: without explanation, the national bureau of statistics cut the quarter-on-quarter growth rate in the second quarter of 2014 to 1.9% from 2%. That doubtless flattered the data for the second quarter of this year by lowering the base for comparison. But the impact is small: a few tenths of a percentage point, perhaps.

What is more, the sources of Chinese growth in the second quarter were less mysterious than in the first. Although investment continued to slow, services accelerated. Industry grew by 5.9% year on year in the second quarter, down from 6.4% in the first quarter. In contrast, services jumped to 8.9% growth from 7.9% in the first quarter. That matters since services now account for a larger share of Chinese GDP than industry.

This acceleration in services is unlikely to last. It derives to a large extent from the soaring stockmarket, which boosted financial firms. That lift has presumably become a drag in recent weeks as share prices have dived. Transient as it was, however, China's statisticians did not invent the financial boom.

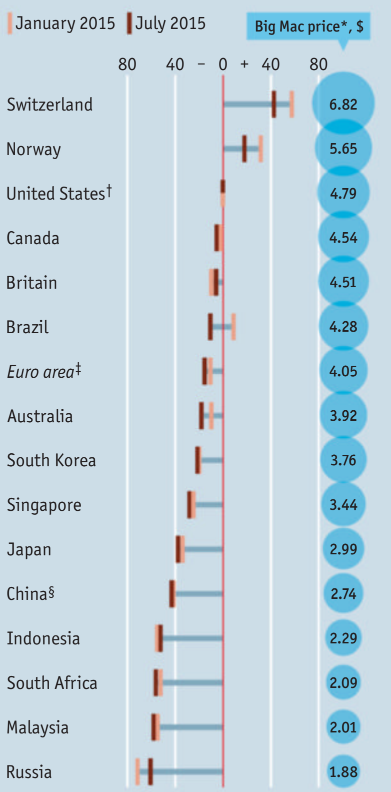
The Big Mac index

A few dollars less

Our burger benchmark finds that the greenback is too dear

IN NOVEMBER the McDonald's restaurant in Pushkin Square in Moscow re-opened following a three-month closure ordered by local health inspectors. The penalty was widely seen as retaliation for Western sanctions against Russia. The restaurant was a predictable target. When it first opened in 1990, it symbolised the triumph of American capitalism over a crumbling Soviet Union. Now it holds up a mirror to another American economic victory: the resurgence of the dollar. All but four currencies in our Big Mac index look cheap compared to the greenback. The rouble is the cheapest of all.

The index is based on the idea of purchasing-power parity, which says exchange rates should move towards the level that would make the price of a basket of goods the same in different countries. Our basket contains just one item: a Big Mac hamburger. If the local cost of a Big Mac converted into dollars is above $4.79 (its price in America), a currency is dear; if it is below the benchmark, it is cheap. In Pushkin Square a Big Mac costs 107 roubles, or $1.88 at the current exchange rate, two-fifths of the average price in four American cities. That in turn implies that the rouble is undervalued by 61% (see chart 1).



The Big Mac index 1

Selected countries, local currency under(-)/over(+) valuation against the dollar, %

*At market exchange rates (July 15th 2015) †Average of four cities ‡Weighted average of member countries §Average of five cities

Sources: McDonald's; *The Economist*

Interactive: Compare global currencies over time with our Big Mac index at **Economist.com/bigmac**

Purchasing-power parity holds only in the long run. Over shorter periods, currencies are often pushed far away from such fair-value yardsticks by international capital flows, which in turn are driven by broader trends in the global economy. Exchange rates are currently being buffeted by the euro crisis, the growing likelihood of a rise in interest rates in America, China's slowing economy and the sharp drop in the oil price, one of the drivers of the rouble's slump. By showing how much these forces have driven different currencies off course, the Big Mac gives a flavour of what may be to come.

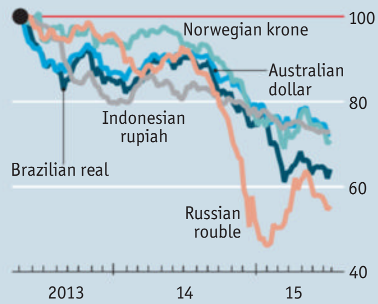
Start with the dollar's revival. It began in earnest in May 2013 when Ben Bernanke, the chairman of the Federal Reserve at the time, dropped a hint that the Fed's purchases of bonds using newly minted money ("quantitative easing" or QE) might soon tail off. The prospect, however distant, of higher interest rates in America prompted a sell-off in emerging-market currencies. As the Fed moved slowly towards a tighter monetary stance, policy became looser in other rich economies. The yen is 38% below its fair value in burger terms, in large part because of the Bank of Japan's expanding QE scheme. When the European Central Bank eventually resorted to QE, the euro dropped like a stone from $1.30 to $1.05. It has since rebounded to $1.10, but that still leaves it 15% undervalued on the Big Mac gauge.

Yet the dollar's broad-based rise appears to have run out of steam. It ticked up against the euro and yen on July 15th after Janet Yellen, the Fed's new boss, told Congress that interest rates were likely to rise later this year, as expected. But she also said that the pace of interest-rate increases would be gradual. The Fed's caution will probably prevent the dollar rising much further, at least against the main currencies of the rich world. Japan's current-account surplus is growing thanks to burgeoning income from the country's huge holdings

Commoditised 2

Exchange rates against the dollar

May 1st 2013=100



Source: Thomson Reuters

of foreign assets, according to analysts at Morgan Stanley. The euro area's large current-account surplus is a similar bulwark against further depreciation. "It can't keep on going down every day on the back of bad news that everyone expected," says Kit Juckes of Société Générale, a bank.

For emerging-market currencies, cheap Big Macs are not necessarily a sign of an impending appreciation. That is because the cost of a burger depends partly on untradeable inputs, such as rent and wages, which tend to be lower in poor countries (gauges based on purchasing-power parity work best when comparing countries with similar income). But not all emerging markets are equal: the countries whose currencies have fallen furthest recently are commodity producers. In fact, China's waning hunger for raw materials is afflicting rich and poor exporters alike (see chart 2).

The prices of oil and of some industrial commodities, such as iron ore, are falling again. That leads to cuts in investment and weaker GDP. The debts run up to pay for mines and wells also look more onerous. Brazil is a big commodity exporter, and the real looks overvalued relative to its peers, but Brazil's high interest rates make it costly for speculators to sell it short and are a lure to yield-hungry investors. The Malaysian ringgit, in contrast, is second only to the rouble in terms of value on our gauge. Yet it is likely to get cheaper still, reckons George Papamarkakis of North Asset Management, a hedge fund, because of its exposure to raw materials and because lots of flighty foreign investors own Malaysian bonds. The Canadian dollar is close to fair value on the Big Mac index but it should perhaps be cheaper. A slump in the country's oil-sands industry, among other ills, prompted the Bank of Canada to cut interest rates to 0.5% on July 15th.

Eventually currencies that have fallen hard will become cheap enough to attract buyers. There is a price for everything—even currencies such as the South African rand and the Russian rouble, which investors currently see no merit in. Who can resist a 60% discount? ■

Free exchange | Sorry to burst your bubble

New research suggests it is debt, not frothy asset prices, that should worry regulators most

WHEN Chinese shares plunged earlier this month, the government tried frantically to limit the damage. It pumped cash into the market, capped short-selling and ordered share buybacks. Although China was unusually heavy-handed, it was hardly the first country to try to bolster stock prices for fear of the economic harm a crash could bring. Alan Greenspan, as chairman of the Federal Reserve, famously created the "Greenspan put" by giving investors the impression he would cut interest rates to stop stockmarket routs.

The underlying rationale for these interventions is an idea that until recently received surprisingly little scrutiny—namely, that stockmarket busts are very damaging for the economy. The link seems clear enough in the case of the crash of 1929, which led in short order to the Depression. But it is also easy to point to contrary examples. The bursting of America's dotcom bubble in 2000 wiped out $5 trillion in market value, equivalent to half of GDP. Yet it was followed by a shallow recession.

Not all bubbles, it would appear, are equally bad. According to two new papers*, the crucial variable that separates relatively harmless frenzies from disastrous ones is debt. In many cases, though certainly not all, stockmarket manias fall into the less worrying category.

Writing for the National Bureau of Economic Research, Oscar Jorda, Moritz Schularick and Alan Taylor examine bubbles in housing and equity markets over the past 140 years. The most dangerous, they conclude, are housing bubbles fuelled by credit booms. The least troublesome are equity bubbles that do not rely on debt. Five years after the bursting of a debt-laden housing bubble, the authors find, GDP per person is nearly 8% lower than after a "normal" recession (ie, one that is not accompanied by a financial crisis). In contrast, five years after a stockmarket crash, GDP per person is only 1% or so lower. If the stock bubble comes alongside a big rise in debt, the damage to GDP per person is 4%. The paper does not explain why housing bubbles are more costly, but a fair inference is that, whereas equity investments tend to be concentrated among the rich, plenty of people lower down the income ladder have wealth tied up in housing.

That makes sense. Stockmarket routs typically harm the economy via the "wealth effect". When people see that their assets are worth substantially less than before, they spend less, leading to weaker demand and, ultimately, weaker investment. Debt can make this worse. Those who have borrowed to invest may be forced to sell assets to avoid defaulting, further depressing prices and wealth. Banks that have lent to investors or accepted shares as collateral will also suffer losses. That forces them to rein in their lending, harming the economy even more.

In a paper for the Centre for Economic Policy Research, Markus Brunnermeier and Isabel Schnabel take an even longer view, examining 400 years of asset-price bubbles. Be it tulips, land, housing, derivatives or shares, they find that the consequences of a bursting bubble depend less on the type of asset than on how it is financed. High leverage is the telltale sign of trouble.

What does this mean for central banks? Before the financial crisis, the debate boiled down to "leaning versus cleaning". Activist sorts argued that the monetary guardians should lean against the wind by raising interest rates when asset bubbles grew. The opposing camp, exemplified by Mr Greenspan, countered that it was too difficult to spot bubbles in advance and too costly to tighten monetary policy erroneously, so it was best to wait for them to burst before cutting rates to help clean up the mess.

