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Greece is the word, again

Hacking and the Hermit Kingdom

Betting the farm on farming

Silicon Valley's robber barons

The magic of "Tristan and Isolde"

Workers on tap

Technology, freelancing and the future of the labour market

The New Navigator.
The refined face
of a new generation.

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25 St James's Street, London SW1A 1HG
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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Dear World Leaders

This year CHANGE the course of HISTORY FOREVER

Let's take a DECISIVE step FORWARD

TO END EXTREME POVERTY & SAVE OUR PLANET

IN 2015 We will be trusting YOU to set NEW DEVELOPMENT GOALS to PROTECT and make EARTH a SAFE, EQUAL and NURTURING HOME for all

Over 7 MILLION of us have taken the UNITED NATIONS MY WORLD SURVEY and VOTED for the WORLD we WANT

We need a PARADIGM SHIFT

These VOTES represent the HOPES & DREAMS of every 1 in 1,000 PEOPLE on the planet for a BETTER Life

We ask for BETTER

Education, Healthcare, Jobs, honest and responsive Government

& so much MORE

Let's get these NEW GOALS RIGHT

so in 15 YEARS TIME we are NOT writing these words again. WE can BE the GENERATION that ENDS POVERTY & Preserves the Planet

WE THE PEOPLE

North Korea accused America of briefly shutting down its internet and described Barack Obama as "reckless" and "a monkey" for encouraging Sony Pictures to distribute "The Interview", a comic film about an attempt to assassinate the country's dictator, Kim Jong Un. This came after a hacking attack that targeted Sony by wiping its hard drives and exposing studio executives' sometimes embarrassing e-mails to public view. North Korea said it had nothing to do with the attack, though it praised the hackers.

Indonesian search teams found debris at sea from an AirAsia passenger jet that crashed about an hour after take-off from Surabaya in **Indonesia** en route to Singapore. The plane had 162 people on board and had requested permission to change course because of bad weather.

NATO officially ended its 13-year combat operation in **Afghanistan**. Almost 3,500 coalition troops, two-thirds of them American, have been killed fighting Taliban insurgents since 2001. Around 13,000 troops will remain to support the Afghan army, which has taken the brunt of attacks since 2013.

Xiaomi, which has risen to the top of China's smartphone market, was reckoned to be worth more than $45 billion after its latest round of fund-raising. That makes it more valuable than any other technology startup, including Uber. The privately-held firm has tailored its own version of Android to suit its phones and more than 10 billion apps have been downloaded through its online store.

Forces loyal to **Libya's** internationally recognised government used aircraft to bomb targets in Misrata for the first time, in an escalating conflict between government forces and militias allied to Libya Dawn, which controls the capital, Tripoli. The conflict intensified after rebels attacked two ports used by the government to export oil.

A senior leader of the **Shabab**, an Islamist group based in Somalia responsible for attacks in that country as well as in neighbouring Kenya, surrendered to government forces. His capture comes just days after an assault by the group on a base in the capital, Mogadishu, used by the African Union Mission in Somalia, which has been battling the Shabab.

The leader of **Bahrain's** main opposition movement, Sheikh Ali Salman, was arrested amid large protests against the government. He has been accused of "inciting hatred against the regime".

The parliament in **Greece** failed in its third attempt to elect a president. That means there will be an early election on January 25th. Financial markets fell sharply because opinion polls suggest the election will be won by Syriza, a left-wing populist party that wants to scrap or reverse the conditions of Greece's euro bail-outs.

Sweden's Social Democratic prime minister, Stefan Lofven, withdrew plans for a snap election in March after reaching a deal on the 2015 budget with the centre-right opposition. The deal freezes out the far-right Sweden Democrats.

Russia's economy shrank by 0.5% in November over the same month in 2013, the first contraction in Russian GDP since the depths of the financial crisis in 2009. The central bank forecasts that the economy will shrink by 4.5% in 2015 if **oil prices** average around $60 a barrel. Meanwhile, Alexei Navalny, an opposition leader, was given a suspended sentence in a fraud trial that some observers said was based on trumped-up charges.

Thousands of police from across America attended the funeral of one of the two officers gunned down in **New York** on December 20th by a black man who had made online threats to put "wings on pigs today". The shootings came amid continuing protests in the city over Eric Garner, an unarmed black man who died after a policeman put him in a chokehold. Bill de Blasio, the mayor, has infuriated the police by supporting the protesters; at the funeral of their colleague many turned their backs on Mr de Blasio as he delivered a eulogy.

Barack Obama announced a series of measures to loosen the United States' 54-year-old embargo against **Cuba**. Cuba's leader, Raúl Castro, reciprocated by agreeing to free 53 political prisoners, an American spy and an imprisoned American aid worker, Alan Gross. Both countries agreed to restore diplomatic links. The measures represent the most dramatic improvement in relations since Cuba's revolution in 1959.

Nicaragua announced that construction has started on a 278km (172-mile) interoceanic canal that is to rival the Panama Canal. Sceptics have doubted that the $50 billion scheme will ever be completed. The start of work—on a road for equipment that will be used to build the canal—did not allay those doubts.

Other economic data and news can be found on pages 72-73

Workers on tap

The rise of the on-demand economy poses difficult questions for workers, companies and politicians

IN THE early 20th century Henry Ford combined moving assembly lines with mass labour to make building cars much cheaper and quicker—thus turning the automobile from a rich man's toy into transport for the masses. Today a growing group of entrepreneurs is striving to do the same to services, bringing together computer power with freelance workers to supply luxuries that were once reserved for the wealthy. Uber provides chauffeurs. Handy supplies cleaners. SpoonRocket delivers restaurant meals to your door. Instacart keeps your fridge stocked. In San Francisco a young computer programmer can already live like a princess.

Yet this on-demand economy goes much wider than the occasional luxury. Click on Medicast's app, and a doctor will be knocking on your door within two hours. Want a lawyer or a consultant? Axiom will supply the former, Eden McCallum the latter. Other companies offer prizes to freelances to solve R&D problems or to come up with advertising ideas. And a growing number of agencies are delivering freelances of all sorts, such as Freelancer.com and Elance-oDesk, which links up 9.3m workers for hire with 3.7m companies.

The on-demand economy is small, but it is growing quickly (see pages 17-20). Uber, founded in San Francisco in 2009, now operates in 53 countries, had sales exceeding $1 billion in 2014 and a valuation of $40 billion. Like the moving assembly line, the idea of connecting people with freelances to solve their problems sounds simple. But, like mass production, it has profound implications for everything from the organisation of work to the nature of the social contract in a capitalist society.

Baby, you can drive my car—and stock my fridge

Some of the forces behind the on-demand economy have been around for decades. Ever since the 1970s the economy that Henry Ford helped create, with big firms and big trade unions, has withered. Manufacturing jobs have been automated out of existence or outsourced abroad, while big companies have abandoned lifetime employment. Some 53m American workers already work as freelances.

But two powerful forces are speeding this up and pushing it into ever more parts of the economy. The first is technology. Cheap computing power means a lone thespian with an Apple Mac can create videos that rival those of Hollywood studios. Complex tasks, such as programming a computer or writing a legal brief, can now be divided into their component parts—and subcontracted to specialists around the world. The on-demand economy allows society to tap into its under-used resources: thus Uber gets people to rent their own cars, and InnoCentive lets them rent their spare brain capacity.

The other great force is changing social habits. Karl Marx said that the world would be divided into people who owned the means of production—the idle rich—and people who worked for them. In fact it is increasingly being divided between people who have money but no time and people who have time but no money. The on-demand economy provides a way for these two groups to trade with each other.

This will push service companies to follow manufacturers and focus on their core competencies. The "transaction cost" of using an outsider to fix something (as opposed to keeping that function within your company) is falling. Rather than controlling fixed resources, on-demand companies are middlemen, arranging connections and overseeing quality. They don't employ full-time lawyers and accountants with guaranteed pay and benefits. Uber drivers get paid only when they work and are responsible for their own pensions and health care. Risks borne by companies are being pushed back on to individuals—and that has consequences for everybody.

Obamacare and Brand You

The on-demand economy is already provoking political debate, with Uber at the centre of much of it. Many cities, states and countries have banned the ride-sharing company on safety or regulatory grounds. Taxi drivers have staged protests against it. Uber drivers have gone on strike, demanding better benefits. Techno-optimists dismiss all this as teething trouble: the on-demand economy gives consumers greater choice, they argue, while letting people work whenever they want. Society gains because idle resources are put to use. Most of Uber's cars would otherwise be parked in the garage.

The truth is more nuanced. Consumers are clear winners; so are Western workers who value flexibility over security, such as women who want to combine work with child-rearing. Taxpayers stand to gain if on-demand labour is used to improve efficiency in the provision of public services. But workers who value security over flexibility, including a lot of middle-aged lawyers, doctors and taxi drivers, feel justifiably threatened. And the on-demand economy certainly produces unfairnesses: taxpayers will also end up supporting many contract workers who have never built up pensions.

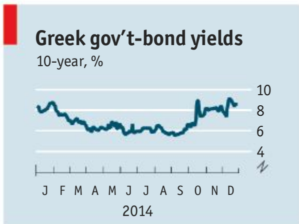
This sense of nuance should inform policymaking. Governments that outlaw on-demand firms are simply handicapping the rest of their economies. But that does not mean they should sit on their hands. The ways governments measure employment and wages will have to change. Many European tax systems treat freelances as second-class citizens, while American states have different rules for "contract workers" that could be tidied up. Too much of the welfare state is delivered through employers, especially pensions and health care: both should be tied to the individual and made portable, one area where Obamacare was a big step forward.

But even if governments adjust their policies to a more individualistic age, the on-demand economy clearly imposes more risk on individuals. People will have to master multiple skills if they are to survive in such a world—and keep those skills up to date. Professional sorts in big service firms will have to take more responsibility for educating themselves. People will also have to learn how to sell themselves, through personal networking and social media or, if they are really ambitious, turning themselves into brands. In a more fluid world, everybody will need to learn how to manage You Inc. ■

Greece's election

The euro's next crisis

Politics has returned to haunt the single currency



EVER since the euro crisis erupted in late 2009 Greece has been at or near its heart. It was the first country to receive a bail-out, in May 2010. It was the subject of repeated debate over a possible departure from the single currency (the so-called Grexit) in 2011 and again in 2012. It is the only country in the euro zone whose official debt has been restructured. On December 29th the Greek parliament failed to elect a president, forcing an early snap election to be called for January 25th. The euro crisis is entering a new, highly dangerous phase, and once again Greece finds itself at the centre.

Investors promptly swooned, with the Athens stockmarket falling by almost 5% in a single day, bank shares down by even more and Greek ten-year bond yields rising to a new 2014 high of 9.5% (over seven points above those for Italy). The reason for this collective outbreak of nerves is that the polls point to an election win for Syriza, a far-left populist party led by Alexis Tsipras. Although Mr Tsipras says he wants to keep Greece in the euro, he also wants to dump most of the conditions attached to its bail-outs: he would end austerity, reverse cuts in the minimum wage and in public spending, scrap asset sales and seek to repudiate much of the country's debt. Such a programme seems, to put it mildly, to sit uncomfortably with Greece's continuing membership of the single currency.

The early election is likely therefore to create a political crisis in Greece. What happens beyond that is less clear. Investors seem to be betting that the people of Italy, Spain and France will peek at the chaos in Athens, shudder—and stick to the austerity that Germany's Angela Merkel has prescribed for them. But that seems too sanguine to this newspaper. It is hard to believe that a Greek crisis will not unleash fresh ructions elsewhere in the euro zone—not least because some of Mrs Merkel's medicine is patently doing more harm than good.

The Greek kalends

Begin with Greece. For 14 months Syriza has been ahead of the ruling New Democracy party of the outgoing prime minister, Antonis Samaras, in the polls. Although the economy is now growing again, Greek voters remain understandably enraged that GDP should have shrunk by almost 20% since 2010 and that unemployment is still as high as 26%. As it happens, Syriza's poll lead has narrowed in recent weeks, but even if it does not win an outright parliamentary majority, it is likely to be by some margin the biggest party, so Mr Tsipras can expect to lead any coalition government that is formed after the election (see page 37). And this time round Mrs Merkel will struggle to repeat the 2012 trick of asking Greeks to vote again in the hope that they might produce a more sensible government.

In its policies Syriza represents, at best, uncertainty and contradiction and at worst reckless populism. On the one hand Mr Tsipras has recanted from his one-time hostility to Greece's euro membership and toned down his more extravagant promises. Yet, on the other, he still thinks he can tear up the conditions imposed by Greece's creditors in exchange for two successive bail-outs. His reasoning is partly that the economy is at last recovering and Greece is now running a primary budget surplus (ie, before interest payments); and partly that the rest of the euro zone will simply give in as they have before. On both counts he is being reckless.

In theory a growing economy and a primary surplus may help a country repudiate its debts because it is no longer dependent on capital inflows. But the Greek economy still has far to go to restore its lost competitiveness, and Mr Tsipras's programme would undo most of the gains of recent years. The notion that EU leaders are so rattled by fears of Grexit that they would pay any price to avoid it was more valid in 2011 and 2012 than it is now. The anti-contagion defences that the euro zone has since built make Grexit easier to contemplate for northern Europeans. Much has been done to improve the euro's architecture, with a new bail-out fund, the European Central Bank's role as lender of last resort and a partial banking union. Moreover, most of the bailed-out and peripheral countries are at last growing again, and unemployment is starting to fall.

Europe's Lehman moment?

The result is a game of chicken that neither Greece nor Europe can afford. Even if the Grexit is safer, it is still perilous and unpredictable. There was a worrying echo this week of the Lehman crisis of September 2008. Then the widespread assumption was that the global financial system was robust enough to cope with the failure of a single investment bank. Now investors are putting their trust in the resilience of unemployment-plagued countries like France, whose president has record levels of unpopularity, and Italy, whose economy has shrunk in constant prices in the first 14 years of this century (even Greece's GDP is higher now than it was in 1999).

That stagnation points to the deeper reason for caution. The continuing dismal economic performance of the euro zone now poses a big political risk to the single currency. In the short run, so long as creditor countries (and that means principally Germany) insist only on budgetary rectitude and reject all proposals for further monetary and fiscal stimulus, that performance seems unlikely to improve. Worse, inflation is now so dangerously low that the euro zone threatens to tip into years of deflation and stagnation worryingly reminiscent of Japan in the 1990s. The continent's leaders have largely failed to push through the structural reforms that could make their economies more competitive. When voters see no hope, they are likely to vote for populists—and not just in Greece.

As 2015 approached, most of Europe's leaders assumed that the worst of the euro crisis was behind them. The early Greek election shows that hope was premature. Populist parties of left and right that are against the euro, explicitly or not, continue to gain ground in many countries—the leader of Podemos, Spain's highest-polling party, welcomed Mr Tsipras's success in forcing an election this week (see page 38). Ironically, when a country starts to recover is also when popular discontent often boils over. That message needs to be heeded this week in Berlin as much as in Athens. ■

Sri Lanka

Last days of the Raj?

Encouragingly, Mahinda Rajapaksa faces a real battle to win re-election as president; better still if he loses it

WHEN he called a presidential election for January 8th, two years before he had to, Percy Mahinda Rajapaksa must have been confident of victory. Provincial elections had shown that his once unassailable popularity was waning. But the opposition was fractured, the economy was doing well and incumbency bestows benefits, both legitimate and nefarious. Mr Rajapaksa, who fosters myths that portray him as the reincarnation of a great king from Sri Lanka's south, seems to have expected re-anointing. Something close to the 57% vote share which saw him re-elected to a second term in 2010 seemed achievable. Now, barring outlandish rigging, it would be a surprise. Mr Rajapaksa may still, just, be the favourite (see page 27). But the contest will be very close-fought.

Mr Rajapaksa's popularity has rested on his role in ending Sri Lanka's 26-year civil war, with the rout in 2009 of the Tamil Tigers, a vicious, fascistic group but one that represented the opposition of the largely Hindu Tamil minority to discrimination favouring the ethnic-Sinhalese, Buddhist majority (about 70% of the population). Victory was ruthless and bloody, costing thousands of civilian lives. Charges that the army, like the Tigers, committed war crimes have been dismissed by the government, and have not bothered Sinhalese voters. Indeed, Mr Rajapaksa has bolstered his appeal by portraying himself as a patriot defending his country from foreign sniping.

That divisiveness is one reason for turfing him out, but there are plenty of others. He has done little to contain the spread of an ugly strain of anti-Muslim prejudice. He has stacked the administration with his family (four brothers, a son and a nephew are important politicians). Corruption has worsened. Mr Rajapaksa has used his big parliamentary majority to undermine the independence of the judiciary and to tamper with the constitution—removing the two-term limit on presidential tenures, for example, strengthening an already overpowerful "executive presidency" and failing to do anything to afford Tamils the autonomy the constitution promises them. Probing journalists and social activists have lived in fear. Resentful of the West's irksome harping on human rights, Mr Rajapaksa has drawn his country closer to China's orbit, where the flows of aid and credit are not hampered by such concerns.

Keeping them honest, Abe

If Mr Rajapaksa falls it will not be to a popular uprising but because of anger at rising prices, corruption and one-family rule—and murky political manoeuvres. His opponent, Maithripala Sirisena, now compared by the Rajapaksas to Judas, was health minister until November and a leading light in the family's party. The opposition has rallied around Mr Sirisena as the best hope of ending the drift to a dynastic dictatorship. The government's Muslim coalition partners, for example, have deserted, along with some of the ruling party.

Mr Sirisena is hardly a beacon of hope for the Tamils: he was acting as defence minister in the nightmarish final fortnight of the war. Yet electing him instead of Mr Rajapaksa is a necessary first step towards curing some of the country's ethnic ills. Under him it is at least possible to imagine the genuine national reconciliation that Sri Lanka needs if it is to enjoy lasting stability. Just as important, electing Mr Sirisena may also be the only way of saving Sri Lankan democracy, vindicating Abraham Lincoln with the proof that Mr Rajapaksa cannot fool even most of the people all of the time. ■

America and Cuba

The new normal

The loosening of the embargo will pay dividends far beyond Cuba

MARCO RUBIO, a prospective Republican candidate for the White House, called it "a victory for oppressive governments the world over". Only "the heinous Castro brothers, who have oppressed the Cuban people for decades" will benefit, thundered Jeb Bush, a likely rival, who is also based in Florida. The object of their fury: Barack Obama's startling decision to loosen America's 54-year-old embargo on Cuba.

Cuba's Communist government is indeed oppressive, while the Castro brothers can fairly be called heinous and will probably do all they can to maintain control. Raúl Castro, who took over from Fidel in 2008, has said he will step down in 2018, but that is not a prelude to free elections. Nonetheless, easing the embargo is the right thing to do. The measures that Mr Obama and Mr Castro announced on December 17th—including a deal to restore diplomatic relations and the liberalisation of travel and remittances—will do much to normalise a relationship that has been trapped in the sterile logic of the cold war. But its significance goes beyond that. The embargo warps the United States' relations with other Latin American countries, as well as their relations with one another.

The Economist has long argued that the embargo is self-defeating. Rather than ending the Castros' rule, it has provided an evergreen excuse for their failures and so helped maintain them in power. The embargo kept Cuba out of international bodies such as the Organisation of American States, where other countries could have prodded the island towards greater ▸▸

openness. It put the United States at odds with most of its allies and nearly every other country in its hemisphere. It would be much better if the embargo were got rid of entirely, but its partial lifting is a step towards normality for the whole region.

So far most of the attention has been on Cuba. The Castros agreed to release 53 political prisoners (along with an aid worker and an American spy). Cubans will have more access to the internet, which should loosen the regime's weakening grip on information. As Cuba's relations thicken with the democratic giant next door, its citizens' demands for freedom may grow more insistent. There is no guarantee that such engagement will unseat the Castros, but the embargo has manifestly failed for half a century. It has only remained there because of the political clout of a dwindling number of elderly Cuban exiles in Florida (which also explains the outrage of the normally more sensible Messrs Bush and Rubio).

But the biggest prize should be the advance of democracy and open markets in Latin America. The Castros are not the only ones who will be discomfited by the loss of the American alibi. Venezuela leads a loose coalition of countries that uses defiance of the United States as an excuse for policies that stunt economic growth and democratic rights. It has long supported Cuba (and other Caribbean countries) with sales of oil at heavily subsidised prices. Even for robustly democratic countries like Brazil, the American bogeyman makes it easier to justify resistance to trade deals and to cosy up to uglier regimes.

Now this depressing narrative may change. Venezuela's government, reeling from the drop in oil prices, faces difficult parliamentary elections in 2015. Argentina's next president is likely to be less prickly towards the rest of the world than Cristina Fernández de Kirchner, who will stand down in 2015. Colombia, an American ally, may end its 50-year war with the leftist FARC guerrillas if peace talks succeed. Dilma Rousseff could be a more pragmatic president in her second term (see page 25).

The scene is set for a new realism in Latin America. As commodity prices tumble and economic growth stalls, the region needs open markets, trade and regional co-operation—including with the *yanquis* to the north. With his move on Cuba, Mr Obama has opened the way for the sort of diplomatic engagement that Latin America rarely enjoyed during his first six years in office. But Latin America needs to return the compliment. The time for sulking and striking poses is over—in Brasília and Caracas as well as Havana and Miami. ■

Hacking corporate networks

Losing the plot

States should police corporate cyber-security more toughly—but react to breaches cautiously

THE cyber-attacks that have emerged in recent weeks have begun to sound like a screenplay. One unknown adversary destroys a German blast furnace by interfering with the computers that control it. An attack by the "Guardians of Peace" on Sony Pictures wipes its computers, loots its intellectual property and humiliates its bosses by publishing their private e-mails (see page 22). Another group called Lizard Squad ruins Christmas for millions by swamping video-game networks.

But these attacks were all too real, and reality is messier than fiction. Businesses and governments now face troubling questions. The Federal Bureau of Investigation quickly blamed North Korea for the attack on Sony, which had made a comedy featuring the assassination of that country's leader. Barack Obama vowed retaliation, and North Korea's internet connection has since crashed twice. But the evidence produced was weak. Many computer-security experts think it more likely the culprits were disgruntled employees, gangsters or pranksters. It is sobering to think that the world's greatest nuclear power and the trigger-happy regime in Pyongyang could be brought into confrontation by a motley array of mischief-makers.

After a traumatic year of spectacular breaches, including the theft of the details of 83m JPMorgan Chase customers and of 56m credit- and debit-card records from Home Depot, few businesses should need reminding of the importance of computer security. Working out what to do about these attacks is harder. Watertight protection is impossible. But some simple steps could have protected Sony. One is encryption of important stored information. If you must write derogatory e-mails about your company's leading lights, don't store them in plain text. Databases of passwords and logins, whether of employees or customers, should be "hashed and salted" properly—not stored in a folder labelled "Password". Most large companies take cyber-security very seriously these days, but some, as Sony shows, are still getting the basics wrong.

Game of thrones

One problem is that much cybercrime is buried. Sony, JPMorgan and Home Depot are the exceptions. They had no alternative to publicly admitting what happened. Many companies prefer to lick their wounds in private, fearing damage to their reputation, or lawsuits, if they confess to sloppy security. That may make some sense for them, but not for society as a whole. The latest breaches highlight the need for mandatory reporting of intrusions into corporate computer networks. That would allow other firms to learn lessons, and encourage laggards to get their act together and beef up their security.

The danger is that forcing firms to announce even the tiniest virus outbreak is a recipe for over-regulation. But they should have to report attacks to the authorities in the same way that they would any other kind of theft or assault. Finance provides a model: banks have to tell regulators when people try to pinch things, without necessarily broadcasting every lapse.

Sony will pay a high price for its sloppiness with employees' private data: lawsuits are looming. Mr Obama may also be shamed into producing more evidence against North Korea. But the best hope for the future of the internet is to reinforce the international co-operation needed to track down crooks, hooligans and hacktivists wherever they are. In the meantime, companies must do their best to defend themselves. They can no longer claim that they weren't warned. ■

Suburban jungle

SIR – Rapid suburbanisation in the developing world is indeed happening ("A planet of suburbs", December 6th), but it does not resemble the post-war suburbanisation that the United States went through. Suburbanisation in the developing world tends to involve large families moving into small homes on small lots in areas that are rather inaccessible to the centre of the city. Unlike America, the square footage of housing per head generally decreases the farther you go from the city centre. So does car ownership and use.

The benefits of being in the centre are so much higher in developing-world cities than in American ones. In the developing world, suburban travel speeds are not much faster than in central areas, but trip distances are much longer. Although nearly all cities have wealthy suburban enclaves, the vast majority of global urbanisation looks nothing like what you described. Instead, it is dense, poor, congested, typically far from regional job centres and other amenities. But yes, it is suburban.

ERICK GUERRA
Assistant professor of city and regional planning
University of Pennsylvania
Philadelphia

SIR – You used a very Anglo-American definition of "suburb", noting only in passing that plenty of suburbs have high-rises. Many urban fringes consist largely of squatter settlements and illegal developments. These may embody some of the aspirations that you discuss, but they certainly don't look like Orange County.

PROFESSOR RICHARD HARRIS
School of Geography
McMaster University
Hamilton, Canada

SIR – You spilled a lot of ink about global city trends to advance your idea of paving over London's green belt, but I do not agree. As an American I was stunned by how close Manchester, Birmingham and Liverpool are to central London. The train services are more frequent and the travel times shorter than for similar commutes from the fringes of metropolitan New York. What would it take for these cities, and perhaps some new ones, to become close if not full substitutes for London?

We have a new urban crisis of too many people wanting to live in a limited number of thriving city centres, limited, by the way, because of the previous wave of suburbanisation that has left many cities hollow at the core. The only way my kids are going to be able to live in Brooklyn, where they grew up, or somewhere like it is for more places like Brooklyn to be created. In America the supply of homes in places such as the sprawl west of Phoenix is more than adequate.

LARRY LITTLEFIELD
New York

SIR – It is easy to overplay the sense of cohesion in the ten boroughs that make up the Greater Manchester authority, with the city of Manchester at the centre ("City devolution", December 6th). Outside the city of Manchester, distinct town-based identities and residual loyalties to the historic counties of Cheshire and Lancashire remain. Proponents of an elected mayor will have a difficult task convincing voters in any future referendum that an extra tier of bureaucracy is desirable.

JOHN BYROM
Manchester Business School

Reforming the WHO

SIR – Your coverage of the travails of the World Health Organisation ("Heal thyself", December 13th) accurately reflected many of the points made in the recent Chatham House report, "What's the World Health Organisation For?". The first big problem is that it does not know the answer to that question. However, you did not sufficiently emphasise that the WHO is where it is today because member states collectively have a vested interest in the status quo, and not always for edifying reasons.

That is why the WHO's reform programme has not addressed the fundamental structural problems, particularly in its regional and country offices accounting for over 75% of its staffing, which were at the root of its unsatisfactory response to the Ebola outbreak. The WHO has promised to publish a review of its response once Ebola is under control. It is important that such a review is fully independent and that member states then bite the bullet on reforms that have long been proposed but never acted upon.

CHARLES CLIFT
Senior consulting fellow
Centre on Global Health Security
Chatham House
London

The press in Ecuador

SIR – The liquidation of the *Hoy* newspaper in Ecuador last August was, you claimed, an example of threats to media freedom from "autocratic governments" in Latin America ("The power of the cursor", December 13th). In fact, Edimpres, the company that produced *Hoy*, was just one of over 700 companies dissolved by the regulatory Superintendent of Companies because of financial problems, including losses of more than 50% of its capital in each of the past two years.

No company should be reliant on state advertising for its existence. I have written a weekly column in *Hoy* for 25 years and am aware of the company's financial difficulties. It has reported losses over the past several years. Even the representative of the company's workers has stated that: "This is not a political persecution…the case is a result of financial problems well known to all employees."

The company law applied here has no relation whatsoever to press freedom, which leads me to ask *The Economist* again: Should the press, unlike the rest of society, work without legal and democratically established regulations?

JUAN FALCONI PUIG
Ambassador of Ecuador
London

Germany's research elite

SIR – German universities are "not in the elite but improving", you say ("Between great and so-so", December 13th). One crucial difference with the American and British systems is that a lot of research in Germany is done at non-university institutions, such as the Max Planck Society, and the Helmholtz, Fraunhofer and Leibniz associations. They take the talent that normally stays in a university.

Recent figures from the European Research Council show that 40% of the starting grants awarded to young researchers went to non-university centres in Germany, whereas in Britain it was 13%. Comparisons of research landscapes are tricky, and university rankings on this basis can be misleading.

FRIEDRICH FRISCHKNECHT
Heidelberg, Germany

You just can't win

SIR – Bello's comment (November 29th) that "The appointment of a capable economic team is good for Brazil but signals its president's weakness" reminded me very much of the following quote from Lyndon Johnson:

"If one morning I walked on top of the water across the Potomac river, the headline that afternoon would read: 'President Can't Swim'."

ROBERT HILLMAN
Thousand Oaks, California ■

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Director, Strategy & International Cooperation – Cairo, Egypt

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IFAD

Investing in rural people

The International Fund for Agricultural Development (IFAD) is an international financial institution and a specialized United Nations agency dedicated to eradicating rural poverty and hunger. It does so by investing in rural people. IFAD finances programmes and projects that increase agricultural productivity and raise rural incomes, and advocates at the local, national and international level for policies that contribute to rural transformation.

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A competent and accomplished professional, who will be responsible for the strategic leadership and management of programmes, people and resources of the SPA's two clusters: (i) Strategic Planning and (ii) Impact Assessment. The Director will be accountable for introducing contemporary trends into corporate strategy planning and results measuring instruments; and for developing and streamlining robust evidence-based methodologies to assess, and report on, the impact of IFAD operations.

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Please send your application through the IFAD online system by 18 January 2015

Job profile – Project Manager of FIBA (Fédération Internationale de Basketball)

Company background
FIBA, with headquarters in Mies/VD Switzerland, is the world governing body of basketball and an independent association formed by 214 National Basketball Federations throughout the world. FIBA has a truly global reach with five Regional Offices worldwide to support National Federations in their efforts to develop Basketball on the ground. FIBA is a non-profit organization and recognized as the ultimate authority in basketball by the International Olympic Committee (IOC).

Job description
You are, in consultation with senior management and as a central interface to our internal team, responsible for the systematic review and development of our innovation and business development process. In this central role at the FIBA HQ you will report directly to the CFO of FIBA.

In addition, you perform pragmatic feasibility and profitability studies, develop, make-or-buy decisions based on business plans. Beyond that you support the management team in various projects.

Qualifications and requirements
As project-oriented professional and sport enthusiast you can contribute and help change the world of basketball. FIBA is looking for a candidate with a higher economic degree (University, FH) with (3-5years) working experience in a similar role in project management. Your strengths are analytical, conceptual and entrepreneurial thinking and you have proven to be a pragmatic "doer". You are self-driven and have a clear target orientation and assertiveness. We look for a team player and networker, with a proficiency in Business English, fluency in French and Spanish would be an asset.

We offer you a versatile position with plenty of space for your own ideas in a collegial and innovative environment. Your continuing education is very important to us.

We are looking forward to receiving your application.

START DATE: As soon as possible

Please send your CV with a cover letter in English and a recent photograph to:
Human Resources/Confidential, at: FIBA, 5 Rte Suisse 1295 Mies

Job profile – CFO of FIBA (Fédération Internationale de Basketball)

Company background
FIBA, with headquarters in Mies/VD Switzerland, is the world governing body of basketball and an independent association formed by 214 National Basketball Federations throughout the world. FIBA has three distinctive products and a truly global reach with five Regional Offices worldwide to support National Federations in their efforts to develop Basketball on the ground. FIBA is a non-profit organization and recognized as the ultimate authority in basketball by the International Olympic Committee (IOC).

Job description
As a key member of the Management Team, the CFO reports directly to the FIBA Secretary General and assumes an important strategic role in the overall management of the company being ultimately responsible for back office and support functions. The CFO has the full responsibility for all finance, accounting and controlling related matters and manages FIBA's support functions IT, HR, Administration and non-sports related legal matters with direct responsibility for around 20 FTEs reporting to HQ.

Activities
- Oversee the consolidation of accounts of the various subsidiaries and develop a modern business accounting and reporting model
- Design short-term and long-range financial planning (incl. currency hedging) as well as budgeting/forecasting
- Manage all aspects of the accounting & reporting functions of the organization, ensure that effective internal controls are in place and ensure compliance with Swiss GAAP
- Provide executive management with advice on the financial implications of business activities
- Direct company operations to meet budgets and other defined financial goals
- Ensure efficiency of current assets and of Capex
- Optimize tax structure and simplify legal structure. Minimize red tape.
- Lead support functions IT, HR and Administration and align long term strategy with day-to-day activities
- Identify business risk. Develop and implement a risk management policy

Qualifications and requirements
FIBA is looking for an efficiency-driven and results-oriented professional leader with more than 10 years of extensive experience in progressively responsible financial leadership positions in small to medium sized global organizations ideally with experience in direct contact with the subsidiaries in various cultures and countries. This position requires a degree in finance/business administration (BSc/MSc).

FIBA is seeking a candidate with a profit-oriented attitude, strong leadership skills and the ability to motivate people. This requires strong interpersonal skills with the ability to communicate with staff at globally spread-out locations and integrate those overseas operations. Full business proficiency in English is required; fluency in French and Spanish would be an asset. The CFO needs to be results and business oriented with strategic and operational skills on various levels of detail including sound IT skills.

We are looking forward to receiving your application.

START DATE: As soon as possible

Please send your CV with a cover letter in English and a recent photograph to:
Human Resources/Confidential, at: FIBA, 5 Rte Suisse 1295 Mies

Advisor (m/f) Competency Based Training (CBT) and Teaching & Learning Material (TLM) – Pakistan, Islamabad

GIZ – dedicated to development

The context The programme supporting the reform of vocational training in Pakistan aims to improve access to, equal opportunities in, and the relevance of vocational training in the country. Within the scope of the programme, targeted measures will strengthen the implementation partners capacity to develop competency based training programmes as well as teaching and learning materials.

Your role Develop CBT programmes & TLM for selected trades, organize meetings, workshops and trainings in the context of CBT development and implementation; develop annual plans with budgets regarding CBT programme & TLM development activities; identify relevant experts and organizations to complete CBT & TLM development assignments; define CBT & TLM development processes, templates and guidelines in consultation with stakeholders whenever necessary.

Your Profile You have a Master degree, preferably in vocational training, engineering or business science. You also have at least 10 years of professional experience with designing, developing, implementing and evaluating of CBT programmes and teaching and learning materials, ideally in an international environment, preferable in Australia or New Zealand. Teaching experience gained at vocational colleges would be a further advantage. You have experience of cooperating with implementing organisations and working with multinational teams, preferably in countries undergoing conflict and crisis.

Further information on the position can be found at **www.giz.de/jobs.**
Job ID 20828.

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University of St.Gallen

There's an app for that

NEW YORK AND SAN FRANCISCO

Freelance workers available at a moment's notice will reshape the nature of companies and the structure of careers

HANDY is creating a big business out of small jobs. The company finds its customers self-employed home-helps available in the right place and at the right time. All the householder needs is a credit card and a phone equipped with Handy's app, and everything from spring cleaning to flat-pack-furniture assembly gets taken care of by "service pros" who earn an average of $18 an hour. The company, which provides its service in 29 of the biggest cities in the United States, as well as Toronto, Vancouver and six British cities, now has 5,000 workers on its books; it says most choose to work between five hours and 35 hours a week, and that the 20% doing most earn $2,500 a month. The company has 200 full-time employees. Founded in 2011, it has raised $40m in venture capital.

Handy is one of a large number of start-ups built around systems which match jobs with independent contractors on the fly, and thus supply labour and services on demand. In San Francisco—which is, with New York, Handy's hometown, ground zero for this on-demand economy—young professionals who work for Google and Facebook can use the apps on their phones to get their apartments cleaned by Handy or Homejoy; their groceries bought and delivered by Instacart; their clothes washed by Washio and their flowers delivered by BloomThat. Fancy Hands will provide them with personal assistants who can book trips or negotiate with the cable company. TaskRabbit will send somebody out to pick up a last-minute gift and Shyp will gift-wrap and deliver it. SpoonRocket will deliver a restaurant-quality meal to the door within ten minutes.

The obvious inspiration for all this is Uber, a car service which was founded in San Francisco in 2009 and which already operates in 53 countries; insiders say it will have sales of more than $1 billion in 2014. SherpaVentures, a venture-capital company, calculates that Uber and two other car services, Lyft and Sidecar, made $140m in revenues in San Francisco in 2013, half what the established taxi companies took (see chart 1 on next page), and the company shows every sign of doing the same wherever local regulators give it room. Its latest funding round valued it at $40 billion. Even in a frothy market, that is a remarkable figure.

