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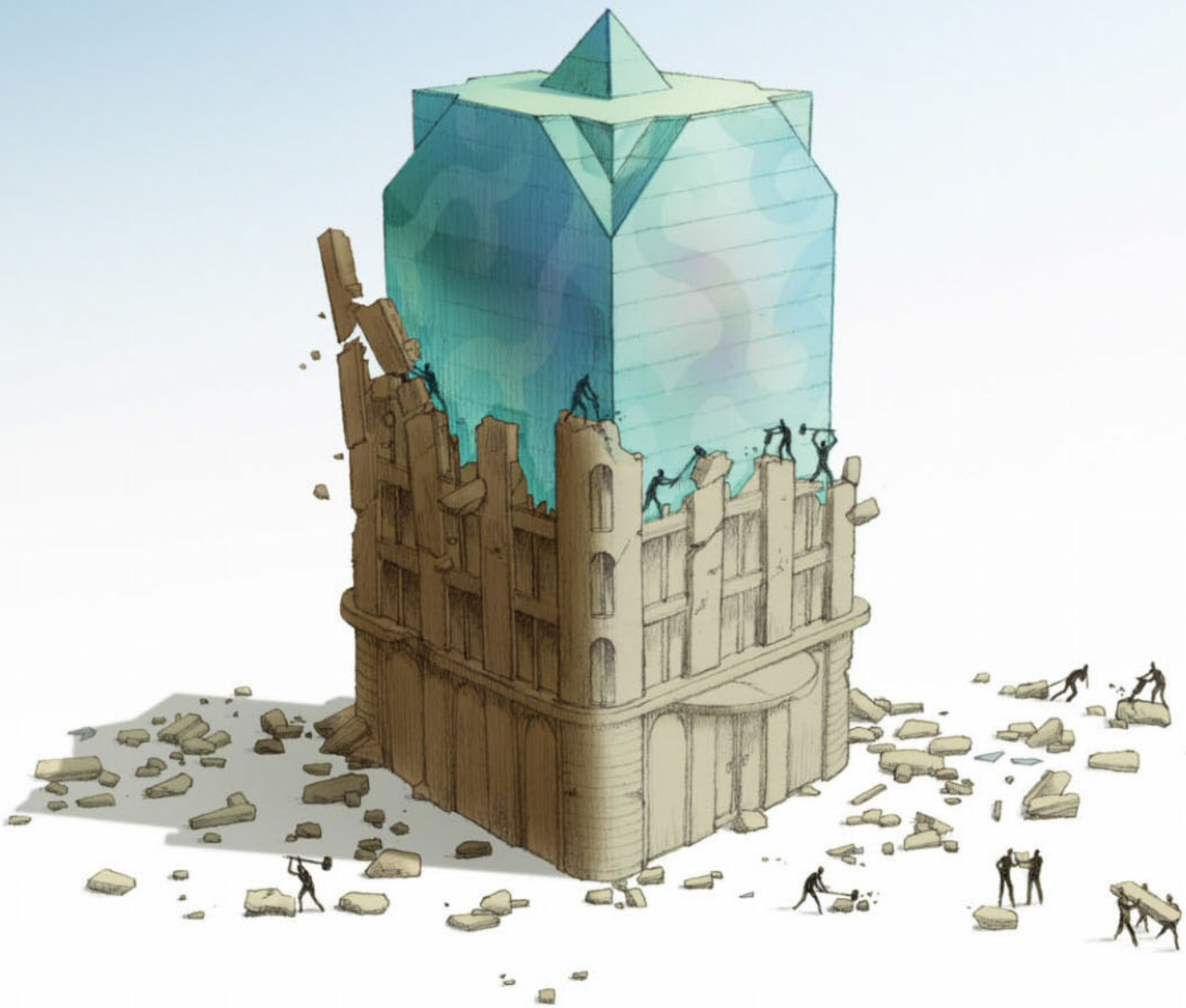

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to take part in "a severe contest between intelligence, which presses forward, and an unworthy, timid ignorance obstructing our progress."

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Politics

Justin Trudeau, a 43-year-old former teacher who belongs to a famous political family, decisively won **Canada's** general election. His Liberal Party came from behind to win a clear majority in the House of Commons, ending the decade-long reign as prime minister of Stephen Harper, a Conservative. Mr Trudeau plans to run deficits to invest in infrastructure, admit more Syrian refugees, legalise marijuana and scale back sharply Canada's participation in the United States-led fight against Islamic State.

The peace talks between **Colombia's** government and the FARC guerrilla group made further progress with an agreement to search for some 50,000 people who disappeared during the country's civil war, which began in 1964. The two sides plan to sign a final accord by March.