Shifting the focus to debt changes the terms of the debate. As Frederic Mishkin of Columbia University has written, policymakers must distinguish between bubbles inflated purely by exuberance and those pumped up by debt. The latter are also easier to identify: credit issuance is abnormally fast and underwriting standards slip. In such circumstances, regardless of the level of asset prices, the case for intervention is strong.

That still leaves the question of what central banks should do after a stockmarket bubble has burst. Those that come to the rescue of collapsing markets are stoking moral hazard. Investors, believing that the central bank will always provide a backstop, are more likely to take unwarranted risks, as American ones did in response to the Greenspan put. Nevertheless, given that stockmarket bubbles accompanied by lots of debt, as in China, can cause severe economic damage, letting them burst without any succour is not a good option either.

Over to the finance minister

One option is to boost the broader economy through a spurt in government spending. Direct intervention to prevent the stockmarket from falling is more problematic, since it gums up price signals, preventing overvalued shares from returning to more reasonable levels. Halting stocks from trading, as seen recently with nearly half of listed Chinese companies, does not eliminate the problem but simply masks it. It was as if America had enacted a moratorium on selling homes after the subprime crisis.

Intriguingly, China's interventions did put one strand of academic theory into practice. Roger Farmer of UCLA has argued that central banks should buy stocks to keep falling markets at reasonable price-to-earnings (PE) ratios. The Chinese central bank did this by providing cash to a stock-buying fund. Crucially, Mr Farmer says that central banks should then sell their holdings when PE ratios climb too high. That sounds like wishful thinking. In China as in other countries, the central bank often seems more intent on laying a floor for stocks than erecting a ceiling. ■

*Studies cited in this article can be found at www.economist.com/bubbles15

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Cyber-security

Their own devices

In the nascent "internet of things", security is the last thing on people's minds

BARBIE has come a long way since Mattel, a big American toy firm, launched the plastic doll in 1959. If children wanted to give the original version a voice, they had to provide it themselves. The latest Barbie, unveiled at the New York Toy Fair in February, can do better. A built-in chip lets the doll listen as children address her. A wireless connection then sends what has been said off to other, beefier computers in a data centre somewhere, whose job is to interpret it and come up with an apt rejoinder. "Welcome to New York, Barbie," says a Mattel employee in a demonstration video. "I love New York, don't you?" responds the doll. "What's your favourite part about the city? The food, the fashion, the sights or the brothels?"

Well, of course, Barbie did not actually offer that last alternative. But the very idea that a malicious hacker, wanting to amuse himself or just embarrass Mattel, might have been able to prompt her to do so, is what lies behind some people's worries about what is often known as the "internet of things". Modern cars are becoming like computers with wheels. Diabetics wear computerised insulin pumps that can instantly relay their vital signs to their doctors. Smart thermostats learn their owners' habits, and warm and chill houses accordingly. And all are connected to the internet, to the benefit of humanity.

But the original internet brought disbenefits, too, as people used it to spread viruses, worms and malware of all sorts. Suppose, sceptics now worry, cars were taken over and crashed deliberately, diabetic patients were murdered by having their pumps disabled remotely, or people were burgled by thieves who knew, from the pattern of their energy use, when they had left their houses empty. An insecure internet of things might bring dystopia.

Networking opportunities

All this may sound improbably apocalyptic. But hackers and security researchers have already shown it is possible. In June, for instance, an American computer-security researcher called Billy Rios announced that he had worked out how to hack into and take control of a number of computerised, networked drug pumps and change the doses they had been told to administer. Hacking medical devices in this way has a long pedigree. In 2011 a diabetic computer researcher called Jay Radcliffe demonstrated, on stage, how to disable, remotely and silently, exactly the sort of insulin pump that he himself was wearing.

Cars, too, are vulnerable. Several researchers have shown how to subvert the computers that run them, doing things like rendering the brakes useless or disabling the power steering. Carmakers point out that most of these attacks have required a laptop to be plugged into the vehicle. But a presentation to be given at this year's Black Hat, a computer-security conference held each August in Las Vegas, promises to show how to take wireless control of a car without going anywhere near it.

Such stunts attract plenty of press coverage. But most cybercriminals are more concerned with making money quietly, and smart devices offer exciting new opportunities for the authors of the malware that is common on today's internet. Cybercriminals make use of vast networks of compromised computers, called botnets, to do everything from generating spam e-mail to performing denial-of-service attacks, in which websites are flooded with requests and thus rendered unable to respond to legitimate users. Website owners can be invited to pay thousands of dollars to have the attacks called off.

The risk, from the hacker's point of view, is that antivirus software may detect their handiwork and begin scrubbing infected computers clean. "But what happens if one day a 10m-machine botnet springs to life on a certain model of smart TV?" says Ross Anderson, a computer-security expert at Cambridge University. Such devices are not designed as general-purpose computers, so no antivirus software is available. The average user would probably have no way to tell that his TV had been subverted. Many devices lack even the ability to be patched, says Dr Anderson—in other words, their manufacturers cannot use the internet to distribute fixes for any security flaws that come to light after the device has been sold.

For now, such worries remain mostly theoretical. But again, the warning lights are flashing. In 2014 researchers at the Sans Institute, a firm that offers computer-security training, said they had discovered a botnet of digital video recorders (DVRs). The sabotaged machines spent their time crunching through the complicated calculations needed to mine bitcoins, a virtual ▸▸

currency, for the botnet's controllers.

For the DVRs' owners the extra few cents this put on their power bills probably went unnoticed. But other uses are possible. Nominum, a firm that provides analytics software for networking companies, reported in 2014 that in February of that year alone, more than 5m home routers—the widgets which connect households to the internet—had been hijacked and used in denial-of-service attacks.

Compromised computers are sometimes used to further other scams, such as "phishing" attacks that try to persuade users to reveal sensitive information such as bank passwords. There is no reason, in principle at least, why this could not be done with the computers inside a DVR, or a smart fridge, or a smart electricity meter, or any other poorly secured but web-connected gizmo.

A recent development is "ransomware", in which malicious programs encrypt documents and photographs, and a victim must pay to have them restored. "Imagine trying to bleep open your car one day," says Graham Steel, the boss of Cryptosense, a firm that makes automated security-checking software, "but then you're told that your car has been locked, and if you want back in you need to send $200 to some shady Russian e-mail address."

Here we go again

Part of the problem, says Dr Steel, is that many of the firms making these newly connected widgets have little experience with the arcane world of computer security. He describes talking to a big European maker of car components last year. "These guys are mechanical engineers by training," he says. "They were saying, 'suddenly we have to become security developers, cryptography experts and so on, and we have no experience of how to do all that'."

Fortunately, big computer firms do. Two decades of bitter experience mean much more attention is paid to security by the likes of Microsoft and Google. But getting non-computer companies to follow suit will mean a change in corporate culture.

Computer firms have learned that writing secure code is almost impossible and that openness is the best defence. Other companies, though, are still defensive. In 2013, for instance, Volkswagen appealed to an English court to block publication of work by Flavio Garcia, a researcher at Birmingham University who had uncovered a serious problem with the remote key fobs that lock VW's cars. The computer industry has long-since learned that such "white-hat" hackers are its friends. Its firms often run bug bounty programmes, which pay rewards to hackers who disclose problems, giving the firms time to fix them.

But the biggest difficulty is that, for now, companies have few incentives to take security seriously. As was the case with the internet in the 1990s, most of these threats are still on the horizon. This means getting security wrong has—for the moment—no impact on a firm's reputation or its profits. That too will change, says Dr Anderson, at least in those industries where the consequences of a breach are serious.

He draws an analogy with the early days of railways, pointing out that it took decades of boiler explosions and crashes before railway magnates began taking safety seriously. The same thing happened in the car industry, which began focusing on security and safety only in the 1970s. There are already signs of movement. After Mr Rios hacked the drug pumps, the Food and Drug Administration, America's main medical regulator, published an advisory notice warning users to be wary. Last year it issued a set of guidelines for medical-devicemakers, instructing them in the arcane details of computer security. Carmakers are learning fast, spurred on by the attention paid by the press.

For those markets where bugs and hacks are more annoying than fatal, though, things may take longer to improve. "I might be happy to pay a bit extra to make sure my car is safe," says Dr Steel. "But would I pay more to make sure my fridge isn't doing things that annoy other people, rather than me?" ■

The New Horizons mission

Pluto's icy mountains

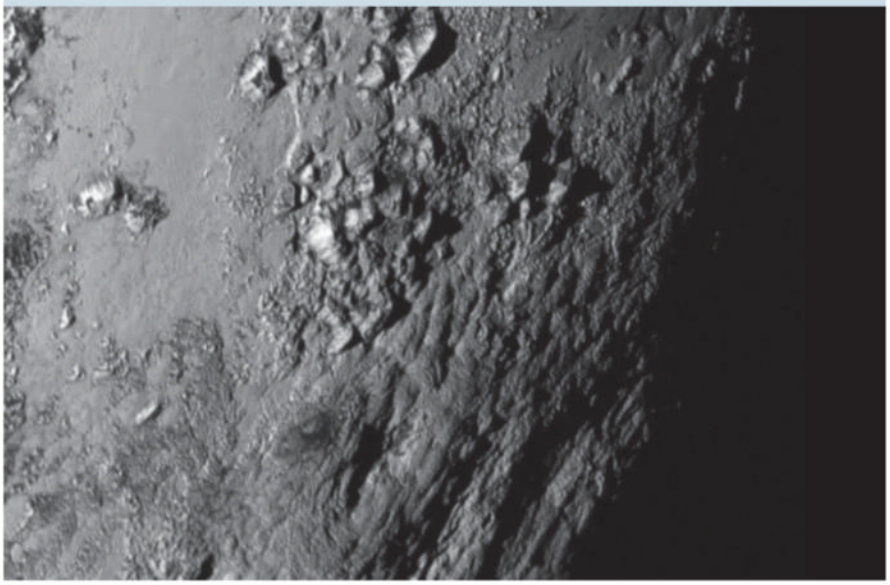
At last, a mysterious dwarf planet is ready for its close-up

"WE ARE outbound from Pluto." So said Alice Bowman, mission operations manager for *New Horizons*, an American space probe, when her charge resumed contact with Earth following its passage by the place on July 14th. After nine and a half years of its being inbound to Pluto, her announcement was met with jubilation. On July 15th the craft sent back the first hints of what it had seen as it whizzed by at 14km a second. Even these preliminary data are filled with mysteries that will take years to unravel.