Bashing Uber has become an industry in its own right; in some circles, though, applying its business model to any other service imaginable is even more popular. There seems to be a near-endless succession of bright young people promising venture capitalists that they can be "the Uber of x", where x is anything one of those bright young people can imagine wanting done for them (see chart 2 on next page). They have created a plethora of on-demand companies that put time-starved urban professionals in timely contact with job-starved workers, creating a sometimes distasteful caricature of technology-driven social disparity in the process; an article about the on-demand economy by Kevin Roose in *New York* magazine began with the revelation that the housecleaner he hired through Homejoy lived in a homeless shelter.

This boom marks a striking new stage in a deeper transformation. Using the now ubiquitous platform of the smartphone to deliver labour and services in a variety of new ways will challenge many of the fundamental assumptions of 20th-century capitalism, from the nature of the firm to the structure of careers.

The young Turks

The new opportunities that technology offers for matching jobs to workers were being exploited well before Uber. Topcoder was founded in 2001 to give programmers a venue to show off. In 2013, it was bought by Appirio, a cloud-services company, and now specialises in providing the services of freelance coders. Elance-oDesk offers 4m companies the services of 10m freelances. The model is also gaining ground in the professions. Eden McCallum, which was founded in London in 2000, can tap ▸▸

into a network of 500 freelance consultants in order to offer consulting services at a fraction of the cost of big consultancies like McKinsey. This allows it to provide consulting to small companies as well as to concerns like GSK, a pharma giant. Axiom employs 650 lawyers, services half the *Fortune* 100 companies, and enjoyed revenues of more than $100m in 2012. Medicast is applying a similar model to doctors in Miami, Los Angeles and San Diego. Patients order a doctor by touching an app (which also registers where they are). A doctor briefed on the symptoms is guaranteed to arrive within two hours; the basic cost is $200 a visit. Not least because it provides malpractice insurance, the company is particularly attractive to moonlighters who want to top up their income, younger doctors without the capital to start their own practices and older doctors who want to set their own timetables.

The Los Angeles-based Business Talent Group provides bosses on tap for companies that want to tackle a specific problem without adding another senior executive to the payroll: Fox Mobile Entertainment, an online-content provider, turned to it for a temporary creative director to produce a new line of products. Creative companies add a twist to the model: they demand ideas, rather than labour and services, and give a prize or prizes only to the ones they find interesting. Innocentive has applied the prize idea to corporate R&D; it turns companies' research needs into specific problems and pays for satisfactory solutions to them.

A job for the afternoon

Tongal does the same thing with its network of 40,000 video-makers. In 2012 Colgate-Palmolive, a consumer-goods company, offered $17,000 to anyone who could make a 30-second advertisement for the internet. The ad was so good that the company showed it at the Super Bowl alongside blockbuster ads that cost hundreds of times more. Members of the Quirky network post their product ideas on the company's website. Other members vote on

Overtaking
Driver-services market in San Francisco, $m
Source: SFMTA *On-demand cars

the attractiveness of each idea and come up with ways of turning it into reality. Since its birth in 2009 the company has acquired over a million members and brought 400 products to the shops.

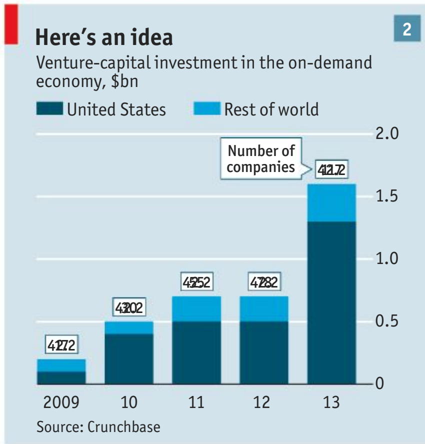
Perhaps the most striking of all the on-demand services is Amazon's Mechanical Turk, which allows customers to post any "human intelligence task", from flagging objectionable content on websites to composing text messages; workers on the site choose what to do according to task and price. The set-up uses to the full most of the capabilities and advantages that make on-demand business models attractive: no need for offices; no full-time contract employees; the clever use of computers to repackage one set of people's needs into another set of people's tasks; and an ability to access spare time and spare cognitive capacity all across the world.

The idea that having a good job means being an employee of a particular company is a legacy of a period that stretched from about 1880 to 1980. The huge companies created by the Industrial Revolution brought armies of workers together, often under a single roof. In its early stages this was a step down for many independent artisans who could no longer compete with machine-made goods; it was a step up for day-labourers who had survived by selling their labour to gang masters.

These companies introduced a new stability into work, a structure which differentiated jobs from one another more clearly than before, thus providing defined roles and new paths of career progress. Many of the jobs were unionised, and the unions fought to improve their members' benefits. Governments eventually built stable employment along these lines into the heart of welfare legislation. A huge class of white-collar workers enjoyed secure jobs administering the new economy.

For a while after the second world war everybody seemed to benefit from this model: workers got security, benefits and steady wage rises; companies got a stable workforce in which they could invest with a fair expectation of returns. But the model started to get into trouble in the 1970s, thanks first to deteriorating industrial relations and then to globalisation and computerisation. Trade unions have lost power in the private sector, particularly in America and Britain, where legislation has reduced their ability to take action (see chart 3 on next page). Companies kept stricter control of their labour costs, increasingly contracting out production in industrial businesses and re-engineering middle-management. Computerisation and improved communications then sped the process up, making it easier for companies to export jobs abroad, to reshape them so that they could be done by less skilled contract workers, or to eliminate them entirely.

This has all resulted in a more rootless



Here's an idea
Venture-capital investment in the on-demand economy, $bn
Source: Crunchbase

and flexible labour force. Pensioners and parents wanting or needing to spend more time on child care swell the ranks of students and the straightforwardly unemployed. A recent study by the Freelancers Union, a pressure group for freelance workers, suggests that one in three members of the American workforce (and a higher proportion of younger people) do some freelance work.

The on-demand economy is the result of pairing that workforce with the smartphone, which now provides far more computing power than the desktop computers which reshaped companies in the 1990s, and to far more people (see chart 4 on next page). According to Benedict Evans of Andreessen Horowitz, the new iPhones sold over the weekend of their release in September 2014 contained 25 times more computing power than the whole world had at its disposal in 1995. Connected to each other and to yet more data and processing power in the cloud, these devices are letting people design or find ad hoc answers to all sorts of business problems previously solved by the structure of the firm.

Coase and effect

The way economists understand firms is largely based on an insight of the late Ronald Coase. Firms make sense when the cost of organising things internally through hierarchies is less than the cost of buying things from the market; they are a way of dealing with the high transaction costs faced when you need to do something moderately complicated. Now that most people carry computers in their pockets which can keep them connected with each other, know where they are, understand their social network and so on, the transaction costs involved in finding people to do things can be pushed a long way down.

This has a range of knock-on consequences, all of which are becoming key features of the on-demand economy. One is further division of labour. Thomas Malone, of the MIT Sloan School of Management, argues that computer technology is producing an age of hyper-specialisation, as the process that Adam Smith observed in a pin factory in the 1760s is applied to more sophisticated jobs.

Another is the ability to tap underused capacity. This applies not just to people's time, but also to their assets: to drive for Lyft or Uber, you do need a car. The on-demand economy is in many ways a continuation of what has been called the "sharing economy" exemplified by Airbnb, a company which turns apartments into guest-houses and their owners into hoteliers. For people with few assets, though, on-demand labour markets matter more.

And new areas are being opened to economies of scale. SpoonRocket prepares its food in two central kitchens in San Francisco and Berkeley. It delivers food quickly because it keeps a fleet of cars, equipped with thermal bags to keep the food warm, roaming the streets of San Francisco. "We're like a gigantic cafeteria serving all of San Francisco," says Anson Tsui, one of the company's founders.

Scheduling success

The aim of the on-demand companies is to exploit low transaction costs in a number of ways. One key is providing the sort of trust that encourages people to take a punt on the unfamiliar. Customers worry about the quality of their temporary employees: nobody wants to give the key to their apartment to a potential burglar, or their health details to a dud doctor. Potential freelances, for their part, do not want to have to deal with deadbeats: about 40% of freelances are currently paid late.

On-demand companies like Handy provide customers with a guarantee that workers are competent and honest; Oisin Hanrahan, the company's founder, says that more than 400,000 people have applied to join the platform, but only 3% of applicants get through its selection and vetting process. The workers, for their part, can hope for a steady flow of jobs and prompt payment with minimal fuss. Handy's computer system also tries to schedule each worker's jobs in such a way as to minimise travel time.

Despite these capabilities, Handy is not necessarily looking at huge success, any more than the other Ubers-of-x are. There are three reasons for scepticism about their chances.

The first is that on-demand companies trying to keep the costs to their clients as low as possible have difficulties training, managing and motivating workers. MyClean, a cleaning service based in New York City, tried using purely contract workers, but discovered that it got better customer ratings if it used permanent staff. The company thinks that better services justify higher labour costs. Uber drivers complain that the company pays them like contract workers while seeking to manage them like regular employees: they are told to take regular rather than premium fares, but are not reimbursed for their fuel. America's gathering economic recovery may make it harder for companies to attract casual labour as easily as they have done in the past few years.

The second problem is that on-demand companies seem likely to be plagued by regulatory and political problems if they get large enough for people to notice them. American on-demand companies are terrified that they will be stuck with retrospective labour bills if the courts force them to reclassify their workers as regular employees rather than contract workers (a classification which is not always consistent from jurisdiction to jurisdiction, raising the level of anxiety). Handy at one point included a clause in its contracts imposing any such retrospective costs on its clients, though it has now withdrawn it.

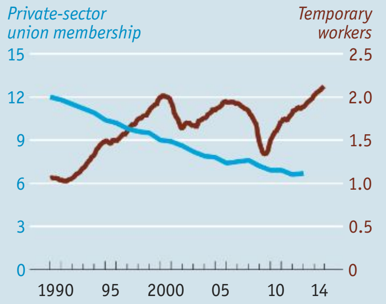
Faced by the threat of Uber, established taxi companies around the world have organised strikes, filed lawsuits and leant on regulators. In the Netherlands Uber has been banned; South Korea is treating it as an illegal taxi service. In Germany anti-Uber feeling has nurtured a broader criticism of "Plattform-Kapitalismus"; its perceived readiness to reduce all aspects of people's lives, from spare rooms to spare time, to assets to be auctioned off is seen as deeply dehumanising. But such protests often act as advertising for the services they are aimed against. And a recent study revealed that American politicos spend more on Uber than on regular taxis when campaigning, a strong indication that the road ahead is likely to remain clear.

The third issue is size. The on-demand model obviously has network effects: the home-help company with the most help on the books has the best chance of providing a handyman at 10:30 sharp. Yet scaling up may be difficult when barriers to entry are low and bonds of loyalty are non-existent. It will be hard to get workers to be loyal to just one middleman. A number of Uber drivers also work for Lyft.

In many service industries it is hard to see obvious economies of scale on a national or global level. Being the best dry-cleaning service in Cleveland does not necessarily offer a killer edge in Cologne. And taste can be fickle, especially with companies that often look like positional goods that trade, at least in part, on the cachet that they confer to their consumers. Many of the people who currently regard SpoonRocket as cool may drop it if it becomes a national brand. On-demand companies may find themselves stuck in a world of low margins, high promotional costs and labour churn as they struggle to attain the sort of market dominance that locks in their network advantages. Alfred, a subscription service, is already aggregating the work of specific on-demand companies such as Instacart and Handy to offer its Boston members a one-stop shop; such aggregation could drive down prices for the basic on-demand providers yet further.

The casual look 3

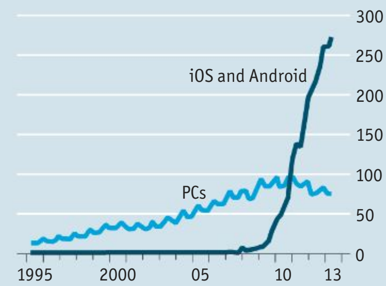
United States, % of employed



Source: Bureau of Labour Statistics

Changing platforms 4

Global shipments of units, m



Source: Benedict Evans, Andreessen Horowitz

Everyone a corporation

Even if the eventual on-demand victors do carve out profitable domestic-service businesses, many observers doubt that their model is more broadly applicable. Some critics argue that on-demand companies like BloomThat and Handy may be capable of delivering flowers or cleaning houses, but when it comes to companies in the main flow of the knowledge economy they are destined to remain marginal. This objection, though, is not very convincing. The sort of people currently using Uber are subject to the same forces as the people who drive them from place to place.

The knowledge economy is subject to the same forces as the industrial and service economies: routinisation, division of labour and contracting out. A striking proportion of professional knowledge can be turned into routine action, and the division of labour can bring big efficiencies to the knowledge economy. Topcoder can undercut its rivals by 75% by chopping projects into bite-sized chunks and offering them to its 300,000 freelance developers in 200 countries as a series of competitive challenges. Knowledge-intensive companies are already contracting out more work to the market, partly to save costs and partly to free up their cleverest workers to focus on the things that add the most value. In 2008 Pfizer, a pharma company, undertook a huge self-examination under the heading PfizerWorks. It realised that its most highly skilled workers were spending 20% to 40% of their time on routine work—entering data, producing PowerPoint slides, doing research on the web. The company now contracts out much of this work.

Thus more and more of the routine parts of knowledge work can be parcelled out to individuals, just as they were previously parcelled out to companies. This could be bad news for the business models of professional-service companies which use juniors to do fairly routine work—thus providing the firm with income and the juniors with training—while the partners do the more sophisticated stuff. As on-demand solutions and automation prove applicable to more and more routine work, that model becomes hard to sustain. InCloudCounsel undercuts big law firms by as much as 80% thanks to an army of freelances that processes legal documents (such as licences, accreditation and non-disclosure agreements) for a flat fee.

The key role that cutting things up into routines plays in both spheres suggests that the interaction between the on-demand economy and automation will be a complex one. Gobbetising jobs with the aim of parcelling them out to people who don't see or need to see the big picture is not that different from gobbetising them in a way that allows automation. Often the first activity may prove a prelude to the second; it is easy to see Uber as a forerunner to an eventual system that has no drivers at all. In other cases, though, the cost-efficiency of contracting out may reduce the incentives to automate.

What sort of world will this on-demand model create? Pessimists worry that everyone will be reduced to the status of 19th-century dockers crowded on the quayside at dawn waiting to be hired by a contractor. Boosters maintain that it will usher in a world where everybody can control their own lives, doing the work they want when they want it. Both camps need to remember that the on-demand economy is not introducing the serpent of casual labour into the garden of full employment: it is exploiting an already casualised workforce in ways that will ameliorate some problems even as they aggravate others.

The on-demand economy is unlikely to be a happy experience for people who value stability more than flexibility: middle-aged professionals with children to educate and mortgages to pay. On the other hand it is likely to benefit people who value flexibility more than security: students who want to supplement their incomes; bohemians who can afford to dip in and out of the labour market; young mothers who want to combine bringing up children with part-time jobs; the semi-retired, whether voluntarily so or not.

Megan Guse, a law graduate, says that the on-demand model allows her to combine a career as a lawyer with her taste for travel. "A lot of my friends that have gone the Big Law route have these stories about having to cancel weddings, vacations and miss family events. I can continue working while being in exotic places." Flexibility is also valuable for elite workers who want to wind down after decades of selling their soul to their companies. Jody Greenstone Miller, the founder of Business Talent Group, says that her company's comparative advantage lies in rethinking corporate time: by breaking up work into projects, she can allow people to work for as long as they want.

A limited Utopia

The on-demand economy is good for outsiders and insurgents—and for entrepreneurs trying to create new businesses using such people. Matt Barrie, the founder of Freelance.com, links the fate of two groups of potential winners: entrepreneurs in the rich world who have few resources will be able to link up with workers in the poor world who have little money. In Europe the labour market drives a wedge between insiders who have lots of protections and outsiders who don't; on-demand arrangements may give outsiders a chance of breaking in. Thus in countries such as France, Italy and Spain, on-demand companies may improve the job chances of the young unemployed.

If this seems attractive, it is also a measure of the way that the on-demand economy will contribute to pressure to reduce labour rights in all sorts of situations; a growing abundance of on-demand employees with no normally accepted rights such as sick-pay and overtime will give employers at firms with more standard structures an incentive to cut back. The more such pressures spread, the more protests against "Plattform-Kapitalismus" the world is likely to see.

The on-demand economy will inevitably exacerbate the trend towards enforced self-reliance that has been gathering pace since the 1970s. Workers who want to progress will have to keep their formal skills up to date, rather than relying on the firm to train them (or to push them up the ladder regardless). This means accepting challenging assignments or, if they are locked in a more routine job, taking responsibility for educating themselves. They will also have to learn how to drum up new business and make decisions between spending and investment.

At the same time, governments will have to rethink institutions that were designed in an era when contract employers were a rarity. They will have to clean up complicated regulatory systems. They will have to make it easier for individuals to take charge of their pensions and health care, a change which will be more of a problem for America, which ties many benefits to jobs, than Europe, which has a more universal approach. They will also have to encourage schools to produce self-reliant citizens rather than loyal employees.

One of Gilbert and Sullivan's oddest operettas, "Utopia Limited—or the Flowers of Progress", focuses on an exotic South Sea island which, under the influence of Victorian industrialism, sets about turning all the inhabitants into limited companies. It is rarely performed today, in part because the targets of its on-the-nose-in-1893 satire seem remote. But perhaps, after a century in which companies were vast things, such a satire of corporate individualism is due for a revival or two. If so, the piece will be easier than ever to stage: if there are not already on-demand services that can provide Polynesian props, semi-retired set designers and down-on-their-luck tenors at the swipe of a screen, there soon will be. ■

Also in this section

America's economy

A happy new year

WASHINGTON, DC

Growth is likely to be robust in 2015—and will start to benefit ordinary families

EIGHT out of ten voters told exit pollsters in November that they were worried about the economy. That is one reason why the new Congress, which starts sitting next week, is dominated by Republicans. Yet there is mounting evidence that the benefits of the economic recovery—long concentrated among the rich—are spreading to ordinary Americans.

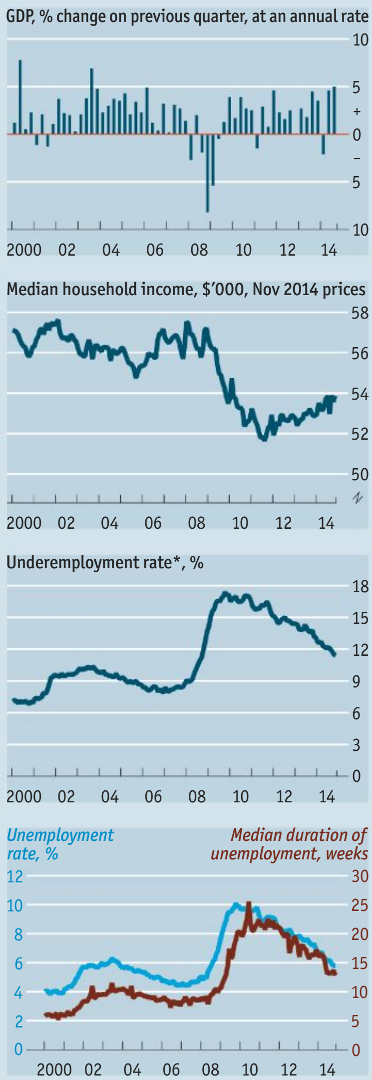
On December 23rd GDP growth for the third quarter was revised up to 5%—its fastest pace since 2003—having grown by a nearly-as-impressive 4.6% in the second quarter (see chart). To be sure, America is making up for ground lost in the first quarter, when GDP actually shrank because the weather was awful and companies cut inventories. For the past 12 months GDP is up 2.7%: respectable but not amazing. Forecasters surveyed by *The Economist* think America will grow 3% next year.

Economists have projected similar growth rates since the recovery began, only to be disappointed. Growth has averaged just 2.3% since the recovery began in July 2009. But this time they have hard evidence on their side. Some 321,000 jobs were created in November, compared with a monthly average of 194,000 during 2013. Despite this, inflation has fallen. The Federal Reserve can thus continue to keep monetary policy unusually loose, and asset prices are soaring. The Dow Jones Industrial Average passed 18,000 for the first time shortly before Christmas.

Consumer sentiment has grown jollier in recent months—as jolly as it has been since before the recession, according to the University of Michigan. For several reasons, the good mood is likely to last into 2015. One is the composition of recent growth: it is the result of solid household spending, the most important component of demand. It grew at a 3.2% annual rate in the third quarter, and may grow 4% or more in the current quarter, reckons Morgan Stanley, a bank.

Two powerful tailwinds are helping. The first is the big drop in the price of oil, from $110 per barrel in June to below $60. Cheaper petrol holds down inflation and leaves American consumers with more money to spend on other things. (Although America produces more oil and imports less of it than five years ago, it remains a net importer.) Saudi Arabia seems willing to tolerate even lower prices to protect its market share, so the boost may last.

Getting better, at last



Sources: Sentier Research; Census Bureau; Bureau of Labour Statistics; Bureau of Economic Analysis

*Unemployed, marginally attached or working part-time for economic reasons

The other, even stronger, tailwind is growing incomes. Job growth is accelerating, and there are signs, albeit faint, of an uptick in wages. America's underlying potential growth rate has slipped in recent years, from 3% or more a decade ago to around 2%, thanks to a slower-growing workforce and lacklustre productivity. So any growth rate above 2% helps to use up spare capacity. Labour market data confirm this: non-farm employment grew faster in 2014 than in any year since the 1990s, and unemployment has fallen to 5.8%. On current trends, it could drop close to 5% within a year, less than many estimates of the natural rate of unemployment (at which a labour shortage puts upward pressure on wages and prices).

The median household's real income is up 1.2% for the first 11 months of the year, according to Sentier Research, a private firm, a marked acceleration from the previous two years. That barely dents the 8% drop in median incomes between 2008 and 2011, but it does suggest that the expansion is finally reaching ordinary households.

The joy of feeling shale-shocked

Thanks to cheaper oil, the Federal Reserve now thinks inflation will end next year around 1.3%, according to projections released on December 17th, and will not return to 2%, its target, before 2018. As a result, rates could either rise later, or more slowly, than currently expected. The Fed promises to be "patient" about tightening monetary policy. Janet Yellen, the Fed's boss, told reporters that she would like to see unemployment fall below its long-run natural rate, in the hope that this might nudge wages and prices higher. A combination of robust underlying growth and a patient central bank is catnip to investors—hence the buoyant Dow. It is a cocktail reminiscent of 1998, when the Asian crisis sent both oil prices and bond yields down sharply, which goosed American growth and stock prices. What hurt the world helped America.

For the past six years Republicans in Congress have argued that America must cut public spending to bring dangerous deficits and alarming public debt under control. Now, the budget deficit has fallen below its average of the past 40 years (as a share of GDP) and perkier growth is making the national debt look more manageable. Republicans are still arguing for ►►

spending cuts, of course, but now they have to convince voters that smaller government is better.

It may seem obvious that a stronger economy would rob Republicans of one of their best arguments for change in the White House in 2016, and give Democrats a boost as they gear up for the election. But the political effects of a stronger economy are unpredictable. Plenty of candidates have lost despite, rather than because of, their party's recent economic record.

Hitherto, an economy that has delivered soaring corporate profits but done little for median wages has fired up Democratic activists and tempted them to push for a populist platform in 2016. As the benefits of recovery finally start to spread, however, a campaign based on economic disillusion looks less like a winner. ■

Cyber-security

Is Kim Jong Un innocent?

SAN FRANCISCO

America was too quick to blame North Korea for the hack attack on Sony

NORTH KOREA made no secret of its delight when hackers attacked Sony Pictures Entertainment, the studio behind "The Interview", a film that lampoons Kim Jong Un, the world's youngest and worst head of state. The regime's propaganda arm crowed that a blow had been struck against the "ill-famed cesspool of injustice" [ie, America], and added that North Korea "highly estimates the righteous action taken by the "Guardians of Peace" [as the hackers styled themselves], though it is not aware of their residence."

The hack was ferocious. The assailants used malicious software that destroyed some of Sony's systems and let them grab and publish reams of sensitive data such as employees' Social Security numbers and producers' intemperate e-mails. (In one leaked e-mail a Sony employee calls Angelina Jolie, a star, "a minimally talented spoilt brat". He probably wouldn't have said that to her face.) The hackers also threatened violence against cinema chains that screened the film, which includes a scene in which the youthful North Korean god-king's head explodes (see picture).

America's cyber-gumshoes quickly accused Pyongyang of being behind the assault—a charge Mr Kim's courtiers have denied. The FBI says some lines of code the hackers employed are similar to ones used by North Korean hackers in the past, and notes that internet addresses "associated with known North Korean infrastructure" were used in the attack.

But savvy hackers from elsewhere could have used these to trick investigators into blaming North Korea. "It's not difficult to send someone down the wrong path," says Howard Schmidt, a former Obama administration official who advises companies on cyber-security. Code from previous hacks sometimes leaks online, allowing people to copy it. And cyber-criminals often use internet addresses associated with other hackers to try to throw sleuths off their scent.

Security researchers have pointed to more reasons why the North Korean regime may be innocent (of the hack, though not of jailing children for having suspected dissidents for parents). In their initial e-mail to Sony, the hackers asked for money but did not mention "The Interview". They only latched on to the film after journalists wondered out loud about a possible link between the hack and the satire. Marc Rogers of CloudFlare, a web-security firm, writes that the attackers had a deep knowledge of Sony's systems and their e-mails seemed to be written by an English-speaker deliberately pretending to be bad at writing the language. He thinks a disgruntled current or former Sony employee could be behind the attack.

The FBI says it has additional information from "sensitive sources and methods" that points to North Korea. But in the absence of more detail, it is hard to be sure. Officials were undoubtedly under pressure to find someone to blame, quickly.

Deciding how to respond to North Korea's alleged involvement has posed a strategic challenge. Mr Obama has publicly promised a proportional response to what he has referred to as an act of "cyber-vandalism". It is unlikely to be a coincidence that North Korea has suffered internet outages recently, including one that occurred soon after a North Korean spokesman accused Mr Obama of being "reckless in words and deeds like a monkey in a tropical forest". The risk is that this could provoke reprisals. America's heavy reliance on the internet means it is especially vulnerable to online attacks.

According to the *New York Times*, America has asked China, which is a conduit for much of North Korea's internet traffic, to rein in Mr Kim's hackers. Such diplomacy is worth a try, but America's cause will not have been helped by its decision in May 2014 to indict several Chinese soldiers *in absentia* for their alleged involvement in hacking the systems of American private companies.

Mission Kimpossible

The Sony saga has highlighted the tensions that can arise between corporate interests and national ones. As the hackers escalated their attack, the studio at first decided to pull "The Interview" from distribution. Such a surrender would have invited every group that didn't like the way it was portrayed on film to hack a Hollywood studio. After Mr Obama publicly criticised Sony Pictures for failing to stand up for freedom of speech, the firm agreed to distribute the film to a limited number of cinemas and to make it available online. (It promptly became a big digital hit.)

The Tinseltown hack may at last encourage Congress to make it easier for companies to share information about cyber-threats with the government and each other, making it easier to thwart hackers. Previous attempts to get such legislation passed have been stymied by legitimate concerns about privacy. A law that carefully protects people's personal data, while at the same time removing legal hurdles that still hamper some intelligence-sharing, is badly needed. If one emerges in 2015, perhaps the hackers who hit Sony should get a mention in the credits. ■

An undesirable reactionary film insults the dignity of the Supreme Leader

New York's mayor

The blue thread frays

NEW YORK

Bill de Blasio's first year in City Hall ends in turmoil

ISMAAIYL BRINSLEY vowed on social media to put "wings on pigs". Furious at the deaths of Eric Garner and Michael Brown, two African-Americans who died in 2014 at the hands of white policemen, he took a gun and shot dead Rafael Ramos and Wenjian Liu, a Hispanic cop and his Chinese-American partner, as they ate lunch in a patrol car in Brooklyn on December 20th.

Mr Brinsley appears to have been deranged. (He killed himself before he could be arrested.) However, many police officers in New York think his actions were inspired by the anti-cop protests that have swept the Big Apple (and several other American cities) in recent weeks. That poses problems for Bill de Blasio, the mayor, as he ends his first year in office.

Thousands of New Yorkers took to the streets to decry a grand jury's decision in December not to indict the cop who choked Garner, a street vendor of untaxed cigarettes, to death. The protesters were largely peaceful, but a few were not, and some chanted: "What do we want? Dead cops! When do we want it? Now!"

Cops feel besieged, and they doubt that Mr de Blasio is on their side. The mayor has often implied that they are racist. After the Garner verdict, he publicly fretted that his son, who is black, might not be safe from the police. Gene O'Donnell, a former cop who now lectures at John Jay College of Criminal Justice, says that officers resent it when the NYPD is portrayed like "a Deep South 1950s police agency and not the diverse agency it is".

After the two officers were murdered, Pat Lynch, head of the police union, said—absurdly—that Mr de Blasio had blood on his hands. When the mayor appeared on a screen to give a eulogy at Mr Ramos's funeral on December 27th, many officers angrily turned their backs on him (see picture). The next day, at a police graduation ceremony, the mayor was booed.

Taking office on January 1st 2014, Mr de Blasio vowed to pursue a progressive agenda of curbing inequality and promoting justice. His supporters note that he won state funding for universal nursery school, and enrolled 53,000 children in 2014, up from 20,000 the previous year. He signed a law obliging companies with five or more staff to offer them paid sick leave. He introduced an ID card for the city's many illegal immigrants. He has a plan to "build or preserve" 200,000 affordable houses over ten

Turning their backs on Hizzoner

years. To receive city subsidies, developers will have to set aside part of any new project for cheap apartments. The city will have provided financing for about 16,000 units by the end of 2014.

Mr de Blasio's critics complain that he has done his best to hobble charter schools, which offer poor New Yorkers a way out of the worst public schools. (His election campaign was backed by labour unions, which detest non-union charters.) More broadly, the mayor's detractors worry that he will burn through the surplus built up by his more businesslike predecessor, Michael Bloomberg.

Most of the city's public workers have been without a contract for years. Mr de Blasio reached a tentative agreement with eight unions in early December. The city employees would receive an 11% pay increase over seven years. Mr de Blasio's first budget, for fiscal 2015, was $75 billion, up 7% from the previous year. It was also the first budget for years in which city agencies were not asked to find cost savings.

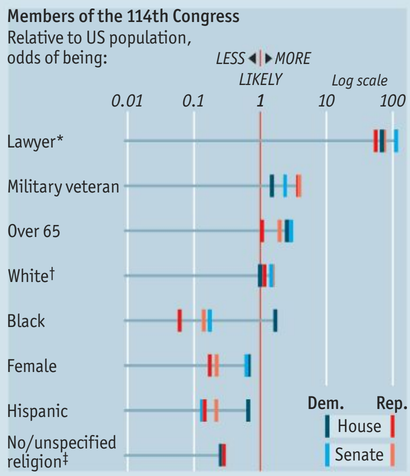
Mr de Blasio inherited a safe, prosperous city. Crime is still falling, not least because Mr de Blasio hired Bill Bratton, the cop who cleaned up New York's incomparably more dangerous streets in the 1990s, as his police commissioner. Mr Bratton has not ended "stop and frisk", a controversial police tool, which Mr de Blasio promised to curb during his campaign. He has reformed it instead. Stops are more carefully targeted, with more leading to an arrest or a summons. The city has stopped arresting people for possessing small amounts of marijuana. Mr Bratton has tried harder to foster good relations between the police and the communities they serve. Until the summer of 2014, morale among the rank and file was good. Now it is awful.

Businessfolk are watching closely. Kathryn Wylde of the Partnership for New York, which represents New York's biggest companies, recalls that "there was a large amount of separation anxiety when Bloomberg left office." Things have not been as bad as some feared. Tourists are still coming to the city in record numbers, and the unemployment rate is at its lowest in six years, mirroring national trends. As Steve Malanga of the Manhattan Institute, a conservative think-tank, puts it: "The city had a lot of momentum" before Mr de Blasio took office.

In his eulogy for the murdered officers, Mr Bratton described them as part of "the blue thread that holds our city together when disorder might pull it apart". Many New Yorkers are worried that the blue thread is fraying, and want to know what Mr de Blasio is going to do about it. ■

The new Congress in numbers

How do members of the 114th Congress, which starts next week, compare with the average American? The most obvious difference is that they are 66 times as likely to be lawyers. (For Senate Democrats, the figure is 112 times.) This may explain why America has so many laws, and why some are longer than "War and Peace". Congressfolk are three times as likely as other Americans to have served in the armed forces and 1.6 times as likely to be male. They are slightly whiter than the nation they serve, and far older: 25% are over 65, compared with 14% of Americans. Protestants and Catholics are well represented on Capitol Hill; Mormons and Jews punch above their weight. Hardly any lawmakers, however, admit to being atheists or agnostics.



Sources: CQ/Roll Call; Pew Research Centre; US Census Bureau; American Bar Association; *The Economist*

*Has law degree, compared with people aged 25 and over
†Non-Hispanic
‡All Senators say they are religious

Lexington | Ranchers v bison-huggers

What the ceaseless rows over Yellowstone National Park reveal about America

THE most original political book of early 2015 is not formally about politics at all. Instead "The Battle for Yellowstone" by Justin Farrell, a young scholar at Yale University, ponders venomous rows that have shaken Yellowstone National Park in recent decades, and why they are so intractable. The rows turn on such questions as wolf re-introduction, bison roaming-rights and snowmobile access to that lovely corner of the Rocky Mountains.

It is nearly half a century since biologists first asked Congress to re-introduce wolves into Yellowstone, so that they might usefully eat some of the elk then lumbering about in over-large herds. Getting to the point of releasing wolves in the mid-1990s involved executive actions and directives from six presidents, debates in dozens of congressional committees, 120 public hearings, more than 160,000 public submissions to federal wildlife bosses and at least $12m-worth of scientific research. Pro- and anti-wolf types drew up competing technical reports about the value of wolves as "apex predators", economic costs to cattle ranchers, tourism benefits and elk ecology. This techno-rationalist arms race bought no peace: the wolf-wars blaze as fiercely as ever.

Yellowstone's wild bison trigger ferocious rows, too, each time they amble outside the national park. Let them roam, cry fans of these last genetically pure survivors of the vast herds that once filled the West. Stop them, bellow ranchers who fear the bison will infect their cattle with brucellosis, a nasty disease. Tottering stacks of brucellosis research have not resolved the dispute. Since 1997 more than 5,000 volunteers—many of them young, affluent outsiders, some adopting such "forest names" as Chipmunk, Grumble or Frog—have catalogued countless allegations of bison-bullying outside park boundaries, but changed few minds about the rights and wrongs of it.

As for snowmobilers and their right to roar along Yellowstone trails when winter descends, millions of dollars have been spent on lawsuits in Wyoming and Washington, DC since the late 1990s, backed by studies of engine-noise, exhaust-pollution and wildlife behaviour. Some wrangling continues.

All this puzzled Mr Farrell, a sociologist at Yale's school of forestry and environmental studies, whose book is due out this summer, under the full title "The Battle for Yellowstone: Morality and the Sacred Roots of Environmental Conflict". He spent two years asking folk in and around Yellowstone why they are so cross. Beneath debates about science and economics he found arguments about morality and the proper relations between humans and nature—though those involved often do not, or will not acknowledge this. In short, all sides purport to be weighing what is true and false, while really arguing about right and wrong.

Pro-wolf biologists and officials call themselves dispassionate custodians of a unique place. But they give themselves away with quasi-spiritual talk of wolves restoring "wholeness" to a landscape damaged by man. Indeed, when the first Yellowstone wolves were released in 1995, the then-interior secretary, Bruce Babbit, called it "a day of redemption". While living with pro-bison activists, a startled Mr Farrell heard them telling various furry specimens "We love you," or "We are here to protect you, you big sacred boy," and spouting bowdlerised Native-American teachings about the animals' ancient souls (while simultaneously insisting, in many cases, that they distrusted religion and its works).

As for anti-wolf types, when offered financial compensation for wolf-attacks on their livestock, some turn it down—suggesting that more than economics is at stake. Dig a bit, and a culture war is raging between the "old West" of rugged ranchers and hunters, who once earned respect and status by taming nature, but who now find themselves called environmental menaces by "new West" incomers with big-city ideas about animal rights and natural ecosystems. Behind that local clash—pitting folk with gun racks on their trucks against those with bike racks, as Mr Farrell puts it—there lurks a still larger suspicion of the federal government. Many "old West" types see a plot to drive ranchers from the land. They talk of "federal wolves" undermining their property rights, and challenging the God-ordained duty of humans to protect their own families, and exercise dominion over Creation.