Cuba's government released Danilo Maldonado, a graffiti artist, who was jailed ten months ago for making fun of Raúl Castro, the country's president, and his brother, Fidel, who led the Cuban revolution. Mr Maldonado was arrested before he could carry out his plan to release two pigs daubed with the leaders' names in a square in Havana.

Mexican marines did not catch Joaquín Guzmán, otherwise known as El Chapo (Shorty), who escaped from a high-security prison in July. But they came close, injuring him in a chase as he fell off a small cliff, it has emerged. The head of the Sinaloa drug gang is still on the run.

No ordinary Joe

After months of toying with announcing his candidacy, **Joe Biden** decided not to enter the race for the Democratic Party's presidential nomination. Barack Obama's vice-president urged Democrats to campaign on the administration's record. Hillary Clinton has extended her lead in the polls since the party's recent first TV debate.

Paul Ryan, the **Republicans'** candidate for vice-president in the 2012 election, said he would stand for Speaker of the House of Representatives, provided his quarrelsome party in the chamber unites behind him.

A friend in need

Syria's president, **Bashar al-Assad**, made a surprise trip to Moscow to meet Vladimir Putin. Russia has given badly needed air support to Mr Assad's regime, enabling it to halt and start reversing months of advances by the opponents of his rule.

The deal between **Iran** and six world powers was formally "adopted" by its signatories and the UN Security Council. Iran must now start the process of dismantling most of its nuclear programme, while most sanctions on Iran will be lifted. However, America and its allies complained that a recent missile launch by Iran violated a ban on such tests.

Egypt went to the polls to elect a new unicameral parliament. In the first phase of voting, turnout was reported to have been pitifully low, a blow to the claims of Abdel-Fattah al-Sisi, the president, to be restoring democracy. The Muslim Brotherhood, which easily won the previous election, has been banned.

A court in **Bahrain** sentenced a political activist to one year in prison for publicly ripping up a photo of the king in 2014.

Iraq's army recaptured an oil refinery near the town of Baiji that had fallen into the hands of Islamic State. There are signs that a big offensive to recapture Ramadi, the capital of Anbar province which fell to IS in May, is in the offing.

Hundreds of students stormed **South Africa's** parliament building in a protest against proposals to raise college fees.

Emotions rose in the run-up to a presidential and general election in **Tanzania**. A former prime minister, Edward Lowassa, who defected from the party that has ruled since independence in the 1960s, was running strongly against John Magufuli, the governing party's choice to succeed Jakaya Kikwete, who is standing down after two terms.

Europe's overarching issue

Marine Le Pen, the leader of **France's** right-wing National Front party, appeared in court on hate-speech charges for comparing Muslim street prayers to the Nazi occupation. At the trial she portrayed herself as a victim of establishment persecution and inveighed against the Muslim asylum applicants who have flooded into Europe this year. The state prosecutor recommended that she be acquitted.

In Germany a candidate for mayor of Cologne was stabbed in the neck by an **anti-immigrant** protester. Henriette Reker, who is in a stable condition in hospital, went on to win the election.

The anti-immigrant Swiss People's Party (SVP) finished first in **Switzerland's** federal elections, taking 29% of the vote, well ahead of the second-placed Socialist Party. Europe's migrant crisis was the decisive factor, though Switzerland itself has seen almost no increase in migrants.

The governor of the Bank of England, Mark Carney, waded into the debate on Britain's membership of the EU. Britons will vote in a referendum in 2016 or 2017 about whether to stay or leave, the **Brexit** option. Mr Carney said that being in the EU "very likely increased the UK's dynamism", though he pointed out that the bank's perspective was "not a comprehensive assessment of the pros and cons" of a Brexit.

The red-carpet treatment

President Xi Jinping of **China** paid his first state visit to **Britain**. Some criticised the prime minister, David Cameron, for appearing to downplay concerns about China's human-rights record. British officials saw the trip as an opportunity to boost commercial ties: Chinese investment in Britain of around £30 billion ($46 billion) was promised, including in its nuclear industry.

Taiwan's ruling party, the Kuomintang, dumped its candidate for presidential elections in January, Hung Hsiu-chu, because of her poor showing in opinion polls. Ms Hung was replaced by Eric Chu, the party's chairman.

Hundreds of **South Koreans** held brief reunions in **North Korea** with family members they had not seen since the Korean war 62 years ago. In Washington, President Barack Obama and his South Korean counterpart, Park Geun-hye, said they would treat the North's nuclear-weapons programme with "utmost urgency".