Pluto is, on first blush, unlike any single world yet seen in the solar system. Instead, it is a composite of many of them—with mountain ranges more than 3km high. These are altitudes that suggest the crust of frozen nitrogen and methane on Pluto's surface must be supported by ice, which is much stronger.

What is most surprising, as the image shows, is how unmarked by meteorite impacts Pluto is. Some geological process must be refreshing its surface. That requires amounts of heat that no geophysicist would have guessed Pluto had going spare. Far from being a dead, icy world, Pluto has proved itself a very lively one.

New Horizons also snapped pictures of Pluto's five moons, including the largest, Charon (which also looks unpocked), and Hydra (which seems composed mostly of ice). There is much, much more to come. But it will come slowly, at rates no faster than 4 kilobits a second (a fourteenth as fast as an old-fashioned telephone modem). The full complement of fly-by data will take 16 months to relay—first as compressed files over a couple of weeks, just in case something should go awry, and then, slowly, in their fullest glory. The images released this week are a mere whetting of scientific appetites.



Aviation

Volting ambition

Battery-powered planes are getting ready for take-off

ELECTRIC aeroplanes have been busy breaking records. On July 10th Airbus's E-Fan, piloted by Didier Esteyne, became the first twin-engined all-electric aircraft to cross the English Channel. At least, that is the firm's version of events—for about 12 hours earlier, Hugues Duval, another Frenchman, had made a round trip from Calais in his twin-engined Cri-Cri electric plane. Airbus discounts Mr Duval's flight on the grounds that he was towed aloft by a conventional plane. Meanwhile, Pipistrel, a Slovenian producer, was prevented from turning up to show off its single-engined electric trainer because Siemens, which supplied the motor, refused permission for it to be used over water.

The first person to cross the Channel in any sort of electric plane was Paul MacCready, an American aeronautical engineer, who made the journey in the flimsy *Solar Challenger* in 1981. Although this aircraft used an electric motor to drive a propeller, it did not have a battery, for it obtained its power directly from solar cells. Another solar aircraft (this time equipped with batteries, to store surplus power) is now being flown around the world by a Swiss team. But after a record-breaking five days and nights in the air crossing the Pacific from Japan, *Solar Impulse 2* is stuck in Hawaii because its batteries overheated.

The E-Fan (see picture above) is a two-seater made from carbon-fibre composites and powered by two 32kW electric motors that drive ducted fans attached to the fuselage. The motors draw their power from a lithium-ion battery pack, similar to those used in electric cars. The plane is designed to fly for up to an hour, though it has a back-up battery holding an extra 30 minutes-worth of juice in case of emergencies.

Electric propulsion is already used by drones, but, as these ventures show, there is now interest in employing it for manned aircraft as well. Airbus is equipping a factory in France to make E-Fans. The firm plans to sell them as low-cost training aircraft for pilots in the making.

E-Fans are mechanically simpler than combustion-engined aircraft, so running and maintenance costs should be lower. Moreover, they are much quieter, so would be less annoying for an airfield's neighbours—especially as student pilots do lots of circuits. But Airbus sees the E-Fan as just the start. Battery technology is improving all the time. Airbus, and other firms, are looking at electrically powered and hybrid airliners with up to 20 seats.

As existing electric cars attest, today's lithium-ion batteries are limited in range and can prove temperamental—not least by demonstrating a disturbing tendency to burst into flames if overheated. That explosive fate was avoided by *Solar Impulse 2*, though excessive insulation caused the temperature in parts of its batteries to spike enough to create permanent damage. The team said this week that repairs and modifications mean the aircraft will remain in Hawaii until early in the spring of 2016. Bertrand Piccard and André Borschberg, the two pilots who are taking it in turns to fly the single-seater plane, will then be able to continue their journey on to America and eventually back, via Europe, to Abu Dhabi, whence they took off in March. ■

Social mobility and epigenetics

No good deed goes unpunished

Self-control improves your prospects. But it may harm your health

IT BEGAN with some marshmallows. In the 1960s Walter Mischel, a psychologist then working at Stanford University, started a series of experiments on young children. A child was left alone for 15 minutes with a marshmallow or similar treat, with the promise that, if it remained uneaten at the end of this period, a second would be added. Some of the children, who were aged four or five at the time, succumbed to temptation before time was up. Others resisted, and held out for the reward.

Then, it was Dr Mischel's turn to wait. He followed the children's progress as they grew up. Those who had resisted, he found, did better at school than those who had given in. As adults they got better jobs, were less likely to use drugs and got into trouble with the law less frequently. Moreover, children's family circumstances suggested that impulsive behaviour was as much learned as inherited. This suggested that it could be unlearned—improving the child in question's chances in life.

Study after study has confirmed Dr Mischel's insight, and it is now starting to change public policy—particularly in America, where the Administration for Children and Families, a part of the Department of Health & Human Services, is trying to develop programmes that will teach children the art of self-control. Recent observations, however, raise the possibility that developing self-control is not always an unalloyed good.

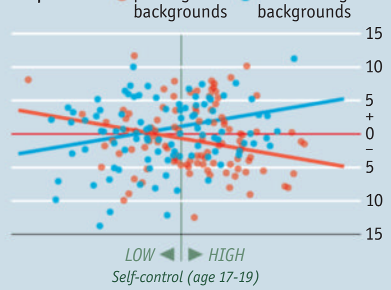
Work published two years ago by Gene Brody of the University of Georgia, who looked at a group of young black Americans, showed that those who exhibited self-control as teenagers did indeed get the expected benefits. But if such self-controllers came from deprived backgrounds, they developed higher blood pressure, were more likely to be obese and had higher levels of stress hormones than their less-self-controlled peers. That correlation did not apply to people who started farther up the social ladder.

Dr Brody and his colleagues have followed this study with one that comes to an equally astonishing conclusion: for people born at the bottom of the social heap, self-control speeds up the process of ageing. This research, just published in the *Proceedings of the National Academy of Sciences*, looked at DNA methylation, a phenomenon which involves the addition of chemicals called methyl groups to genetic material in chromosomes. ▶▶

Putting on years

Apparent cellular age, years above or below chronological age at 22

People from: privileged backgrounds; disadvantaged backgrounds



Source: *PNAS* *Hannum method

Cells use methylation to shut down genes whose services are no longer needed, and observation has shown that people's methylation patterns change in predictable ways as they get older—thus acting as markers of a cell's apparent age. Dr Brody and his colleagues followed almost 300 black American teenagers of different backgrounds as they aged from 17 to 22. For the first few years the researchers assessed their volunteers' levels of self-control, and also looked for signs of depression, aggression and drug use. They assessed, too, those volunteers' socioeconomic backgrounds. But the last examination, when participants were 22 years old, was different. Then, the researchers took a blood sample, recorded the DNA-methylation patterns of cells in it, and worked out how much these deviated from the pattern expected at that particular age.

As the chart shows, for people from high-status backgrounds, higher self-control meant lower cellular ages. For those whose background was low-status, the reverse was true. Their cells were ageing faster. Add this to the previous data on blood pressure, stress and obesity, and the medical prognosis of these initially low-status individuals does not look promising.

Dr Brody's findings are both intriguing and worrying. No biologist would find surprising the idea that an animal—any animal—which was rising through its social hierarchy would find the experience stressful. And research into gene methylation, part of a field called epigenetics, suggests changing methylation patterns are a common response to changing circumstances as well as changing age, as the body's physiology struggles to keep up.

That such epigenetic changes happen to human beings is a salutary reminder that people are subject to the same rules as other species. Unlike other species, though, people can change their circumstances in rational ways: the lesson of the marshmallows shows that. If Dr Brody's result is confirmed, the challenge it poses will be to work out how to circumvent the adverse effects of self-control. ■

Protecting coffee crops

Beetles and bugs

A novel approach to pest control

THE coffee-berry borer is a pesky beetle. It is thought to destroy $500m-worth of unpicked coffee beans a year, thus diminishing the incomes of some 20m farmers. The borer spends most of its life as a larva, buried inside a coffee berry, feeding on the beans within. To do so, it has to defy the toxic effects of caffeine. This is a substance which, though pleasing to people, is fatal to insects—except, for reasons hitherto unknown, to the coffee-berry borer. But those reasons are unknown no longer. A team of researchers led by Eoin Brodie of Lawrence Berkeley National Laboratory and Fernando Vega of the United States Department of Agriculture had a suspicion the answer lay not with the beetle itself, but with the bacteria in its gut. As they outline in *Nature Communications*, that suspicion has proved correct.

The team's hypothesis was that the borer's gut bacteria are shielding it by eating any caffeine it has ingested before the poison can be absorbed through the insect's gut wall. Experiments on a laboratory-reared strain of the borer suggested this hypothesis was probably true. Initially, the larvae's droppings were caffeine-free. When the lab-reared insects were dosed with antibiotics, this changed. Caffeine started appearing in their droppings, and the animals themselves began, as it were, dropping off the perch. Over the course of an experiment lasting 44 days after their guts had been sterilised (a period that let the insects complete an entire life cycle of egg, larva, pupa and adult), the population of the experimental colonies fell by 95%—and even those larvae that did not die had trouble pupating. Clearly, immunity to caffeine was being conferred by bacteria. The question was, which ones?

To answer that, Dr Brodie and Dr Vega turned to wild beetles. They collected samples from seven coffee-growing countries and combed through the insects' gut floras, looking for features in common. By constructing what was, in effect, a Venn diagram of microbes from these populations, and also those from their lab-bred strain, they were able to focus on the bacterial species found in all of them.