Crying wolf

Yellowstone's hidden moral disputes offer wider lessons to America, a country that is increasingly divided and unusually keen on tackling complex ethical questions in judicial and quasi-judicial settings. Lots of other countries debate such issues as the death penalty, abortion, gun control or global warming in parliament, allowing partisans to admit when they are advancing emotional or religious arguments. From its earliest days American law courts and congressional hearings have rung to the noise of impassioned partisans, hurling facts (and, all too often, confected para-facts) at one another in a bid to prove the other side wrong.

Mr Farrell is not the only scholar testing the thesis that this approach has its limits. Earlier this winter the Faith Angle Forum—a twice-yearly conference bringing together theologians, scientists and political journalists—heard from academics working to bridge divides between science and Americans of deep religious faith. Many partisans subscribe to the post-Enlightenment idea that giving people lots of facts ought to be enough to convince them, noted Jeff Hardin of the University of Wisconsin-Madison, a zoologist and devout Christian. But "most of us hold our beliefs in a tangled ball of yarn", especially in a religious, polarised place such as America. Tug at one thread, and people fear that their very identity is under attack.

This is not a call to abandon rationality or to scorn facts. It is a call for more empathy in American political debate, and more honesty about the tangled agendas that lurk in every breast. That would not end every conflict: just look at Yellowstone and its unending rows. But even agreeing to disagree would be a start. ■

Also in this section

For daily analysis and debate on the Americas, visit
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Brazil's economy

Rough weather ahead

SÃO PAULO

The mistakes Dilma Rousseff made during her first presidential term mean her second will be stormy

WHILE Dilma Rousseff prepared to be sworn in for a second term as Brazil's president on January 1st, the skies over the capital, Brasília, were forecast to be clear. But the outlook for the next four years is gloomy. Her daunting to-do list includes repairing ties with America, damaged by the revelation in 2013 that its spies had tapped her phone calls. Deforestation in the Amazon region is rising after a decade of decline, and the worst drought on record threatens to bring energy and water rationing to the industrial south-east. Preparations for the 2016 Olympics in Rio de Janeiro risk a reprise of the deadline- and budget-busting run-up to the 2014 football World Cup, which Brazil also hosted. Ms Rousseff's left-wing Workers' Party (PT) and its allies are embroiled in a corruption scandal involving Petrobras, the state-controlled oil giant, though so far she is personally untainted (see box on next page).

But it is the economy where the storm-clouds are stacked highest. The end of the commodity supercycle means falling prices for Brazilian exports of soyabeans, iron ore and, most recently, oil. And the policies Ms Rousseff pursued during her first term have proved disastrous. A combination of macroeconomic laxity and microeconomic meddling, intended to boost growth, merely undermined public finances and her credibility. GDP rose by just 6.7% during her first four years. Her biddable Central Bank governor, Alexandre Tombini, and finance minister, Guido Mantega, cut interest rates and let rip on public spending even as inflation rose and tax receipts slowed. If her second term is to be any better, she will need to undo much of what she did in the first.

Ms Rousseff has made a start by recruiting Joaquim Levy, a hawkish banker, to replace Mr Mantega, and Nelson Barbosa, a respected economist, to the planning ministry, where he will oversee public investment. Mr Tombini will remain at the Central Bank, but has clearly been told to take the inflation target of 4.5% seriously; since Ms Rousseff's victory in October, the benchmark interest rate has been raised from 11% to 11.75%. New agriculture and trade ministers with ties to farmers and industry signal a truce with the maligned private sector. The foreign ministry, too, is expected to get a more trade-friendly boss.

Mr Levy, in particular, has his work cut out. He has promised a primary budget surplus (before interest payments) of 1.2% of GDP in 2015 and 2% in 2016 in order to avoid Brazil losing its investment-grade credit rating. But under Mr Mantega opaque and inefficient subsidies to energy, transport and credit ballooned. And half of all primary public spending (including on pensions) moves in step with the minimum wage, which is to rise by around 2.5% in real terms in 2015 under a multi-year formula that links it to past GDP growth. This means that Mr Levy must find savings of 2.1% of GDP elsewhere. A surplus of 0.7-0.8% is more plausible, thinks Mansueto Almeida, a public-finance expert.

Even hitting that lower target will mean cutting public investment and raising taxes—thereby making a return to growth even harder to achieve in the short term. Brazil's tax burden, already at 36% of GDP, is far higher than that of other middle-income countries. And its big construction firms, which are alleged to have bribed Petrobras for contracts, are likely to get caught up in legal proceedings and thus barred from public work. That puts at risk planned infrastructure projects budgeted at 870 billion reais ($325 billion), including some needed for the Olympics. After a 7.2% drop in investment in 2014, Itaú, a bank, expects investment to be flat in 2015. Analysts have duly slashed growth forecasts for 2015 from 2.5% a year ago to 0.8% or less. Some predict an outright recession.

Mr Levy's task should become slightly easier in 2016, when, thanks to stalled GDP growth, spending linked to the minimum wage should merely keep pace with inflation. Ms Rousseff's, by contrast, is likely to become harder, thinks João Castro Neves of Eurasia Group, a consultancy. The PT's left-wingers and their sympathisers in trade unions and social movements despise Mr Levy, whom they call "Scissorhands". The party's allies in government are in a mutinous mood: in December 35 of 71 congressmen from its biggest coalition partner refused to vote with the government to revise this year's unattainable primary-surplus target of 1.9% (though the measure passed anyway). The Petrobras affair, which the opposition is exploiting with gusto, will further deplete the president's already diminished political capital.

Austerity will also hit her popularity in the country at large. Petrol prices have already gone up; electricity and public transport are next. The most recent plan to raise bus fares in big cities, in June 2013, sparked the biggest protests in a generation, and was quickly dropped. Any fiscal and monetary adjustment big enough to restore public finances is sure to push up the jobless rate, which is now close to a record low of around 5%.

Ideally, Ms Rousseff will let Mr Levy snip away, and use the Petrobras scandal to revitalise the ailing oil and construction industries by opening them up to foreign competition and dropping onerous (and graft-inducing) local-content rules. But having promised Brazilians that belt-tightening would be painless, she may unbuckle at the first twinges of discomfort. Even if she does not, her new-found appetite for reforms will not be matched by her capacity to accomplish them. ■

Argentina's debt

Let's not make a deal

Argentina may spurn a chance to settle with its creditors

WHEN Argentina defaulted on its debt for the second time in 13 years last July, the government blamed a pesky clause in its contracts with bondholders. The so-called Rights Upon Future Offers (RUFO) clause was set to expire on December 31st, in theory opening the way to a settlement with bondholders who had refused Argentina's earlier offers of partial payment. A deal would make it easier to borrow dollars, which the country badly needs to pay for imports. But the president, Cristina Fernández de Kirchner, may spurn the opportunity.

After its previous default (in 2001) Argentina offered RUFO as a way to entice bondholders to swap the old debt for new bonds worth much less than the original ones. The clause says that any future deal offered to some bondholders would be extended to all of them. In 2012 a court in New York ruled that Argentina would have to pay in full the small minority of bondholders who refused the debt swap. These are mostly American hedge funds, which bought the bonds at a fraction of their face value. Argentina argued that complying with the court order would trigger billions in payments to all holders of bonds issued under New York law, and so chose to default. Since the court's ruling, its foreign-exchange reserves have dwindled to $30 billion, less than needed to pay for six months' imports. Low commodity prices mean that few dollars are flowing in.

The government has responded by further restricting imports, which has led to shortages of supplies to factories and of some consumer goods. That is one reason why the economy is expected to shrink by around 1% in 2015. Debt payments during the year will siphon off some 40% of international reserves. In December Argentina tried to reduce that drain by offering holders of bonds due for repayment new securities that mature in 2024. The gambit failed miserably: just 4% of creditors volunteered to exchange their 2015 bonds.

Things are so desperate that the government will soon make an attractive offer to holdout bondholders, some observers believe. The expiration of the RUFO clause makes the cost bearable; the government would not have to make the same offer to the other bondholders.

But that is a minority view. The real obstacles to paying off the holdouts have always been political rather than contractual, many think. Ms Fernández and her advisers demonised them as "vultures" and blamed them for many of Argentina's woes. To pay them now would be awkward, and the economic gains might be modest. Luis Secco of Perspectivas, a consulting firm, argues that turmoil in Venezuela, Russia and other emerging markets will make investors hesitant to lend to Argentina. Even if the government reaches an agreement with creditors, "it won't rain dollars," he says.

Besides, ask sceptics, why should Ms Fernández strike a bargain that would bring political benefits mainly to her successor? She will stand down as president after elections next October; none of the prospective candidates so far has her backing. The easiest course of action would be to hand off the debt fiasco to the next president—and let the economy pay the price. ■

Corruption in Brazil

The big oily

SÃO PAULO

The Petrobras scandal explained

NEARLY as ominous as the economic cloud hovering over Dilma Rousseff is the scandal surrounding Petrobras, the state-controlled oil company. It nearly cost her re-election, and could yet spoil her second term as Brazil's president.

The affair began in March, when federal police arrested Paulo Roberto Costa, Petrobras's chief of refining from 2004 to 2012, in a money-laundering investigation. Mr Costa, seeking leniency, confessed to far more than that. Construction companies that won contracts from his division diverted 3% of their value into slush funds for political parties, he said. Police identified 10 billion reais ($3.7 billion) of suspicious payments, making the *petrolão* (the "big oily") Brazil's biggest corruption scandal.

In November police arrested two dozen executives from Brazil's six largest construction firms and another former Petrobras bigwig; 30 people have been indicted. Most of the alleged bribe-takers belong to the Workers' Party, which Ms Rouseff leads, or to her coalition allies.

There is no evidence that Ms Rousseff knew of the mischief, but much of it took place while she was energy minister and chairman of Petrobras during the presidency of Luiz Inácio Lula da Silva, her predecessor. A former manager claims to have alerted Petrobras's current boss, Maria das Graças Foster, and other executives about the irregularities. The company denies that Ms Foster, a friend of the president, had any knowledge of them.

The scandal will produce damning headlines for months to come. Most of

Faulty tower

the 28 politicians named by Mr Costa enjoy parliamentary privilege; only the Supreme Court may try them. Shares in Petrobras have dropped by more than half since their peak in September (in part because of falling oil prices).

Minority shareholders are furious. On December 24th the city of Providence, Rhode Island, one of several aggrieved investors, filed a case in New York naming Ms Rousseff as a potential witness. The Securities and Exchange Commission is investigating whether Petrobras violated anti-corruption laws. Expect more storms in 2015.

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Elections in Sri Lanka

Down to the wire

COLOMBO

Sri Lanka prepares for what could be the closest presidential contest in its history

THE plan seemed such a simple one. Mahinda Rajapaksa called an election in November expecting to breeze past a shambolic, divided opposition and take an unprecedented third term as Sri Lanka's president. The poll, on January 8th, would be two years earlier than necessary. It would also be the first after a constitutional amendment in 2010 that abolished a two-term limit for presidents. Everything had appeared set for Mr Rajapaksa to remain in power.

Now his prospects look far less certain. The campaign has been marked by a series of defections by former allies who call him authoritarian and nepotistic (among relatives in important political jobs are a brother, Basil, who is in charge of running the economy; another brother, Gotabaya, who is defence secretary and a third, Chamal, who is parliamentary Speaker). Most striking was the exit of Maithripala Sirisena. He was both health minister in Mr Rajapaksa's cabinet and general secretary of his Sri Lanka Freedom Party (SLFP). On November 21st he became the main opposition candidate. The president complains bitterly that Mr Sirisena dined with him only the night before.

Mr Sirisena, at 63, is six years younger than the president and has spent four decades in politics. In a country where a spell in jail is often a badge of pride, he can also point to 18 months behind bars (beating Mr Rajapaksa's stint of three months). He appeals especially to rural voters: he calls himself a farmer, speaks only Sinhala and has said he would govern from the agricultural heartland of Polonnaruwa.

He is thus popular within the Sinhala Buddhist majority that was once solidly behind Mr Rajapaksa. Mr Sirisena promises sweeping changes within 100 days, including constitutional amendments; the end of corruption; energy security; even a "moral society" without drugs, liquor or cigarettes. He can point to support from prominent political figures, including a general who was defeated by Mr Rajapaksa in the last election in 2010. Mr Sirisena is backed by nearly 40 political parties and groups, notably the main opposition United National Party and some from the ruling United People's Freedom Alliance, of which the SLFP is a member. Of the alliance's 161 parliamentarians, 23 have defected to his side. If others are included who have switched allegiances at provincial and local levels, the defection rate in this campaign has been among the highest seen in any election in Sri Lanka.

For Mr Rajapaksa, a heavy blow was the departure from the alliance of the Jathika Hela Urumaya, or National Heritage Party, which counts many saffron-robed Buddhist monks among its Sinhala nationalist members. On December 28th the Sri Lanka Muslim Congress also defected, saying Sri Lanka needed to be better governed. The Tamil National Alliance, an opposition group that is normally at odds with the Sinhala majority, says everyone should vote for Mr Sirisena. It accuses Mr Rajapaksa's government of having been "particularly harmful to the well-being of the Tamil-speaking peoples of Sri Lanka".

Mr Rajapaksa thus looks squeezed. Muslims and Tamils together make up nearly a quarter of the 21m-strong population. Muslims are furious at the Bodu Bala Sena, or "Buddhist Power Force", which is avowedly anti-Muslim and supports the president's re-election.

The president's campaign promises include universal housing, development, industrial growth and jobs. He vows to defeat drug and other gangs. He also says he will not let anyone who fought the Liberation Tigers of Tamil Eelam, a rebel organisation that was crushed in a military campaign by his government in 2009, "answer to any international judiciary or tribunal". His ending of a long civil war that year, by defeating the Tigers, is still his strongest electoral asset; he has been flogging it heavily to everyone but the Tamil northerners (they are told instead to be grateful for better roads and railways). To stir nationalist support, he invokes conspiracy theories. Supposedly Mr Sirisena's campaign is backed by the West who want to replace a strong leader with a "spineless puppet", though no proof of Western meddling is ever offered.

Mr Sirisena's rallies draw huge crowds—as do the president's, even if most of Mr Rajapaksa's supporters are ferried to them on public buses. With his frequent use of state-run media and official vehicles to help his campaign, Mr Rajapaksa looks increasingly jittery. His eldest son, Namal Rajapaksa, even invited Bollywood actors to add glitz to the re-election bid. All the signs are that this will be the closest presidential race yet. ■

Myanmar's Kachins

Eager mindsets

MYITKYINA

Kachins are grabbing opportunities for change from a reluctant government

IN THE town of Mai Maw, near Myitkyina, the capital of Kachin state in northern Myanmar, a local Baptist minister enthuses about his plans. Most importantly, says La La Hkawng Dau, known to all simply as Jack, he wants to reopen a long-closed school. Given that most of Myanmar's vastly overcrowded schools have fallen into utter disrepair after decades of neglect, the authorities might be expected to welcome this. In Myanmar, however, it would be, as Jack acknowledges, "illegal", or even subversive.

Myanmar's excellent mission schools, such as Jack's in Mai Maw, were all closed by the country's military rulers soon after they seized power in 1962. Government-run schools opened in their stead, but their purpose was more political than educational. Thus in Kachin state, apart from in the few areas under the control of the Kachin Independence Army (KIA), the armed wing of the Kachins' main political organisation, these schools are used by the majority ethnic-Burman government to exercise ideological control over the minority Kachins, with whom they have been at war, on and off, since 1961. All classes are in Burmese rather than the local Kachin language, history chronicles only the triumphs of ancient Burmese kings, and the sole religion that the overwhelmingly Christian children study is Buddhism. Jack wants to reverse this campaign of "Burmanisation". At his school, he insists, Kachin children will be taught in Kachin, learn English and study Christianity.

Jack says that if he does not act now, "our future Kachin generations will be lost". Despite the risk of running foul of the law, he now thinks he can open his school because "we feel a bit freer". In many parts of the country people are taking advantage of a new tolerance that has been ushered in by the government of President Thein Sein since he took office in 2011. The momentum of reform has slowed now, much to the frustration of Myanmar's most prominent opposition leader, Aung San Suu Kyi, and many Burmese. Indeed, some argue that the reform programme is stuck altogether. But enough has already been accomplished, it seems, to allow people at a local level, for the first time in generations, to imagine and plan new lives. And they are testing the limits of what is possible with less fear than before.

These are the baby steps of freedom, lamentably small for those who were expecting the advance to be much quicker, but still significant for those who are taking them. Jack, for instance, has been encouraged by the fact that a few Baptist schools have already reopened for the Kachin, and so far there have been no reprisals.

Such progress is striking in Kachin state; the KIA is the only large ethnic militia not to have signed a ceasefire with Mr Thein Sein's government. Fighting, often very bloody, broke out again between the two sides in 2011, after a 17-year truce, and continues. In November the Burmese army shelled (unintentionally, it says) a KIA training school near Laiza, a small KIA-run enclave on the border with China, killing 23 cadets—the single deadliest attack in three years. Kachin leaders are gloomy about the prospects of a new ceasefire.

Yet, like Jack in Mai Maw, in Myitkyina itself there are many who are building a new Kachin culture and new Kachin businesses. In the city centre, a shop has recently opened selling T-shirts, mugs and key-rings emblazoned with the distinctive crossed-swords symbol of the KIA. Any public display of these was unthinkable only a year or so ago, inviting immediate retribution from the Burmese army.

Down by the Irrawaddy River, the Humanity Institute (HI) opened two years ago. Much as Jack hopes to save Kachin children from the clutches of the government, so the HI hopes to do the same for Kachin college students. Myitkyina University, which is run by the local government, is abysmal. HI, therefore, has been set up by Kachin businessmen and teachers to run what they hope will eventually become a new, separate university. Like almost everything else in Myanmar, HI will ▸▸

Air safety

Pressing on

SINGAPORE

A spate of accidents will not put Asians off air travel

ON DECEMBER 30th Indonesian officials said they had discovered debris and bodies from AirAsia flight QZ8501, which had vanished two days previously, floating in shallow seas near the south-west coast of Borneo. The airliner lost contact with air-traffic controllers while passing through rough weather on a short journey between the Indonesian city of Surabaya and Changi airport in Singapore. The plane was carrying 162 people, most of them Indonesians. As *The Economist* went to press, no survivors had been found.

The crash, most probably an accident, comes at the end of a particularly tragic year in South-East Asia's aviation history. Search parties have not yet found the remains of Malaysia Airlines' flight MH370, which plunged into the Indian Ocean nine months ago killing all 239 people on board. In September pro-Russian rebels shot down another Malaysia Airlines plane, MH17, over Ukraine, killing another 298.

These earlier calamities nibbled at South-East Asia's popularity among tourists, especially among sightseers from China. But they have done little to dampen booming demand for air travel among South-East Asians themselves. The region is one of the world's fastest-growing aviation markets. Its 50-odd carriers are awaiting delivery of 1,600 new planes, about the same number as are in their fleets today. Boeing, an American planemaker, thinks regional airlines will need to order more than 3,000 new aircraft over the next 20 years.

This growth partly reflects the rapid rise of South-East Asia's middle classes, who are eager to shell out for more convenient ways to navigate the continent's archipelagoes. It has been nudged along by the region's governments, who have promised to liberalise aviation as part of plans for greater economic co-operation.

Yet it also reflects growing confidence in airline safety, despite recent disasters. In much of the region rutted roads and fickle seas are a far bigger worry. A recent study of 160 ferry accidents since 2000, costing nearly 17,000 lives, showed that Indonesia and the Philippines were among the most lethal places to board a boat (only Bangladeshi vessels were more deadly). Images of grieving families in Singapore and Surabaya have horrified Indonesians, and the world. But journeys are still safer in the skies.

need a government licence in order to function. Nbyen Dan Hkung Awng, the director, applied for one in June 2012, but has heard nothing since. In the meantime, he says, he is "just going ahead anyway".

Next door to HI lives one of the leading lights of the Kachin, Ja Seng Hkawn Maran. She and other Kachin businesspeople have formed a new company, the Kachin State Public Company Limited, to run utilities and other such businesses for the Kachin that had previously been ignored by the Burman-run state government. The company has revived two old hydroelectric plants, for instance, to alleviate Myitkyina's shortage of electricity. This has been done in co-operation with the Burman-dominated state government—the enemy, so to speak. It is a novel private-public partnership.

Another project has been to revive the decrepit railway service from Mandalay to Myitkyina, previously the lifeline of Kachin state linking it to the rest of Myanmar. Under the Burman-run company that had previously managed it, says Ja Seng Hkawn Maran, the railway had been corrupt, slow, and unreliable. So her firm acquired a three-year contract from the state government to run an improved line that would bring tourists and restore pride in an obvious symbol of Kachin state. As the new brochure promises: "Services will be given by employees with eager mindsets different from [the] previous era".

She has already trained 60 staff with fresh, eager mindsets for the new railway. But a month after agreeing to cede control, the state government has yet to do it. "So they are still not doing what they say," Ja Seng Hkwan Maran complains (it is the same story with the power plants). "We are pushing at the door whenever we have a chance," she says—although she admits she is unsure whether the Burman authorities really want to give the Kachins more autonomy. That question will test the sincerity of Mr Thein Sein's reforms. ■

Indonesia's marine policy

Fishing trips

MUNCAR, BANYUWANGI REGENCY

For the new administration, the path to prosperity is a watery one

WITH over 13,000 islands, Indonesia is by far the world's biggest archipelagic state, a nation shaped as much by the seas around it as by its land. Yet the new president, Joko Widodo, believes Indonesians have "for too long turned our backs" on the water. In his inaugural speech in October the head of state, widely known as Jokowi, expressed a desire to "be as great in the oceans as our ancestors were in the past". A few weeks later, at an Asian summit in Myanmar, he went further. Indonesia should revive its maritime culture, develop its fishing industry, improve maritime links through things like better ferries and ports, and crack down on illegal fishing and other violations of sovereignty. Indeed, he said, Indonesia should be nothing less than a "world maritime axis" between the Indian Ocean and the Pacific.

For all Jokowi's related talk of boosting naval and coastguard strength (Indonesia's naval budget is smaller than Singapore's), his new maritime policy is aimed squarely at increasing prosperity at home. Tens of millions of Indonesians live from fishing. Meanwhile, the country's farthest-flung islands, particularly those in the east, suffer from the tyranny of distance; improving maritime linkages would cut high transport costs and boost investment and productivity, particularly in manufacturing.

The fisheries minister, Susi Pudjiastuti, complains that though Indonesia's waters are much more extensive than Thailand's, the country exports far fewer fish. To get a sense of why that is, consider the town of Muncar on the eastern edge of Java, separated by a narrow strait from Bali. It is home to one of Indonesia's biggest fisheries. Muncar offers easy access to rich fishing grounds in both the Indian Ocean and the Java Sea. Nearly everyone in the town and in the surrounding villages lives off the sea. Some catch fish, others sell equipment and services to fishermen, and still others salt, can and process what the boats bring home. It is a little working fishery of the sort that has all but vanished from the developed world: small decorated wooden boats crowd the harbour; skippers and crew sit by dock repairing nets; and over the town hangs the eye-watering stench of rotted fish—cat heaven.

Small-scale fishermen like those in Muncar bring in the vast majority of Indonesia's catch, but the cost of this charm is huge inefficiency. Few vessels have blast freezers, or have only small ones. Because the catch must be brought back to shore quickly, fishermen make frequent short trips rather than longer journeys which are more lucrative. Muncar port also lacks adequate cold-storage facilities, which means the catch spoils if it is not sold quickly. Many of the processors are what Abidin, who runs Muncar's fish market, calls "home industries": fishermen's wives salting their husband's catch, for instance.

Meanwhile, as small Indonesian vessels work inshore, well-funded foreign pirate fleets, often sailing under flags of convenience, plunder Indonesian fisheries further offshore. Precise data on illegal fishing is hard to come by, but some put the annual cost to Indonesia at $3 billion a year. In a recent interview with the *Wall Street Journal* Jokowi claimed that nine-tenths of 5,400 fishing boats in Indonesia's waters each day are illegal. On December 5th a Vietnamese fishing boat illegally trawling in Indonesian waters was seized by the Indonesian navy off the Riau islands; after its crew were taken off, it was scuttled. On December 28th the navy blew up two Thai boats in the same area. Ms Susi says that the same fate may await 22 Chinese fishing vessels seized in early December. Jokowi says that the ship-sinking sends "a simple yet brief message" that Indonesia means business when it comes to illegal fishing.

But sending messages may prove the easy part. Other aspects will be harder and more costly. Corruption is rampant in Indonesia's port and customs systems, and cannot be stamped out unless officials are paid more. Upgrading port infrastructure will also be expensive. Ms Susi says the administration plans to build 200 new small and medium-sized harbours and to upgrade many more. Jokowi has been wooing foreigners to invest in maritime infrastructure. He has little to show so far. But he is right that the sea road is a long-neglected path to his country's prosperity. ■

Banyan | The centenary delusion

Asia in 2014 was not Europe in 1914 after all, but the echoes warrant heeding

ANNIVERSARIES may be no more than chronological accidents, but they can be hard to ignore. That 2014 marked 100 years since the start of the first world war provoked sombre commemorations in the countries that lost millions of lives in the conflict. It also caused some to compare its causes to worrisome strategic tensions today, especially in Asia. The parallels between Europe in the early years of the 20th century and Asia a hundred years on were too many to ignore; haunting enough, indeed, to prompt worries about the possibility of another global confrontation. The turn of the year will not end this vogue for historical analogy, though attention may turn as much to the differences as to the similarities. As Joseph Nye, a political scientist at Harvard University has pointed out, "war is never inevitable, though the belief that it is can become one of its causes."

Of statesmen who have made the comparison in their public pronouncements, Shinzo Abe, Japan's prime minister, probably carried the most weight. Talking at the World Economic Forum in Davos in January 2014, Mr Abe said that China and Japan were in "a similar situation" to that of Germany and Britain a century ago. Since his country was (and is) engaged in a tense stand-off with China over the Senkaku or Diaoyu islands, this was an alarming remark. It suggested that a minor territorial squabble in 2014, like an act of terrorism in the Balkans in 1914, might spark a global conflict. America, after all, has repeatedly affirmed that its security guarantee to Japan extends to these uninhabited islets.

In fact, the point Mr Abe seemed to be making was not so much about growing military rivalry in the region. Rather he was proposing a commonly made salutary argument: that those who think war is impossible between China and Japan because they are so intertwined economically overlook the way a previous wave of fast-growing trade and globalisation ended. Before the first world war, Britain and Germany were each other's biggest single trading partners.

Mr Abe, however, must also have had in mind the comparison often drawn between the emergence of China as a global power in this century and the rise of Germany (and indeed Japan) a century ago. Just as Germany bridled at Britain's global pre-eminence, so China no longer seems content to follow the rules of a world order set and enforced, in its view, by America. Like Germany, it knows it must bide its time as it is militarily no match for the superpower. Deng Xiaoping's doctrine of strategic patience echoed that of Wilhelmine Germany. In her enthralling account of the causes of the first world war ("The War that Ended Peace") Margaret MacMillan quotes a German chancellor: "in view of our naval inferiority, we must operate so carefully, like the caterpillar before it has grown into a butterfly."

Germany then, like China now, saw itself as in danger of strategic encirclement by countries resentful of its economic and military prowess. What it portrayed as a defensive naval build-up appeared aggressive to other countries, and it was suspicious of its international rivals. Similarly, Americans think of their strategic "pivot" to Asia as stability-enhancing reassurance to their allies in the face of growing Chinese power—nothing more than a shoring-up of America's existing position in the region. But it smacks to China of hostile "containment". The climate of strategic uncertainty is manifest across Asia in increased defence outlays. Military spending is rising fast and now exceeds Europe's. But the region suffers the sort of complacency many in Europe felt in 1914: large-scale war is simply unthinkable.

The early 1900s, like now, were a period of fast-expanding communications and mass media. Public opinion began to play an important part in forming foreign policy in many European countries. Politicians would try to manipulate it to score diplomatic points; and then find themselves hostage to it. In the smartphone era, those pressures have increased enormously.

Today has no equivalent of the rival system of alliances that led so swiftly to escalation in July 1914, as countries marched towards the edge of the cliff like "The Sleepwalkers" (the title of another fine book about the period, by Christopher Clark). But America now, in backing Japan and the Philippines over their disputes with China, is facing a dilemma that confronted big powers then: stand by smaller allies and risk encouraging reckless behaviour, as Russia felt it had to in Serbia; or abandon them and lose credibility and prestige? Nor, these days, are armies afforded as much power as they once had over essentially political decisions. But it is still true that military strategies have their own momentum and that in war, as in business, there can be a first-mover advantage; it may be better to take the offensive.

Never say never again

For all these similarities, two striking differences distinguish the present day from the pre-war era. The first is the knowledge of just how destructive and catastrophic war can be. That is a consequence in part of the nightmares the world endured in two world wars. In 1914 few imagined how long war would last, how much property it would destroy and how many millions would die. It is also a result of the development of weapons of mass destruction. The cold war may be over but the world knows it has the capacity to annihilate itself many times over.

Second, in 1914, although peace movements were active, many thought a big war, after several near-misses over crises in the Balkans and Morocco, was inevitable. Some even welcomed this. Ms MacMillan quotes Hilaire Belloc, a jolly British poet: "How I long for the Great War! It will sweep Europe like a broom." In Asia today, however, nobody seriously argues the benefits of large-scale conflict. That is partly why so many are sanguine about the chances of China's rise being a peaceful one. But, to adapt Mr Nye, peace is not inevitable, and if historical analogies serve any purpose, it is to remind us how fragile it can be. ■

The north-east

Back in the cold

SHENYANG

After promising signs of a renaissance, China's old rustbelt suffers a big setback

WOOLLEN car-seat covers come in handy during the freezing winters of north-eastern China, giving drivers a plush layer of extra warmth. But as temperatures have plunged over the past month, seat covers that used to fly off the shop shelves in cold weather have piled up. At the Wu'ai Market, a wholesale emporium in the city of Shenyang, Li Xiaoli surveys her showroom stacked high with covers of every description: thick and thin, red and white, patterned and plain. "It's getting harder for people to earn money, so they are not spending as freely as before," she says.

Ms Li's unsold seat-covers reflect a deepening economic malaise in China's north-east. They stem from a slowdown in car sales that has been exacerbated by a property-market downturn, which has been weak nationwide but especially bad in the north-east. Home sales in Shenyang, the region's biggest city, fell by 26% year-on-year in the first ten months of 2014. That, in turn, reflected a decline in heavy industry, the backbone of the economy.

The north-east's provinces—Heilongjiang, Jilin and Liaoning—ranked in the bottom five of China's 31 provinces for GDP growth in the first three quarters of 2014. Their growth of 6% was 1.4 percentage points less than the national rate. Worse, their industrial output rose just 0.5% year-on-year in October, far below the national average of 7.7% (see chart on next page).

It is a troubling regression for China's old rustbelt, which is home to 110m people. Until recently the north-east appeared to be experiencing a renaissance after a difficult couple of decades. The question now is whether its lapse is a passing phase, as it makes the transition from being a base for heavy industry to a centre for modern manufacturing and entrepot for north-east Asian trade; or whether its problems are chronic, the legacy of a centrally planned past in which it remains partially trapped.

Endowed with coal and oil, the north-east industrialised under Japanese military control in the 1930s. Mao Zedong later made it the heartland of heavy manufacturing. But its star faded as China opened to the world in the 1980s. The deltas of the Yangzi and Pearl rivers made more fertile ground for entrepreneurs; the government-led heritage of the north-east became a millstone. When Zhu Rongji, China's then prime minister, took a knife to loss-making state-owned companies in the late 1990s, about a quarter of the 30m lay-offs were in the north-east. Unemployment soared and mass protests spread.

The government responded in 2003 with a plan to "revitalise the old north-east industrial bases". The idea was to transform state factories into lean, modern entities; foster trade with nearby countries; and to broaden the economy by cultivating new industries, from tourism to software.

Judging by growth alone, the government achieved almost instant results. The north-east caught up with the average national growth rate of 10%, and then pulled ahead. Its average growth of 12.4% in 2008-12 was nearly three percentage points above the national pace, making it China's fastest-growing region.

A little slowdown for the north-east might have been fine after such a period of outperformance—in line, moreover, with the central government's efforts to steer the national economy back to a more sustainable pace of growth. But compared with the rest of the country, the north-east's downturn has been unusually sharp and painful. It has exposed unresolved problems in its efforts to reinvent itself.

The wrong mix

Those efforts have borne fruit: state-owned firms produced more than two-thirds of the region's GDP in the early 2000s. That has fallen to about 50%, still above the national average of 30%, but progress nonetheless. The structure of the north-east's economy, however, has worsened in a more important respect. It has become ever more reliant on investment and manufacturing, both geared to the now-slowing property market. State companies and private firms alike have poured into mining, heavy-equipment factories and construction. Even the car industry, in which the north-east has been a national leader, is closely linked to property, as buyers of new homes also tend to buy cars. In any case, home-grown car brands such as Hongqi and Jinbei are falling further and further behind foreign rivals in popularity.

Whereas the rest of China's economy has become better balanced, with services now accounting for more of GDP than manufacturing, the north-east has gone in the other direction. Manufacturing's share of the regional GDP rose to 50% in 2013 from 47% a decade earlier, and the contri- ▸▸

bution of services declined—the opposite of what the original revitalisation plan called for. Even more striking, investment accounted for 65% of the north-east's GDP in 2013, roughly double its contribution a decade earlier. The national average is a shade under 50%, which is already high by international standards.

An hour's drive east of Shenyang to the new town of Shenfu offers a glimpse of how much spending has been misallocated. There, rising 150 metres into the air, is a giant upright steel circle—the "ring of life" (pictured on previous page), which was built as a landmark for the town even before anyone moved in. It is flanked by half-finished buildings and faded billboards advertising dream homes.

Shenfu was designed as a dormitory town, roughly equidistant between the cities of Shenyang and Fushun, to which it is well connected by multi-lane highways. But with heavy industry in the area struggling, and Shenyang and Fushun already weighed down by their own gluts of empty homes, Shenfu has not taken off. "Guys used to walk through the door and buy two or three homes at a go," says a saleswoman at Deshang International Garden, a large housing complex. Its occupancy rate is now about 50%, which, she says, makes it one of the most successful developments in town.

Over-capacity in heavy industry is also pervasive. The north-eastern provinces took the extraordinary step of ordering some 100 cement-production lines to close for four months this winter, in part to alleviate a supply glut. It is estimated that as much as half their capacity is unneeded. Cement production by itself is a tiny part of the north-eastern economy, but as a crucial input for construction, which accounts for 6% of regional GDP, it is symptomatic of the broader excess in heavy industry.

Poor investment decisions mean less money for spending on social services. In late November as many as 20,000 teachers went on strike over low pay and miserly pensions in towns near Harbin, the capital of Heilongjiang, the slowest-growing of the north-eastern provinces.

Old command-economy habits run deep. After the mass bankruptcies of state firms in the late 1990s, some cities decided they needed cash from officials in Beijing to fund yet more state companies. Liang Qidong of the Liaoning Academy of Social Sciences, a government research institution, even argues that the north-east is the world's best example of a Soviet-style economy, because its central-planning mentality has persisted for so long. "A lot of people still don't truly understand or believe in the role of the market," he says.

The north-east has, to a certain extent, been a victim of geography. Unlike the east and south of China, which straddle major international trading lanes, the north-eastern provinces' two foreign neighbours are North Korea and the sparsely populated far east of Russia and it is not far from the equally desolate expanse of Mongolia. Their dominant commercial relations have been with Japan, but heightened tensions between China and Japan in the past couple of years have got in the way. Japanese investment in Liaoning was 33.5% lower year-on-year in the first three quarters of 2014. South Korean investment, about a third of Japan's, fell even more sharply.

Bad days are back

Industrial production, % increase on a year earlier

Source: National Bureau of Statistics

Demography has also started to hurt. China as a whole is struggling to adapt as the working-age population peaks. The birth rate in the north-east, however, is less than one child per woman: a third lower than the national average. Even Japan's, at 1.4, is higher. The north-east is beginning to age rapidly. And it is suffering from emigration, with a net 2m residents working in other parts of China, according to Peking University researchers.

Not all is bleak. Some of the investments made in recent years have been useful. Shenyang is slowly establishing its expanded airport as a hub for northern Asia. Despite having a population of 8m, it lacked an underground rail system until 2010, leaving its streets clogged with traffic. The underground's two lines are now packed during rush hour. Nine more will eventually open.

GDP by region

Q1-Q3 2014

% increase on a year earlier

Sources: National Bureau of Statistics; *The Economist*

There is also hope that the north-east's industrial heritage, long a weakness, can yet become a strength. The evolution of Shenyang Machine Tool Group (SYMG) is an example of what can be accomplished—and what still needs to be done. SYMG is the heir of Mao-era factories that functioned as self-contained cities, providing workers with homes, schools and even theatres. The market reforms of the 1990s tore that sheltered world apart. Three large factories were combined to form a new group; thousands lost their jobs.

Around the same time, though, the company charted a course for modernisation. It listed on the stockmarket, bought a German company for its engineering know-how and built a modern factory campus. From ranking 36th among global machine-tool makers by sales in 2002, it shot up to first by 2011. But, like the north-east more broadly, that year was a high-water mark for SYMG. Sales have since fallen as the north-east's economy has slowed, and foreign rivals have taken a bigger share of the Chinese market.

Government to the rescue—again

The central government is worried. In July it sent inspection teams to the north-east to see what was going wrong. Li Keqiang, the prime minister, has a personal stake, as he served as Liaoning's Communist Party chief in 2004-07. The inspectors concluded that bureaucracy was excessive and that the falsification of data was rampant. Mr Li, however, hinted that aid would keep on flowing. The nation, he said, owed a debt to the north-east for its contributions to China's development.

Soon after, the cabinet unveiled a list of 35 measures—a new "revitalisation" strategy to help the region. It pledged to speed up the construction of rail lines, airports and affordable housing, and to support high-tech industries, from robotics to integrated circuitry. The measures once again rely heavily on the state and big investment projects. Encouragingly, however, they dovetail with a new round of market reforms that the government is promoting across China. State-owned companies in the north-east are being encouraged to sell stakes to private firms, to bring in more cash and expertise.

Guan Xiyou, SYMG's chairman, says the theme of the new reforms is "letting go". The government, he says, must loosen its grip on the economy and force companies to find their own solutions to their problems. That, he believes, will at last allow the north-east to resume its place as an engine of China's economy. But as the past few years have shown, letting go is hard to do in China's old industrial heartland. ■

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Ebola's legacy

After the passing

MONROVIA

The virus will have a long-lasting impact on already poor countries

WHEN Ebola was at its worst in west Africa a few months ago, many worried that weak governments in Guinea, Liberia and Sierra Leone might be swept away by riots or the collapse of order as the virus took hold. In fact, the opposite appears to be the case. Governments have tightened their grip and are displaying authoritarian inclinations in ways rarely seen in the three young democracies.

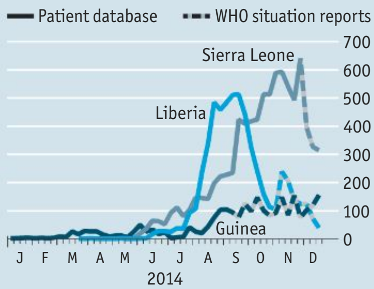
Sierra Leone announced on December 17th that it would conduct house-to-house searches in Freetown, the capital, to find hidden Ebola sufferers. The president, Ernest Bai Koroma, also banned all public Christmas celebrations as well as some market trading and travel between regions. Yet restrictions on movement and trading have been counter-productive. When food is in short supply, hungry and potentially infected people evade checkpoints and travel long distances to feed themselves.

Other civil liberties are also being curtailed. A Sierra Leonean journalist has been arrested after criticising the government. Officials accused him of making "disparaging and inflammatory statements" about its anti-viral work.

In Liberia restrictions on public gatherings remain in place, despite the government's decision in November not to extend a state of emergency. During senatorial elections—moved from October 12th to December 16th—campaign events and transport to polling stations had to comply with new safety regulations. Queuing voters had to stand three feet apart and bring their own pens, restrictions that did little to encourage a high turnout. Nor did a ban on political rallies that was lifted by the supreme court only after candidates objected.

Healthy improvement

New cases* of Ebola infection per week



Source: WHO

*Confirmed and probable

Online: Find latest Ebola information at Economist.com/ebolagraphics

Across the region, rulers are accused of trying to gain political advantage from the epidemic by directing international aid toward their support bases. In Guinea the opposition has cried foul over the delay of municipal elections and perhaps even presidential elections in 2015. Although the country has had more success in fighting the virus than its two neighbours have, occasional bouts of violence have been a problem. The Guinean military took over a town near Wombe where health workers had been killed; some of them were found dismembered in septic tanks. The soldiers are said to have taken revenge and villagers to have fled into the bush. Violent outbreaks have also occurred in Liberia—where security forces fired on people protesting against a quarantine imposed on part of the capital—and in Sierra Leone—where police cracked down in the eastern city of Koidu after rioting

The disease, meanwhile, continues to spread. In the week to December 21st, Guinea experienced its highest incidence of the virus since the outbreak began (see chart). In Liberia dozens of new cases have been reported along the border with Sierra Leone. Despite these setbacks officials and observers are starting to contemplate the challenges that will face the region once the illness has been tamed.

Chief among them will be getting children back to schools that have been closed for months and are unlikely to open soon. In the meantime families are getting used to having children at home. Girls are doing more housework and boys are being pushed to earn money. Teachers fear that when schools reopen parents will be reluctant to send their children back. Some speak of a lost Ebola cohort of teenagers who may never return to school.

Economies are struggling, too. Few ships or planes arrive. Expatriate workers and the educated elite have mostly fled. Imported industrial equipment idles in port. Shipping containers gather rust. About half of all Liberians who had formal jobs have lost them. The misery is heightened by the fall in commodity prices. Prices for the oil and iron ore that are exported from the region have plunged.

Public finances are being strained. In responding to the crisis the spending by all ▸▸

three affected governments has gone up by about 30%. At the same time revenues have fallen as a result of the slowdown in trade and tourism. Infrastructure development, such as road-building, has been postponed. The IMF and World Bank have had to step in with financial aid packages. The drop in household incomes is estimated to be 35% in Liberia, 30% in Sierra Leone and 13% in Guinea.

Still, the economic impact is not as bad as some had feared. Worst-case forecasts by the World Bank estimated that Ebola could cost the region as much as $32 billion if it were allowed to spiral out of control. Efforts at containing it mean the real cost will probably be a tenth of that figure. Trade is slowly coming back. Some land borders have been reopened, albeit some only for lorries rather than cars or pedestrians.

One positive legacy may be improved health-care systems in countries that generally fare poorly on measures such as infant mortality and life expectancy (see chart). In the short run, deaths from preventable diseases are likely to increase. Vaccination programmes have collapsed and overwhelmed hospitals have been turning away pregnant women and those sick with malaria and other illnesses.

Yet billions of dollars have been lined up to boost hospitals and training in ways that will reach far beyond Ebola. Much of this money is being allocated on the assumption that weak health systems, even in remote countries, can exacerbate the risks of a global pandemic. According to Thomas Frieden, the director of Centres for Disease Control and Prevention, America's national public-health agency: "There is an urgent need to reinforce basic public-health systems in countries such as those in west Africa where disease threats can quickly arise and ultimately threaten the health of Americans."

The three worst-affected countries have averted catastrophic collapse, even if they still face a long convalescence. The pluralistic institutions of their young democracies seem so far to be holding up. Yet they are threatened by the continuation of draconian and authoritarian policies. The erosion of democracy might yet turn out to be a cure as bad as the disease. ■

No country for old men

2013 or latest

	Guinea	Liberia	Sierra Leone	*Sub-Saharan Africa*
Infant mortality Per 1,000 live births	65	54	107	61
Life expectancy At birth, years	56	60	45	56
Poverty % of people living on less than $1.25 a day*	43	84	52	47
GDP per person, $	307	299	410	1,018

Sources: World Bank; UN *At purchasing-power parity

South Africa's electricity crisis

Unplugged

JOHANNESBURG

Rolling power cuts are fraying tempers

THE people of South Africa are learning to live in the dark. Their beleaguered power utility, Eskom, is unable to meet electricity demand and in November reintroduced a tortuous schedule of rolling blackouts known as "load shedding". South Africans now check electricity reports that read like weather forecasts: "There is a medium probability of load shedding today and tomorrow, with a higher probability on Thursday and Friday," said a recent Eskom tweet. Newspapers print survival tips and "load shedder recipes" for food you can prepare without electricity. And there are bleak jokes aplenty. "Q: What did South Africa use before candles? A: Electricity."

The power cuts are hurting an already stagnant economy, estimated to have expanded by just 1.4% in 2014. Both big industry and small businesses are feeling the pinch. Meanwhile Eskom has warned that the blackouts could drag on for months, perhaps even years, as it struggles with a maintenance backlog and a barrage of technical problems at its ageing power stations. There are delays in bringing new capacity online, particularly at Medupi, a heralded new coal-fired plant whose completion has been endlessly postponed.

South Africa has been here before. In 2008 it suffered a rash of blackouts that cost the country billions of rand. Little has changed. There are increasingly loud calls from economists, business councils and opposition politicians for Eskom to be privatised, or at least for independent companies to be allowed to sell more power to the grid. Such a move would probably be opposed fiercely by South Africa's powerful labour unions, which have long fought any steps toward privatisation.

Eskom is not the only state-run firm in trouble. South Africa's government recently announced that it would take direct control of two other ailing state companies: debt-riddled South African Airways and the strike-racked postal service. All three will be overseen by Cyril Ramaphosa, the country's vice-president, a former trade-union leader turned business mogul, who returned full-time to politics ahead of the general election in April 2014. Mr Ramaphosa has become a troubleshooter for some of the government's thorniest problems. His involvement in Eskom has been widely welcomed.

President Jacob Zuma has blamed apartheid as the root cause of South Africa's electricity woes, noting that the system was built to funnel power to white homes. "The problem is that energy was structured racially to serve a particular race, not the majority," he told delegates at a recent Young Communist League congress in Cape Town. In the past two post-apartheid decades, the government led by the African National Congress has indeed made great strides in bringing power to the rest of the country. Mr Zuma says 11m households now have electricity, twice as many as in 1994. But this is cold comfort for a country now united in darkness. Eskom's woes—crumbling old power stations, delays in the building of new plant—were widely predicted, for example in a white paper written for the government in 1998. Few South Africans think Mr Zuma's explanations shed light on the subject. ■

Iran in Iraq and Syria

Death of a general

Wars in Syria and Iraq are sucking Iran into ever more tangled conflicts

MANY chefs have stirred the cauldron of war consuming Syria and Iraq, but perhaps none so vigorously or with so long and capacious a spoon as the Islamic Republic of Iran. Unlike the American-led international coalition formed to combat Islamic State (IS) following the radical Sunni Islamist group's summer surge towards Baghdad, which has limited its role to air strikes, and unlike Russia or the Arab countries that have armed opposing sides in Syria, Iran has physically inserted itself in the intertwined conflicts. It has dispatched not just fuel and weapons but hundreds of "advisers" from its elite Revolutionary Guards Corps (IRGC) as well as thousands of fighters from the Shia militias that Iran has fostered, armed, trained and funded in Lebanon and Iraq.

Two events in the Iranian capital, Tehran, on December 29th underscored the depth of its commitment. In the morning politicians and top military brass paid funeral honours to Hamid Taqavi. Felled by a sniper in the Iraqi city of Samarra, the IRGC brigadier-general, a hero of the 1980-89 Iran-Iraq war, was the most senior Iranian officer killed so far fighting in Iraq. Shortly afterwards the defence minister, Hossein Dehghan, formally received his Iraqi counterpart, Khaled al-Obeidi. At a subsequent press conference Mr Dehghan pledged Iran's aid in joint efforts to "cleanse" Iraq of terrorism.

Iran's involvement in neighbouring conflicts is not new. Mr Dehghan himself served in Lebanon during its 1975-89 civil war. As an operative for the IRGC, the ideological spearhead of Iran's revolution, he may take some credit for the creation of Hizbullah, Lebanon's powerful Shia militia, and perhaps for exploits such as its bombing of an American barracks in 1983.

Such personal and institutional links have heavily influenced Iran's subsequent regional strategy. What was seen as Hizbullah's successful guerrilla campaign to hound Israel from its long occupation of southern Lebanon helped prompt Iran to sponsor a similar effort in Iraq, to oust the American forces following their invasion in 2003. Its instrument was Shia militias that launched thousands of deadly attacks against American troops.

A close ally of the regime in Syria since the 1980s, Iran was quick to bolster Bashar Assad when his people rose up against him in 2011. Syria provides not only a physical bridge to Hizbullah. It is a linchpin of what the IRGC views as a "resistance" axis against perceived American efforts to assert hegemony on the region.

Without Iranian aid Mr Assad might well have fallen; more than a thousand Shia militiamen have been killed in his defence since 2012. Iran has also lost at least three generals in Syria. Syrian opposition sources claim that Iran has also spent as much as $15 billion in aid, much of it in the form of fuel, to prop up the Syrian regime.

The cost of this to Iran—in blood and treasure—has not been counted and is likely to become more burdensome as the oil price falls. Yet Iran's entanglement, like America's, is already twisted with contradictions. Hardline Iranian politicians ritually blame America for spawning groups such as IS, even as the IRGC and America share the burden of eradicating it. Iraqi Shia militias threaten to attack any American or allied "invaders", even as they enjoy coalition air cover. And in Syria Iran has just as little idea as anyone of how the endgame might play out. Even though bolstered by both Iranian help on the ground and, effectively, by American air power, Mr Assad no longer wields the strength or credibility to rule much more than a rump of his devastated country. ■

Tunisia's new president

Don't be ageist

TUNIS

A veteran of the old guard will preside over Tunisia's newly minted democracy

ON THE face of things, it is surprising that Tunisia's first president chosen in an open, democratic election is an 88-year-old former minister, Beji Caid Sebsi. Four years ago stone-throwing youths took to the streets, instigating an uprising that overthrew Zine el-Abidine Ben Ali, the autocrat who had reigned for the previous 23 years. After his fall the first elections were easily won by Islamists who had previously been banned. Now, by contrast, Tunisia will be presided over by a veteran who served as interior minister in Habib Bourguiba's government in the 1960s. In a run-off on December 21st he got 56% of the votes cast, comfortably defeating Moncef Marzouki, a former human-rights campaigner who had spent years in exile.

Mr Caid Sebsi portrayed himself as an admirer of Bourguiba, who ruled the country for 30 years after independence from France in 1956. But he played down his role as interior minister at a time of repression, instead stressing his record as a conciliatory interim prime minister for ten months immediately after the revolution of 2011.

Mr Marzouki's appeal to voters was that he would defend their newly won liberties. This attracted Islamist sympathisers, especially supporters of Nahda ("Awakening"), the Islamist party that had led a governing coalition in the outgoing constituent assembly but which chose not to put up a candidate. A swathe of other Tunisians with grim memories of life under Mr Ben Ali also backed Mr Marzouki, who had served as interim president for the past three years. But for other voters, Mr Caid Sebsi's Nidaa Tounes ("Tunisian Call") party smacks of the old regime under a new guise. The result also exposed the gulf between the poor south and the richer north. In the five southernmost regions, 80% of voters plumped for Mr Marzouki.

When a Nidaa Tounes spokesman claimed victory on the evening of polling day, as votes were still being counted, Mr Marzouki's supporters protested near the southern port of Gabes. An Islamist news website then claimed there had been massive fraud. Protests spread to a handful of southern towns and a suburb of Tunis. Some local government offices and police stations were torched, recalling the revolt against Mr Ben Ali. Mr Marzouki eventually said he would not challenge the result. His advisers seem to have decided that if fraud did take place, it was not on a scale that would have altered the outcome.

Parliament and president are, for the moment, in tune. After a general election in October, Nidaa Tounes became the largest party in parliament. It is a melting pot of former members of Mr Ben Ali's old ruling party with non-aligned figures who want to salvage what they regard as the better aspects of the Bourguiba era: efficiency and secular values.

Nidaa Tounes is expected to form a coalition government. Mr Caid Sebsi is to resign as party leader and is thought to favour a non-party prime minister. His party's claim to defend liberty and openness will soon be tested, as a "truth and dignity commission" starts looking into past human-rights abuses. A few days before Mr Caid Sebsi was to be sworn in some commission members arrived to fetch documents from the presidential archive. They were blocked by guards. ■

An unlikely icon

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Greece's political crisis

Samaras's failed gamble

ATHENS

The prime minister looks likely to lose a snap Greek election later this month, but it is not clear what government will succeed him

ANTONIS SAMARAS, the centre-right Greek prime minister, lost one election on December 29th. Now he will have to fight another. His New Democracy party's candidate for president, Stavros Dimas, fell 12 votes short of the required three-fifths majority in a third and final ballot by Greece's 300 MPs. As the constitution demands, a snap general election will now be held on January 25th. ND is trailing the far-left Syriza opposition, according to the opinion polls. Once again, the prime minister's chances of victory look slim.

Mr Samaras made two television appeals for lawmakers to back Mr Dimas, a former European environment commissioner, for the ceremonial post. His election would have kept the fragile ND-led coalition in power long enough to negotiate an exit from Greece's unpopular austerity programme with the European Union and IMF, including a precautionary credit line from the euro-zone bail-out fund. Many independent and opposition lawmakers who rejected Mr Dimas are unlikely to be re-elected, yet not even self-interest persuaded them to back the government.

Such stubbornness heralds a bad-tempered election campaign. Alexis Tsipras, Syriza's radical leader, calls Mr Samaras "finished". He plans to renegotiate Greece's bail-out. Although he no longer threatens to halt debt repayments unilaterally if his party comes to power, he still wants to secure a big write-off. Greece's creditors would oppose that, and also Mr Tsipras's proposals to reverse other reforms and launch a €11 billion ($13 billion) welfare package, to be financed by better tax collection. With more than €7 billion of lending suspended until Athens reaches agreement with its "troika" of creditors on more tax, labour and pension reforms, Greece will soon run into trouble. Hard-pressed taxpayers are already struggling; more than €1 billion of income and property tax goes uncollected every month. Mr Tsipras's promises sound alluring to angry, impoverished Greek voters.

Yet some left-wingers are suspicious. "How can Greece dictate terms to the troika when they control the purse-strings?" asks Lefteris Maniatakis, a former employee of the state electricity company. "Over the past four years we've seen every government resist their demands at first, but give in eventually."

Up, down or flat

GDP, Q1 2000=100

Sources: Haver Analytics; IMF

*Estimate

Mr Samaras hopes to shrink and perhaps reverse Syriza's lead over the course of the campaign. He can cite a modest recovery, with GDP growth likely to reach 0.6-0.8% in 2014 thanks to a successful summer tourist season, improved exports and increased EU subsidies for infrastructure projects. Another tactic will be to stress the risks posed by a hawkish but inexperienced left-wing Syriza-led government. Greek shipowners, worried they could be hit by a new wealth tax, are already pulling deposits out of local banks. Small savers could follow their example, fearing a repetition of the 2013 bail-in of depositors in Cyprus.

Even if Syriza wins on January 25th, it may fall short of an overall majority. Mr Tsipras speaks of a government with Syriza as its "core". At least four small parties are likely to win more than 3% of the vote and enter parliament, but only the PanHellenic Socialist Movement (Pasok) and To Potami (The River), a new centre-left party led by Stavros Theodorakis, a television journalist, look like possible coalition partners. Mr Tsipras is used to making alliances: he has to keep his own party's disruptive far-left faction on board. Even so, it could be hard for Syriza to work with either Pasok, which has been ND's junior coalition partner for two-and-a-half years, or a cocky newcomer like Mr Theodorakis.

In 2012 an inconclusive election was followed by another a month later. This time, the deadlines are tighter: a two-month extension to Greece's bail-out expires at the end of February, increasing the pressure on the election winner to form a government fast. Greece's latest political flare-up might yet turn into another extended crisis. ■

Turkey's future

Forward to the past

ANKARA

Can Turkey's past glories be revived by its grandiose Islamist president?

"I DON'T order you to fight, I order you to die." With those words Mustafa Kemal Ataturk, founder of modern Turkey, rallied his troops against the British-led forces fighting for the Dardanelles in 1915 during the first world war, when Turkey was allied to Germany. Ataturk's men won the battle for the straits, but the Ottoman empire lost the war. As millions of Turks prepare to mark the centenary of the battle of Gallipoli—the bloodiest of the campaign—on April 25th, many will hail it as the moment when the seeds of Ataturk's secular republic were planted.

But what remains of his legacy? The question is more urgent as Recep Tayyip Erdogan, Turkey's first popularly elected president, presses for constitutional changes that would endow him with executive power. He then hopes to fulfil his dream of a new and assertive Turkey, where Sunni Islam prevails and the glories of the old empire are revived. Others are less enthusiastic. "Turkey will become a Middle East-style dictatorship," predicts Levent Gultekin, a prominent pundit.

That may be an exaggeration. But Mr Erdogan certainly has grandiose ambitions. At Ataturk's farm near Ankara, he has built a garish new presidential complex with 1,150 rooms at a cost of $615m. He has decreed that the old Ottoman language and script, which Ataturk replaced with a roman one in 1928, be mandatory in the *imam hatip* schools for Muslim clergy that have nearly quadrupled in number since his conservative Justice and Development party (AK) came to power in 2002.

To realise Mr Erdogan's plans, AK will have to win a fourth general election in a row. One is due by June. Few doubt that AK will come first. The main opposition, the secular Republican People's Party (CHP), is a shambles. Still, AK must bag at least two-thirds of the seats in the 550-member parliament if it is unilaterally to replace the constitution drawn up by the generals after they seized power in 1980. It is unlikely to manage that.

Indeed, Turkey's increasingly autocratic president faces several serious challenges in 2015. The first is to maintain his grip on AK. Signs of internal dissent recently appeared when Binali Yildirim, one of Mr Erdogan's trusties, declared that the president would chair a cabinet meeting on January 5th. This irked Ahmet Davutoglu, the prime minister, handpicked by Mr Erdogan to succeed him when he switched to

Tayyip in all his pomp

the presidency in August. "Matters that concern me and our president can only be announced by him and me," harrumphed Mr Davutoglu. "No such meeting will take place." Rumours swirl of a rival "shadow cabinet" of Mr Erdogan's sycophants. Moreover, the president is said to want to decide who should be on AK's list of candidates in the forthcoming election.

Another big issue is corruption. A small but growing group in AK feel uneasy about the charges that have been levelled against Mr Erdogan and his inner circle. The government's response of shifting the prosecutors and police concerned raised eyebrows. A 16-year-old student was briefly detained for calling Mr Erdogan a "thief".

Mr Erdogan says that Fethullah Gulen, an ambitious Sunni cleric and former ally who lives in Pennsylvania, was behind calls to investigate alleged corruption at the top, in cahoots with "higher minds", meaning Israel and the United States, with the aim of toppling the government. Thousands of alleged Gulenists, who deny these claims, have been purged from the police and the judiciary. Journalists from newspapers and television channels affiliated to Mr Gulen have been detained on terrorist charges with scant evidence. America's likely refusal to extradite Mr Gulen will add to strains between the two NATO allies that had already risen because of Turkey's reluctance to play a bigger part in the coalition against the jihadists of Islamic State in Iraq and Syria.

A third headache for Mr Erdogan, perhaps his biggest, is the economy. Sagging oil prices have boosted it. The current-account deficit is expected to shrink and inflation to fall this year. Yet growth needs to exceed 3% if living standards are to be maintained, and Turkey shows few signs of managing that without a politically testing programme of liberalising reforms. Some 2m refugees from Syria are also straining the state's coffers.

More hopeful are Mr Erdogan's relations with his Kurds. Their main political group in Turkey, known as the Peoples' Democracy Party (HDP), says it will contest this year's election as a party, instead of as independents. Should it fail to cross the threshold of 10% of the vote needed to enter parliament, AK might then sweep up most of the seats in the mainly Kurdish south-east. That could give Mr Erdogan the two-thirds of seats he must have to alter the constitution without a referendum.

Why would the Kurds risk this? Some speculate that there is a secret deal between their imprisoned rebel leader, Abdullah Ocalan, and Mr Erdogan. The Kurds say the HDP block will get enough votes to enter parliament. But if it does not, they will set up an informal parliament. A ceasefire between the government and Mr Ocalan's Kurdistan Workers' Party (PKK) has been holding shakily for two years. The PKK is bogged down in the battle with Islamic State in Syria and Iraq, and cannot afford to resume fighting within Turkey. But if AK fails to keep its promises to improve the lot of Kurds, it would be only a matter of time before the PKK rebels again. And that could knock many of Mr Erdogan's plans for glory askew. ■

Spanish politics

Restless and resentful

MADRID

A year of electoral turbulence lies ahead

SPAIN is facing a year of bruising, confrontational politics, with several elections that could result in dramatic changes in the way the country is governed. Not least, the constitution, which has underpinned democracy ever since 1978, may not survive in its present form. The prime minister, Mariano Rajoy, and his centre-right Popular Party (PP) may soon find themselves fighting on two fronts at once: trying to save Spain from disintegration if snap elections based around independence are held in Catalonia; and fighting to stop the PP being kicked into third place nationally when other regions and municipalities vote in May.

Nor do Mr Rajoy's troubles end there. A general election looms in December 2015 which could result in either the Socialists or an upstart leftist party, Podemos, ousting Mr Rajoy and dismantling economic reforms brought in to tackle Spain's debt crisis. The country is now outperforming ▸▸

most of the rest of Europe. But the scars left by austerity and a lengthy recession have not yet healed. Unemployment remains at 24% and GDP is still below its previous peak.

The timing of a Catalan election depends on the regional president, Artur Mas. He wants a quick vote to serve as a plebiscite on independence, but is also anxious not to hand power to his rival, the Catalan Republican Left (ERC) party. To that end he wants the ERC to stand on the same list as the separatist wing of his own Convergence and Union (CiU) coalition. The ERC prefers to be on a separate list of its own, but has guaranteed Mr Mas the presidency. "The important thing is the [Catalan] republic, not the presidency," says the party's leader, Oriol Junqueras. If agreement does not come soon, the election may not happen. A pre-Christmas poll found the parties neck-and-neck. But backing for independence has dropped from 47.1% in April to 44.5% now. Adding to the uncertainty is the rise of a left-wing party, Podemos, which supports a referendum but is mistrusted by both Catalan and Basque separatists.

The eruption of Podemos, which calls Spain's right "the enemy" but despises the entire political establishment, has set the tone for a newly combative era and changed the game. Podemos, which first appeared in May's European elections, is now intent on becoming the country's biggest party. The newish Socialist leader, Pedro Sánchez, has been pushed leftward, ruling out a "grand coalition" with Mr Rajoy and denouncing as mistaken reforms introduced by a former Socialist prime minister, José Luis Rodríguez Zapatero, at the height of the financial crisis in 2011. He would alter the constitution, softening a Zapatero measure that caps future budgets and further federalising Spain in a bid to keep the Catalans happy.

But Mr Sánchez, appointed in July, has yet to secure the full backing of his party. The Socialists are losing voters to Podemos, whose leaders were once cheerleaders for anti-capitalism, debt-restructuring, "degrowth" and even Venezuela's former president, Hugo Chávez. Podemos is distancing itself from some of such nuttier stuff, but the political programme it is drawing up will still be far to the left of the Socialists. The party wants a big constitutional rewrite. It may seek alliances with a future left-wing Syriza government in Greece (it welcomed this week's news of an early Greek election) and with Sinn Fein in Ireland. Podemos clearly has Spain's financial and political elites in its sights. That appeals to many voters, who blame them for the debt crisis and its aftermath.

Mr Rajoy's hopes of eventual victory rest on his boast to have ended Spain's economic crisis. Spanish voters seem disinclined to show him much gratitude. ■

Berlin's image

Losing its cool

BERLIN

The German capital, famous for its edgy urbanity and quality of life, looks tired

WHEN a magazine proclaims on its cover that a city is the world's "coolest", it is often a sign that it has peaked. *Newsweek* did it to London in 1996, just as the city was becoming unaffordable for many cool people. Now it is Berlin's turn. In October *Stern*, a German magazine, declared the city the coolest, giving special attention to its many great clubs for partying.

The party scene is thriving, drawing tourists from Tel Aviv to Stockholm who fly in for long insomniac weekends. The most famous venue, Berghain, notorious for its arbitrary bouncers, is a world hub for techno music. But true cognoscenti are nostalgic for the rougher, anarchic days just after the Berlin Wall fell, when clubs popped up in abandoned spaces along the former no-man's-land, always several steps ahead of tedious fire regulations. A new book, "Berlin Wonderland", documents the "wild years between 1990-96" with black-and-white photographs.

Some Berliners' nostalgia goes further back. The hottest museum exhibition is about West Berlin as a freedom-loving, libertine and yet parochial island surrounded by East Germany. These days, by contrast, locals are annoyed by throngs of expats and westerners gentrifying formerly edgy neighbourhoods like Prenzlauer Berg.

Berlin is still fascinating. Nowhere are the scars of history—holocaust, war, destruction, division—so visible. And rents and prices remain low. A Facebook post by an Israeli expat in Berlin, called Olim le Berlin ("ascend to Berlin"), has launched a small exodus of Israelis who come for affordable fun and find Germany's dark past more intriguing than repulsive.

Yet rents have been rising for years, and locals and creative types complain about being priced out (even as they oppose any attempts to build new housing). Worse, much of the city has been made unusable or ungainly because of construction. The most notorious project of all is Berlin's new airport, originally due to open in 2011 but repeatedly delayed (to 2017 on the latest estimate). It is now the butt of jokes.

Even more telling is a huge building-site in the city centre, where the former castle of the Prussian kings (damaged in the war, razed by the communists) is being rebuilt to house a cultural forum. After years of controversy, most Berliners have decided that it is boring, retrograde and a missed opportunity. And there may be too little money left to make three of the façades look like the old castle, so the edifice could end up disappointing even its fans.

For Berliners with children, schools are the biggest problem. The centre-left Social Democrats who run Berlin's government have fiddled about with no fewer than 23 school reforms, most of them ideologically tinged to level down rather than foster excellence. Berlin comes last in the school rankings among Germany's 16 states. Now the government is harassing the international (ie, English-taught) schools with new regulations, which will anger many expats and cosmopolitan locals.

It is symbolically fitting that Klaus Wowereit, the gay and flamboyant Berliner who famously described his city as "poor but sexy", has just retired after 13 years as mayor, to be replaced by a relatively grey protégé, Michael Müller. After decades of being subsidised by Germany's richer states, Berlin now balances its budget. It is like an adolescent who has grown up and wants to prove he's responsible. Hence its bid to host the Olympics in either 2024 or 2028. Within Germany and even Europe it is still hard to find a more exciting city. And yet, as the new nostalgia suggests, Berlin's best days may already be behind it. ■

A disappointing missed opportunity?

Hungary

Viktor goes to war

BUDAPEST

The Hungarian leader squabbles with some in his party and with America

THE new year has not started well for Viktor Orban, Hungary's pugnacious prime minister. Support for his ruling right-wing Fidesz party is sliding. A recent poll by Median showed a drop from 38% to 26%, representing a loss of some 900,000 voters. Mr Orban's personal popularity plummeted by 16 percentage points. Other pollsters find similar results.

The immediate cause for the discontent was a planned internet tax, which was hastily withdrawn after a demonstration in late October brought tens of thousands of protesters onto the streets of Budapest. Yet instead of placating angry Hungarians, the government's retreat—the first of any significance since its most recent landslide election victory in April 2014—seems to have galvanised them. Their growing anger has deep roots.

Stories about the luxuries and fancy properties enjoyed by some government ministers and their friends, even as poverty is rising, are causing fissures within Fidesz. Zoltan Pokorni, a former party president and education minister, who is now a district mayor in Budapest, called for an end to the "flamboyant lifestyles" of government members and "leading politicians". Mr Pokorni was slapped down by Janos Lazar, Mr Orban's chief of staff, but his remark was given wide publicity.

Concern is also growing within Fidesz that a row with the Americans may develop into a full-blown diplomatic crisis. Six Hungarian officials have been banned from entering the United States on suspicions of corruption, a highly unusual sanction against a NATO ally. The United States is refusing to name them, citing privacy. However, Ildiko Vida, the head of the tax authority, has admitted to being on the list, and she strongly denies any wrongdoing. Encouraged by Mr Orban, she is suing Andre Goodfriend, the American chargé d'affaires in Budapest, for defamation. The lawsuit is unlikely to go anywhere, since Mr Goodfriend has diplomatic immunity.

The holiday offered a chance for tempers to cool and for revisions to Hungary's foreign policy. A turn towards Moscow has backfired after the Ukraine crisis and the collapse of the rouble. Hungarian officials have told Western ambassadors that a much-vaunted "eastern opening" has failed to bring as much foreign trade and investment as they hoped. President Vladimir Putin's cancellation of the South Stream pipeline project, backed by Hungary, was a blow to its energy strategy.

Yet instead of patching up relations with the Americans, Mr Orban and his ministers have launched an attack. He dismissed the claims of corruption as a "cover story" for American attempts to increase influence in the region. The United States was interfering in the domestic political affairs of central European countries, he added. The driving factors were the conflict in Ukraine and the negotiations between the European Union and the Americans over free trade. "They want to draw us into a conflict, which can only have a bad outcome for us." America was just conveying concerns about democracy and the rule of law to the Hungarian government, retorted a State Department spokesman.

Aggressive claims about America's behaviour have now been made by Mr Lazar, by Antal Rogan, Fidesz's parliamentary leader and by Peter Szijjarto, the foreign minister, all of whom have given interviews to pro-government media. Mr Szijjarto told *Magyar Nemzet* that "external and internal" powers wanted to "destabilise" Hungary. The rift with America dates back to the passing of a controversial media law, says Zoltan Kovacs, a government spokesman. "There is a visible and tangible dislike of the US administration towards us since 2011." Such sentiments may play well with Fidesz's base, but they are unlikely to expand it. ■

Ukrainian Bessarabia

Towards the unknown region

BOLGRAD

A little-known place that interests both Ukraine and Russia

THE isolated region of Ukrainian Bessarabia, which is also known as Budjak, has become one of the latest places for Ukraine-watchers to worry about. Many of the inhabitants fear a spread of the war from eastern Ukraine. Geography gives their region great strategic importance, especially if the Russians were ever tempted to try to carve a land corridor across to Crimea, Odessa and the Romanian border.

Ukrainian Bessarabia is bounded by the Black Sea, the Danube and Moldova. The Russian-controlled breakaway region of Transdniestria is to the north. There are no roads, bridges or ferries across the Danube to Romania and only two roads connect the region to the rest of Ukraine. If the bridges over the Dniester were blown up, it would be cut off.

Fewer than half of the region's 570,000 people are Ukrainian. The rest are Bulgarians, Russians, Moldovans, Gagauz or Albanians. Many have a benign view of Russia, which gave their ancestors land and freedom 200 years ago. Almost everyone speaks Russian and many complain that Ukraine has done little for them. Ivan Rusev, a local ecologist, tracks illegal buildings in the Dniester Delta National Park. This was a problem before Ukraine's 2014 revolution, he says, but it is worse now.

The result is a contradiction. For pro-Ukrainians such as Mr Rusev, too many fellow Bessarabians hope vaguely that "Putin will solve all their problems." Few have any faith in the government in Kiev. Yet according to Anton Kisse, a local politician, at the same time as many feel sympathy for Russia, they also favour Ukraine's unity. Sergey Dibrov, a journalist in Odessa, believes that, given the region's ethnic make-up, any declaration of independence would see the region splinter into bits.

In the autumn there were rumours of plots to proclaim a pro-Russian Bessarabian People's Republic, along the lines of the separatist republics in Ukraine's Donbas region. Possible leaders included former Soviet army officers living in Bolgrad, which is mostly ethnic Bulgarian. Yet war in the east has dampened enthusiasm for separatism. A tragedy last May which saw dozens of pro-Russian activists killed in a fire in Odessa has also chilled any desire for revolt against Kiev. Pro-Russian leaders have fled and opportunistic politicians have shifted towards supporting the unity of Ukraine.

The question is what Russia wants. State power has changed hands nine times in Bessarabia in just over 200 years. Locals report seeing drones, some perhaps from Transdniestria and some that may have come from ships of Russia's Black Sea fleet, based in Sebastopol. Even so, Ukraine's flag looks likely to fly over Bessarabia for some time to come.

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Tony Blair and Ed Miliband

Don't go that way

A former Labour leader casts doubt on his party's chances of winning the next election

INTERVENTIONS by former prime ministers less than six months or so before a general election tend to be couched in hints and insinuations, rather than full-throated advice. But Tony Blair, who as leader of the Labour Party between 1994 and 2007 led it to three election victories, is more outspoken. In an interview with *The Economist*, Mr Blair says that he fears that the next election, due to take place in May 2015, could be a rerun of those before his ascent to the leadership, which regularly ended in disaster for his party.