They tried growing each of these on a medium whose only source of carbon and nitrogen for metabolism was caffeine. Some of the bugs were able to survive on this diet, others were not. Of the survivors, the most abundant in beetle guts was *Pseudomonas fulva*. This species, a genetic analysis showed, is blessed with an enzyme called caffeine demethylase, which converts caffeine into something that can be dealt with by normal metabolic enzymes.

Kill *P. fulva*, then, and you would probably kill the borer. But that is easier said than done. Even if spraying coffee plantations with antibiotics were feasible and would do the job (by no means certain, for the larvae would have to ingest sufficient antibiotic for the purpose), it would be undesirable. The profligate use of antibiotics encourages resistance, thus making them less effective for saving human lives.

There might, though, be another way of getting at *P. fulva*. This would be to craft a type of virus, known as a bacteriophage, specific to the bug—an approach already being investigated for the treatment of human illness caused by a different species of *Pseudomonas*.

In practice, more than one type of phage would probably be needed, for if *P. fulva* were knocked out, another caffeine-consuming bacterium in the beetle's gut might end up replacing it. But, regardless of the details, this study has introduced a novel way of thinking about pest control. Many plants use poisons to protect themselves from insects. Sometimes, such plants are crops. Being able to circumvent these natural insecticides is an important part of becoming abundant enough to constitute a pest. It is possible other agronomists who have been seeking to understand how critters do this have been looking in the wrong place—ie, at the critters themselves, rather than among the bacteria in their guts.

Also in this section

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Outsized art

Gigantism

What happens when art works keep getting bigger

MODERN art has always had an affinity for the gargantuan. Ironically, its very reductivism—a preference for simplicity, stripped-down geometric form and a disdain for the exquisitely made *objet d'art* destined for a rich collector's mantelpiece—often meant an increase in scale. From Vladimir Tatlin's (never built) "Monument to the Third International", designed just after the Russian revolution, to Pablo Picasso's "Guernica", which he completed nearly two decades later, artists hoping to make an impact on a world dominated by mass media and mass production had to go big even to get noticed.

A tendency towards the oversized was particularly pronounced in the final third of the 20th century as modernism grew middle-aged and comfortable. Creating artworks on a scale so vast that no one could possibly buy them, and few galleries could even show them, was one way of demonstrating a contempt for the marketplace that cheapened creativity even as it inflated prices. Multi-storey creations made from industrial materials and acre-sized works bulldozed into remote desert landscapes offered an alternative to the empty glitz of chic urban spaces.

Of course an art work that no one can see gets about as much attention as a tree falling unobserved in the forest, and few artists (and even fewer dealers) are so ideologically pure that they are willing to accept the indifference that comes with total inaccessibility. In recent decades a number of institutions have taken up the challenge of bringing before the public works whose sheer avoirdupois makes them unsuitable even for museums and galleries. Conveniently, three of the most successful venues dedicated to large-scale late-modernist work are within a few hours' drive of New York, along the well-travelled tourist corridor whose northern end lies in the Berkshire mountains of Massachusetts.

Storm King, in New Windsor, New York, is a scenic 500-acre (202-hectare) sculpture park with room to accommodate even the most colossal sculptural and site-specific works. Many of the earlier pieces on view, such as Mark di Suvero's "Mother Peace" (1969-70) and Alexander Calder's "The Arch" (1975), are classic examples of late-20th-century modernism: tall painted steel constructions whose abstract forms bestride the landscape like conquering heroes. But the sculpture park also chronicles the transition from modernist bombast to post-modernist humility. More recent pieces tend to be site-specific and to work in harmony with the natural environment.

Rather than dominate the landscape, Andy Goldsworthy's "Storm King Wall" (1997-98)—a stone wall, built with artisanal masonry techniques, that slithers through water and forest—articulates the gentle contours of the land. Maya Lin's verdant, undulating "WaveField" (2009) is even less intrusive; the rolling hillocks appear at first glance to be natural formations. Lynda Benglis's "Water Sources", installed earlier this year and on view until the end of the autumn, charts a playful middle course between nature and artifice. Resembling cascades of molten lava or beach castles made by dribbling wet sand, these sculptures could be mistaken for geological formations were it not for the crayon-box colours mocking the back-to-nature narrative.

If Storm King's pastoral landscape encourages artists to work in harmony with nature, Dia Beacon and MASS MOCA, each housed within sprawling former factory complexes, engage directly with the region's industrial past. One wonders what William Blake might have made of these "dark Satanic mills" transformed into temples of aesthetic contemplation. Both have taken the skeletal remains of an economy based on coal, iron and steam and repurposed them for the digital age. Industry gives way to information technology, the production of consumer goods morphs into the production of ideas.

Dia Beacon, just across the Hudson River from Storm King, is in a former Nabisco box-printing plant. With over 240,000 square feet (22,300 square metres) of exhibition space, it provides ample room for indulging in gigantism. Even in such spacious quarters, Richard Serra's massive, rusting sculptures feel cramped, a confinement that adds to their intimidating presence. "Union of the Torus and the Sphere" overwhelms, pressing visitors against the gallery walls, demonstrating that, once a certain critical mass is achieved, the meaning of the art work no longer depends on how it looks but on how the viewer (or, more precisely, the participant) interacts with the work in time and space. ▸▸

This is a point that is driven home often here: in Walter de Maria's football-field-sized grid of metal slabs, in Michael Heizer's weathered steel pits sunk into the gallery floors or in Donald Judd's maze of plywood boxes—installations meant to be walked through, inhabited or avoided at all costs. New to the Dia Beacon galleries this season is Robert Irwin's "Excursus: Homage to the Square^3", a series of rooms that the artist has reshaped using fluorescent lights and translucent scrims that alter the visitor's perception of space. It is simultaneously massive and ephemeral.

Curiously, the same imperatives that lead artists to embrace heft—a resistance to the commodification of art and a rejection of preciousness—can also engender art so rarefied as to have almost no existence at all. The paradoxical synergy between expansiveness and evanescence is critical to the work of Sol LeWitt, a conceptual artist who shows both at Dia Beacon and MASS MOCA. Mr LeWitt's work seems particularly apt in a post-industrial setting, since his hands-off approach to art-making resembles the anonymous methods of mass production in which an almost infinite supply of consumer goods can be cranked out merely by using a template that is endlessly repeated. His wall paintings and drawings occupy vast tracts at both sites, but because they emerge out of a set of simple directions for their own fabrication (and are usually executed by a team of volunteers according to the artist's instructions) their physical manifestation seems secondary to their existence as pure idea.

Like Dia Beacon, MASS MOCA is a cultural temple built on an industrial ruin. Located about 100 miles (160km) north in North Adams, Massachusetts, and housed in the vast complex of the former Sprague Electric Company, MASS MOCA allows even the most ambitious contemporary artists the chance to strut their stuff. Franz West's "Les Pommes d'Adam" (pictured on previous page) takes full advantage, with tumescent columns in bubble-gum pink that offer a playful counterpoint to their gritty backdrop.

Often, large-scale pieces can feel anonymous as techniques more typical of the factory than the atelier serve to distance the artist from the work. But two shows, Francesco Clemente's "Encampment" and Jim Shaw's "Entertaining Doubts", both of which are on until early 2016, demonstrate how an increase in scale can reverse the process, making viewers feel as if they are in danger of losing themselves in an artist's eccentric imagination. "Encampment" is a 30,000-square-foot installation made of six hand-painted canvas tents covered with images that reflect the artist's personal obsessions. Self-portraits and erotic scenes, all drawn with Mr Clemente's typical expressionist verve, merge with forms taken from mythology, mystical texts and vintage illustrations. Mr Shaw channels images culled from popular culture—comic-book superheroes, political icons like Dan Quayle and Barbara Bush—and filters them through the distorting lens of his own subconscious, as if the viewer has been sucked into the confused nightmare of someone who has fallen asleep with the television on.

For an artist, going big can be the most seductive of ego trips. But it can also offer an opportunity to disappear from view. Some large-scale works are boastful, whereas others are shaped by the lightest of touches; they are as likely to oppress as to inspire. But whatever the medium and whatever the message, there is no doubt that, when it comes to art at least, size really does matter. ■

Computers and spying

Lookout

Intercept: The Secret History of Computers and Spies. By Gordon Corera. *Weidenfeld & Nicolson; 431 pages; £20*

IN 1996 John Perry Barlow, a computer activist who had once been a lyricist for the Grateful Dead, penned "A Declaration of the Independence of Cyberspace", an attempt to capture the promise of openness and liberation that the young internet seemed to offer. "Governments of the Industrial World, you weary giants of flesh and steel," it began. "I come from Cyberspace, the new home of Mind…You are not welcome among us. You have no sovereignty where we gather."

To anyone familiar with the history of the computers that make the internet possible, it was an ironic idea. The modern computer came of age during the second world war. Colossus, a lumbering electromechanical contraption widely regarded as the first modern computer, was assembled at Bletchley Park, the headquarters of Britain's vast wartime code-breaking operation. It was a machine built to spy and to break open German secrets. These days, with worries about mass surveillance, digital espionage and computer crime filling the papers, the unsavoury heritage of the computer seems impossible to escape.

It is that heritage—together with its modern implications—that lie at the heart of "Intercept", a new book by Gordon Corera, the BBC's security correspondent. The message of this dual history of computers and electronic spying is that the two are inextricably linked, with developments in one constantly spurring advances in the other. Contrary to its modern mythmaking as a home of rugged, independent entrepreneurs, Silicon Valley, Mr Corera reminds readers, owes its existence to the munificence of America's soldiers and spies, whose endless appetite for more and faster chips spurred the technologies that would eventually bring cheap computers to everyone.

These days, the computerised world presents spies across the globe with both a challenge and an opportunity. Unlike the paper kind, electronic data is weightless, and computers are riddled with security holes. That makes stealing secrets easier than ever. At the same time, computers are able to place the sort of cryptography with which Bletchley Park struggled in the second world war into the hands of everyone—including criminals, foreign spies and terrorists.

Balancing the risks and rewards can sometimes be difficult. Mr Corera describes how Markus Wolf, the head of East Germany's notorious Stasi (which, at one point, was thought to have files on about a third of the nation's citizens), resisted the temptation to computerise his organisation's miles of paper files. After all, pointed out Mr Wolf, the very convenience of computerised data made a big leak more likely. That point was spectacularly illustrated in 2013, when Edward Snowden walked out of America's National Security Agency with tens of thousands of pilfered documents, a feat that would have been impossible in the pre-computer age.

Mr Corera has been given plenty of access to Western intelligence agencies, and he describes their dilemmas with sympathy. Monitoring the internet for suspicious behaviour may help forestall a terrorist attack, they point out, and arguments about privacy can seem abstract and unreal after such attacks succeed. At the same time the author does not shy away from the implications of granting the spies ever more ▸▸

Molluscs

Shell company

Spirals in Time: The Secret Life and Curious Afterlife of Seashells. By Helen Scales. *Bloomsbury; 304 pages; $27 and £16.99*

MOLLUSCS may not seem life's most exciting phylum. But Helen Scales, a marine biologist-turned-science writer, makes an impassioned and convincing case otherwise. Molluscs include just about everything with a shell, such as snails and mussels, and a few familiar things without, such as slugs and squid. Ms Scales finds the magic in each. In "Spirals in Time" she explores the complex sexual contortions of snails, describes the mathematical precision of a nautilus's shell and devotes a whole chapter to sea silk, strands secreted by the pen shell *Pinna nobilis* and woven into cloth of extraordinary delicateness.

Ms Scales's book charts not only how molluscs have evolved, but also the roles they have played as human societies evolved. From the Scythians of ancient Iran to disparate North American tribes, many cultures buried their dead with shell riches. The people of Nauru pass down a creation myth with shells in a starring role. Consider Botticelli's "The Birth of Venus", with the goddess rising out of a scallop shell: molluscs have been the symbols of birth, sex and death. And wealth, too—billions of cowrie shells crossed oceans as the currency of much of the slave trade.

Shells strung together were the world's first jewellery, as much as 125,000 years ago. But the human connection goes back further still. There is a symmetry-breaking gene, originating long ago in the branching evolutionary tree. In molluscs, it sets a shell twisting to the right or, occasionally, the left. In humans, that same gene ensures the heart ends up left of centre.

Such insights, and the author's enthusiasm for them, fill every page of this book as explanations and examples run into one another. The pace is sometimes that of a storyteller racing breathlessly to get all the details out. Elsewhere, it reads more like a travelogue: Ms Scales comes face-to-shell with a giant clam on the Great Barrier Reef, enjoys a bag of smoked oysters in Gambia and seeks out a sea-silk seamstress in Italy. Her journeys also take her into the world of academic research. She breezily rattles off the history of how what is known of this cephalopod and that bivalve were first discovered, and elucidates the pursuits of what is not yet known. It is clear that there are still many stories to be told.

What's not to like

power to surveil. Technology has made practical the kind of mass surveillance that would have turned Mr Wolf green with envy. In the West, at least, such powers are held in check by laws governing how the agencies behave. But the temptation to go further, to trade a little more privacy for a little more security, is always present.

At the same time, the ability to conduct such mass surveillance is no longer confined to nation-states. The internet's biggest companies—such as Facebook and Google—have put a corporate twist on mass surveillance. The price for their services is collecting up users' data: detailed lists of their preferences, habits, opinions and life histories, all packaged up and sold to advertisers to help them target commercial products.

The book's main message, though, is that computers have automated espionage, and made it cheap and easy. Spying on someone used to be hard, labour-intensive work. Tails had to be set, hidden microphones planted, post intercepted and steamed open. These days a person's laptop and smartphone broadcasts their life across the internet, pre-packaged into a form that other computers can digest, analyse and correlate. Never mind all those cold-war thrillers set in 1970s Berlin. The true golden age of spying and surveillance—whether carried out by states or, increasingly, by companies—is now. ■

Harper Lee's new novel

Scout grows up

Go Set a Watchman. By Harper Lee. *Harper; 278 pages; $27.99. William Heinemann; £18.99*

FOR more than half a century "To Kill a Mockingbird" has been revered as a literary classic, the story of Scout and Jem Finch, a young sister and brother (and their naughty friend, Dill Harris, based on Truman Capote) who are all trying to make sense of the bewildering, bigoted American South in the 1930s. The novel sold 40m copies, won a Pulitzer prize and was made into a much-loved film, starring Gregory Peck as the siblings' father, Atticus Finch, a heroic white lawyer who defends a black man accused of raping a white woman. Its fame was enhanced by the way the author, Harper Lee, who was only 34 when the book came out, reacted to becoming famous. Now 89 and living in a home, she has refused all requests for an interview.

For decades it was thought that Ms Lee had written nothing else. But in 2014 her lawyer, Tonja Carter, discovered an unpublished manuscript titled "Go Set a Watchman". The book was released on July 14th with simultaneous editions translated into seven languages. Five months of teasers from her publishers ensured it was the publishing moment of the year, with early orders approaching Harry Potter levels.

The novel is being touted as a sequel to "Mockingbird", but it would be truer to call it an early prototype. Instead of a child, Scout is a 26-year-old woman who works in New York and has gone home on holiday, much as Ms Lee herself might have done at the time. Tay Hohoff, her legendary editor, read the draft in 1957 and wisely advised the fledgling author to rewrite the book, fleshing out the scenes of Scout's childhood. Early reactions to the new release have focused on the shocking disclosure that Atticus Finch, far from being a hero, is an uneasy segregationist who once attended a Ku Klux Klan meeting. As one fan tweeted, "It's like hearing that Santa Claus beat his deer."

The book's evolution from "Watchman" into "Mockingbird" in less than three years is remarkable. To put it into context, a lot of novels are dreadful; most are ordinary. Even the 150 or so submitted for the Man Booker prize every year—supposedly the cream of literary publishing—are a mixed bunch. Only a handful, if that, could be considered great. "Go Set a Watchman" is one of the ordinary ones. It has flashes of delight—the 14-page account of a ladies' coffee morning is hilarious. But many of the characters are one-dimensional and they spout long speeches, chiefly about race, ▸▸

that feel klunky and undigested. That Finch should suddenly reveal himself to his adult daughter as a racist, rather than the moral giant of "Mockingbird", can only have been written by someone who had no children and had never witnessed at first hand their inexorable nosiness, whether about their parents' motives or their sex lives. If Finch was a racist, Scout would have known. Count on it.

The most surprising thing about "Go Set a Watchman", then, is how a young writer, so rooted in the customs and mores of her time and seemingly with no sense of drama or history, was able to transform a first novel from a pedestrian piece of prose into a soaring work that has enthralled millions through the decades. It makes one salute the human imagination—and want to weep that she never wrote more. ■

Animals

Reading their minds

Beyond Words: What Animals Think and Feel. By Carl Safina. *Henry Holt; 461 pages; $32*

The Cultural Lives of Whales and Dolphins. By Hal Whitehead and Luke Rendell. *University of Chicago Press; 417 pages; $35 and £24.50*

IN "BEYOND WORDS", Carl Safina, of Stony Brook University, New York, hears about an alpha wolf that attacked and disabled a challenger in Yellowstone National Park, but then refused to kill it. The event sets him thinking about Nelson Mandela, magnanimity and the prestige of leaders who spare, rather than kill their rivals. In Amboseli National Park in Kenya he watches a female elephant faking oestrus in order to attract the company of males. He turns to considering the minds of animals: "It takes a lot of thinking", he writes, "to fake one's sexual state because you like the attention."

The subtitle of "Beyond Words" is "What Animals Think and Feel" and not long ago, the very idea of animals as rational beings would have been dismissed as sentimental and wrong. In the earliest surviving zoological book, Aristotle said animals belong to a lower order than people because they lack reason. His opinion influenced Western attitudes for centuries. The medieval church thought animals had been put on Earth solely for human use. For much of the 20th century, behavioural scientists argued that whether animals had minds or not was irrelevant since minds were impossible to study and observable behaviour was the only thing that mattered.

But in 1976 Donald Griffin, a professor at Rockefeller University in New York, published a book entitled "The Question of Animal Awareness" and triggered a revolution. Griffin pointed out that physiologically, the brains of animals and humans share many features, such as neural cells associated with empathy and other emotions. He argued that the complexity of animals' communications with one another is strong evidence that they have minds. And he said that the extraordinary variety of their responses to their environment (including, for some species, tool use) contradicted the traditional view of animals as unthinking and unfeeling.

Since then, evidence has accumulated that many animals have emotions such as compassion and a sense of fairness; that some are aware of themselves and others as separate beings; and that a few have attributes once thought unique to people, such as the ability to give names to objects, use tools and teach their young.

Since then, too, shelves have buckled under the weight of popular books about the new field of animal cognition. Among the best are Virginia Morell's "Animal Wise", which examines how a different emotion or thought process is evident in a different animal (laughter in rats, for example); and others by Marc Bekoff and Jessica Pierce, including "Wild Justice".

So Mr Safina is entering a crowded market. His book is a cross between an account of the new findings and an animal documentary. It is full of elephants joyfully wallowing in mud or wolf packs running at high speed over glittering snow. He listens to the songs of killer whales, and meets Maasai warriors who find their traditional coexistence with elephants increasingly difficult to maintain.

By concentrating on a handful of species (wolves, elephants and killer whales), Mr Safina is able to explain in detail how thoughts and emotions influence their lives. Unfortunately, because his range is narrow, he has little to say about some of the most interesting species, including crows, the animal kingdom's champion toolmakers, and primates, mankind's closest relatives.

Over the past few years, the most controversial question in animal cognition has not been whether animals have thoughts and feeling as individuals but whether a few species collectively create something that could reasonably be called a culture. That is the subject of a new book by Hal Whitehead of Dalhousie University in Nova Scotia, Canada, and Luke Rendell of St Andrew's University in Scotland.

They define culture broadly as "the way we do things". They show how important songs are to migrating whales (sound is the best way to keep track of others in the murky depths). Songs change according to fashion: whales in different parts of the Pacific copy each others' vocalisations, so the songs travel across the ocean like pop music crossing the Atlantic. Whales teach one another hunting techniques, as do dolphins. For a long-lived, social species, having a culture is an environmental advantage, since a collective knowledge means individuals can do things they would never be able to learn in their own lifetimes.