The result in 2015, he quips, could well be an election "in which a traditional left-wing party competes with a traditional right-wing party, with the traditional result". Asked if he means a Tory win, Mr Blair confirms: "Yes, that is what happens." Although Ed Miliband, the current Labour leader, has spoken of a shift in economic thinking since the financial crisis of 2007-08, Mr Blair firmly denies that Britain's centre ground has shifted. "I see no evidence for that. You could argue that it has moved to the right, not left." Mr Blair says that the 2010 election (in which David Cameron defeated Mr Blair's successor, Gordon Brown), was a "classic tax-and-spend election", and that turned out to the Conservatives' advantage.

The forthright comments encapsulate an undimmed Blairite criticism of Mr Miliband as being too far to the left on economics and too reluctant a public-sector reformer. "I am still very much New Labour and Ed would not describe himself in that way, so there is obviously a difference there," Mr Blair says. "I am convinced the Labour Party succeeds best when it is in the centre ground".

On the turn of election year, Mr Blair has thus revisited a long-running argument about the positioning and beliefs of the modern Labour Party which ran through his own premiership and continues to haunt it. The party lost power to the Conservatives in 1979, and won it back under Mr Blair in 1997 only with an uncompromisingly revisionist "new" Labour agenda. Mr Blair courted the business vote, boldly abolished the pro-nationalisation Clause IV of the party's constitution, promised to be tough on crime and won three elections before stepping down to be replaced by Mr Brown, a more traditionalist leader. But since winning the leadership in 2010 Mr Miliband, a protégé of Mr Brown, has trodden a populist, proto-socialist path, attacking alleged examples of "predatory capitalism" such as soaring energy bills and the property rental market.

Both parties are likely to highlight the dividing lines between them in the next few months, with Labour emphasising that it stands firmly on the side of those who suffer from social and economic inequalities. Although some Labour modernisers, like Chuka Umunna, the party's business spokesman, fret about estranging wealth-creators and people becoming too reliant on public-sector support, Mr Miliband has for now won that argument. He will make a pitch aimed largely at people who feel that the current economic recovery is unlikely to benefit them.

Asked what lessons he derives from his experience of election-winning, however, Mr Blair cites "not alienating large parts of business, for one thing". He sees this as essential to the creation of a broad appeal to the vital centre-ground of politics. Those on the right of the Labour Party, including many senior Blairites who have gone into self-imposed exile from Mr Miliband's incarnation of Labour, agree. They believe that the centre-ground lies vacant; the Conservaties have moved rightward to regain voters attracted by the UK Independence Party, which campaigns against both immigration and the EU, and Labour has lurched leftward.

Yet that presupposes that Mr Blair is right in his diagnosis that most British voters are still in the political centre, as he defines it. To test the thesis, Rick Nye, of the Populus polling organisation, proposed to a sample of voters four de-branded parties, named A, B, C and D, differentiated by where they stood on several high-profile issues: Britain's membership of the EU, business regulation, the urgency (or otherwise) of climate change, private delivery of public services, same-sex marriage and immigration.

Although there was support for a ▸▸

broadly Blairite approach to some of these issues, it did not translate into support for the most "Blairite" party in the mix, when it was flanked by alternative parties offering more strikingly left-wing or right-wing remedies. Thus the bad news for latter-day Blairites was that the most popular "virtual" party, winning almost two-fifths of the vote, advocated Britain's exit from the EU, less immigration and less drastic action to tackle climate change, but was also against private involvement in public services (such as the National Health Service) and in favour of more business regulation.

That suggests two possible conclusions. The first is that the gap Mr Blair detects remains unfilled because there are now too few centrist voters. The second, more convincing, one reverses cause and effect: few voters identify with Blairism because too few politicians are promoting it. ■

Household wealth

The balance-sheet boom

Household wealth, and debt, is forecast to swell in 2015

WITH the excesses of Christmas nearly over, Britons are planning their budgets for the new year. Their decisions will be crucial for the economy. After paying down debts to repair their balance-sheets in the years after the financial crisis, consumers are spending again. Yet wealth, like wages, remains lower than in 2007. A recovery in riches is an essential component of official forecasts for further growth.

When the financial crisis hit, wealth immediately suffered (unlike real wages, which hardly budged in 2008 but have fallen every year since). Household net worth—ie, assets minus debts—plummeted by 12% in 2008, driven by a 13% fall in housing wealth, which makes up just under half of all household assets. The hole is not yet filled: adjusting for inflation, housing wealth—£168,000 ($261,000) per household—remains 13% below its pre-crisis peak. Financial wealth, which includes investments in stocks and shares, has fared slightly better, but is still down 4% on 2007.

As a result, households reduced their debts from 2008. Savings jumped from around 7% of income pre-crisis to 11% by 2010. By 2013 the average household had £62,000 worth of debt, down 16% in real terms on 2007. Largely as a result of this frugality, household net worth, which averaged £320,000 in 2013, has recovered about half its losses from the crisis (see first chart).

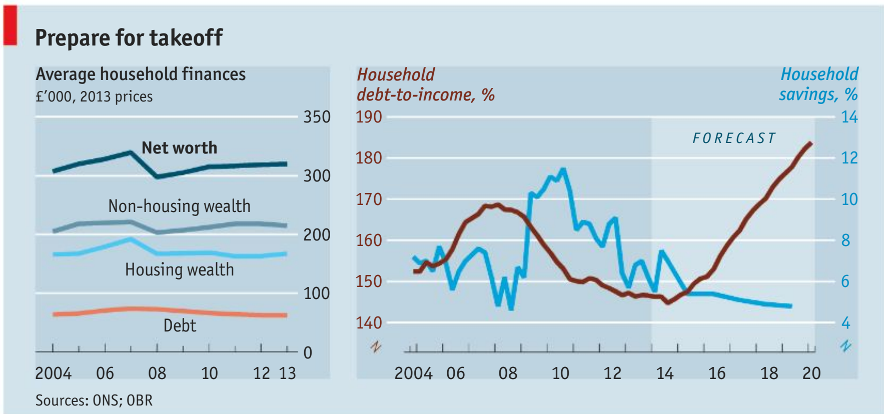
That suggests that balance-sheets are not fully patched up. Yet consumers have been spending more; since 2013 saving has hovered around its pre-crisis level. And forecasts by the Office for Budget Responsibility (OBR), Britain's fiscal watchdog, see it falling further still, from 6.6% of income in 2014 to 5.4% in 2015 and then 4.8% by 2019.

Several factors lie behind the reversal. Better employment prospects mean workers are less in need of rainy-day funds. They might also expect wage growth and want to borrow against that future income. But the most significant factor is recent house-price growth, which boosts homeowners' wealth without them needing to save. House prices are up 17.5% on average since 2012 (30% in London) and the OBR reckons a further rise of 7.4% is on the cards in 2015.

It was a housing boom that allowed the aggregate debt-to-income ratio to reach a record high of close to 170% before the crisis. The OBR now forecasts another balance-sheet boom, with debt surpassing its pre-crisis high in 2017 and reaching 184% of income by 2020 (see second chart).

This is troubling. If puffed-up house prices prove temporary—as in 2007—high debt could leave households vulnerable and harm the financial system. Housing is illiquid, meaning that in a crisis fire-sales can cause prices to fall rapidly. Even at current levels—146% of income—the Bank of England rightly frets about household debt, and in October limited the number of high-risk mortgages banks can issue (the market has cooled slightly since). The bank's concern makes the OBR's forecast look either wrong or terrifying.

In addition, saving is lower than the figures suggest, according to a recent working paper by John Ralfe, a pensions consultant, and Bernard Casey of Warwick University. The (recently revised) statistics fail to count pension payouts as running down savings. Adjust for this and the savings rate fell to -0.2% in 2013 and will become more sharply negative if the OBR forecast is borne out. So much for an end to Christmas excess. ■



City Link

Not a very merry Christmas

Why the collapse of a delivery firm is bad news for the Conservatives

A PUBLIC-RELATIONS coup it was not. On December 25th the 2,727 staff of City Link, a courier firm, learned that their employer had gone into administration. Some, it was reported, had been assured that the business was sound just a day earlier. Stories of ruined Christmases soon filtered into the newspapers; including that of an entire family—Mick Ward, a driver, and his two adult children—facing unemployment following the company's failure. On December 29th, as the first redundancy notices went out, workers demonstrated outside a depot near Glasgow.

The story has big political ramifications. "Meet the Tory grinch who sacked 2,700 people on Christmas Day," ran a headline in the *Daily Record*, a newspaper—a reference to donations to the Conservative Party by Jon Moulton, the swashbuckling founder of Better Capital, the private-equity firm that had bought the company for £1 ($1.56) in April 2013. Unions suggested that Mr Moulton had asset-stripped City Link: having funded the £40m of subsequent investment in it with secured debt, he could yet recoup up to half of that sum. But straightforward hubris may be a better explanation for the failure. The loss-making firm had cost its previous owner £300m in the six years before Mr Moulton acquired it. He did so as competition from bigger, low-cost rivals and price wars between retailers—City Link's customers—were intensifying.

The saga is bad news for the Conservatives; less because of Mr Moulton's past links to them than because it hinders David Cameron in his current tug-of-war with the opposition Labour Party. With a general election expected on May 7th, the prime minister and his team plan to campaign on Britain's economic recovery, seeking a mandate to "finish the job". Ed Miliband, the Labour leader, insists that the ▸▸

recovery is built on insecure work, predatory business practices and rampant inequality; benefiting the country's Jon Moultons but not its Mick Wards. He has criticised private equity firms in the past and wants to make Britain's free-market economy gentler and more Germanic.

These arguments have struggled as growth has picked up over the past year: during 2014 Labour's average lead in polls by YouGov fell from six points in January to one point in December. Senior Conservatives are confident that this trend will continue over the coming months. But the circumstances and timing of City Link's collapse—especially the likelihood that the taxpayer will foot the redundancy payments—are a reminder that events could yet work in Mr Miliband's favour.

Making matters worse for the Tories and the Liberal Democrats, their coalition partners, City Link may not be an isolated case. Begbies Traynor, a consultancy, reports that 24,000 firms in the British retail sector are under significant financial stress. Falling profit margins and consumer confidence (which hit a nine-month low in December, according to GfK, a research firm) explain why this figure is 54% higher than it was a year ago.

That Mr Cameron wants to make the election about the economy is unsurprising. When asked which party is best on the issue, voters overwhelmingly name the Conservatives, having split evenly between the two main parties at points earlier in the current parliament. But it is too early for Mr Cameron to bank this advantage: a spate of insolvencies and redundancies would increase the salience of Labour's talking points. Politics, like the courier business, is all about delivery. ■

Inner-city gentrification

So long, Soho

London's seediest district hints at some of the ways the capital is changing

IN 1847 Karl Marx and Friedrich Engels earnestly debated the failings of capitalism in rooms above a pub at 20 Great Windmill Street, in Soho. Some 170 years later, patrons of Be at One, the chain which has taken over the venue, have somewhat different problems to worry about. After making their way past a bouncer, and through throngs of people to a bar dimly lit by brown lights, drinkers navigate a cocktail menu around 20 pages long, with eye-watering prices. "I don't like paying £8.50 ($13) for a drink," admits Josh Rogers, an American tourist. "But I'm happy to pay more if the area is vibrant and fun," he adds, slightly despondently.

Soho, an area of about half a square kilometre in the West End, has long been an anomaly in central London. At the turn of the 20th century it was full of French, German, Polish and Italian immigrants; just before the first world war one writer remarked that "when the respectable Londoner wants to feel devilish he goes to Soho". Full of pretty Georgian houses and dark side streets, it resisted development in the 1970s, and it remains a red-light district: around 40 flats are still used for prostitution. Film and television companies cluster above bars and restaurants.

But the area has become far less gritty. Fewer prostitutes operate there; most shops selling pornography have closed down. At the end of November Madame Jojo's, a burlesque bar, had its licence revoked, after a fight took place outside it,

Sadly, Madame Gogos

and the bar's security team were captured on CCTV wielding baseball bats. The club had already been approved for redevelopment by the Soho Estates, one of two large landowners in the area, but the incident speeded up its closure. Denmark Street, known as Tin Pan Alley because of the number of music shops along it, is due to be turned into a street of flats and pop-up shops. A former police station which was empty for 13 years is currently being turned into an apartment block.

In part these changes reflect how Britain itself has become more cosmopolitan. In the 1960s Soho was full of food markets selling rarities such as avocados and globe artichokes, recalls Matthew Bennett, who has lived there for five decades. Now you can get such goods "at a Waitrose in Penzance," he sniffs. Many quirky shops were on long-term leases which have since expired, while in some parts of the West End getting a licence to open a late-night bar has become harder. The internet has chipped away at the sex industry. In 2007 the local council cracked down on "clip joints"—where men are fooled into paying for titillation that never happens.

An increased demand for residential properties in central London has speeded up these changes. Since 2003 the West End has lost around 180,000 square metres of office floorspace as developers turn offices into flats. Increasing numbers of rich families with younger children live in the city centre, an area that many would have shunned two decades ago. Between 2003 and 2013 the number of children under the age of 16 in Westminster, the authority which encompasses Soho, increased by 30%, nearly double the rate for that age group across London. As a result, landowners have become more active in sprucing up the area: "Our motto is: edgy but not seedy," says Steve Norris, the chairman of Soho Estates and a former Conservative MP. Crossrail, a new train line with a station north of Soho at Tottenham Court Road, will also bring a swathe of shiny new shops and offices.

This irks many, however. "Soho is the last ramshackle area of the old soot-stained, post-war London," says Rupert Everett, an actor who has campaigned for the rights of sex workers. "Once that turns into a cascade of glass, then London is gone," he sighs. After the closure of Madame Jojo's a campaign group, Save Soho, was set up; around 9,000 people have signed a petition lambasting the change of "once proud centres of subculture" into "identikit high-end boutiques". Pete Townshend, a musician, has argued that Denmark Street should be made into a "heritage zone".

This poses a dilemma for developers. They want to spruce up the area while retaining the vague air of bohemianism that has attracted many to it. Parts of Haight-Ashbury in San Francisco, which was the centre of the hippie-era "summer of love", have become tourist attractions, partly because of NIMBY residents. Westminster City Council is trying to limit the number of office-to-residential conversions. Others are pushing for a "creative-industry policy" for the area, in which film companies and the like have a say about developments. Such schemes may help prevent Soho changing too swiftly. But in many cases it may be too late. ■

Bagehot | Green grows the privet, O!

The Green Party is a growing force in British politics; if only it was more of the world

OUT canvassing with Darren Hall, a candidate for the Green Party in the constituency of Bristol West, you would never guess British politicians are generally hated. On a pavement in Stokes Croft, a grungy area of Bristol thick with students, the former Royal Air Force engineer stands shivering on a wintry evening, hugging copies of "Bristol Green News". Seeing his green rosette, many passers-by stop to ask about inequality and pollution and, more often than not, declare their support for him at the general election due in May. Why? Bagehot asks one, a lank-haired man called Roy Cole. "Because I'm a conscious individual!" he exclaims—adding that "most people call me Roy the Raver."

When David Cameron, the Conservative prime minister, famously accused the UK Independence Party (UKIP) of being stacked with fruitcakes he perhaps had the wrong party in mind. A radical left-wing outfit, dedicated to reducing inequality by doling out a stipend to every adult Briton, the Greens are far dottier than UKIP. They are surging nonetheless. Having doubled their membership—to around 30,000—over the past year, they are now scoring about 8% in the opinion polls. That is around the same as the Liberal Democrats, Britain's erstwhile left-wing protest party and Mr Cameron's coalition partner, whom the Greens bested in the last European Parliament elections. No wonder the verdant insurgents demand to be represented, alongside UKIP, in the televised debates expected before the election; they have earned it.

They appear likely to retain their single parliamentary seat, Brighton Pavilion, in May. With a bit of luck, they could also win their two target seats, Bristol West and Norwich South. Bristol, where the Greens' growth is explosive, has a history of non-conformism—from Methodism in the 18th century to the graffiti artist Banksy and the Bristol Pound, Britain's first city-based currency, today. The People's Republic of Stokes Croft, as the squatters who have taken over Mr Hall's campaign turf call their area, is especially Green-friendly: a place of freegan food banks, café-squats and riots against supermarkets, it could provide the party with the eager activists it will need for the fight.

The Greens have been here before. In the 1989 European Parliament elections they came from nowhere to get 15% of the vote, the implosion of the SDP-Liberal alliance having unlocked a raft of left-wing protest votes. Much the same is happening now, with a lot of the party's new fans coming from the Lib Dems, who have lost around three-quarters of their vote since palling up with the Conservatives. This time, however, the Greens have a good chance of hanging onto their new supporters.

They are unlikely to return to the Lib Dems, the experience of government having exposed a gulf between the party's pragmatic leadership and its rowdy left-wing foot-soldiers. The catastrophe that has befallen Britain's former third party is also part of a broader electoral fragmentation, which has made voting for fringe outfits less pointless. Neither of the two big parties, the Tories and the Labour Party, looks able to win a majority in May, which raises a prospect of coalition or minority government in which a mere seat or two could prove influential. And there is no reason to expect two-party, majoritarian politics to return soon. That, in turn, could argue for electoral reform, perhaps including the introduction of proportional representation, muses Natalie Bennett, the Greens' leader, which would help small parties even more.

A likeable Australian, Ms Bennett is another element in the Greens' success. A few years ago, the party disdained to have anything so oligarchic as a leader. It had a "principal speaker", a role that was scrapped, joshes Ms Bennett, because no one was sure how to spell it. With a London office, 15 professional staff and a recruitment drive in the offing, the party is now more professional.

Bagehot, who worries a lot about the environment, wishes he could feel more enthusiastic about this. But the Greens' grasp of economics is about as secure as an empty Stokes Croft office block. "Basically what we need to do is to completely restructure society" away from "hyper-capitalism and neoliberalism", says Ms Bennett. Without wishing to second-guess the local branches of her party who will collectively draft the party's manifesto, it seems this restructuring would involve a massive expansion of the welfare state (because "people cannot live on the benefits we have now," says Ms Bennett), a massive increase in subsidies for renewable energy and throttling taxes.

It's a sandal! It's an outage!

That would nobble the British economy. It is not obvious what it would do to reduce climate change —which, in fact, the Greens appear to have given remarkably little thought to. They talk about the world sparingly and mainly to illuminate leftist British issues. They are broadly against consumption, for example: "The world is sodden with stuff, it cannot have more stuff," said Ms Bennett. Yet they do not appear to have considered what that would mean for billions of the world's poorest people, almost none of whom live in Britain. When Bagehot suggested to her that there was a problem with this, Ms Bennett said he was worrying too much: to be poor in India wasn't so bad as to be on benefits in Britain, she suggested, "because at least everyone else there is poor too".

That is contemptibly naive and also a shame. The world could use an economically literate and intellectually courageous British environmental party. The way Westminster is going, such a party could also end up with real power. But Ms Bennett's outfit is parochial and recidivist, a big fish in a muddy left-wing puddle, and that is not much use to anyone, despite some of its members' touching goodwill.

"Exchange is not robbery!" said Mr Hall amiably, swapping a Bristol pound for the real thing with Bagehot. Eureka! your columnist thought. ■

The office cubicle

Inside the box

HOLLAND, MICHIGAN

How workers ended up in cubes—and how they could break free

IN THE 1960s Robert Propst, an inventor and artist who had patents in heart valves, livestock-tagging machines and aeroplane parts, was asked by Herman Miller, an American design company, to find problems outside the furniture industry that could be solved with design. He flooded the company with concepts ranging from agriculture to medicine, but in the end found himself drawn to the problems of office life. He was particularly troubled by how sedentary people were. The consequences were clear in insurance and medical data. As a sufferer from back pain, he understood the need for regular movement and good posture.

Propst thought workers should have standing and sitting desks. He designed a perching seat, dreamed up display surfaces and created a prototype napping pad, an inch and a quarter thick and two feet wide (3cm by 60cm), that could be hung up for storage. Sleeping in the office, he thought, would make people more productive. He was, in many ways, ahead of his time.

His ideas culminated in the first modular office system, the "Action Office 2", in 1968. At that time many firms put managers in offices and their subordinates in open "bullpens", at pedestal desks lined in rows. Now this space could be broken up by vertical panels that slotted together in many ways. Propst suggested giving each worker a clamshell arrangement that offered both privacy and a view, and equipping it with desks of different heights. Areas for informal meetings and coffee could be created. The possibilities were endless.

Best, Propst believed, would be to join the panels at 120° angles. But his customers realised that they could squeeze more people in if they constructed cubes. A rigid 90° connector was therefore designed to join a panel to one, two or three more. Thus was born the cubicle, and Propst came to be known as its creator. He was horrified.

Other furniture-makers, including Haworth, Steelcase and Knoll, were soon producing their own systems. Cubicles were cheap, and meant a growing professional class could be packed in like battery hens, but with the illusion of individual offices. In America cubicles benefited from a tweak to the tax code that made it easier to write off depreciating assets such as furniture. Between 1977 and 1997 sales in America grew 20-fold.

The march of the cubicle continues. Around 40m North Americans now work in cubicles and they are being installed from Bangalore to Beijing. In 2012 Meg Whitman, the boss of Hewlett-Packard, turfed executives out of corner offices and into cubicles. Even publishers are converting. Last year Hachette installed 520 cubes in its pricey Manhattan headquarters. The boss has one, too—albeit, with a window.

The sick bay

At first, chopping bullpens up into boxes seemed to fit with a new egalitarian mood. Some management theorists regarded cubicles as an uprising against the old order, where the desks of office serfs were lined up for inspection, factory-style, by managers who emerged from plush private domains. But not everyone agreed. George Nelson, a famed designer for Herman Miller, wrote to a colleague in 1970 that cubicles were "dehumanising" and suited for "corporate zombies, the walking dead". The Dilbert cartoons of Scott Adams have long espoused the cause of the dispirited cubicle denizen and branded cubicles a sign of an uncaring employer.

And as they have become near-ubiquitous, it has become increasingly clear that far from offering a clever compromise between the economy of open-plan and the privacy of individual offices, cubicles are in many ways worse than either. In particular, they cause a number of health problems, some less obvious than others.

Their rise coincided with the energy crisis of the 1970s, which prompted firms to make buildings more airtight. While artificial ventilation recirculated fumes silently released by carpets, wall coverings and the fabric of the cubicles themselves, their high walls added to the problem by obstructing airflow. Office workers complained of headaches, fatigue, coughs, sinus infections and even cancers.

After many years, America's Environmental Protection Agency recognised formaldehyde, one of the substances emitted, as a probable carcinogen and regulated its use. Modern office furniture is less toxic. Between 1985 and 2005 the level of formaldehyde given off by cubicles fell by half. But poor ventilation is still common. Many studies have shown it causes lower productivity and increased sick leave.

Other cubicle-related health problems have taken longer to emerge. Because cubicles provide only the illusion of privacy, not the real thing, they do nothing to stop infectious diseases. Sharing an office raises the chances of getting more than two colds a year. In 2011 Danish scientists found that workers whose offices held at least six people took 62% more sick leave than those in private offices. And last year Swedish researchers studying the link between office layouts and illness found that people who worked in open-plan offices had the highest risk of becoming ill. The reason, they concluded, was more than just the easier spread of infections. Stress caused by lack of privacy and workers' inability to control their surroundings played a part, too.

Open-plan offices are noisier and more interruption-prone. Too much noise ▸▸

causes high blood pressure, sleep problems and difficulty in concentrating. And cubicles' flimsy walls do little to dampen sound. In studies where sound levels were raised from 39 to 51 decibels—roughly equivalent to moving from an average living room to a road with light traffic—participants were more tired and less motivated.

Whereas cubicles fail to block unwanted noise, they do all too well at blocking much-needed light. Many cubicle-dwellers see no daylight during office hours, with miserable effects on their well-being. A recent study found that workers deprived of sunlight get less sleep and physical activity than those who sit by windows. There are likely to be other ill effects from sitting in an artificially lit box all day: hospital patients recover faster and take fewer painkillers when they have more daylight.

Views matter, too. A study in 2003 in Sacramento found that call-centre workers with the best views processed calls 6-12% faster than those with no view. Office workers with better views were much more likely to describe themselves as healthy, and less likely to say they were fatigued. They also performed 10-25% better on tests of mental function and memory recall. Higher cubicle partitions were associated with working more slowly.

Cubicles even make people behave badly. Researchers at Cornell studied 229 employees at eight firms and found that those in cubicles were more prone than those in open-plan offices to have long, loud conversations—sometimes unrelated to work—with colleagues or on the phone. The reason seems to be that cubicles mask the social cues such as facial expressions and body language that influence social interactions. They thus make it easier to eat a smelly lunch or guffaw on the phone, oblivious to the reactions of those nearby. Those missing cues also interfere with other elements of good etiquette, such as not startling people or interrupting them when they are busy.

So partial privacy is in some ways worse than none at all. Conversations in cubicles are widely audible, but it is impossible to know who is listening, and humans, who made it through prehistory by keeping an ear out for predators, like to know where sounds are coming from. In a cubicle farm the origins of a sound—a chatting colleague, a ringing phone or a tapping keyboard—are hard to decipher. People try to adjust to the unsatisfactory combination of public and private: some say "knock knock" when approaching a cubicle; signs and headphones are used to signal "do not disturb". Workers, the Cornell study suggested, like closed offices best of all. But open-plan offices are preferred to cubicles.

Why, then, are cubicle farms still being built? Perhaps because privacy is so valued that office planners opt for the illusion of it, rather than the undisguised reality of communal space. And a cubicle can be personalised: how about wallpaper, a rug, fairy lights or a chandelier? Some cube-dwellers hang curtains at the entrance, and it is possible to buy a door. One website shows how to make a fake window. It is all reminiscent of laboratory mice building nests in the most unpropitious surroundings.

On top of all this, cubicle workers who feel that the walls are closing in on them are onto something. When cubicle spaces are renovated, says a design firm, they often shrink from eight feet by ten per person, to five foot by five. In 1994 the average North American office worker had 90 square feet of space. By 2010 this was 75 square feet. (Executive management gained floor space over the same period, according to the International Facility Management Association.)

"I don't mind the whip. It's the cubicles I find demoralizing."

For reasons of economy, if nothing else, a return to private offices seems unlikely. But mobile technology is making it possible to work anywhere. Could it also offer an escape from the cubicle farm?

Breaking down barriers

One early attempt to reshape the workplace to take advantage of new technology was the "future office" created by Chiat/Day, an American advertising agency, in the 1990s. Data ports were scattered around so that workers could plug in their (pre-wireless) laptops wherever they were. Receivers in the ceiling allowed them to use radiophones. Intended to mimic a college campus, it had neither private offices nor cubicles, but instead clusters of couches and tabletops, with almost no personal space apart from some small lockers.

Design magazines loved it, but it was a disaster. One employee took to carting her things around in a child's red wagon. Work suffered as people lost documents and struggled to find laptops, phones or places to sit. Turf wars ensued as some camped out in favourite spots or ordered underlings to arrive early to nab equipment.

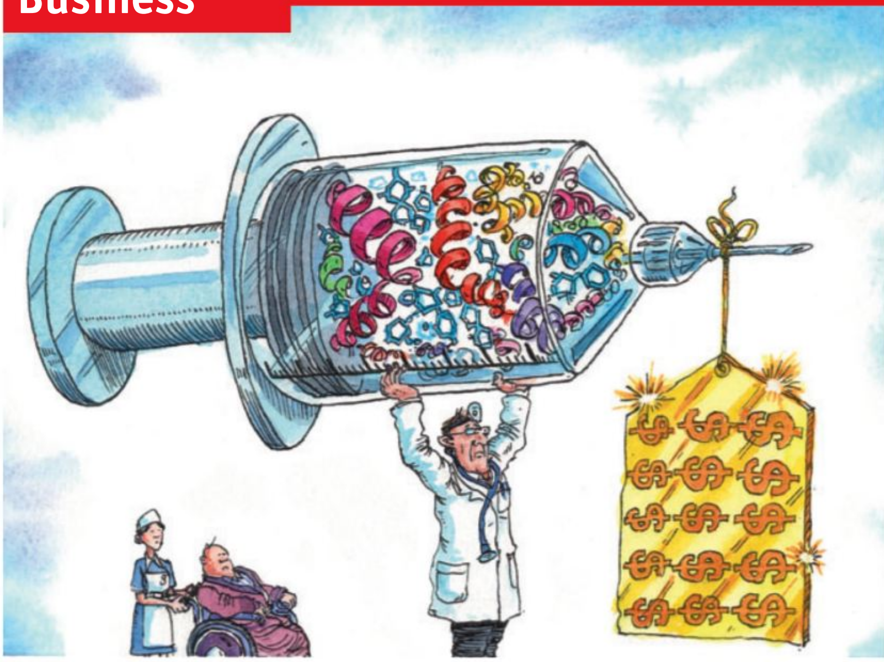
Now Herman Miller, the firm that, however unintentionally, started the shift to cubicles, is trying to reshape the office yet again. The "Living Office" is a new attempt to combine the best of private and social space. It looks rather like a fancy hotel: open-plan but with desks set in friendly clusters and separated by low, clear partitions. Workers can also perch at a countertop next to the coffee station, or lounge on sofas in a plaza or café-style seating in a courtyard. Benches nicknamed "landing strips" are placed outside conference rooms to encourage post-meeting chats. Pods are available for concentrated work, and even for relaxation. Everywhere there are glass-encased meeting rooms and a few solo spaces. About 30% of the staff have no permanent desk.

Light streams in and sound is controlled with dividing walls and "pink noise"—white noise focused on the frequencies of human speech, which can reduce the distance at which a conversation is audible from 50 feet to 12-16 feet. The result, the firm says, is greater focus, accuracy and short-term memory.

Open-plan and flexible workspaces are spreading. Almost all the offices Herman Miller supplies in Asia are now open-plan; Microsoft's Singapore offices have no assigned desks. When open-plan offices are designed to suit a wide variety of working styles and tasks, even senior executives can be keen. One at Mars Drinks in West Chester, Pennsylvania, is slightly wistful when he recalls his previous job, which came with a private office with a balcony overlooking the Piazza del Duomo in Milan. But he is more productive now, he says, in an open-plan area with other senior staff.

Such redesigns could be a more palatable way to save space than simply squeezing workers into smaller boxes. Intel recently decided to rethink its offices when it realised that 60% of its cubicles were empty most of the time. Herman Miller, which practises what it preaches, has about seven desks per ten staff at its own offices; even senior managers work in a cluster of open-plan desks. At Britain's Department for Trade and Industry, occupancy levels rarely reached 60%; it and several other British public-sector organisations have done similar redesigns, cutting from one desk per person to around eight desks per ten.

What workers need from their offices has long been clear. A flexible workspace that encourages movement, combined with mobile technology, could finally liberate them from the cubicle farm—but only if employers pay heed to the evidence, rather than the short-term savings. Even cubicles were Utopian before the accountants took over. ■



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Pharmaceuticals

Going large

CHICAGO

A wave of new medicines known as biologics will be good for drugmakers, but may not be so good for health budgets

IN PHARMACEUTICALS, the 20th century was the era of the small molecule. The industry thrived by identifying a steady stream of relatively simple compounds that treated lots of people, patenting them and making a fortune. In the early 21st century it has become harder for drugmakers to find new cures quickly enough to replace those on which the patents are expiring.

Many drugmakers, both established ones and startups, have sought salvation in biotechnology—the adaptation or exploitation of processes found inside living organisms. As in other areas of drug research, there have been setbacks as well as successes. But steady progress is being made in creating "biologics", drugs that consist of giant molecules, hundreds of times the size of a conventional drug molecule, which are manufactured inside animal cells or micro-organisms such as bacteria. In the coming year a fresh wave of biologics is expected to be approved for use by general practitioners (see table).

Several of these will treat the millions of people who find that statins, the conventional treatment for high cholesterol, do not work well enough. Amgen's drug, evolocumab, may be first, followed by alirocumab, from Sanofi and Regeneron. Pfizer also has a contender, bococizumab, at an advanced stage of development.

Drugmakers have been encouraged to keep working on new biologics by the success of Humira, a treatment for rheumatoid arthritis and related conditions, which won approval in America in 2002 and is made by an American firm, AbbVie. Humira has become the world's leading prescription drug, with sales of $11 billion in 2013, according to EvaluatePharma, a research outfit.

Damien Conover of Morningstar, an investment-research firm, reckons that biologics provided 22% of the big pharma companies' sales in 2013, and he thinks this will rise to 32% by 2023. They will provide an even bigger share of revenues at those firms which have concentrated on them, such as Bristol-Myers Squibb, Merck, Eli Lilly and Sanofi. In America more than 900 biologics are in development, for more than 100 diseases.

Big, blockbuster molecules

Selected biologics that may gain US regulatory approval in 2015

Drug	Condition	Maker
Mepolizumab	Asthma	GSK
Dupilumab	Atopic dermatitis and chronic sinusitis	Sanofi/Regeneron
Toujeo	Diabetes	Sanofi
Alirocumab	High cholesterol	Sanofi/Regeneron
Evolocumab	High cholesterol	Amgen
Brodalumab	Psoriasis	Amgen/AstraZeneca
Ixekizumab	Psoriasis	Eli Lilly
Secukinumab	Psoriasis	Novartis
Sarilumab	Rheumatoid arthritis	Sanofi/Regeneron

Source: *The Economist*

Over the next five years, a further generation of biologic drugs will start to deliver cures by using viruses to deliver "gene therapy"—the replacement of a faulty gene in a patient's body cells with the correct version. China has had one such treatment, for some forms of cancer, since 2003. But in 2015 the West's first gene therapy, Glybera, for a rare genetic disease that clogs the blood with fat, will go on sale in Germany. The treatment, created by uniQure, a Dutch firm, is expected to cost €1.1m ($1.3m) for a course.

Pfizer has a new partnership with a biotech company, Spark Therapeutics, to give haemophiliacs the correct gene to produce blood-clotting factor. Scientists have already reported that ten patients with severe haemophilia B have remained cured for a number of years. Milo Biotechnology, another gene-therapy company, is developing treatments for muscle-wasting diseases such as muscular dystrophy.

Len Schleifer, the boss of Regeneron, which has several biologics close to approval, says the big advantage of such drugs is their specificity: they do only what they are supposed to do, rarely causing the sort of side-effects that are frequently discovered in conventional, small-molecule drugs, and lead to them being abandoned.

However, biologics are hard to make and, at present, difficult to take. They must be injected, infused or inhaled, as they are destroyed in the stomach when swallowed. This may discourage doctors from prescribing them in some cases. That said, José-Carlos Gutiérrez-Ramos, a senior scientist at Pfizer, says improvements will keep being made to how the drugs can be delivered. If so, biologics that can be popped as pills may be possible one day.

Biologics, like all other drugs, are not immune to setbacks. Shares in Roche, a Swiss drugs giant, fell sharply on December 19th when it disclosed disappointing results from tests on cancer patients of a combination of two of its biologics, Kadcyla and Perjeta. Four months earlier Britain's National Institute for Health and Clinical Excellence had decided that Kadcyla should not be prescribed routinely on the National Health Service for women with breast cancer, since its list price is around $140,000 a course.

As with all new drugs, it is not just a matter of how well a biologic works compared with existing treatments, but also whether it is affordable. Biologics for rheumatoid arthritis, which patients have to keep taking for the long term, cost more than $12,000 per patient a year. Some, like Humira, cost far more than this. Paying this sort of money is hard enough for rich countries' health systems; for poorer countries, it is out of the question.

As biologics increase their market share, their cost and efficacy will come under greater scrutiny. Already, the governments of Italy and France have noted that Avastin, a biologic developed for cancer, also treats macular degeneration, a cause of blindness. And it is far cheaper than Lucentis, a biologic for that condition sold by the same companies, Roche and Novartis. To its makers' chagrin, the two governments have approved the use of Avastin for macular degeneration, a move which, according to one French legislator, will save his country's health service $273m a year compared with using Lucentis.

When the patents on conventional drugs expire, other firms are free to start selling "generic" copies of the same chemical; and when the makers of biologics lose patent protection, rival companies are allowed to make equivalents of them, known as "biosimilars". This is harder than copying conventional drugs. Furthermore, says Ben Perkins of EY, a consulting firm, biosimilars will be (as their name suggests) similar rather than identical: they may be significantly worse, or even better, than the original. In America, a lack of clarity in the regulations for the approval of biosimilars has slowed the development of a market for them, in those cases where biologics have come off patent.