Mr Whitehead and Mr Rendell are distinguished marine scientists. They provide a more even balance between science and storytelling. Mr Safina, a populariser of science, by contrast, favours the stories. Their book is a profound exploration of animal cognition's cutting edge; Mr Safina's, a vivid account of part of the field. ■

Brain waves

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IN THE MATTER OF

EXCESS INSURANCE COMPANY LIMITED
HARTFORD FIRE INSURANCE COMPANY, UK BRANCH
AVIVA INSURANCE LIMITED
HARTFORD FINANCIAL PRODUCTS INTERNATIONAL LIMITED

AND

IN THE MATTER OF

THE FINANCIAL SERVICES AND MARKETS ACT 2000

NOTICE

NOTICE IS HEREBY GIVEN that on 30 June 2015 Excess Insurance Company Limited ("**Excess**"), Hartford Fire Insurance Company, UK branch ("**Hart Re**") and Aviva Insurance Limited ("**AIL**") (Excess, Hart Re and AIL, together, the "**Transferors**") and Hartford Financial Products International Limited ("**HFPI**" or the "**Transferee**") made an application (the "**Application**") to the High Court of Justice (the "**Court**") pursuant to section 107(1) of the Financial Services and Markets Act 2000 ("**FSMA**") for an Order:

(1) under section 111 of FSMA sanctioning an insurance business transfer scheme for the transfer of certain general insurance business of the Transferors, as outlined below to HFPI (the "**Scheme**"); and

(2) making ancillary provisions in connection with the Scheme pursuant to section 112 of FSMA.

The Scheme will result in the following business being carried on by HFPI:

(a) the general insurance business carried on by Excess and Hart Re; and

(b) the business assumed by AIL from London & Edinburgh Insurance Company Limited (formerly London & Edinburgh General Insurance Company Limited) ("**L&E**") (now part of AIL), being:

(i) business written by L&E in pooling arrangements through the following underwriting agents:

(A) B. D. Cooke and Partners between 1948 and 1968;

(B) H.S. Weavers (Underwriting) Agencies Limited between 1972 and 1976;

(C) Tower Underwriting Management (also known as "Old Tower") between 1967 and 1972;

(D) Highlands Underwriting Agents (also known as "Tower X") between 1973 and 1978; and

(E) Westminster Marine Insurance Managers between 1960 and 1977; and

(ii) business written by L&E in the London market in its own name before 1 January 1992, which generally relates to direct US and reinsurance business written from the 1940's to the 1970's,

together, (the "**L&E Business**").

Copies of the Scheme, a report on the terms of the Scheme prepared pursuant to section 109 of FSMA (the "**Independent Expert's Report**") and a statement setting out the terms of the Scheme and a summary of the Independent Expert's Report are available free of charge at **www.downlandsliability.com**. Supporting documents and any further news about the Scheme will be posted on this website so you may wish to check for updates. You can also request free copies of any of these documents by writing to or telephoning Downlands Liability Management Limited ("**DLM**") using the details set out below.

The Application will be heard on 13 October 2015 by a Judge of the Chancery Division of the High Court at The Rolls Building, Fetter Lane, London, EC4A 1NL, United Kingdom. If approved by the Court, it is currently proposed that the Scheme will take effect on 15 October 2015.

Any person who believes that he or she would be adversely affected by the carrying out of the Scheme is entitled to either make written representations or be heard (either in person or by a legal representative) at the hearing of the Application on 13 October 2015. Any person who intends to appear at the Court or make representations in writing is requested to notify his or her objections as soon as possible and ideally at least two business days before the hearing of the Application on 13 October 2015 to the solicitors named below or to DLM using the details set out below.

If the Scheme is sanctioned by the Court, it will result in the transfer to HFPI of all the contracts, property, assets and liabilities relating to the general insurance business of Excess and Hart Re and relating to the L&E Business (as defined above); notwithstanding that a person would otherwise be entitled to terminate, modify, acquire or claim an interest or right or to treat an interest or right as terminated or modified in respect thereof. Any such right will only be enforceable to the extent the Order of the Court makes provision to that effect.

Dated: 18 July 2015

Freshfields Bruckhaus Deringer LLP
65 Fleet Street
London
EC4Y 1HS
United Kingdom
Ref: 138865-0034/GHFS/NAG/LEH
Solicitors for the Transferors and the Transferee

Downlands Liability Management Limited
DLM House
Downlands Business Park
Lyons Way
Worthing
West Sussex
BN14 9RX
United Kingdom
Ref: Roland Jackson
Email: HartfordPartVII@downlandsliability.com
Phone: +44 (0) 1903 836822

Appointments

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Tenders

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የኢንዱስትሪ ሚኒስቴር
The Federal Democratic Republic of Ethiopia
Ministry of Industry

Call for proposals – Ethiopian National Cotton Development Strategy (2015-2030)

The Ministry of Industry of the Federal Democratic Republic of Ethiopia, in collaboration with its partners, would like to develop a national cotton development strategy and roadmap. The strategy is expected to provide an overall framework that captures the current situation (globally and domestically) and the gaps to be bridged for future prospects, vision, goals, strategies and programs, all to be implemented over 15 years to support Ethiopia becoming a middle-income country by 2025.

The study will be carried out in two stages: (a) an initial scoping phase; and (b) development of a sustainable cotton development strategy for Ethiopia, including an implementation roadmap. The assignment, which requires international and national expertise, will be completed by 31 January 2016.

The Ministry of Industry invites eligible organisations to submit proposals to carry out this work to the Private Enterprise Programme Ethiopia (PEPE).

Interested organisations may obtain the detailed terms of reference for this work by contacting **cottonstrategyethiopia@pepeteam.org**

Deadline for applications: 14 August 2015

Appointments

Non-Executive Board Appointment

THE CROWN ESTATE

The Crown Estate is an independent commercial business, created by Act of Parliament, with a diverse portfolio of assets valued at £11.5bn. Its role is to make sure that the land and property it invests in and manages are sustainably worked, developed and enjoyed to deliver the best value over the long term.

Assets include the whole of Regent Street and much of St James's, Windsor Great Park, numerous regional retail parks, hundreds of thousands of acres of rural and coastal land, and sea bed. The Crown Estate is managed by a Board, responsible for agreeing the objectives and strategy for the business. The Board's role is to bring exemplary knowledge, experience and competence to inform its strategic decision making.

For this role, you will be a senior leader/professional with significant experience and knowledge of investment and strategic asset management in the property sector. You will be expected to have demonstrable experience of the financial structures and vehicles used in property ownership and development including joint ventures. Candidates will need to demonstrate excellent interpersonal and stakeholder management skills, together with strong powers of analysis and business acumen. You will have experience of working at a strategic level in an organisation of scale to make a real contribution to the Board's general business.

Board Members are appointed for a four year term, which is renewable. The position carries a commitment of approximately 20 days per annum and the current remuneration is £19,371 pa.

For further information please visit www.ekornferry.com (go to 'Opportunities' and enter code TY681) or contact Connie Healy at thecrownestate@kornferry.com. Closing date for applications is 26 July 2015. The Crown Estate is committed to diversity and welcomes applications from all sections of the community.

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Rich Whiting - **Tel:** (212) 641-9846
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Europe
Sandra Huot - **Tel:** (33) 153 9366 14
sandrahuot@economist.com

Middle East & Africa
Philip Wrigley - **Tel:** (44-20) 7576 8091
philipwrigley@economist.com