However, things are beginning to move: for instance, in December Apotex, a Canadian firm, said America's Food & Drug Administration (FDA) had agreed to consider its biosimilar of Neulasta, a biologic made by Amgen, an American firm, which helps cancer patients fight infection. A study published in November by the RAND Corporation, a research institute, said that on current assumptions about how the FDA's regulations will develop, biosimilars could save America's health system a total of $44 billion over the coming decade.

That would be a useful sum, but the overall savings from biosimilars will not be as dramatic as those from replacing branded conventional drugs with generic versions. First, biosimilars will also be costly to make. Second, since they will not be identical copies, doctors and patients may be slow to accept them as substitutes.

All this will be good news for those drugmakers who create successful biologics, for it will allow them to continue selling at higher prices for longer. They may thus find that the "patent cliff", the slump in revenues they have been suffering as older remedies lose patent protection, is not as steep as feared. But health-service bosses the world over will find that their job gets even harder than it is now: new treatments for once-intractable ailments will keep being invented, but their costs will be cripplingly high. ■

Consumer electronics and privacy

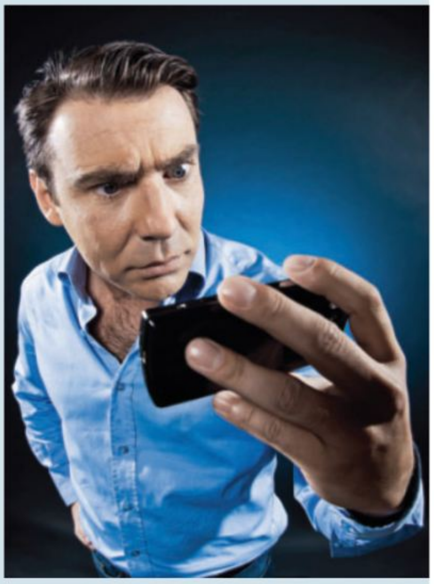
Your phone says: "Cheer up!"

SAN FRANCISCO

Software that senses how you are feeling is being pitched to gadget-makers

ON JANUARY 6th hordes will converge on a vast conference centre in Las Vegas for the start of the International Consumer Electronics Show. At the annual shindig, tech firms will show off their latest and greatest gizmos, from smart cars to smartphones and fancy TVs. The gadgets will provoke plenty of emotions among the 160,000 or so visitors. But the devices themselves won't be able to tell what those people are feeling.

Beyond Verbal would like to change that. The Israeli startup is one of several firms working in the field of "emotions analytics". Its software is designed to deduce someone's emotional state from a brief sample of his voice captured by microphone. Rather than focusing on the words used, the software analyses such things as the loudness and pitch of the speech, and then runs the results through an algorithm to match them with patterns from its database.



Who are you calling emotional?

Beyond Verbal has gathered hundreds of thousands of voice samples in more than 40 languages and has developed a smartphone app, Moodies, that lets people try its technology. But for now, it and other companies in the field, such as Nemesysco, have focused their commercial efforts on narrow areas such as market research and security rather than mass-market consumer electronics.

Yuval Mor, Beyond Verbal's chief executive, thinks that emotional-analytics software could be useful in things such as phones, fitness gadgets and cars. For instance, a vehicle that senses a driver is in a heightened emotional state, perhaps because he has been drinking, could flash up a warning before he takes to the road.

There are a couple of snags with all this. Some experts in the voice-recognition field are sceptical that the technology touted is reliable enough for mass deployment. Then there is the thorny issue of privacy. People are bound to be repelled by the prospect of companies and devices tracking their emotions.

Mr Mor acknowledges such concerns, but argues that "the upside of the technology can more than compensate for the downside." Yet there are already signs of resistance to emotion-tracking software. The Samaritans, a British suicide-prevention group, recently disabled a free web app it had promoted that alerted people whenever someone they were following on Twitter used a phrase such as "hate myself", which suggested the writer was in a fragile emotional state. Critics had argued that the app could also be used by crooks and others to prey on vulnerable people.

In the wrong hands, the technology being developed by Beyond Verbal and its rivals could also be exploited for nefarious ends. Privacy activists and lawyers should keep a close eye on it.

Manufacturing in Saudi Arabia

Making it in the desert kingdom

RIYADH AND JEDDAH

Factory-building may not be the best way to diversify the economy

SWEET-TOOTHED locals cheered when Mars, an American confectioner, opened its first factory in Saudi Arabia in December. The kingdom's policymakers cheered too. It was a sign of progress in their drive to create a more extensive and sophisticated manufacturing industry as a way of reducing dependence on oil, which accounts for 45% of GDP and 80% of government revenues. Manufacturing's share of GDP has long been stuck at around 10%, and much of that has involved making pretty basic stuff like bulk chemicals.

For all the country's huge reserves of cheap crude, the recent slump in the oil price makes that seem a sensible aim. Yet there are good reasons to question whether manufacturing is the right sector to seek to expand, and whether Saudi Arabia is a good place to locate factories.

The government is throwing money at its policy. It is investing more than $70 billion in building up to six new "economic cities" with modern infrastructure and business-friendly regulations. Mars put its factory in one of them, King Abdullah Economic City, on the Red Sea coast (pictured). It hopes these cities will host clusters in which firms from a particular industry huddle together, their proximity boosting their productivity and creativity.

The country is not starting from scratch. It is already strong in plastics and petrochemicals. SABIC, its largest public company, is one of the world's biggest producers of these; and Saudi Aramco, the national oil company, is building a $20 billion petrochemicals plant in a joint venture with an American giant, Dow Chemical. Several large aluminium producers have already set up shop, including Alcoa of America, since Saudi Arabia has the two ingredients needed to produce the metal: bauxite ore and cheap electricity. Some fairly big Saudi food manufacturers already export around the region, such as Almarai, which produces milk and baby formula among other things, and Savola, whose mainstay is edible oils.

The government now wants to attract companies that will turn plastics into packaging, aluminium into car parts (or even fully assembled cars) and basic foodstuffs into strong consumer food brands. Some of the world's big carmakers, which are switching from steel to aluminium for bodywork, are said to be looking at Saudi Arabia as a manufacturing base. Indian-owned Jaguar Land Rover has been in talks with the government since 2012, as yet without a result.

The size and wealth of the regional market ought to make it attractive for the motor industry: around 4m cars a year are bought in the Middle East and north Africa, making it a bigger market than Germany, with about 3m sold each year. Within the region Saudi Arabia is the largest market, with annual sales of about 1m. And sales are expected to keep growing across the region: the Boston Consulting Group reckons they could reach 9m by 2020. Luxury models—far more profitable than mass-market ones—are in particular demand.

Saudi officials argue that besides lots of rich consumers, their country has a central location, between Europe and Asia, and cheap and plentiful (expatriate) labour. But some analysts doubt if all this adds up to much of a competitive edge. "China is hard to compete with on scale and cost; places such as Germany have the high-tech market; the region doesn't consume that much; and the currency is pegged to the dollar, so America dictates the terms of trade," says Meda al-Rowas of IHS, a research outfit.

What is more, Saudi Arabia is a difficult place to do business. Regulations can be cumbersome and unpredictably enforced, and as yet it is unclear how much companies locating in the economic cities will be spared this problem. Foreign and domestic businesses alike need to attract skilled foreign workers. But these are often put off by the country's strict social rules—especially women, who are banned from driving and must wear the *abaya*, a full-length black dress, in public. The only way to give staff a bit of freedom from all this is to locate manufacturing plants in closed compounds, though this is hardly a good way to attract foreign talent.

The government has lots of big contracts to hand out as sweeteners to foreign investors. But it tends to restrict these to the top firms in any particular industry. Foreign firms have to employ a certain proportion of Saudis, and it is hard to get ones with the right skills. Many firms depend on public spending, which provides little incentive to be innovative.

Saudi Arabia has a rival in its attempt to become the region's manufacturing base: the United Arab Emirates. It does not have quite as much money to splash about, but it has many of the same advantages and fewer of the disadvantages. For instance, the UAE's constituent emirates are better regulated, mostly more open to the outside world and less socially conservative. Abu Dhabi, one of the largest, has already attracted some foreign firms to make parts from aluminium and plastic composites. Boeing plans to start making some aircraft components there. Abu Dhabi and another of the emirates, Dubai, have become important global aviation hubs, which makes them attractive locations for the regional operations of all sorts of manufacturers, not just aerospace firms.

In any case, says John Sfakianakis, a Riyadh-based economist, most of the types of manufacturing the Saudi government wants to promote will do little to develop the economy. Many of them are dependent on cheap energy and therefore, he argues, not really a diversification from oil. Also, manufacturing does not create many jobs and would thus do little to provide work for the burgeoning population.

There are some signs that the government is becoming more realistic in its ambitions. An official involved in the industrial-development programme says that a plan to create a cluster of domestic-appliance makers has been dropped. Ms Rowas thinks that instead of aiming to attract large-scale industrial plants, the government would do better to promote smaller firms in such areas as telecommunications and IT services. Jeddah already has a bunch of firms creating online content and smartphone apps, and Saudis are voracious internet users.

As ever, officials can look to examples where governments' efforts to create industrial clusters have worked—electronics in Taiwan, or shipbuilding in South Korea, perhaps. But the list of failures is longer. Opening up the economy and cutting bureaucracy for all kinds of businesses would be a surer route to success. ■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Italy's small food-makers

Export or die

CASTEL DEL PIANO, TUSCANY

Businesses are looking abroad for customers, and for saviours

IT TAKES two days to make panettone, the fluffy, dome-shaped cake speckled with candied fruit that Italians devour at this time of year, explains Gianluca Corsini, the quality manager at Corsini Biscotti. Founded in 1921 in the Tuscan village of Castel del Piano, the family baking business has annual revenues of €14m ($17m), no debt and is growing.

That is despite Italy's prolonged downturn, in which the domestic market has shrivelled as unemployment has reached record highs. The average family's monthly shopping bill fell by €129 to €2,359 between 2011 and 2013. The smaller, often family-owned manufacturers that are the backbone of the Italian economy have been hit especially hard: between 2008 and the first half of 2014, a fifth of them went bankrupt or into administration, or were voluntarily wound up.

One of the main reasons so many have gone to the wall is that they are too focused on the home market. Italian businesses of all sizes are much less likely to have export customers than German or Spanish ones, according to a recent study by SACE, Italy's official export-credit agency (see chart). Italian cuisine is popular all over the world, but Italy's countless small food producers get only a morsel of this huge global market: exports account for a smaller share of the Italian food industry's output than in either France or Germany.

The small food producers that have survived the long downturn are often those, like Corsini, that already had a presence in foreign markets and made strenuous efforts to export more. Taking an adventurous step for a firm of its size, Corsini hired a sales manager in London to develop the British market, where its products were already sold in Sainsbury's supermarkets. It has paid off: they are now in Harrods, Selfridges and Lakeland stores, and Britain now provides a quarter of Corsini's sales.

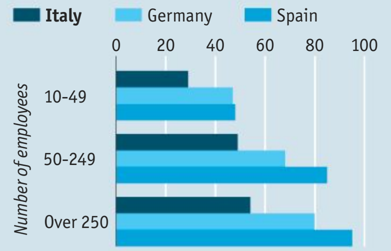
Western Europe's other big economies have a more consolidated grocery business, and each has at least one giant supermarket chain with extensive branch networks outside its home country, such as Tesco (Britain), Aldi (Germany), Carrefour (France) and Dia (Spain). Small food producers complain that such giants drive a ruthlessly hard bargain, but their scale and reach mean that the manufacturers have to deal with only a limited number of big customers, and those retailers often do the exporting for them, stocking their products in foreign branches.

Italy, in contrast, does not have a globalised food retailer on the same scale, and its domestic market is fragmented: even those chains with national coverage often stock different products in different regions, chosen by different local purchasing managers. Eataly, a fast-growing international chain of delicatessens, is bringing Italian-made foods to a wider global audience; but so far it is relatively small.

For Italian food producers, getting into the biggest European supermarket chains is now even harder than it was before the euro-area downturn. Deep discounters like Aldi and Lidl, which offer only a restricted range of products, most of them under their own labels, have been taking market share from conventional grocers which sell a broader range, including many products bearing their manufacturers' brands. Corsini has rationalised its range, so that it does not have to support too many product lines. It provides some products for supermarkets to put their own labels on—a low-margin business, but often a stepping stone to selling branded goods to the same retailer.

Casa dolce casa

Companies that export, % of total



Source: SACE

Corsini has also adapted its traditional recipes to please big foreign customers. It makes an orange and cranberry panettone which Sainsbury's sells under its own label, and unusually large cantuccini, traditional Tuscan almond-packed biscuits, for Starbucks—unimaginable in Italy but perfect for the American coffee chain's oversized cups. Some other Italian food firms are doing the same: Barilla, a larger company best known for its pasta, has just launched ready-made dishes modified for the Chinese market, where appetite for Italian fare is growing. Italy's wine exports have risen 42% since 2008, to €3 billion, thanks in part to the growing popularity of its sparkling prosecco. In volume terms, this now outsells France's champagne worldwide.

Rete d'impresa, or company networks, are helping small firms reach new customers, by letting them pool resources on such things as market research, training and purchasing. Italy has a long tradition of informal co-operation among clusters of companies operating in the same industry, but a law introduced in 2009 has made it easier to formalise this by contract. Since then, according to a study by Intesa Sanpaolo, a bank, firms which have entered into such agreements have outperformed those which have not, on a number of measures. Nearly a quarter of microfirms (those with revenues of under €2m) which are part of a *rete* are exporters, compared with just 12% of those which are not.

As smallish food producers seek new markets beyond Italy's shores, foreign investors have begun to realise their potential. Bright Food, a Chinese state firm which controls Weetabix of Britain, recently bought a controlling stake in Salov, maker of the Sagra and Filippo Berio brands of olive oil. Earlier in 2014 Ebro, a Spanish food company, bought 52% of Pastificio Lucio Garofalo, a pasta-maker. Idea Capital, an Italian private-equity firm, has launched a "Taste of Italy" fund, which it says is attracting American and European investors. More such deals are likely. Over four-fifths of Italian food manufacturers are family-run and with annual revenues of less than €10m. With their home market still struggling, a rich foreign backer may be just what they need. ■

Schumpeter | Getting hooked

How digital firms create products that get inside people's heads

CICERO once said that "Nature has planted in our minds an insatiable desire to see the truth." These days it would be truer to talk of an insatiable desire to check our e-mail and Twitter accounts, and to play a few games of Candy Crush Saga (as a British parliamentarian was recently caught doing during a committee meeting). It is reckoned that four-fifths of smartphone owners check their devices within 15 minutes of waking up, and that the typical user does so 150 times a day.

This time it is not nature but man that has done the planting. Internet entrepreneurs devote a lot of thought to getting people hooked on their products. How else can they survive in a world in which hundreds of new ones are launched every day? And smartphones and tablets have helped greatly: what could be more habit-forming than devices that are always evolving, always there and always buzzing with fresh diversions?

"Hooked", a new book by Nir Eyal, a technology writer, gives an overview of one of the most interesting battles in modern business: the intense competition to create new digital products that monopolise people's attention. Peter Drucker, a management guru, once said the aim of a business is to create a customer. For today's digital firms the aim is to create an uber-user: a tapping, scrolling devotee who keeps coming back for more whenever he has a spare moment. Habit-forming products help companies squeeze more money or information out of their customers. Some video-game makers get players hooked and then charge them for virtual products; often these are just cosmetic changes to how the game looks, but sometimes players can buy boosts to their in-game powers that help them win. Google specialises in useful apps, from Gmail to Google Maps, that gently squeeze data from users, the better to serve them ads.

Such products also offer protection from competition: once you have incorporated Twitter into your daily routine and devoted time to developing a following, you will be reluctant to switch to a rival. Although companies must make their products pretty simple to use, so as to persuade people to take them up, they also need to find mechanisms that encourage them to invest a lot of time in the product. Getting started on Twitter or Facebook is simple; but the more you tweet, the better and more popular your Twitter account becomes, and the more you search for friends and family on Facebook the more useful it is.

How do these companies turn you into a user? The biggest challenge is to get their hook into you in the first place: that is, persuade you to install their app or click on their link rather than choose one of the many alternatives. The best way to do this is through social pressure: create a buzz that gets people talking about your product. But it will become habit-forming only if it satisfies an inner need. People keep visiting Facebook because they are keen to keep in with their pals. They keep checking Twitter and their e-mail because they are worried about being out of the loop if they don't.

The makers of habit-forming products have clearly read the works of B.F. Skinner, the father of "radical behaviourism", who found that training subjects by rewarding them in a variable, unpredictable way works best. That is why the number of monsters one has to vanquish in order to reach the next level in a game often varies. Faithful Twitter users are rewarded with more replies to their tweets, and more ego-boosting followers, but not according to any predictable formula. These variable rewards come in three forms. The reward of the tribe: people who use Twitter or Pinterest are rewarded with social validation when their tweets are retweeted or their pictures are pinned. The reward of the hunt: users quickly scroll through their feeds in search of the latest gossip or funny cat pictures. And the reward of self-fulfilment: people are driven to achieve the next level on a video game, or an empty e-mail inbox.

E-cigarettes

Should the makers of habit-forming products be praised as innovative entrepreneurs? Or shunned as the immoral equivalents of drug pushers? Ian Bogost, a designer of video games, describes them as nothing less than the "cigarette of this century". Paul Graham, a Silicon Valley investor, worries that humans have not had time to develop societal "antibodies to addictive new things". Mr Eyal pushes back against such hyperbole. Creating a habit-forming product is in fact very hard. There have been plenty of digital products, such as Farmville, that were crazes for a while but went out of fashion. There is an important distinction between a habit and an addiction: only about 1% of people who regularly play slot machines, one of the most habit-forming technologies ever created, can reasonably be described as addicted. The proportion is surely lower for Twitter and the like. In any case, Mr Eyal notes, unlike smoking and playing slot machines, some apps help inculcate good habits, such as dieting or exercising.

That said, it is hard to read "Hooked" without feeling a bit queasy. Companies are getting at once more sophisticated and more shameless. If any other business were found to be employing people with the title of "behaviour designers", they would be seen as exploitative and downright creepy. The internet is becoming ever more powerful and pervasive. And every new technological leap makes it easier for behaviour designers to weave digital technology into consumers' daily habits. As smartphones become loaded with ever more sensors, and with software that can interpret their users' emotional states (see earlier article), the scope for manipulating minds is growing. The world is also on the cusp of a wearable revolution which will fix Google Glasses to people's skulls and put smart T-shirts onto their torsos: the irresistible, all-knowing machines will be ever more ubiquitous. And the trouble with insatiable desires is that the struggle to sate them leaves everyone as exhausted as they are unfulfilled. ■

Robber barons and silicon sultans

Today's tech billionaires have a lot in common with a previous generation of capitalist titans—perhaps too much for their own good

IN THE 50 years between the end of the American civil war in 1865 and the outbreak of the first world war in 1914, a group of entrepreneurs spearheaded America's transformation from an agricultural into an industrial society, built gigantic business empires and amassed huge fortunes. In 1848 John J. Astor, a merchant trader, was America's richest man with $20m (now $545m). By the time the United States entered the first world war, John D. Rockefeller had become its first billionaire.

In the 50 years since Data General introduced the first mini-computers in the late 1960s, a group of entrepreneurs have spearheaded the transformation of an industrial age into an information society, built gigantic business empires and acquired huge fortunes. When he died in 1992, Sam Walton, the founder of Walmart, was probably America's richest man with $8 billion. Today Bill Gates occupies that position with $82.3 billion.

The first group is now known as the robber barons. The second lot—call them the silicon sultans—could face a similar fate. Like their predecessors, they were once revered as inventive mould-breakers, delivering gadgets to the masses. But just like Rockefeller and the other "malefactors of great wealth", these new capitalists are losing their sheen. They have been diversifying into businesses that have little to do with computers, while egotistically proclaiming that they alone can solve mankind's problems, from ageing to space travel. More pointedly, they stand accused of being greedy businessfolk who suborn politicians, employ sweatshop labour, stiff other shareholders and, especially, monopolise markets. Rockefeller once controlled 80% of the world's supply of oil: today Google has 90% of the search market in Europe and 67% in the United States.

Together, the two groups throw light on some of the most enduring themes of American history—both the country's extraordinary ability to generate vast wealth and its enduring ambivalence about concentrations of power. Henry Ford, the youngest of the robber barons, once said that history is more or less bunk. He was wrong. The silicon sultans have the advantage of being able to learn from their predecessors' mistakes. It is not entirely clear that they are doing so.

History rhymes

All business titans have certain things in common—a steely determination to turn their dreams into reality, a gargantuan appetite for success and, as they grow older, a complicated relationship with the fruits of their labour. But the robbers and sultans have more in common than most: they are the *Übermenschen* of the past 200 years of American capitalism, the people who feel the future in their bones, bring it into being—and sometimes go too far.

The most striking similarity is that they refashioned the material basis of civilisation. Railway barons such as Leland Stanford and E.H. Harriman laid down more than 200,000 miles of track, creating a national market. Andrew Carnegie replaced iron with much more versatile steel. Ford ushered in the era of the automobile. Mr Gates tried to put a computer in every office and in every home. Larry Page and Sergey Brin put the world's information at everybody's fingertips. Mark Zuckerberg made the internet social. Just as the railroad made it possible for obscure companies to revolutionise everything from food (Heinz) to laundry (Procter & Gamble), the internet allows entrepreneurs to disrupt everything from retailing (Amazon) to transport (Uber).

Both relied on the relentless logic of economies of scale. The robber barons started with striking innovations—in Ford's case, a more efficient way of turning petrol into power—but their real genius lay in their ability to "scale up" these innovations to squeeze the competition. "Cut the prices; scoop the market; run the mills full," as Carnegie put it. The silicon sultans updated the idea. Mr Gates understood the imminent ubiquity of personal computers, and the money to be made from making their software. Messrs Brin and Page grasped that their search engine could create a massive audience for advertisers. Mr Zuckerberg saw that Facebook could profit from inserting itself into the social lives of a sizeable chunk of the world's population.

Economies of scale allowed the robber barons to keep reducing prices and improving quality. Henry Ford cut the price of his Model T from $850 in its first year of production to $360 in 1916. In 1924 you could buy a much better car for just $290. The silicon sultans performed exactly the same trick. The price of computer equipment, adjusted for quality and inflation, has declined by 16% a year over the five decades from 1959 to 2009. Each iPhone contains the same amount of computing power as was housed in MIT in 1960.

The robber barons denounced regulators in the name of the free market, but monopoly suited them better. Rockefeller rued the "destructive competition" of the oil industry, with its cycle of glut and shortage, and set about ensuring continuity of supply. The first trust, Standard Oil's, established in 1882, was designed to persuade his rivals to give up control of their companies in return for a guaranteed income and an easy life. "The Standard was an angel of mercy reaching down from the sky and saying 'Get into the ark. Put in your old junk. We will take all the risks'," he wrote.

Others followed. Although the Sherman Anti-Trust Act of 1890 outlawed these devices as restraints on free trade, the barons either neutralised the legislation or got round it with another control-preserving device, the holding company. By the early 20th century trusts and holding companies held nearly 40% of American manufacturing assets. Alfred Chandler, the doyen of American business historians, summed up the hundred years following the civil war as "ten years of competition and 90 years of oligopoly".

The silicon sultans have it easier. They sometimes brush with the law—Google and Apple have been scolded for creating informal agreements to prevent poaching wars—but network effects, whereby the more customers a service has, the more valuable it becomes, mean that their businesses tend towards monopoly anyway. In the digital world, the alternative is often annihilation. As Peter Thiel, PayPal's cerebral founder, put it in "Zero to One": "All failed companies are the same: they failed to escape competition."

The result, in both cases, is an unparalleled concentration of power. A century ago the barons had a lock on transport and energy. Today Google and Apple between them provide 90% of smartphone operating systems of; over half of North Americans and over a third of Europeans use Facebook. None of the five big car companies, by contrast, controls more than a fifth of the American market.

The 0.000001%

The silicon sultans are some of the few businesspeople who can compete with the robber barons in terms of ownership. Carnegie made a point of always owning more than half of his company. Today most firms are widely held by large numbers of shareholders: the largest individual shareholder in Exxon, the grandchild of Standard Oil, is Rex Tillerson, the company's chief executive. He owns 0.05% of the stock. But tech is different. Together Google's two founders, Sergey Brin and Larry Page, and its executive chairman, Eric Schmidt (who also sits on the board of *The Economist*'s parent company) control two-thirds of the voting stock in Google. Mark Zuckerberg owns 20% of Facebook shares but almost all of its "class B" shares, which have ten times the voting power of ordinary shares.

The tech titans are not as rich in relative terms as the robber barons. When Rockefeller retired in the early 20th century, his net worth was equal to about one-thirtieth of America's annual GNP. When Mr Gates stepped aside as CEO of Microsoft in 2000 his net worth might have equalled 1/130th of it. But they nevertheless represent the most significant concentration of business wealth in the world. In 2013 34% of billionaire-entrepreneurs aged 40 or under made

their money in high tech.

What makes these concentrations of wealth all the more striking is that they followed on the heels of two of the most egalitarian periods in American history. The 1830s-40s saw America (outside the slave-owning South) establish itself as the land of participatory politics and individualism that Alexis de Tocqueville celebrated in "Democracy in America". The years between the second world war and the late 1970s were years of low inequality of income in the United States.

Both the robber barons and the silicon sultans helped to create a very different America, divided by class and obsessed with money. In "The Theory of the Leisure Class"(1899), Thorstein Veblen showed how an egalitarian society was becoming an aristocratic one. In "Capital in the Twenty-First Century" (2013) Thomas Piketty made similar claims for the past 40 years.

The culture they helped to create troubled barons of both eras. Andrew Carnegie, who had risen from bobbin-boy to steel magnate in 17 years, worried about the contrast between "the palace of the millionaire and the cottage of the labourer". Though he stretched the bounds of good taste when, as perhaps the richest man in the world, he wrote a pamphlet entitled "The Advantages of Poverty" (1891), he was nevertheless sincere in worrying that class division was producing "rigid castes" living in "mutual ignorance" and "mutual distrust" of each other. Mr Thiel contrasts the egalitarian Silicon Valley of his childhood, in which everybody lived in identikit houses and attended first-rate state-funded schools, with today's divided Valley. But they have taken their strictures only so far. Carnegie bought a ruined castle in Scotland, Skibo, for $85,000 and maintained a staff of 85. Mr Thiel bought an oceanfront spread in Maui for $27m.

No sooner had they transformed themselves from challengers into incumbents than the robber barons succumbed to the two great temptations of a successful middle age: undisciplined growth and unqualified self-belief. Rockefeller spilled into a succession of adjacent businesses—he bought forests to supply his company with wood, established plants to turn the wood into barrels, produced chemicals for refining and bought ships and railroad cars to carry his products. Harriman turned from financing railways to dabbling in finance more generally.

The tech barons are following a similar arc. Google is pouring its super-profits into a succession of loosely related industries: robotics, energy, household appliances, driverless cars and anti-ageing. The company may well be fashioning a world in which it has a hand in everything humans do—driving them to work, adjusting their thermostats, making (and monitoring) their phone calls, and, of course, organising their information. Facebook has spent $2 billion on a start-up that makes virtual-reality equipment. Elon Musk, one of the founders of PayPal, has moved into electric cars and rockets. Jeff Bezos, Amazon's founder, is also investing in private space travel.

Both groups started dreaming ever bigger dreams. The robber barons turned their hands to solving social problems. Ford led a peace convoy to Europe to put an end to war. When he arrived in Norway and gave the locals a long lecture on tractor production in faltering Norwegian, a local commented that you have to be a very great man to say such foolish things. In the Valley, extending life to 100 or 120 is a passion; Mr Thiel even talks about abolishing death. Reforming the state is another hobby; again Mr Thiel takes things to the limit with a project to establish a collection of floating city states in international waters outside the reach of governments. Reinventing food—creating meat substitutes in particular—is another recent craze: Messrs Brin, Gates and Thiel have invested in alternative food companies.

The most controversial sideways move the robber barons made was into day-to-day politics. A critic once wrote that Rockefeller's company did everything to the Pennsylvania legislature except refine it. The Senate was known as "the millionaire's club". Robber barons bought newspapers—Ford turned the *Dearborn Independent* into a mouthpiece for his cranky views on the Jews. Not content with establishing what Arthur Schlesinger junior called "government of the corporations, by the corporations and for the corporations", a growing number of robber barons and their children went into politics themselves. Two of Rockefeller's children became governors—Nelson of New York and Winthrop of Arkansas—and Nelson went on to be Gerald Ford's vice-president.

The silicon sultans swore that they would not repeat this mistake, and indeed they have gone nothing like as far as their predecessors. Yet politics is both necessary to business and irresistible to the self-important. This year Google's political action committee spent more on campaigns than Goldman Sachs, a company legendary for its political connections. Mr Zuckerberg has founded a pressure group, fwd.us, to push for immigration reform. The prospectus for the group, headed by one of Mr Zuckerberg's former Harvard room-mates, boasts that the tech industry will become "one of the most powerful political forces" because "we control massive distribution channels, both as companies and as individuals". These "channels" include old-media redoubts such as the *Washington Post* (bought by Mr Bezos) and the *New Republic* (bought by Facebook's Chris Hughes) as well as new media empires such as Yahoo. Silicon Valley is now a regular stop in fundraising and an established part of America's revolving-door culture. Al Gore, a former vice-president, has been a senior adviser to Google. Sheryl Sandberg, Facebook's chief operating officer, started her career as chief of staff to Larry Summers when he was treasury secretary.

The backlash

The age of the robber barons led inexorably to the age of populist revolt, with mass strikes, anti-monopoly legislation, social reforms and, eventually, the New Deal of the 1930s. The robber barons had ruined too many people and broken too many rules. Ida Tarbell (whose father had been ruined by Rockefeller) proved to be the most devastating critic: a series of brilliant articles in *McClure*'s magazine aired Rockefeller's dirty laundry and popularised the term robber baron. Theodore Dreiser, a novelist, skewered the new rich in "The Titan" and "The Financier". Some economists worried that America was becoming as unequal as Europe.

A cohort of politicians and lawyers fairly swiftly translated the backlash into policy. Teddy Roosevelt thundered against the "criminal rich". Woodrow Wilson followed up with even more vigorous attacks on corporate America. The 16th amendment to the constitution introduced an income tax for the first time, and the 17th amendment decreed that senators should be elected by popular vote rather than appointed by local legislatures.

That the tech barons have attracted only a fraction of the ire of the robber barons is not surprising: with relatively small, highly paid workforces, they are not involved in the battles with unions that turned the robber barons into ogres. In 1901 US Steel, Carnegie's creation, employed a quarter of a million men—more than the army and navy combined. Today Google employs more than 50,000, Facebook 8,000 and Twitter 3,500. The electronic

toys the tech barons make also inspire more affection among consumers than the commodities or infrastructure that the robber barons produced. But there are nevertheless growing rumbles of discontent. Starting in 1994, the American government successfully prosecuted Microsoft for predatory pricing and undermining competition. The EU is currently mulling various ways of reducing Google's dominance in the search market, and has even proposed splitting its search engine operations in Europe from the rest of its business.

Aside from monopoly and inequality, the main gripe against the tech barons concerns privacy. The tech industry makes much of its money from hoovering up private information."We know where you are," says Mr Schmidt. "We know where you've been. We can more or less know what you're thinking about." The EU is drafting a privacy directive, to come into effect in 2016, which could introduce strict rules about data collection.

Despite these growing worries, there is no sign that the trend will reverse. For all the dramatic changes between the railway age and the silicon age, America still has the right formula for producing entrepreneurs. It sucks in talent from all over the world: Carnegie was the son of an impoverished Scottish textile weaver, Mr Brin the son of Russian immigrants. It tolerates failure: the list of barons who failed at least once before they succeeded includes R.H. Macy, H.J. Heinz, Henry Ford and Steve Jobs. And it encourages ambition. Mark Twain and Charles Dudley Warner put their finger on an enduring national trait in "The Gilded Age" (1873): "In America nearly every man has his dream, his pet scheme, whereby he is to advance himself socially or pecuniarily." Walt Whitman did the same: he celebrated "the extreme business energy, and this almost maniacal appetite for wealth prevalent in the United States". And the ability to produce such men has allowed America, once again, to pull ahead of the rest of the West.

At the same time, the backlash against the robber barons points to another enduring theme: the tension between big business and democracy. Americans' admiration for self-made millionaires leads them to be suspicious of huge organisations. Charles Francis Adams, a great-grandson of America's third president, warned that companies were bent on "establishing despotisms which no spasmodic popular effort will be able to shake off".

Louis Brandeis, one of the greatest Supreme Court judges, became the voice of the campaign against "the curse of bigness". "Mere bigness" is an offence against society, he argued, because democracy "cannot endure" when you have huge concentrations of wealth in the hands of a few. Today's Supreme Court is as comfortable with bigness as Brandeis was uncomfortable with it. Presidents habitually cuddle up to huge organisations in order to raise the money they need to run for office. Yet suspicion of size is growing once again on both the Tea Party right and the Democratic left.

So is bigness capable of redeeming itself? The final enduring theme in the story of the American barons is the story of philanthropy. Carnegie pronounced that "the man who thus dies rich dies disgraced". The robber barons (including Carnegie) did not exactly die poor. But almost all of them became philanthropists in old age. Carnegie tried to make equality of opportunity mean something by founding 2,811 public libraries. Rockefeller's intellectual legacy, the University of Chicago, is one of America's greatest.

Mr Gates's foundation is one of the largest in the world; and he and his fellows are following their predecessors by applying the same mixture of imagination and hubris to philanthropy that they applied to business. In America entrepreneurs do not just create bigger fortunes. They also cast longer shadows. ■

Also in this section

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Investing in agriculture

Barbarians at the farm gate

Hardy investors are seeking a way to grow their money

IN THE next 40 years, humans will need to produce more food than they did in the previous 10,000 put together. But with sprawling cities gobbling up arable land, agricultural productivity gains decreasing, and demand for biofuels increasing, supply is not keeping up with demand. Clever farmers, scientists and entrepreneurs are bursting with ideas. But they need money to make this jump.

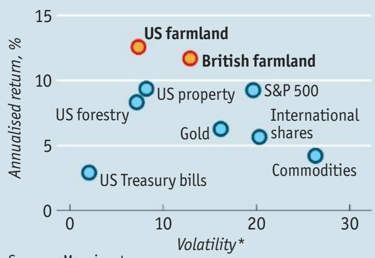
Financiers more often found buying and selling companies have cottoned on to the opportunity. Farm gates have traditionally been closed to capital markets: nine in ten farms are held by families. But demography is forcing a shift: the average age of farmers in Europe, America and New Zealand is now in the late fifties. They often have no successor, because offspring do not want to farm or cannot afford to buy out family members. In addition, adopting new technologies and farming at ever-greater scale require the sort of capital few farmers have, even after years of bumper crop prices.

Institutional investors such as pension funds see farmland as fertile ground to plough, either doing their own deals or farming them out to specialist funds. Some act as landlords by buying land and leasing it out. Others buy plots of low-value land, such as pastures, and upgrade them to higher-yielding orchards. Investors who are keen on even bigger risks and rewards flock to places such as Brazil, Ukraine and Zambia, where farming techniques are often still underdeveloped and potential productivity gains immense.

Farmland has been a great investment over the past 20 years, certainly in America, where annual returns of 12% caused some to dub it "gold with a coupon". In America and Britain, where tax incentives have distorted the market, it outperformed most major asset classes over the past decade, and with low volatility to boot (see chart). Those going against the grain warn of a land-price bubble. Believers argue that increasing demand and shrinking supply—as well as urbanisation, poor soil management and pressure on water systems that are threats to farmland—mean the investment case is on solid ground.

Field of dreams

Farmland, forest and selected assets
Jan 1994-Dec 2013



Sources: Morningstar; NCREIF; Savills; Bloomberg; *The Economist*

*Standard deviation of annual returns, percentage points

It is not just the asset appreciation and yields that attract outside capital, says Bruce Sherrick of the University of Illinois at Urbana-Champaign: as important is the diversification to portfolios that farmland offers. It is uncorrelated with paper assets such as stocks and bonds, has proven relatively resistant to inflation, and is less sensitive to economic shocks (people continue to eat even during downturns) and to interest-rate hikes. Moreover, in the aftermath of the financial crisis investors are reassured by assets they can touch and sniff.

Some are already getting their boots dirty. In 2009 Hassad, part of Qatar's sovereign-wealth fund, asked Bydand Global Agriculture to buy nearly 50 farms in Australia and merge them into a single investment portfolio. Terrapin Palisades, a private-equity firm, bought a dairy company and some vineyards and tomato fields in California, and converted all to grow almonds, whose price has soared as the Chinese have gone nuts for them. Such conversions require up-front capital and the ability to survive without returns for years.