Asia
David E. Smith - **Tel:** (852) 2585 3232
davidesmith@economist.com

Economic data

% change on year ago

	Gross domestic product latest	qtr*	2015†	Industrial production latest	Consumer prices latest	2015†	Unemployment rate, %	Current-account balance latest 12 months, $bn	% of GDP 2015†	Budget balance % of GDP 2015†	Interest rates, % 10-year gov't bonds, latest	Currency units, per $ Jul 15th	year ago
United States	+2.9 Q1	-0.2	+2.3	+1.5 Jun	nil May	+0.4	5.3 Jun	-406.4 Q1	-2.6	-2.5	2.40	-	-
China	+7.0 Q2	+7.0	+6.9	+6.8 Jun	+1.4 Jun	+1.4	4.1 Q1§	+288.2 Q1	+3.0	-2.7	3.19§§	6.21	6.21
Japan	-0.9 Q1	+3.9	+1.0	-3.9 May	+0.5 May	+0.8	3.3 May	+89.0 May	+2.4	-6.8	0.46	124	102
Britain	+2.9 Q1	+1.5	+2.4	+2.1 May	nil Jun	+0.3	5.6 Apr††	-180.5 Q1	-4.8	-4.4	2.24	0.64	0.58
Canada	+2.1 Q1	-0.6	+1.6	-2.1 Apr	+0.9 May	+1.2	6.8 Jun	-42.2 Q1	-2.9	-1.8	1.60	1.29	1.08
Euro area	+1.0 Q1	+1.5	+1.5	+1.6 May	+0.2 Jun	+0.2	11.1 May	+302.6 Apr	+2.5	-2.1	0.76	0.91	0.74
Austria	+0.3 Q1	+0.7	+0.6	+0.8 Apr	+1.0 May	+1.0	6.0 May	+6.5 Q1	+1.4	-2.1	1.19	0.91	0.74
Belgium	+0.9 Q1	+1.3	+1.3	-1.1 Apr	+0.6 Jun	+0.4	8.6 May	+12.1 Mar	+1.2	-2.6	1.20	0.91	0.74
France	+0.8 Q1	+2.5	+1.2	+2.8 May	+0.3 Jun	+0.3	10.3 May	-10.5 May‡	-0.8	-4.1	1.23	0.91	0.74
Germany	+1.0 Q1	+1.1	+1.7	+2.2 May	+0.3 Jun	+0.5	6.4 Jun	+278.1 May	+7.5	+0.7	0.76	0.91	0.74
Greece	+0.2 Q1	-0.7	+1.4	-4.0 May	-2.2 Jun	-0.9	25.6 Apr	+1.9 Apr	+2.7	-3.7	12.55	0.91	0.74
Italy	+0.1 Q1	+1.2	+0.6	+3.0 May	+0.2 Jun	+0.2	12.4 May	+43.3 Apr	+2.1	-2.9	2.00	0.91	0.74
Netherlands	+2.5 Q1	+2.3	+1.9	+2.1 May	+1.0 Jun	+0.4	8.9 May	+91.4 Q1	+9.7	-1.8	1.10	0.91	0.74
Spain	+2.6 Q1	+3.8	+2.9	+1.8 May	+0.1 Jun	-0.3	22.5 May	+14.1 Apr	+0.7	-4.4	2.19	0.91	0.74
Czech Republic	+4.0 Q1	+10.5	+3.1	+2.1 May	+0.8 Jun	+0.3	6.2 Jun§	+0.8 Q1	-0.3	-1.8	1.24	24.7	20.2
Denmark	+1.5 Q1	+2.0	+1.7	-3.2 May	+0.7 Jun	+0.6	4.8 Apr	+21.9 May	+6.0	-2.9	1.01	6.82	5.50
Norway	+1.5 Q1	+1.0	+0.8	+5.1 May	+2.6 Jun	+1.5	4.2 Apr‡‡	+39.3 Q1	+9.8	+6.2	1.73	8.16	6.21
Poland	+3.7 Q1	+4.1	+3.4	+2.8 May	-0.8 Jun	+0.2	10.8 May§	-1.2 May	-1.5	-1.5	3.04	3.77	3.05
Russia	-2.2 Q1	na	-3.6	-4.7 Jun	+15.3 Jun	+14.7	5.6 May§	+68.7 Q2	+4.3	-2.8	10.66	56.9	34.4
Sweden	+2.6 Q1	+1.5	+2.6	+3.3 May	-0.4 Jun	+0.2	8.0 May§	+38.1 Q1	+6.2	-1.2	0.86	8.51	6.82
Switzerland	+1.1 Q1	-0.8	+0.7	-0.5 Q1	-1.0 Jun	-1.0	3.3 Jun	+53.7 Q1	+7.9	+0.2	0.10	0.95	0.90
Turkey	+2.3 Q1	na	+2.8	+0.5 May	+7.2 Jun	+7.3	9.6 Apr§	-44.7 May	-4.6	-1.6	9.35	2.65	2.12
Australia	+2.3 Q1	+3.8	+2.4	+2.8 Q1	+1.3 Q1	+1.7	6.0 Jun	-41.9 Q1	-3.2	-2.3	3.03	1.36	1.07
Hong Kong	+2.1 Q1	+1.5	+2.4	-1.6 Q1	+3.1 May	+3.2	3.2 May‡‡	+6.1 Q1	+2.8	nil	1.89	7.75	7.75
India	+7.5 Q1	+11.0	+7.6	+2.7 May	+5.4 Jun	+5.4	4.9 2013	-27.5 Q1	-1.0	-4.1	7.84	63.5	60.2
Indonesia	+4.7 Q1	na	+4.9	+8.2 May	+7.3 Jun	+6.2	5.8 Q1§	-25.2 Q1	-2.9	-1.9	8.32	13,352	11,730
Malaysia	+5.6 Q1	na	+5.5	+4.5 May	+2.5 Jun	+2.6	3.0 Apr§	+11.3 Q1	+3.4	-4.2	4.04	3.81	3.19
Pakistan	+5.5 2015**	na	+5.7	+5.9 May	+3.2 Jun	+4.2	6.0 2014	-2.0 Q1	-0.6	-5.1	10.05†††	102	98.8
Philippines	+5.2 Q1	+1.2	+6.6	-3.1 May	+1.2 Jun	+2.6	6.4 Q2§	+14.5 Mar	+4.1	-1.9	4.36	45.3	43.6
Singapore	+1.7 Q2	-4.6	+3.1	-2.4 May	-0.4 May	+0.4	1.8 Q1	+66.3 Q1	+21.3	-0.7	2.63	1.37	1.24
South Korea	+2.4 Q1	+3.3	+2.9	-2.8 May	+0.7 Jun	+1.0	3.9 Jun§	+98.0 May	+7.5	+0.4	2.50	1,148	1,027
Taiwan	+3.4 Q1	+2.7	+3.7	-3.2 May	-0.6 Jun	+0.3	3.8 May	+72.4 Q1	+12.7	-1.2	1.49	31.1	30.0
Thailand	+2.2 Q4	+7.1	+3.6	-7.6 May	-1.1 Jun	+1.1	0.9 May§	+16.1 Q1	+2.3	-2.0	2.52	34.2	32.1
Argentina	+1.1 Q1	+0.8	-0.4	-0.9 May	— ***	—	7.1 Q1§	-6.0 Q1	-1.5	-3.1	na	9.13	8.15
Brazil	-1.6 Q1	-0.6	-1.5	-8.9 May	+8.9 Jun	+8.4	6.7 May§	-95.7 May	-4.2	-5.5	12.53	3.14	2.22
Chile	+2.4 Q1	+4.2	+2.9	-1.3 May	+4.4 Jun	+3.8	6.6 May§‡‡	-1.3 Q1	-1.3	-1.9	4.54	643	557
Colombia	+2.8 Q1	+3.3	+3.4	-3.9 May	+4.4 Jun	+4.1	8.9 May§	-20.7 Q1	-6.5	-2.1	7.20	2,716	1,869
Mexico	+2.5 Q1	+1.6	+2.7	-0.9 May	+2.9 Jun	+3.0	4.4 May	-25.5 Q1	-2.3	-3.4	5.97	15.8	12.9
Venezuela	-2.3 Q3	+10.0	-4.2	na	+68.5 Dec	+76.4	7.9 Jan§	+10.3 Q3	-1.8	-16.5	11.00	6.31	6.35
Egypt	+4.3 Q4	na	+4.2	+0.2 May	+11.4 Jun	+9.9	12.8 Q1§	-10.2 Q1	-1.3	-11.0	na	7.83	7.15
Israel	+2.3 Q1	+2.1	+3.4	+3.9 Apr	-0.4 Jun	-0.2	5.0 May	+11.7 Q1	+4.9	-3.0	2.44	3.78	3.41
Saudi Arabia	+3.5 2014	na	+2.7	na	+2.2 Jun	+2.7	5.7 2014	+81.2 Q4	-2.4	-12.1	na	3.75	3.75
South Africa	+2.1 Q1	+1.3	+2.0	-0.4 May	+4.6 May	+4.9	26.4 Q1§	-18.7 Q1	-5.2	-3.8	8.17	12.4	10.7

Source: Haver Analytics. *% change on previous quarter, annual rate. †*The Economist* poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. ***Official number not yet proven to be reliable; The State Street PriceStats Inflation Index, May 26.74%; year ago 41.74% †††Dollar-denominated bonds.

Markets

	Index Jul 15th	% change on one week	% change on Dec 31st 2014 in local currency	% change on Dec 31st 2014 in $ terms
United States (DJIA)	18,050.2	+3.1	+1.3	+1.3
China (SSEA)	3,987.9	+8.5	+17.7	+17.6
Japan (Nikkei 225)	20,463.3	+3.7	+17.3	+13.4
Britain (FTSE 100)	6,753.8	+4.1	+2.9	+3.0
Canada (S&P TSX)	14,662.3	+1.7	+0.2	-10.0
Euro area (FTSE Euro 100)	1,201.8	+8.5	+15.9	+4.9
Euro area (EURO STOXX 50)	3,623.9	+8.9	+15.2	+4.3
Austria (ATX)	2,498.5	+5.9	+15.7	+4.7
Belgium (Bel 20)	3,787.6	+8.1	+15.3	+4.4
France (CAC 40)	5,047.2	+8.8	+18.1	+7.0
Germany (DAX)*	11,539.7	+7.4	+17.7	+6.6
Greece (Athex Comp)	797.5	nil	-3.5	-12.6
Italy (FTSE/MIB)	23,392.8	+8.7	+23.0	+11.4
Netherlands (AEX)	497.1	+8.3	+17.1	+6.0
Spain (Madrid SE)	1,150.3	+8.6	+10.3	-0.1
Czech Republic (PX)	1,011.1	+4.6	+6.8	-1.0
Denmark (OMXCB)	903.0	+8.1	+33.7	+20.8
Hungary (BUX)	22,285.0	+4.3	+34.0	+23.6
Norway (OSEAX)	692.2	+4.2	+11.7	+2.8
Poland (WIG)	52,764.8	+2.7	+2.6	-3.4
Russia (RTS, $ terms)	909.5	+3.9	+8.9	+15.0
Sweden (OMXS30)	1,602.0	+5.3	+9.4	+0.5
Switzerland (SMI)	9,319.3	+5.3	+3.7	+8.2
Turkey (BIST)	82,727.8	+2.9	-3.5	-14.7
Australia (All Ord.)	5,619.0	+3.0	+4.3	-5.8
Hong Kong (Hang Seng)	25,055.8	+6.5	+6.1	+6.2
India (BSE)	28,198.3	+1.8	+2.5	+2.0
Indonesia (JSX)	4,869.8	nil	-6.8	-13.5
Malaysia (KLSE)	1,727.3	+1.9	-1.9	-9.9
Pakistan (KSE)	35,699.8	+1.0	+11.1	+9.8
Singapore (STI)	3,338.9	+1.6	-0.8	-3.8
South Korea (KOSPI)	2,072.9	+2.8	+8.2	+4.0
Taiwan (TWI)	9,054.2	+0.9	-2.7	-0.9
Thailand (SET)	1,486.7	+1.1	-0.7	-4.2
Argentina (MERV)	12,301.9	+6.9	+43.4	+32.9
Brazil (BVSP)	52,902.3	+2.2	+5.8	-10.8
Chile (IGPA)	18,977.8	+3.3	+0.6	-5.0
Colombia (IGBC)	10,096.3	+0.6	-13.2	-23.9
Mexico (IPC)	45,107.1	+1.4	+4.5	-2.1
Venezuela (IBC)	15,309.5	+7.8	+297	na
Egypt (Case 30)	7,882.6	+4.4	-11.7	-19.4
Israel (TA-100)	1,449.8	+2.6	+12.5	+15.8
Saudi Arabia (Tadawul)	9,337.9	+0.6	+12.1	+12.1
South Africa (JSE AS)	52,531.1	+4.6	+5.5	-1.6

Global threats

Climate change is seen as the biggest global threat, according to a poll of over 45,000 people carried out by the Pew Research Centre, a think-tank. Respondents in nearly half of countries involved put it top. Although 61% of Latin Americans say they are very concerned by climate change, only 42% of Europeans feel similarly. Richer countries are more likely to be troubled by Islamic State (IS): 77% of Spaniards are very concerned by the terrorist group, just 7% fewer than in Lebanon. Respondents in most countries do not view economic instability as their main worry, though in half they judge it the second-highest concern. Russia, grappling with sanctions and low oil prices, is an exception.

Source: Pew Research Centre *Equally concerned by Russia

Other markets

	Index Jul 15th	% change on one week	% change on Dec 31st 2014 in local currency	% change on Dec 31st 2014 in $ terms
United States (S&P 500)	2,107.4	+3.0	+2.4	+2.4
United States (NAScomp)	5,098.9	+3.9	+7.7	+7.7
China (SSEB, $ terms)	335.7	+13.4	+15.6	+15.5
Japan (Topix)	1,646.4	+4.0	+17.0	+13.2
Europe (FTSEurofirst 300)	1,586.5	+7.4	+15.9	+5.0
World, dev'd (MSCI)	1,768.1	+3.6	+3.4	+3.4
Emerging markets (MSCI)	938.0	+3.7	-1.9	-1.9
World, all (MSCI)	429.0	+3.6	+2.9	+2.9
World bonds (Citigroup)	858.9	-1.1	-4.8	-4.8
EMBI+ (JPMorgan)	700.8	+0.2	+1.3	+1.3
Hedge funds (HFRX)	1,239.2§	+0.8	+1.7	+1.7
Volatility, US (VIX)	13.2	+19.7	+19.2	(levels)
CDSs, Eur (iTRAXX)†	64.7	-19.2	+27.1	+15.1
CDSs, N Am (CDX)†	67.2	-8.1	+10.7	+10.7
Carbon trading (EU ETS) €	7.8	+4.1	+6.6	-3.5

Sources: Markit; Thomson Reuters. *Total return index. †Credit-default-swap spreads, basis points. §Jul 14th.

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

The Economist commodity-price index

2005=100

	Jul 7th	Jul 14th*	% change on one month	% change on one year
Dollar Index				
All Items	142.4	144.7	+3.3	-11.7
Food	166.3	170.2	+8.6	-5.2
Industrials				
All	117.5	118.2	-3.6	-19.9
Nfa†	120.8	120.0	-4.7	-15.6
Metals	116.1	117.4	-3.1	-21.7
Sterling Index				
All items	168.0	169.0	+3.7	-2.8
Euro Index				
All items	161.9	163.5	+5.5	+8.9
Gold				
$ per oz	1,152.7	1,155.6	-1.9	-11.0
West Texas Intermediate				
$ per barrel	52.9	52.8	-12.1	-47.1

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.

Steel and shadows

Yevgeny Primakov, Russian spy, diplomat and politician, died on June 29th, aged 85

INSCRUTABILITY was an asset in the Soviet Union. The less you gave away about yourself, the better: a father who disappeared in the gulag, for example, or Jewish origins which meant you changed your surname from the dodgy-sounding Finkelstein to the safer Primakov. Brainpower was an asset, too. The communist authorities fostered talent, and they gave the young Yevgeny a first-rate education, with a command of Arabic that led to a coveted job as a foreign correspondent in the Middle East.

Whatever kept him busy, it was not journalism. He was on the KGB's books, with the code name Maksim, but his real job may have been a bit grander, providing foreign intelligence directly for the Communist Party leadership. Not that he was a zealot. He had no time for ideology, seeing clearly that the Soviet empire was brittle and the planned economy did not work. Power was much more interesting: observing it, influencing it, and finally wielding it.

He rose to prominence in the Soviet Union's twilight. He steered clear of the hardliners' drunken attempt to fend off the inevitable. Instead he took over the KGB's foreign-intelligence directorate in its last months, and then became the first spymaster of the new, supposedly democratic and pro-Western Russia led by Boris Yeltsin.

In retrospect, that was already an ominous sign. What Russia really needed was a reckoning with its totalitarian past and a breach with its terrible institutions. But the old spooks smoothly presented themselves as the ultimate guardians of national security: patriots, not oppressors.

Who wants to spy?

Ex-KGB men were mostly making money, using their knowledge of foreign languages (and the remains of their slush funds) to go into business, with the aim of gaining the same grip on capitalist Russia that they had once had on the Soviet Union. Staying in the spy world was much less attractive: especially since salaries were miserly, and the great perk of foreign travel was now available to everyone.

Little by little, though, the tide started to turn. Russia's infatuation with the West shrivelled amid the economic upheavals of the 1990s. A surging wave of resentment swept the spymaster to the foreign ministry. The outside world blinked. No more charming lightweights: here was a figure radiating the values of the past, jowly, owlish, slow-spoken and unsentimental in his approach. Russia was not a Western ally: it was a great power, and would be treated as such.

The first big breach came over Yugoslavia. When the West launched its bombing campaign against Slobodan Milosevic's regime, Mr Primakov was in mid-air, flying to America. On hearing the news he ordered the plane to return home: "Primakov's loop", they called it. Behind the scenes he did more—secretly sending advanced air-defence missiles to Mr Milosevic, which could have foiled NATO's bombers. To his fury, Western intelligence intercepted and destroyed them.

Russians made it clear that they liked the tougher tone. Mr Primakov became Russia's most popular politician when an ailing Mr Yeltsin, in the twilight of his presidency, eventually made him prime minister. His resolutely untelegenic appearance told of a life spent the Soviet way, and contrasted pleasantly with the slick Westernisers and the political and economic failure they epitomised.

Financial speculation was a crime in the Soviet Union, and Mr Primakov retained a distaste for those who had grown fat as the country had suffered. But he misjudged their power. When he said he would empty the jails to make room for Russia's business elite, Mr Yeltsin sided with the oligarchs and publicly disparaged him as "useful, for now". His chances of the presidency vanished in a few days amid a propaganda war which not only mocked his age and health, but even claimed he was a Western puppet.

He was easily outgunned: no TV performer or orator, his modus operandi was discreet words spoken offstage, backed up with menace if necessary. The presidential spoils went to Vladimir Putin—another ex-KGB man, but one regarded as safer by the country's power-brokers.

If Mr Primakov felt distaste for the new president's coarse manner and undistinguished espionage career, he never showed it. He accepted a tricky mission as the Gulf war loomed, trying (it was said) to avert war by persuading Saddam Hussein to deal with the Americans. Others thought he might be arranging to get Russian weapons out of Iraq before the Americans found them.

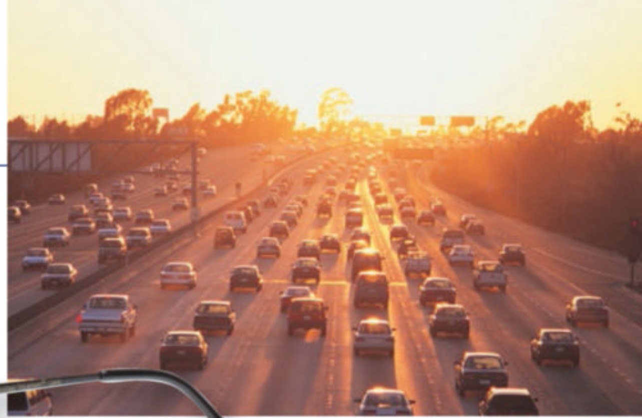
Mr Primakov did not dislike Americans. There was real friendship with Madeleine Albright (she spoke Russian), and they joked about the curse of "termites"—meaning diplomats who busily undermined whatever edifice their leaders had constructed. But his vision was clear: the West must not be allowed to run the world.

He did not seek confrontation. Russia was too weak for that. Better to use diplomatic wiles to outwit and outmanoeuvre its rivals. He publicly criticised Mr Putin for going too far: regaining Crimea from Ukraine was good, he thought, but the hysterical martial propaganda was distasteful, and full-blown confrontation with the West futile. He had seen where it led. ■

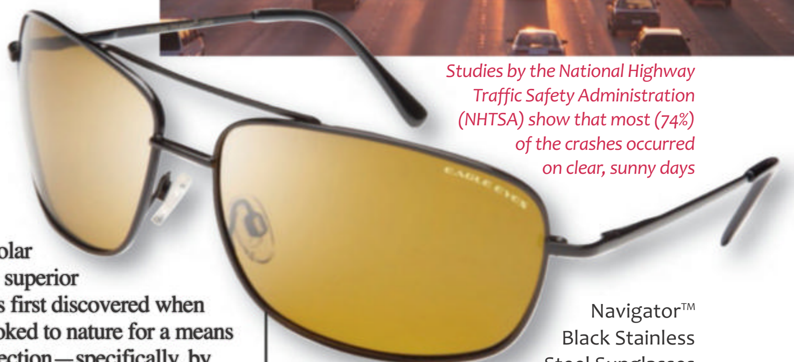
Urgent: Special Summer Driving Notice

To some, sunglasses are a fashion accessory…

But When Driving, These Sunglasses May Save Your Life!



Studies by the National Highway Traffic Safety Administration (NHTSA) show that most (74%) of the crashes occurred on clear, sunny days



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The sun rises and sets at peak travel periods, during the early morning and afternoon rush hours and many drivers find themselves temporarily blinded while driving directly into the glare of the sun. Deadly accidents are regularly caused by such blinding glare with danger arising from reflected light off another vehicle, the pavement, or even from waxed and oily windshields that can make matters worse. Early morning dew can exacerbate this situation. Yet, motorists struggle on despite being blinded by the sun's glare that can cause countless accidents every year.

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