The private-equity approach can take the form of simple improvements, such as changing irrigation from antiquated dykes and canal networks to automatic spray systems: these are the equivalent of picking low-hanging fruit. Pricey robots can boost milk per cow by 10-15%. Using "big-data" analytics to plant and cultivate seeds can push crop yields up 5%. "This is an industry where the gap between the top and bottom quartile is greater than anywhere else," says Detlef Schoen of Aquila Capital, an alternative-investment firm.

And yet the 36 agriculture-focused funds, with $15 billion under management, pale in comparison to the 144 funds focused on infrastructure ($89 billion) and 473 targeting real estate ($163 billion), according to Preqin, a data provider. TIAA- ▸▸

CREF, an American financial group, is a market leader with $5 billion in farmland, from Australia to Brazil, and its own agricultural academic centre at the University of Illinois. Canadian pension funds and Britain's Wellcome Trust are among those bolstering their farming savvy.

Most investors are put off by the sector's peculiar risks and complexities. Weather, commodity prices, soil health, water access, dietary fads and animal health are not the forte of the average pension-fund investment officer. Political risks abound: cash-strapped governments in Europe and America may (belatedly) get around to cutting farm subsidies. In poor countries, land titles may give outsiders dubious protection—if those countries even allow foreign ownership of land in the first place.

Some liken the sector to real estate and infrastructure 20 years ago. It lacks indices, consultant reports and track records. But unlike skyscrapers or pipelines, farming offers few of the multi-billion-dollar deals that are needed to entice mega-investors.

For more money to flow in, financiers and farmers will have to learn a lot more about each other. Money managers need to get their hands dirty and find out more about crops. Only a handful have the expertise needed; farmers gleefully share stories of Wall Street types wondering how chicks are planted. And farmers can do more to attract capital, for example by seeking out financial deals where investors' incentives are aligned with their own, such as through joint ventures.

Investors need to separate the wheat from the chaff, too. Farm investing requires patience; it is ill-suited to flipping and trading. But those willing to climb over the barriers could reap big rewards. The investment thesis is as simple as they come, as Mark Twain realised long ago: "Buy land, they're not making it any more." ■

Buttonwood | Same old song

Forecasts for 2015 look remarkably like forecasts for 2014

IMAGINE that, ten years ago, a group of economists had been made privy to the key American indicators at the start of 2015. They would have been told that GDP grew at an annualised 5% in the latest quarter, that unemployment was 5.8% and falling, and that headline inflation was 1.3%. What would have been their forecast for the level of short-term interest rates today? Perhaps 3%? Or 4%?

It is a fair bet that no economist would have predicted the actual level of interest rates of 0%-0.25%. Those low rates are the key to understanding the outlook for markets in 2015. The Federal Reserve has kept rates so low because it frets that a premature tightening of policy may damage an economy that is still bearing the scars of the financial crisis of 2007-08. Perhaps 2015 will see the first rate increase, but unless there is a surge in inflation (which few expect) the Fed will proceed very cautiously. Elsewhere, it seems highly unlikely that either the European Central Bank or the Bank of Japan will tighten policy in the next 12 months.

This background helps to explain why investors are entering the new year in optimistic mood. A poll of British fund managers by the Association of Investment Companies found that 91% expected equity markets to rise in 2015. A poll of global fund managers by Bank of America Merrill Lynch found that a net 60 percentage points of investors expect the global economy to strengthen in the coming year.

Investors were pretty optimistic at the start of 2014 as well. Although the bulls were eventually right about the American stockmarket—after a few wobbles—the same was not true for emerging markets (see chart). Of the four BRICs, Russia is heading for recession, Brazil is barely growing and Chinese growth has slowed; only in India are prospects perceived to have improved. The fall in commodity prices in 2014, most notably in oil, was linked to the weakness of growth in developing countries.

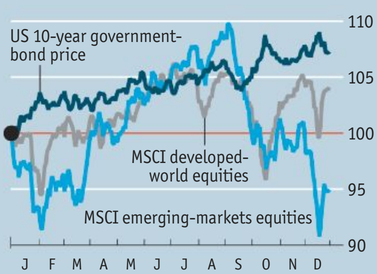
Commodity-price declines have brought down headline inflation and raise a question about the perennial bearishness of commentators towards the government bond markets. At the start of 2013, there was much talk of a "great rotation" out of bonds and into equities; as 2014 loomed, the sentiment was exactly the same. Despite that, the yield on the 10-year Treasury bond fell during the year while the German 10-year yield even reached a record low.

Once again, yields are expected to rise in 2015, with the median forecast of 74 strategists polled by Bloomberg predicting that the 10-year will hit 3% by the end of the year, compared with 2.21% on December 29th. But it is quite possible that the consensus will be proved wrong again.

Political risk was one factor that supported bond markets in 2014, and it has not disappeared. The calling of a snap general election in Greece has brought the prospect of further turmoil in the euro zone. If the left-wing Syriza party is elected (and it has a small lead in the latest polls), there would be some awkward negotiations over debt owed to EU institutions and further reforms to the Greek economy. The result could conceivably be that Greece is forced out of the euro. (Ladbrokes, a British bookmaker, has this outcome as an even-money bet.) While most commentators seem to feel that the fallout will be more contained than it would have been in 2011 and 2012, they cannot be certain.

Bonds defy the pundits

Jan 1st 2014=100



Source: Thomson Reuters

The euro was supposed to be a currency without an exit mechanism. Allowing Greece to leave might set a disastrous precedent. It could even be the euro zone's Lehman moment—regulators thought that the fallout from the investment bank's failure in 2008 could be contained, but the bankruptcy triggered a crisis of confidence. Meanwhile, the Greek worries bolster another consensus bet: that the dollar will gain against the euro.

Greece is not the only political problem. Britain has a general election in May which seems likely to result in another hung Parliament; Spain must hold an election by 2015, with Podemos, a Syriza-like party, expected to do well. There is also the possibility that Russia will lash out in the face of Western sanctions, a falling oil price and a shrinking economy.

The most likely outcome is that the equity markets will muddle through for another 12 months, with a few wobbles along the way. A big bull run would probably require economic strength to be more broadly spread around the world, while a crash would require either the loss of American economic momentum or a sudden tightening of monetary policy. If either of those happens, put on the tin hats.

Economist.com/blogs/buttonwood

Japan's economy

Pump-priming

Shinzo Abe unleashes a (small) stimulus package

IF YOUR first shots miss the target, keep firing. That seems to be the lesson in Japan, where the cabinet of Shinzo Abe, the prime minister, approved an emergency stimulus package worth ¥3.5 trillion ($29.1 billion) on December 27th to pep up the recession-hit economy. Yet what stood out was the diminished heft of the package. Nearly two years ago the first of three "arrows", as the various parts of Mr Abe's programme have been dubbed, was a fiscal boost of ¥10.3 trillion, followed by another spending package worth ¥5.5 trillion in April 2014. The other facets of "Abenomics" will now have to be exploited.

The government hopes that its meagre package will boost Japan's real GDP by as much as 0.7% in 2015-16. Although more modest, the stimulus is more finely targeted this time, notes Robert Feldman of Morgan Stanley, an investment bank. A third of the total is to go on helping small businesses and households particularly hard hit by the effects of a weak yen and a squeeze in real incomes, both side-effects of Abenomics itself. Measures will include handing out shopping vouchers to the poor and subsidies for heating oil.

Another of Mr Abe's aims is to spread the growth-boosting effects of his policies—a combination of quantitative easing by the Bank of Japan, fiscal stimulus and structural reforms—right across the country. So far, Tokyo has lapped up the benefits; a further ¥600 billion will therefore go on trying to rev up local economies, including an attempt (surely ill-fated) to draw people away from the capital to the countryside. The largesse should aid Mr Abe's Liberal Democratic Party (LDP) as it faces nationwide local elections in the spring.

The remaining ¥1.7 trillion will go on a traditional speciality of the LDP: public-works spending. Outlays on infrastructure, including reconstruction after the tsunami-cum-nuclear meltdown of 2011, could boost GDP more directly than handouts to households and small firms, since businesses may pocket the cash rather than embark on new spending. Yet the effect may be more muted than the government intends. The flow of stimulus money into the economy is being hampered by labour shortages in the building industry; public-works spending even fell slightly in the second quarter after a tax increase, contributing to a contraction in economic output. The IMF recently noted that both the implementation of planned public works and their effectiveness in boosting the Japanese economy have declined over time.

The handout hardly helps to meet the government's target of halving the primary deficit (which excludes interest payments on debt) from 6.6% of GDP in 2010 to about 3.2% in 2015. Fiscal hawks complained that the last package, of ¥5.5 trillion, consumed two-thirds of the proceeds from a rise in the consumption (value-added) tax. A further increase has been postponed from October 2015 to April 2017. In December Moody's downgraded Japan's debt, though markets barely reacted, having factored in the central bank's strong support for the bond market.

Since Japan's public debt is approaching 245% of GDP, the size of stimulus packages will surely be constrained in future. The Bank of Japan has already done a huge amount on the monetary front. That leaves Mr Abe short of ammunition. Political constraints make his so-called "third arrow"—reforms to Japan's inefficient agriculture, health-care and labour markets—hard to fire. It is fast becoming his only hope. ■

Influential economists

Shifting clout

Economists' academic rankings and media influence vary wildly

ECONOMISTS measure their influence by looking at their publication count. They obsess over their REPEC ("research papers in economics") ranking, a list topped by heavyweights who inspire awe among PhD students and blank stares everywhere else. In an effort to gauge clout outside the ivory tower, *The Economist* asked Appinions, a startup that analyses influence online, to look at a list of 500 economists—the 450 atop the REPEC list, plus some we chose ourselves. Appinions tracked how much attention was paid to their utterances in the mainstream media, the blogosphere and in social media over a 90-day period up to December 11th 2014. That produced an alternative influence ranking (see table).

Our winner was Jonathan Gruber, an expert in health policy who advised on Obamacare. Comments made by Mr Gruber on the sausage-making behind the health-care law became the centre of a political firestorm last autumn, propelling him up the list. His elevation is a reminder that the news cycle is also an imperfect measure: in any other quarter, he would not have troubled the ranking.

Central bankers current and former occupy prominent positions (we excluded serving central-bank governors). Economists whose work has come to define public debates do well, too. They include Thomas Piketty, author of a bestselling book on economic inequality; Larry Summers, who has been warning of the risks of "secular stagnation"; and Robert Shiller, an authority on financial-market instability. Paul Krugman, a Nobel-prize winning columnist, plays both games unusually well: he is in the top 25 for citations and third in our ranking.

Dismal, but important

Ranking of influential economists, 2014*

	Economist	RePEc rank†
1	Jonathan Gruber (MIT)	244
2	William Dudley (NY Fed)	-
3	Paul Krugman (Princeton)	22
4	Charles Plosser (Philadelphia Fed)	397
5	Ben Bernanke (ex-Fed Reserve)	34
6	Narayana Kocherlakota (Minn. Fed)	440
7	James Bullard (St. Louis Fed)	746
8	Robert Shiller (Yale)	96
9	Alan Greenspan (ex-Fed Reserve)	644
10	Peter Praet (ECB)	-
11	Ernst Fehr (IfW)	98
12	Andrew Haldane (Bank of England)	-
13	Thomas Piketty (PSE)	407
14	Larry Summers (Harvard)	29
15	Daniel Kahneman (Princeton)	124

Sources: Appinions; RePEc; *The Economist*

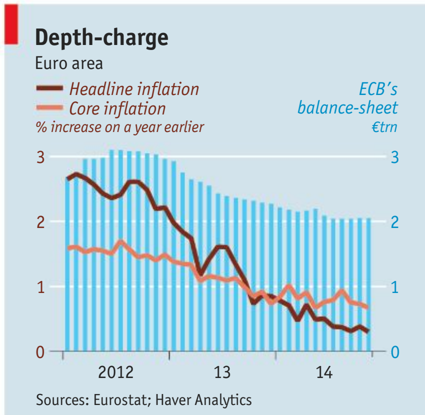
*90 days to Dec 11th †If in top 5% of ranked authors

Interactive: See the 25 most influential economists at **Economist.com/econinfluence**

Euro-zone quantitative easing

Coming soon?

The ECB might unleash its long-awaited programme in early 2015



As 2014 drew to a close, the European Central Bank (ECB) signalled an increasing readiness to pursue a big programme of quantitative easing (QE)—creating money to buy financial assets—in order to lift worryingly low inflation. Such an undertaking would require the purchase of sovereign bonds, an unpalatable policy in Germany, the country that in effect underwrites the single currency. Will the ECB nonetheless move from semaphore to action when its governing council meets on January 22nd?

Mario Draghi, the ECB's president, wants to crank up monetary policy because inflation remains uncomfortably lower than the bank's goal of almost 2%. The headline rate stayed below 1% throughout 2014, reaching 0.3% in November, while the core rate, which strips out food and energy prices, was just 0.7% in late 2014 (see chart). The steep fall in oil prices will be a welcome tonic for the sickly euro-zone economy. But it may have a sting in the tail if people expect lower inflation as cheaper energy pushes the headline rate into negative territory, even if only temporarily.

A prolonged spell of "lowflation" is bad for the euro area because many of its member states are weighed down by excessive public and private debt. If outright deflation were to take grip it would harm borrowers: when prices fall the real burden of debt, which is generally fixed in nominal terms, increases. But even if lowflation were merely to persist, this would also hurt them since the incomes that service their debt are rising more slowly than they expected when they took out the loans.

The ECB can no longer help by cutting interest rates: it lowered its main lending rate in September to just 0.05% while charging banks on deposits they leave with it, through a negative rate of 0.2%. But the central bank can still ease policy by expanding the size of its own balance-sheet, which it intends returning to the high of €3 trillion ($3.7 trillion) that it reached in early 2012. That amounts to an extra €1 trillion, though no date has been specified for accomplishing the increase.

The previous peak occurred as the ECB averted a funding crisis for banks by providing them with €1 trillion in three-year loans in the winter of 2011-12. Since then its balance-sheet has been waning as banks in northern Europe repaid the money early. The ECB had hoped to reverse this shrinkage through another, more extended round of long-term funding operations, providing liquidity until 2018 at a fixed rate of just 0.15% a year. However, the first two of eight tenders have been a disappointment. In September and December banks borrowed only €212 billion, little more than half the €400 billion available.

The take-up was low for reasons that seem likely to persist in the next two tenders in the first half of 2015 and probably subsequent ones, too. Though banks in southern Europe are still thirsty for central-bank funding, their northern counterparts can fend for themselves in the markets. The aim of the operations is to provide funding for lending to the private sector, but businesses are not that keen to borrow while the economy remains slack.

Although the tenders will continue until June 2016, it seems clear that the ECB cannot rely upon banks to expand its balance-sheet. The only certain method to raise it is through QE. Mindful of German objections to purchasing sovereign debt, the ECB has already started down this path by buying two kinds of private-sector assets in late 2014: covered bonds (debt issued by banks that is backed by safe loans) and asset-backed securities. But neither type is big enough for such purchases to have much traction. By late December, the ECB had bought just over €30 billion, overwhelmingly in covered bonds; if sustained, this might add up to €200 billion to the ECB's balance-sheet by the end of 2015.

Another form of private asset that the bank could purchase is corporate bonds, but the ECB would be hard-pressed to buy more than around €100 billion a year, still leaving it a long way from its goal. The only sure way to raise its balance-sheet by €1 trillion over a realistic horizon is to buy public debt, the only asset class big enough for purchases on an industrial scale. Sovereign bonds that are eligible for banks to use as collateral against their borrowing from the ECB amounted to €6.6 trillion in the third quarter of 2014. There is ample precedent, too: purchasing public debt is the main way that QE has been conducted in America, Britain and Japan.

The ECB is permitted to buy sovereign bonds in secondary markets. But unlike other central banks it lacks a state. The credit ratings of the countries in the euro area vary from AAA in Germany to junk in Greece. Buying Greek debt would expose the central bank to potential losses if Greek politics sour further. Jens Weidmann, head of the German Bundesbank, frets about anything that might mean the ECB straying into forbidden fiscal territory. A majority of the 25-strong council (which will share 21 votes under a complex system of voting rotation that starts in 2015 following Lithuania's accession) would back Mr Draghi in moving to QE, but such a controversial policy might backfire if it does not command sufficient support.

Concerns about the legitimacy of QE may be allayed by an opinion from a senior legal official of the European Court of Justice on January 14th about the legality of the bond-buying commitment that gave teeth to Mr Draghi's pledge in July 2012 to do "whatever it takes" to save the euro. Some analysts think that may be sufficient for the ECB council to press the QE button later this month. Alternatively it may wait until its second meeting of 2015, in March, especially if this gives Mr Draghi an opportunity to peel away German allies. Any announcement of a sovereign-debt-buying programme is unlikely to go beyond €500 billion. Whether that will be sufficient to drag the euro area out of its sorry state of sluggish growth and lowflation is another matter. ■

Free exchange | Green tape

Environmental regulations may not cost as much as governments and businesses fear

WHAT are the economic effects of environmental policies? It sounds painfully obvious, but the answer depends on how strict those policies are. So how do you quantify that? One of the dirty secrets of green economics is that, until now, no one has had a good measure of environmental strictness.

One or two narrow indicators have been developed. The European Bank for Reconstruction and Development, for example, has an index of climate-policy stringency for 2011. But there is no standard measure comparing the effects of different policies, assessing countries' overall policy stance and calculating how these have changed over time.

This lack reflects problems in the underlying data. So-called environmental services—disposing of waste or cleaning up the air—are not included in traditional measures of productivity. So if their inputs or outputs change (and they have changed a lot over 20 years) the results will not show up in the numbers. Environmental policies also influence the stock of capital—for example, by making some technologies obsolete. But depreciation rates in national accounts rarely allow for such effects.

This does not mean it has been impossible to study climate policies. But without macro-environmental indicators, studies have largely been restricted to individual laws, such as America's Clean Air Act. For the most part, they have found that these laws have little impact. As a recent review of the literature* concluded, the effects on "employment and productivity…appear to be small and transitory…the estimated effects…on trade and investment location so far are negligible." That is fine, as far as it goes. But national climate policies are increasingly ambitious, ranging from vehicle-emission standards and clean-water requirements to controls on power stations. Policymakers need to know not just the impact of individual measures but the combined effect of all their environmental policies.

Now, they finally have some hard figures. Researchers at the Organisation for Economic Co-operation and Development (OECD), a club mostly of rich countries, recently constructed the first comprehensive set of data on environmental strictness and its effect on productivity.† The researchers got around the difficulties of incomplete national accounts by calculating an index based on the explicit or implicit price of green policies. If a price is explicit—say, that of a traded pollution permit—the calculation is reasonably straightforward. If it is implicit—arising from restrictions on vehicle emissions, for example—the researchers estimated a relative score based on a scale of zero to six (zero means the policy is absent; six represents the most stringent measure in force). They combined this and other data to create a composite indicator of "environmental policy stringency" (EPS) for 24 OECD countries from 1990 to 2012. Using the ORBIS database of information on 44m companies, they were then able to calculate how changes in the EPS indicator affected manufacturing firms.

Measure for measure

In most respects, the results are not a surprise. The strictest policies are in Nordic countries and the Netherlands; the laxest are in Greece and Ireland; Britain and America are near the OECD average. Policies everywhere have become stricter since 1990. More importantly, the new study confirms earlier findings about the impact of individual measures: "an increase in stringency of environmental policies does not harm productivity growth." This contradicts what most governments and companies seem to believe: that green rules may be justified by the need to save the planet but impose immediate economic costs.

There are several possible explanations for the finding. One is that damage from environmental regulation is not great enough to change the overall productivity figures. A rule of thumb says a 10% change in the oil price is associated with a 0.2% change in GDP, so if green taxes push up energy prices by only a few cents, their macroeconomic impact might be modest. The effect on jobs, investment or trade, though, might be greater.

Another explanation may be that stricter environmental regulations do as much good as harm. According to this line of reasoning, which is associated with Michael Porter of Harvard Business School, such rules encourage firms to invest more in efficiencies and innovations than they would have otherwise. The study finds indirect evidence in some firms, though not all. It reckons that a shift from the lowest (Greek) levels of environmental stringency to the highest (Danish) ones further boosts productivity in the most productive manufacturing firms by 0.2-0.6%. But it reduces productivity, by 0.1-0.3%, in firms that were already less productive. In other words, the level of productivity affects the impact of green rules more than, say, the amount of pollution. This suggests that green policies make a bigger difference at the level of the firm than to the economy as a whole.

Lastly, it is possible that the kind of environmental policy matters a lot—whether it is broadly market-based (such as a carbon price) or not (such as bans or regulations). To measure this, the researchers constructed a second index, using a questionnaire to look at matters such as the administrative burden associated with getting an environmental permit or whether new firms face higher barriers to entry as a result of green rules. The index is only a snapshot—but is enough to show that environmental strictness and market-friendliness are not the same. The Netherlands is strict but competition-friendly; Italy is lax but anti-competitive; Germany is strict and burdensome. Perhaps countries should pay as much attention to the quality of their environmental legislation as to its stringency. ■

* "The impacts of environmental regulations on competitiveness." By Antoine Dechezleprêtre and Misato Sato. Grantham Research Institute, 2014.

† "Do environmental policies matter for productivity growth?" By Silvia Albrizio and others. OECD, 2014.

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The search for supersymmetry

Come out, come out, wherever you are!

The coming year will be crunch time for humanity's understanding of the universe

IN MARCH, after a two-year shut down for an upgrade, the world's biggest particle accelerator, the Large Hadron Collider (LHC), will reopen for business. The rest of the year will see physicists biting their nails—for one way or another 2015 will go down as a famous date in their field. Either theoreticians will be proved spectacularly right, and experimenters can move confidently on into the verdant pastures of so-called new physics, engaging in a positive safari of hunting for novel particles, or they will find out, to exaggerate only slightly, that they do not understand how the universe really works.

The LHC's main job, now it has found the much-heralded Higgs boson, is to track down an almost equally heralded—and more than equally elusive—phenomenon called Susy. This is the nickname physicists have given to the concept of supersymmetry, which lies at the heart of most models of new physics.

Susy, dreamed up in 1981 to answer tough questions about existing physical models, has been playing hide and seek since then as first the Americans, using the now-closed Tevatron accelerator at Fermilab, near Chicago, and then the Europeans, using the LHC at CERN, a laboratory in Geneva, have sought signs of her existence. Researchers have gradually ramped up the power of their machines, looking for telltale particles, and have now arrived at the point where, if some of these particles do not appear in the latest ramp-up, they will have to scrap the idea and come up with something else.

Susy exists to resolve a conundrum. In the second half of the 20th century physicists painstakingly assembled what has come to be called the Standard Model. This explains all known fundamental particles and forces except for gravity, which has its own private model called general relativity. But, though the Standard Model works, it depends on many arbitrary mathematical assumptions. The conundrum is why these assumptions have the values they do. But the need for a lot of those assumptions would disappear if the known particles had heavier partner particles: their supersymmetric twins.

There are various versions of supersymmetry, but all of the most plausible predict that some of these partner particles, though heavier than the particles of the Standard Model, and thus harder to make in accelerators, are nevertheless sufficiently light that either they should have been found already, or else they should show up pretty quickly when the LHC is turned back on. The machine's upgrade is therefore the last throw of the dice for the theory, at least in its conventional form.

Failing to find supersymmetry would be tricky not only for those who hope to use it to clarify the Standard Model, but also for those others who think Susy will explain the nature of so-called dark matter—which its gravitational effects show is six times as abundant in the universe as the familiar matter of which atoms are made. Many physicists are betting that dark matter is composed of one or more types of supersymmetric partner particles. If those particles turn out to be illusory, these physicists, too, will have to think again.

If Susy does not show up, though, it will not be the end of physics. In science, not finding something can often be more exciting than finding it. In the late 19th century, for example, there was a Susy-like hunt for the luminiferous aether, which almost all physicists then believed pervaded space and propagated light in the way that air propagates sound. But an experiment by two Americans, Albert Michelson and Edward Morley, showed that the aether does not exist. Physics had been barking up the wrong tree, and it took Max Planck and Albert Einstein, the conceivers of quantum theory and relativity theory, to give it new trees to bark up.

A century later, a few alternative trees have already been planted, just in case ▸▸

Susy does fail to show up for her date. There are, for instance, more complicated versions of supersymmetry that have the virtue, from the point of view of the current absence of telltale particles, that their own predicted particles are too heavy for even the upgraded LHC to make. The vice of these theories is that they are indeed more complicated. Invoking them smacks of an ancient astronomer adding an epicycle to a planet's orbit to make that planet's movement fit the data, when what is actually needed is a shift of perspective about where the centre of the solar system is.

Another approach, which has the virtue of requiring such a shift of perspective, is to accept that the Standard Model's arbitrary assumptions are actually arbitrary realities. Physicists are reluctant to do this because even small changes in the numbers would cause the whole thing to break down. The result would be either a radically different universe or no universe at all. It beggars belief, the argument goes, that things could be so finely tuned as to produce this particular universe, the one humans live in, by accident.

The way out of this, for those unwilling to invoke an intelligent creator, is to allow that the observable universe is just one of an indefinite number of universes, each with its own laws of physics. In that case, only universes governed by the Standard Model, or something similar to it, could have the conditions needed for the emergence of physicists capable of observing it.

Such arguments shade into philosophy, for even if multiple universes do exist it may be impossible to observe them. But then, in Isaac Newton's day, physics was known as "natural philosophy". Perhaps it is time to revive the term. ■

Cleaning waste water with algae

Strange brew

An artificial ecosystem should help purify the effluent from making beer

Bloomin' algae...

ALGAL blooms happen when waste water from farms, factories and dwellings carries large amounts of normally scarce nutrients like nitrogen, potassium and phosphorous into rivers, lakes and seas. Algae, often unicellular ones, lap these nutrients up and breed like billy-o. These blooms are occasionally dangerous, if the algae involved are toxic, and are generally regarded as undesirable. But what if it were possible to control an algal bloom, and use it to absorb such nutrients before they escape to the wider environment?

That is the idea behind a technology developed by Algal Scientific, of Northville, Michigan. Algal's researchers are not the first to try to control pollution with algae. But they think they are the first to have succeeded in a commercially viable way, for they have installed a plant at the Budweiser brewery in Idaho Falls.

Cleaning up waste water with algae is an old idea, and the fact it has never really worked before is curious. Geoff Horst, Algal's boss, reckons that the problem, paradoxically, is that the town sewage to which it has hitherto been applied is not dirty enough. The usual approach has been to rely on photosynthesis to feed the bugs, which then suck the nitrogen, potassium and phosphorous out of the water as they grow. But photosynthesis requires sunlight. Lots of it. That means decontamination plants need to be shallow ponds stretched over huge areas of land. And that is expensive and hard to manage.

Some algae, though, can get away without photosynthesising, by drawing food directly from the surrounding water—assuming this is rich enough in organic matter. And brewery waste is rich in precisely the sorts of organic matter (sugars and so on) that these bugs love. Moreover, without the need for sunlight, the process can be conducted in tanks of the sort breweries are used to. That makes building and running the system a lot easier.

Dr Horst's other clever idea is to use not an algal monoculture, but rather an entire miniature ecosystem of his own creation. Some bugs hoover up the nutrients. Others are predators, there to eat bacteria which might otherwise run riot and overwhelm the nutrient-absorbing algae. Getting the mix of critters right took years, and its composition remains a secret—beyond the fact that none of the organisms involved is genetically modified. But Dr Horst's artificial ecosystem now seems more than happy bathing in brewery waste.

Moreover, it may even turn a profit. Obviously, the algae have to be harvested periodically. Dumping them would simply move the problem from one place to another. Dr Horst, however, proposes that they be dried and sold as fertiliser or animal feed. This will put the scavenged nutrients into organisms that will help humanity, rather than hurting it. ■

Battery technology

A whiff of brimstone

Adding sulphur to electrical cells may quintuple their performance

BUILD a better battery, to paraphrase Ralph Waldo Emerson, and the world will beat a path to your door. For consumer goods, from computers to cars, "better" means "better than lithium-ion". And several groups of engineers think they have one: it is based on lithium and sulphur.

A lithium-ion (Li-ion) battery works by shuttling the eponymous ions, which are positively charged, through an electrolyte that links two electrodes, one made of carbon and the other of a substance containing a heavy metal such as cobalt, manganese or nickel. Such metals have multiple oxidation states, meaning they can lose or gain different numbers of electrons in different circumstances. To balance the movement of lithium ions, electrons (which are negatively charged) move to or from the heavy metal through an external circuit that also links the electrodes, changing the metal's oxidation state as they do so. When the battery is discharging, both ions and electrons travel spontaneously in one di-

rection, creating a current and releasing energy. When it is being recharged they are forced, by the application of a voltage, to go the other way and thus to store energy.

Lithium-sulphur batteries work in a similar fashion, but dispense with the heavy metal. Instead, they use sulphur, which also has multiple oxidation states—more of them, indeed, than many metals do. This fact, combined with sulphur's lightness, means lithium-sulphur batteries can, in principle, store four or five times as much energy per gram as lithium-ion ones manage. And, since sulphur is cheap, they can do so at lower cost.

Turning that principle into practice, though, has been a hard slog. Experimental lithium-sulphur cells tend to wear out, because the sulphur in their electrodes gradually dissolves into the electrolyte. There are also questions about their safety. Part of the cycle of a lithium-sulphur battery involves some lithium ions turning into metallic lithium. This metallic form of the element may grow into filaments called dendrites that cause short circuits, and thus overheating and fires.

Various academic groups are working on these problems. Chengdu Liang, at the Oak Ridge National Laboratory, in Tennessee, has developed a solid electrolyte that stops the sulphur dissolving. The dendrite problem, meanwhile, can be ameliorated by adding carbon to the electrode where the lithium is deposited. At Stanford University, Yi Cui employs buckminsterfullerene, a form of the element in which the atoms are organised into spheres, to do this. Cheng Huang at Pacific Northwest National Laboratory use lithiated graphite, which traps lithium atoms within its structure. OXIS Energy, of Oxford, Britain, meanwhile, is experimenting with a lithiated version of graphene, a recently discovered form of carbon that consists of sheets a single atom thick.

Huw Hampson-Jones, OXIS's boss, hopes the firm's batteries will go into production in 2015. If they do, they may be the first to reach the market. But they are unlikely to be alone for long. Larger companies, less in need of publicity, are more secretive about their battery programmes. But an unguarded remark by Carlos Ghosn, in a television interview he gave in November, suggests Nissan, the carmaker that he runs, also has a lithium-sulphur battery that is close to production, and will soon be installed in the firm's LEAF electric cars, doubling the vehicles' ranges.

At the moment, a LEAF's Li-ion batteries can store about 140 watt-hours per kilogram. OXIS's store more than 300 whr/kg and Dr Hampson-Jones hopes to raise this to 500 whr/kg by 2018. Whether that will be enough to fend off the likes of Nissan remains to be seen. But whoever wins the race, whale or minnow, the days of the Li-ion look numbered. ■

Forensic pathology

Cold comfort farm

SAN MARCOS

Not all bodies left to science end up in medical schools

IF IT wasn't for the smell, you might imagine yourself to be in a sculpture garden. There are human figures everywhere: some emaciated, almost but not quite to the point of emptiness; some abstracted beyond that, to the bones; one, a woman, still takes up all of the space you might expect—so much of it, indeed, that at first glance she might have been fashioned by Fernando Botero. But these are not sculptures. They are the real thing. They are bodies in the charge of the University of Texas's Forensic Anthropology Research Facility at Freeman Ranch, in a section of the ranch better known as the body farm (one of four in America), where the grizzly process of decay is studied in detail for the edification of the world's police forces.

The farm's director, Daniel Wescott, does not frown on the use of "corpse", or "body" or even "cadaver". But he prefers "donation". And most are, indeed, donations—gifts of their former owners to forensic science, or gifts to science or medicine in general that have proved, by being too fat, too thin or too sick, to be inappropriate for other purposes.

Yet for Dr Wescott these outliers are particularly welcome. They provide the variation in starting conditions that is the lifeblood of all scientific experiments, including those on the dead. Other variables are temperature, rainfall, shade and the amount of protection a body is allowed to have. And some such protection is certainly needed because, without countermeasures, a few dozen vultures would soon swoop in and reduce a corpse to a skeleton in no more than five hours.

Skin in the game

Put a cage over it, though, and there is time to witness the successive arrival of any number of other life forms—collectively known as the necrobiome—that are in the body-disposal business. Right from the start, of course, there are microbes. Some, everyone already carries around, ready to go to work. Others arrive by fly—in this part of Texas, most commonly aboard green bottles. Some microbes actually send out pheromones to call in the flies, who then repay them with transport to other delectable locations.

Flies, or rather their larvae, do much of the initial work. One of the Botero-like lady's thighs is already grey with a layer of furiously wriggling maggots. In two or three days she will be as thin as her neighbour. After that, things go more slowly. The difference between a body which has been at the farm for a week or two and one that has spent months in the hot Texan sun is not particularly obvious to the untrained eye. In the end, after about a year, the bones that remain are picked up by Dr Wescott's assistants and brought into the laboratory, in order to see how their structure and the proteins they contain differ from those of fresh bones.

About 200 bodies have travelled this carefully monitored road to dust since experiments started at Freeman in 2008. The intervening years have seen the collection of many data that help forensic laboratories estimate how long it is since someone died. When death was mere hours ago, a body's internal temperature is, as is well known, the best indicator. When days or weeks have passed, the exact species of maggots eating it are the giveaway. After that, when it has been decaying for a month or two, the mixture of microbes is the telltale. Then, as the time since death extends towards or beyond a year, big changes such as the amount of flesh left on the bones are the most useful sign. Finally, for bodies several years old, the chemical breakdown of the bones themselves can yield an estimate of how long a person has been dead.

And it is not just bodies themselves that Dr Wescott's team are studying. One of their current projects is to investigate what happens to the place where a body was once on or just under the ground. A year or so later, because of nutrients that leaked from the body, vegetation in the area grows with enough added vigour that a drone flying overhead can spot the difference. Hiding a body successfully was never that easy in the first place. Techniques like this will make it harder still. ■

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"Tristan and Isolde"

A spine-tingling and blissful infinity

The magic of Wagner's opera springs from a musical trick

"THE most erotic music ever composed." This was how one critic described Richard Wagner's "Tristan and Isolde", which in 2015 marks the 150th anniversary of its first performance. The work is divisive. Many 19th-century critics thought little of it; some even mocked it. But it had an enormous impact, ushering in the move towards atonality that found its most extreme expression in the work of composers like Arnold Schoenberg. Today it is the most famous opera by Germany's most famous opera composer. But why all the fuss?

The opera traces the story of two lovers, Tristan and Isolde (painted above by August Spiess in 1881), who fall madly in love after drinking a potion. The plot is forgettable; the music is not. The magic starts with the prelude, a ten-minute musical introduction that structures the rest of the piece. The opening chord, known to music buffs as the "Tristan chord", shocked the 19th-century listeners who heard it first.

Normally, in classical music, dissonance resolves into consonance; tension melts into resolution. But the Tristan chord, and the music that follows it, dispenses with such convention. It tempts you to listen out for a particular chord (A minor). But it never comes. Instead other dissonant chords emerge, which while not unpleasant, do not provide any relief. By the end of the prelude, the listener is left unsatisfied and waiting for more.

The prelude sets the tone for the rest of the opera. Western music composed before "Tristan" tends to be tightly structured. Composers of the classical period of the late 18th century, such as Haydn and Mozart, often opt for four- or eight-bar phrases with a clear beginning and end (the opening of Beethoven's first piano sonata is a prime example). There are often clear, easy-to-follow tunes, so the listener knows where the music is going. Not so in "Tristan". Overlapping melodies flow for dozens of bars; humming the opera is tough.

In fact, the music was so unusual that, at first, musicians struggled to play it, says Laurence Dreyfus of Oxford University. The first performance was supposed to be in Vienna in 1862. But after more than 70 rehearsals, the production was cancelled. The singers could not find their notes and the orchestra struggled to keep time. Only by 1865, with its premiere in Munich, had the musicians caught up with Wagner and his "Tristan". The critics were less convinced: the singing was "nothing but screaming and shrieking", fumed one, while the orchestra indulged in the "most outrageous discords".

Why did Wagner choose such an unusual style? Partly it was the result of a new outlook on life. He discovered the work of Arthur Schopenhauer, a German philosopher, in 1854. Schopenhauer believed that people were driven by unachievable desires; the chasm between what they want and what they can get is immiserating. Wagner was inspired by such pessimism. For a man prone to fleeting romantic liaisons, love was always unsatisfying. And he came to believe, again thanks to Schopenhauer, that music was the best way to express such complex emotions. That forced him to abandon temporarily his work on the "Ring" cycle, where the music is really a complement to the drama, and instead knuckle down to "Tristan", where the music is clearly the main event.

"Tristan" is all about dissatisfaction. The love between Tristan and Isolde is so intense it cannot possibly be realised in the real world; their only option is to die together. To represent the pain of their unachievable desire, Wagner had to dispense with conventional harmony. He also could not offer the audience neat chunks of music that were easily digested. He wanted them to feel as anxious and confused as the protagonists.

Wagner uses musical tricks to toy with his audience, says Mr Dreyfus. The opening phrase of the final act turns out to be another form of the Tristan chord, only darker and even more melancholy, which emphasises the tension. One of the most famous scenes, in the second act, is an amorous encounter between the lovers that is brutally spoiled right before the climax. More than two hours into the opera, this violent *coitus interruptus* is hard to bear. Two conductors have died leading the second act.

Some productions add to the pain. Traditional Wagnerian performances tend to be rather silly spectacles, with lots of ▸▸

swords, cloaks and horned helmets. One of the most recent productions of "Tristan", which was directed by Christof Loy at the Royal Opera House in London and which closed shortly before Christmas, was less bombastic. Much of the action took place in just one corner of the stage, a chair at times being the only prop. The spartan set removed even the lightest of relief from the listener's experience.

Mercifully, Wagner rewards his audience at the end of the third act. After Tristan dies, Isolde begins a long solo that leads to the opera's conclusion. Five hours after the first Tristan chord demanded it, a quiet, extended and wholly unexpected major chord provides a glorious resolution. It was, said Friedrich Nietzsche, "a spine-tingling and blissful infinity". The orchestra fades out, and Isolde, too, is dead. ■

Cotton, a global history

Spinning tales

Empire of Cotton: A Global History. By Sven Beckert. *Knopf; 615 pages; $35. Allen Lane; £30*

GOOD economic history tells dramatic stories of ingenuity and aspiration, greed and national self-interest. Sven Beckert writes good economic history. But why cotton? Mr Beckert's answer is that for 900 years, until 1900, it was the world's most important manufacturing industry. Cotton is relevant now because the story explains how and why an industry goes global. It is a story of wildly fluctuating fortunes, from stunning wealth to dire social disasters.

India runs like a thread through this tale. Cotton was being spun in the Indus Valley in 3000BC; Herodotus admired its quality. Spinning and weaving cotton (the word comes from *qutn* in Arabic) were introduced to Europe by Muslim invaders in the tenth century. In India cotton as a cottage industry was so successful that it established a substantial market in Britain. This had two consequences. The first was technological innovation in the industrial north; spinning machines, the invention of the flying shuttle, the spinning jenny and power looms were the forerunners of the Industrial Revolution. The second, introduced in 1774 to assist English spinners and weavers, was protectionist legislation that made it illegal to sell imported cotton.

By 1800 mass-produced British cotton dominated world markets, including in India where the industry collapsed. In the three decades to 1820 innovation helped productivity in Britain's new cotton factories increase 370 times. Mr Beckert, a history professor at Harvard, calls this new economic order "War Capitalism" as it is based on imperial expansion, expropriation of land, and slavery.

Slaves and wide open spaces in the southern states transformed America's economy, too. Capital, raised mainly in London, financed the expansion. By the late 1850s, 77% of the cotton consumed in Britain came from America. Profits soared on both sides of the Atlantic. Manchester became a centre of the universe, always feeding on cheap labour, mostly women, who, unlike slaves, were paid a wage, albeit a poor one. (This reviewer's great-aunt was among the first women to earn a guinea a week from piece-work in her Rochdale mill, in the 1920s.)

Deprived of raw American cotton when the civil war broke out in 1861, English manufacturers rediscovered India. Railways were built in the newly acquired state of Berar to shift raw cotton for export to Bombay. By 1862, 75% of Britain's cotton originated in India. The industry had gone global; Egypt and Brazil also provided new sources of supply. When news of the Union Army's victories in 1865 reached India, property prices in Bombay collapsed, anticipating the renewed competition that the end of the war might bring. In the event, as peace returned to the American South and former slaves became sharecroppers, the global industry recovered quickly, helped by a surge in demand.

In the late 19th century the cotton industry in England began to decline. At the height of the Great Depression in 1932 only 11% of the world's mechanical spindles were operating in Britain, compared with 61% in 1860. The terrible blight that has overwhelmed cotton towns such as Rochdale began then, and has grown worse since. By the late 1960s Britain accounted for only 2.8% of global cotton exports.


Still a player, thanks to subsidies

Today the main sources of raw cotton are China (29%) and India (21%). Supported by grotesque subsidies ($35 billion between 1995 and 2010), America clings on in third place. Producers sell to the new merchants of cotton: global retailers such as Gap and Adidas. Mr Beckert's story is both inspirational and utterly depressing, a reflection of the white-knuckle ride that has been the characteristic of globalisation through the centuries. ■

The Armenian genocide

Seeing through fire

There Was and There Was Not. By Meline Toumani. *Metropolitan Books; 304 pages; $28*

ANNIVERSARIES have become the party theme of our time, especially over the past year, as the world was reminded of the start of the first world war. At least two further historic moments will be marked in 2015. One is the battle of Waterloo, which on June 18th will be accompanied by triumphal chest-beating (at least in Britain). Elsewhere, the centenary of the Armenian genocide is likely to arouse rage as well as recrimination.

On April 24th 1915 scores of Armenian intellectuals and artists were rounded up in Istanbul, the capital of the collapsing Ottoman empire, and later killed. The killings marked the start of a protracted period of persecution of the empire's Christian subjects, who were subjected to state-sanctioned murder, rape and huge forced deportations to the Syrian desert. At least 1m people—mostly Armenians—died.

In an audacious first book, Meline Toumani, an Armenian-American journalist who grew up in suburban New Jersey, describes spending two weeks every year as a youngster in an Armenian summer camp in Massachusetts, where she and fellow schoolchildren were ordered never to forget what happened to the Armenians. She offers a compelling account of the hatred she was encouraged to feel towards Turks. But the former *New York Times* writer also had a rebellious streak that prodded her to draw her own conclusions about historic nationalism.

Already, as a young student, Ms Toumani "wondered whether there was a way to honour a history without being suffocated by it, to belong to a community without conforming to it, a way to remember a genocide without perpetuating the kind of hatred that gave rise to it in the first place." Alarmed at her own ambivalence Ms Toumani decided that "the quickest way to remedy this would be to cut through all the lobbying and hateful rhetoric and sit down with some elderly Armenians to hear what they had suffered."

That method failed to answer her questions. Her depictions of nonagenarian Armenian ladies being trotted out by publicists to recite fading and confused memories of the slaughter, are biting, even cruel. But Ms Toumani is not questioning that the genocide took place. Rather she is interested in the "why" or the "how".

Her quest connects her to intrepid Turkish academics, such as Taner Akcam and Fatma Muge Gocek, devoted to deconstructing Turkey's official line that in 1915 more Turks were killed by "treacherous" Armenians than the other way round. Emboldened by "the strange exhilaration of talking on the phone with a Turk", the young writer took the plunge and travelled to Turkey for the first time in 2003. She returned to write this book in 2007, shortly after Hrant Dink, an outspoken Turkish-Armenian newspaper owner, was gunned down by an ultranationalist youth outside his office in Istanbul. Ms Toumani was confident that her "ability to be self-critical as an Armenian" would help her win people's trust. She swiftly learned Turkish.

What ensued was a brief spell of enchantment with Istanbul and the warmth of ordinary Turks. But this wore thin as she crashed into a wall of denial that seemed to arise at almost every turn. Turkish museums left out Armenian kingdoms and dynasties from their timelines. When a female opposition politician claimed that Turkey's then president, Abdullah Gul, had Armenian blood he took her to court. The faux tolerance displayed by liberal Turks (they all loved *topik*, an Armenian dish) began to grate. "Each person who said it seemed to glow with pride for having found such a graceful detour around his own prejudice," she writes

Ms Toumani also touches on the fraught relations between Turkey and the neighbouring post-Soviet Armenia (Armenia's borders with Turkey and Azerbaijan are sealed; its borders with Iran and Georgia are not). The author travelled to Armenia and is gruffly affectionate about the place, though she came across a further twist of intra-Armenian racism when a local sports team called an Istanbul Armenian opponent "a Turkish dog".

For all her disillusionment Ms Toumani acknowledges that there has been a shift in Turkey. Using the word genocide no longer lands people in jail. Thousands of "hidden Armenians", whose ancestors converted to Islam so their lives would be spared, are reclaiming their identities. And on the eve of the genocide's 99th anniversary, April 23rd 2014, Turkey's president (and then prime minister) Recep Tayyip Erdogan offered an apology of sorts when he acknowledged the suffering of the Armenians. Ms Toumani's stirring memoir lends hope that reconciliation, imperfect though it may be, can at last be achieved. ■

Memoir

Killer prose

The Undertaker's Daughter. By Kate Mayfield. *Gallery Books; 350 pages; $24.99. Simon & Schuster; £12.99*

"WE'VE got a body." Raised above her family's funeral home in a small Kentucky town, Kate Mayfield knew the phrase that inevitably followed whenever the phone rang. "The Undertaker's Daughter", her memoir, lures the reader in with a behind-the-scenes view of man's final act. She recounts the forbidden thrill of touching a dead body for the first time; her revulsion at the embalming room; a bit of the biology of decomposing organs; and plenty of keen observation on people showing their true colours after their loved ones die.

Mimicking the unpredictable interjections of death that punctuated her childhood, she interrupts her chronological narrative with a series of "in memoriam" vignettes about the town's deceased, ranging from a man with such poor hygiene that he made the building stink for days to her father's perfectly straight rendering of the mouth of a man who had murdered his family and then himself. Her Southern Gothic-style depiction of the town of Jubilee in the 1960s, with its prim, elegant exterior masking a seething social dysfunction, reinforces the macabre mood.

But Ms Mayfield seems less interested in probing the meaning of mortality than in addressing the questions of this world. One recurring theme is race. Raised in part by a black housekeeper, she bristles at segregation and actively seeks black boys to date once she reaches high school. Whereas corpses barging through the door soon become routine, the black girls at her recently integrated school who threaten her for chasing after "their" men retain their power to shock.

The book's primary focus, however, is Ms Mayfield's effort to render judgment on the undertaker of the title. As a girl she idolised her father; by her early teens she discovers he is an alcoholic. Her vicious older sister—later identified as bipolar—reveals that he had cheated on their strict but dedicated mother. Only decades after the mortician's own premature death does the author learn of the horrors he witnessed during the second world war. She tentatively concludes that post-traumatic stress disorder accounted for both his numerous vices and his choice of profession—but ends up conceding, in her father's words, that "mostly, what the dead take with them are their secrets."

The daily commute

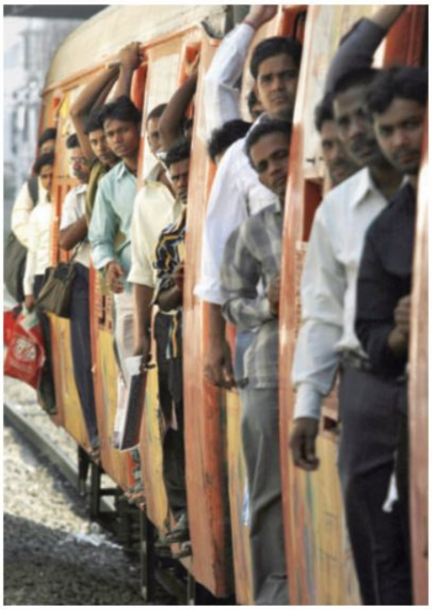
Travelling hopefully

Rush Hour: How 500 Million Commuters Survive the Daily Journey to Work. By Iain Gately. *Head of Zeus; 378 pages; £16.99*

TO THOSE who don't do it and to many who do, commuting is joyless: dead time, a limbo between home and work. Not for Iain Gately. In "Rush Hour" he argues, vividly and largely convincingly, that commuting is to be celebrated, not lamented. "For the last century and a half", he writes, "it has given countless people the opportunity to improve their lives."

The book is in three parts, covering commuting past, present and future, from Britain's Victorian railway boom to Elon Musk's vision of a "Hyperloop" whisking Californians the 380 miles (610km) from San Francisco to Los Angeles in merely half an hour. Mr Gately points out the changes in landscapes, manners and entertainment (from drive-time radio to "The Jetsons") that commuting has brought about.

People were eager to commute as soon



The lunatic express

as they had the chance. Early railway entrepreneurs expected to make their money from freight, but soon found that humans were more lucrative cargo. The railways' mainly middle-class customers had no choice but to work in the stinking city; but, if they could afford the fare, they could move to fresher air in the fast-spreading suburbs. They have been doing the same ever since, getting to and fro by train, car, bus and bike.

A few take commuting to extremes, travelling even when they don't have to. David Barter, a cyclist, started when his training partner began riding to work 18 miles away. Now Mr Barter cycles there with him—and back—before settling down to work at home. More conventional types spend their commutes reading, listening to music or just thinking: thanks to modern information technology, the time need not be wasted.

Of course, there are costs, even horrors. With no room to move in "super-crush-loaded" metro carriages, Tokyo schoolgirls are targets for *chikan*—salarymen in search of frottage. On the Mumbai Suburban Railway, Mr Gately writes, 97% of trains run on time, even during the monsoon. But crowding is even more extreme than in Tokyo ("super-dense-crush-loaded"); and more than 36,000 people have died in the past decade. Those who grumble about delays and overcrowding on trains into London (like this reviewer) should count their blessings.

One quibble is that too few references for the many statistics in "Rush Hour" are easily found in the otherwise meticulous endnotes. But the choice of Johnston Sans, the typeface of the London Tube, for chapter headings is a lovely touch. And Mr Gately is a good travelling companion—especially if you can find a seat. ■

Wartime Germany

Right to write

A Stranger in My Own Country: The 1944 Prison Diary. By Hans Fallada. Translated by Allan Blunden. *Polity; 267 pages; $25*

GERMAN intellectuals in the 1930s faced a painful choice between exile and danger. Hans Fallada chose to stay. Even as war was looming, after years of harassment and humiliation, he turned down an offer of life abroad for himself, his wife and his three young children. He loved Germany too much to leave it. "What kind of German would I be if I had slunk away to a life of ease in my country's hour of affliction and ignominy?" he wrote.

Those words were scribbled in a psychiatric prison in 1944, in tiny and all but illegible handwriting in a secret diary. The result is one of the most powerful accounts of life in the Third Reich. It was published in German only in 2009 thanks to the extraordinary editing skills of Jenny Williams and Sabine Lange, who deciphered the text, unravelled the deliberately confusing structure, and reconciled the original with a post-war typescript in which the author settled some personal scores and toned down some embarrassing passages. In an excellent translation by Allan Blunden, it is now available in English too.

Fallada was an unattractive character: a heavy drinker and a morphine addict, he was self-centred, spendthrift and quarrelsome. He repaid his loyal and long-suffering wife Suse with infidelity and violence (which led to his incarceration in the psychiatric prison). But he was a fine writer with an acute sense of the nuances and paradoxes of German society. His breakthrough novel, "Little Man, What Now?", was an international bestseller in 1932.

The story which comes across in this book is of a sensitive, damaged and desperate man, caught between loathing for the cowardly, vicious and vulgar Nazis and a wily survival instinct. A particularly poignant part is an elaborate fantasy about a huge and lavish bunker in which he and his family would retreat for many years, to emerge only when the war was over.

Most of the diary consists of anecdotes, cameos and reflections on the squalid compromises and degradation that Nazi rule had brought. "Oh, how they bled us dry! How they robbed us of every joy and happiness, every smile, every friendship! And then they plunged us into this most disastrous of all wars…they destroyed our cities, destroyed our families." The best hope for north Germans like him, he reckoned, was speedy defeat followed by British occupation.

Fallada was no hero. He tried to save his skin by collaborating with Goebbels. Though he blithely moved his family to a boarding house in Berlin run by a Jew (assuming, wrongly, that as this was not actually illegal, no harm would come of it), the book contains some jarringly prejudiced language. Many may also flinch at his explanation for the rise of the Nazis: that Germans, "so true, so forbearing, so steadfast", were also too trusting and easily led astray by charlatans.

Thomas Mann, the author of "Death in Venice", who fled Hitler, was caustic about writers who remained. Anything published between 1933 and 1945 was tainted with the "stench of blood and shame" and should be pulped, he wrote. Fallada's exquisite and troubling book, published after far too long a wait, does not contradict that argument, but complements it. ■

Damaged and desperate, but still dedicated

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Economic data

% change on year ago

	Gross domestic product latest	qtr*	2014†	Industrial production latest	Consumer prices latest	2014†	Unemployment rate, %	Current-account balance latest 12 months, $bn	% of GDP 2014†	Budget balance % of GDP 2014†	Interest rates, % 10-year gov't bonds, latest	Currency units, per $ Dec 29th	year ago
United States	+2.7 Q3	+5.0	+2.3	+5.2 Nov	+1.3 Nov	+1.7	5.8 Nov	-388.1 Q3	-2.3	-2.8	2.21	-	-
China	+7.3 Q3	+7.8	+7.3	+7.2 Nov	+1.4 Nov	+2.1	4.1 Q2§	+196.6 Q3	+2.4	-3.0	3.55§§	6.22	6.07
Japan	-1.3 Q3	-1.9	+0.5	-3.8 Nov	+2.4 Nov	+2.7	3.5 Nov	+6.8 Oct	+0.3	-8.1	0.33	121	105
Britain	+2.6 Q3	+3.0	+3.0	+1.1 Oct	+1.0 Nov	+1.5	6.0 Sep††	-163.0 Q3	-4.5	-5.1	1.92	0.64	0.61
Canada	+2.6 Q3	+2.8	+2.3	+3.4 Oct	+2.0 Nov	+2.0	6.6 Nov	-41.2 Q3	-2.5	-2.0	1.83	1.16	1.07
Euro area	+0.8 Q3	+0.6	+0.8	+0.7 Oct	+0.3 Nov	+0.5	11.5 Oct	+334.0 Oct	+2.3	-2.5	0.55	0.82	0.73
Austria	-0.1 Q3	-1.6	+0.9	-2.3 Oct	+1.7 Nov	+1.5	5.1 Oct	+1.5 Q2	+2.1	-2.5	0.72	0.82	0.73
Belgium	+0.9 Q3	+1.2	+1.1	-0.6 Oct	-0.4 Dec	+0.6	8.6 Oct	+8.0 Sep	-0.3	-3.0	0.97	0.82	0.73
France	+0.4 Q3	+1.0	+0.4	-1.0 Oct	+0.3 Nov	+0.6	10.5 Oct	-32.7 Oct‡	-1.5	-4.4	0.84	0.82	0.73
Germany	+1.2 Q3	+0.3	+1.4	+0.9 Oct	+0.6 Nov	+0.9	6.6 Nov	+289.6 Oct	+7.0	+0.8	0.55	0.82	0.73
Greece	+1.9 Q3	+3.0	+0.8	-0.7 Oct	-1.2 Nov	-1.3	25.7 Sep	+3.2 Oct	+1.5	-4.0	9.64	0.82	0.73
Italy	-0.5 Q3	-0.6	-0.3	-3.0 Oct	+0.2 Nov	+0.2	13.2 Oct	+36.4 Oct	+1.4	-3.0	1.99	0.82	0.73
Netherlands	+1.0 Q3	+0.5	+0.7	+0.4 Oct	+1.0 Nov	+0.7	8.0 Nov	+91.5 Q3	+9.6	-2.7	0.73	0.82	0.73
Spain	+1.6 Q3	+2.0	+1.3	+0.6 Oct	-0.4 Nov	-0.1	24.0 Oct	+2.1 Sep	+0.2	-5.7	1.70	0.82	0.73
Czech Republic	+2.7 Q3	+1.6	+2.4	+3.2 Oct	+0.6 Nov	+0.5	7.1 Nov§	+0.2 Q3	-0.4	-1.6	0.77	22.8	19.9
Denmark	+1.0 Q3	+1.6	+0.9	-2.4 Oct	+0.5 Nov	+0.7	5.0 Oct	+22.6 Oct	+6.4	-1.3	0.85	6.11	5.41
Hungary	+3.2 Q3	+1.9	+3.0	+1.9 Oct	-0.7 Nov	nil	7.1 Oct§††	+5.7 Q3	+4.2	-2.9	3.60	259	215
Norway	+2.1 Q3	+2.0	+2.3	+9.9 Oct	+1.9 Nov	+2.0	3.8 Oct‡‡	+49.2 Q3	+11.1	+12.1	1.71	7.45	6.12
Poland	+3.4 Q3	+3.6	+3.3	+0.3 Nov	-0.6 Nov	+0.1	11.4 Nov§	-7.3 Oct	-1.2	-3.5	2.53	3.53	3.01
Russia	+0.7 Q3	na	+0.6	-0.3 Nov	+9.1 Nov	+7.7	5.2 Nov§	+60.3 Q3	+2.6	+0.4	13.44	57.2	32.6
Sweden	+2.1 Q3	+1.3	+2.0	+0.1 Oct	-0.2 Nov	-0.1	7.4 Nov§	+36.5 Q3	+5.8	-2.2	0.99	7.83	6.50
Switzerland	+1.9 Q3	+2.6	+1.6	-0.4 Q3	-0.1 Nov	nil	3.1 Nov	+45.7 Q3	+11.3	+0.3	0.38	0.99	0.89
Turkey	+1.7 Q3	na	+3.0	+4.5 Oct	+9.2 Nov	+8.9	10.5 Sep§	-45.7 Oct	-5.0	-1.7	8.01	2.32	2.15
Australia	+2.7 Q3	+1.4	+3.1	+3.8 Q3	+2.3 Q3	+2.5	6.3 Nov	-42.9 Q3	-2.8	-2.6	2.92	1.23	1.13
Hong Kong	+2.7 Q3	+6.8	+2.4	-1.8 Q3	+5.1 Nov	+4.4	3.3 Nov‡‡	+7.7 Q3	+1.8	+0.8	1.96	7.76	7.76
India	+5.3 Q3	+8.1	+6.0	-4.2 Oct	+4.4 Nov	+7.3	8.8 2013	-23.4 Q3	-2.0	-4.3	7.98	63.7	61.9
Indonesia	+5.0 Q3	na	+5.0	+8.3 Oct	+6.2 Nov	+6.3	5.9 Q3§	-24.0 Q3	-2.9	-2.3	na	12,447	12,260
Malaysia	+5.6 Q3	na	+6.0	+5.0 Oct	+3.0 Nov	+3.1	2.7 Oct§	+18.0 Q3	+5.7	-3.6	4.12	3.50	3.29
Pakistan	+5.4 2014**	na	+5.4	+1.8 Oct	+4.0 Nov	+7.3	6.2 2013	-3.4 Q3	-2.6	-5.5	10.95†††	101	106
Singapore	+2.8 Q3	+3.1	+3.1	-2.8 Nov	-0.3 Nov	+1.1	2.0 Q3	+58.9 Q3	+20.7	+0.5	2.30	1.32	1.27
South Korea	+3.3 Q3	+3.7	+3.5	-3.4 Nov	+1.0 Nov	+1.3	3.1 Nov§	+88.5 Nov	+5.7	+0.6	2.65	1,098	1,054
Taiwan	+3.6 Q3	+2.6	+3.6	+6.9 Nov	+0.9 Nov	+1.3	3.9 Nov	+65.0 Q3	+11.9	-1.4	1.61	31.8	30.0
Thailand	+0.6 Q3	+4.4	+0.7	-3.5 Nov	+1.3 Nov	+1.9	0.8 Oct§	+10.2 Q3	+2.6	-2.2	2.87	33.0	32.9
Argentina	-0.8 Q3	+3.6	-0.6	-2.1 Nov	— ***	—	7.5 Q3§	-5.0 Q3	-1.0	-2.6	na	8.55	6.49
Brazil	-0.2 Q3	+0.3	+0.2	-3.6 Oct	+6.6 Nov	+6.3	4.8 Nov§	-88.7 Nov	-3.8	-5.0	12.67	2.69	2.35
Chile	+0.8 Q3	+1.5	+2.0	-0.2 Oct	+5.4 Nov	+4.4	6.4 Oct§‡‡	-5.0 Q3	-1.4	-2.3	4.37	606	524
Colombia	+4.2 Q3	+2.6	+5.0	+0.4 Oct	+3.7 Nov	+2.9	7.9 Oct§	-14.9 Q2	-4.3	-1.5	7.16	2,381	1,919
Mexico	+2.2 Q3	+2.0	+2.1	+2.1 Oct	+4.2 Nov	+3.9	4.7 Nov	-25.4 Q3	-1.9	-3.6	5.87	14.7	13.1
Venezuela	+1.0 Q4	+3.6	-3.1	+0.8 Sep	+63.4 Aug	+62.2	6.4 Oct§	+6.9 Q3	+0.7	-12.7	14.96	12.0	6.29
Egypt	+3.7 Q2	na	+2.2	+25.7 Oct	+9.0 Nov	+10.7	13.1 Q3§	-2.4 Q2	-2.4	-12.0	na	7.15	6.94
Israel	+2.5 Q3	-0.4	+2.4	-0.8 Oct	-0.1 Nov	+0.5	5.6 Nov	+11.2 Q3	+3.8	-3.0	2.37	3.91	3.48
Saudi Arabia	+3.6 2014	na	+4.1	na	+2.5 Nov	+2.8	5.6 2013	+139.2 Q2	+12.7	+1.2	na	3.76	3.75
South Africa	+1.4 Q3	+1.4	+1.6	+2.1 Oct	+5.8 Nov	+6.2	25.4 Q3§	-19.7 Q3	-5.1	-4.3	7.86	11.6	10.5

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, Nov 41.61%; year ago 19.95% †††Dollar-denominated bonds.

Markets

	Index Dec 29th	% change on one week	% change on Dec 31st 2013 in local currency	% change on Dec 31st 2013 in $ terms
United States (DJIA)	18,038.2	+0.4	+8.8	+8.8
China (SSEA)	3,319.5	+1.3	+49.9	+45.9
Japan (Nikkei 225)	17,729.8	+0.5	+8.8	-5.1
Britain (FTSE 100)	6,633.5	+0.9	-1.7	-7.8
Canada (S&P TSX)	14,663.9	+1.6	+7.7	-1.6
Euro area (FTSE Euro 100)	1,048.1	+0.9	+2.8	-9.2
Euro area (EURO STOXX 50)	3,185.2	+1.0	+2.4	-9.4
Austria (ATX)	2,174.7	+1.0	-14.6	-24.5
Belgium (Bel 20)	3,315.1	+1.0	+13.4	+0.2
France (CAC 40)	4,317.9	+1.5	+0.5	-11.2
Germany (DAX)*	9,927.1	+0.6	+3.9	-8.1
Greece (Athex Comp)	819.8	-5.5	-29.5	-37.7
Italy (FTSE/MIB)	19,130.0	+0.3	+0.9	-10.8
Netherlands (AEX)	426.9	+1.3	+6.2	-6.1
Spain (Madrid SE)	1,054.3	+0.2	+4.2	-7.9
Czech Republic (PX)	946.3	-1.1	-4.3	-16.4
Denmark (OMXCB)	680.3	-0.4	+20.2	+6.5
Hungary (BUX)	16,519.2	-0.1	-11.0	-25.8
Norway (OSEAX)	624.3	+0.1	+3.6	-15.6
Poland (WIG)	51,159.1	-0.6	-0.2	-14.8
Russia (RTS, $ terms)	795.1	-2.0	-4.1	-44.9
Sweden (OMXS30)	1,478.9	+1.2	+11.0	-9.0
Switzerland (SMI)	9,034.6	nil	+10.1	-0.8
Turkey (BIST)	84,101.8	-1.2	+24.0	+15.1
Australia (All Ord.)	5,446.9	+0.6	+1.8	-7.2
Hong Kong (Hang Seng)	23,773.2	+1.6	+2.0	+1.9
India (BSE)	27,395.7	-1.1	+29.4	+25.6
Indonesia (JSX)	5,178.4	+1.0	+21.2	+18.5
Malaysia (KLSE)	1,768.4	+1.4	-5.3	-11.3
Pakistan (KSE)	31,906.7	+1.3	+26.3	+31.4
Singapore (STI)	3,367.7	+1.1	+6.3	+1.5
South Korea (KOSPI)	1,927.9	-0.8	-4.2	-7.9
Taiwan (TWI)	9,286.3	+2.1	+7.8	+1.2
Thailand (SET)	1,498.2	-2.5	+15.4	+15.0
Argentina (MERV)	8,443.3	+3.5	+56.6	+19.4
Brazil (BVSP)	50,593.8	+0.9	-1.8	-13.8
Chile (IGPA)	18,878.2	+1.3	+3.6	-10.2
Colombia (IGBC)	11,570.5	-1.2	-11.5	-28.2
Mexico (IPC)	43,187.6	+0.7	+1.1	-9.9
Venezuela (IBC)	3,786.0	-0.4	+38.3	na
Egypt (Case 30)	8,958.1	+2.9	+32.1	+28.3
Israel (TA-100)	1,281.0	-2.3	+6.1	-5.7
Saudi Arabia (Tadawul)	8,855.4	+3.6	+3.7	+3.6
South Africa (JSE AS)	50,254.1	+1.9	+8.6	-2.0

GDP forecasts

2015, % change on a year earlier

Source: Economist Intelligence Unit

Other markets

	Index Dec 29th	% change on one week	% change on Dec 31st 2013 in local currency	% change on Dec 31st 2013 in $ terms
United States (S&P 500)	2,090.6	+0.6	+13.1	+13.1
United States (NAScomp)	4,806.9	+0.5	+15.1	+15.1
China (SSEB, $ terms)	286.5	+0.7	+16.1	+12.9
Japan (Topix)	1,424.7	+0.8	+9.4	-4.6
Europe (FTSEurofirst 300)	1,376.9	+0.7	+4.6	-7.5
World, dev'd (MSCI)	1,731.7	+0.5	+4.3	+4.3
Emerging markets (MSCI)	958.7	+0.1	-4.4	-4.4
World, all (MSCI)	422.0	+0.5	+3.3	+3.3
World bonds (Citigroup)	900.9	-0.3	-0.6	-0.6
EMBI+ (JPMorgan)	692.6	nil	+6.3	+6.3
Hedge funds (HFRX)	1,216.4§	+0.4	-0.7	-0.7
Volatility, US (VIX)	15.1	+15.3	+13.7	(levels)
CDSs, Eur (iTRAXX)†	60.4	+3.1	-16.6	-26.2
CDSs, N Am (CDX)†	65.5	+1.6	+3.3	+3.3
Carbon trading (EU ETS) €	7.3	+2.2	+40.9	+24.5

Sources: Markit; Thomson Reuters. *Total return index.
†Credit-default-swap spreads, basis points. §Dec 26th.

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The Economist commodity-price index

2005=100

	Dec 16th	Dec 23rd*	% change on one month	% change on one year
Dollar Index				
All Items	154.2	154.4	-2.7	-6.7
Food	173.8	175.4	-0.6	-3.9
Industrials				
All	133.8	132.5	-5.5	-10.2
Nfa†	124.6	125.7	nil	-21.2
Metals	137.7	135.5	-7.5	-4.9
Sterling Index				
All items	178.3	180.9	-1.4	-1.5
Euro Index				
All items	153.3	157.6	-0.2	+4.8
Gold				
$ per oz	1,196.5	1,178.1	-1.7	-2.0
West Texas Intermediate				
$ per barrel	56.0	57.0	-22.8	-42.3

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.

Her master's voice

Billie Whitelaw, actress and muse for Samuel Beckett, died on December 21st, aged 82

ALL that could be seen was her mouth. A mouth that opened and closed convulsively, clenching its teeth, flickering its tongue, like some glutinous, repulsive sexual object. Out of it came a stream of wild, jumbled reminiscences, faster and faster:

> a voice she did not recognise…at first…so long since it had sounded…then finally had to admit…could be none other…than her own…certain vowel sounds...she had never heard…elsewhere…so that people would stare…and now this stream…not catching the half of it…not the quarter…no idea …what she was saying…imagine!…no idea what she was saying!

This part, almost the only part, which Billie Whitelaw played in Samuel Beckett's "Not I" at the Royal Court Theatre in London in 1973 and 1975, was called, appropriately, Mouth. It was the hardest thing she ever did in her career in stage, TV and film: a 17-minute monologue, masked and in a head-brace, after weeks of word-learning so intense that she thought she was losing her mind. The public at large remembered her for her role as Mrs Baylock, the green-eyed, prim-white-collared Nanny from Hell in "The Omen". That, she said, was just a laugh. The highest accolade she ever received was not being recognised by horror-fans in the street, but hearing Beckett's reaction to the televised version of "Not I", that soft Irish whisper from the back of a darkened room: "Miraculous."

For 25 years she was the chosen conduit for the 20th century's most challenging playwright, the author of "Waiting for Godot". She played Winnie in "Happy Days", buried up to her waist in sand, carefully turning out her bag as she babbled away; the Second Woman in "Play", the role in which Beckett first saw her at the Old Vic in 1964, enveloped in an urn with her face slathered with oatmeal and glue; May in "Footfalls", communing with her absent mother while endlessly pacing a thin strip of carpet; and, in "Rockaby", an ancient woman listening to her own voice as she slowly rocked herself to death.

She never pretended to understand these plays. She just thought of them as a state of mind, something she could recognise in herself. That was what Sam wanted: no interpretation, just perfection. If, almost unwittingly—for she wasn't good at words, couldn't spell and seldom read books—she replaced an "Oh" with an "Ah", or paused minutely too long, upsetting the rhythm of his music, she would hear his murmured "Oh Lord!" from the stalls, and see his head fall to his hands. He was always her best, gentlest and most exacting friend. In a way they were like lovers, walking arm in arm when she visited him in Paris, and rehearsing in her kitchen close up, she speaking directly into his pale, pale, powder-blue eyes, as he whispered the lines along with her. When he died, in 1989, she felt that part of her had been cut away.

Stutterer, chatterbox

It seemed unbelievable that it was her voice in Beckett's mind when he wrote. It was nothing special to her. She had a Yorkshire accent, reflecting her Bradford childhood, but after a run of early TV typecasting in "trouble at t'mill" dramas it had become residual, like her fondness for meat pies and Ilkley Moor. Her northern roots showed mostly in her liking for blunt, straight talk. At 11, after her father died, she had developed a stutter, which her mother thought might be cured by taking up acting. The cure worked so well that she became a staple on BBC radio's "Children's Hour", playing rough-voiced boys at ten shillings a time, and at 14 started to act for Joan Littlewood's Theatre Workshop. Any challenge or crisis, though, could bring the stutter back, together with paralysing stage-fright. When she played Desdemona to Laurence Olivier's Othello at the National Theatre, in 1963, she could hardly stop her voice trembling.

Small wonder she was nervous. She had never read Shakespeare then, and had had no classical training. Her years in rep had mostly consisted of playing dizzy blondes, busty typists and maids. Although she seemed strong-willed, sexy and beautiful, to herself she was always an outsider and an embarrassment. She was not intellectual or sociable, and her hair, her mother always said, looked like straw on a muck cart. As a child she had never wanted friends to see her poor house, with mildew on the laundry piled in the bath; and even as a star of stage and screen, consorting with Hitchcock (for "Frenzy"), Albert Finney (for "Charlie Bubbles") and Gregory Peck (for "The Omen"), living in a big house in Camden Square, she disliked asking people in. She won a BAFTA for "Charlie Bubbles" in 1967 and was nominated for playing Violet, the adoring mother of gangsters Ronnie and Reggie, in "The Krays" in 1990. But acting, she thought, was "a bit of a flibbertigibbety occupation".

Her life seemed to bat back and forth between optimism and pessimism, failure and success, husbands and lovers, with her just bobbing along with it like a piece of wood on the tide. There was a chatterboxy self who burbled and gossiped away, and the joyfully silent Billie she became at her cottage in Suffolk, pottering in her wild garden with the birds. In her long career declaiming words, she had never minded silence. Sam had never minded silence. His wisest piece of advice to her, his muse and mouth, advice she always remembered with laughter, was "Never speak." ■

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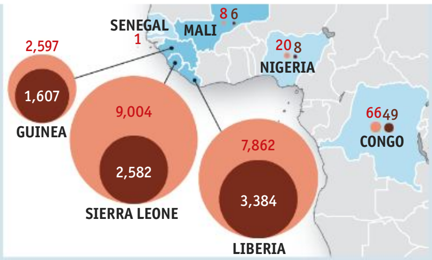

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