Business

The European Union's competition commissioner found that **"sweetheart" tax deals** involving the Netherlands and Starbucks, and Luxembourg and Fiat, constituted state aid and were unlawful under EU rules. The commissioner said both countries had enabled the companies artificially to lower their tax bills—Starbucks by transferring profits abroad and Fiat by paying tax on lower estimates of profits—and ordered each government to recover up to €30m ($34m) in lost tax. Investigations into the tax arrangements of other companies, including Amazon and Apple, are continuing.

Smokescreens

China's GDP grew by 6.9% in the third quarter. With consumption accounting for the bulk of the growth, the government claims that its attempt to rebalance the economy to become less reliant on investment is working. But the figures, which were better than expected and in line with the official target for the year of around 7%, again raised questions about the reliability of China's economic data. The third quarter saw stockmarket turmoil in China, the devaluation of the yuan and a run of bad industrial statistics.

Timothy Massad, the head of America's Commodity Futures Trading Commission, said his agency would investigate the effects of **high-frequency trading**, particularly with regard to Treasury futures. The aim of the assessment would be to take steps "to minimise the potential for disruptions and other operational problems", caused in part by "malfunctioning algorithms".

Credit Suisse unveiled a big strategic shift in its business, which includes raising around SFr6 billion ($6.3 billion) in new capital, the bulk of which will come through selling shares to existing investors. The Swiss bank is also restructuring its investment-banking division and will float its retail bank in Switzerland as it positions itself to buy other banks.

Deutsche Bank took another stab at overhauling its business, announcing a cull of executives and the splitting of its investment-banking and wealth-management businesses. Meanwhile, it emerged that a **"fat finger"** error by a junior employee at Deutsche had led to $6 billion being mistakenly placed in a hedge-fund account for a day.

It was another bad week for **Valeant**, a pharmaceuticals company that is in the political and regulatory crosshairs over huge price increases on two heart drugs. Its share price plunged (again) after a report from an activist short-seller critical of the company's business model accused it of creating "an entire network of phantom captive pharmacies" to boost sales. Valeant "categorically" denied the report, saying it was designed to drive down its share price.

Two former executives at **Porsche** went on trial in Stuttgart for allegedly misleading the markets about their intention to launch a takeover of **Volkswagen** in 2008. VW, which is not party to the trial, eventually took control of Porsche. Meanwhile, investigations continued into VW's admission that it rigged cars to cheat in emissions tests. Police raided its offices in France.

A judge in Manhattan declared a mistrial in a closely watched fraud case against three former executives at **Dewey & LeBoeuf**, because the jury was "hopelessly deadlocked" on the most serious charges after 22 days of deliberations. Dewey & LeBoeuf was one of New York's most prestigious law firms until it went spectacularly bust in 2012. Prosecutors allege that the three executives conspired to conceal the firm's losses. The trial's dismissal raises questions about whether juries are best equipped to hear complex cases.

Storage wars

Western Digital, which makes hard-disk drives for computers, said it would acquire **SanDisk**, known for its flash-memory products, in a $19 billion deal. SanDisk's chips are increasingly integrated in hard drives and it is expanding in cloud computing. The takeover is the latest in a burst of consolidation in the **semiconductor industry**. In another deal this week Lam Research agreed to buy KLA-Tencor for $10.6 billion.

Steve Ballmer, who was Microsoft's chief executive for 14 years, revealed that he has a 4% stake in **Twitter**, making him the company's third-biggest individual investor. Mr Ballmer is Microsoft's largest individual shareholder.

United Airlines appointed Brett Hart as interim chief executive after Oscar Munoz suffered a heart attack just a month into the job.

A sporty number

Ferrari made its stockmarket debut. Its IPO on the New York Stock Exchange (using the ticker RACE) raised around $982m, once underwriters exercise their options. Its share price rose 6% on the first day of trading, a notable success compared with some other recent high-profile IPOs.

Other economic data and news can be found on pages 84-85

Reinventing the company

Entrepreneurs are redesigning the basic building block of capitalism

NOW that Uber is muscling in on their trade, London's cabbies have become even surlier than usual. Meanwhile, the world's hoteliers are grappling with Airbnb, and hardware-makers with cloud computing. Across industries, disrupters are reinventing how the business works. Less obvious, and just as important, they are also reinventing what it is to be a company.

To many managers, corporate life continues to involve dealing with largely anonymous owners, most of them represented by fund managers who buy and sell shares listed on a stock exchange. In insurgent companies, by contrast, the coupling between ownership and responsibility is tight (see pages 21-24). Founders, staff and backers exert control directly. It is still early days but, if this innovation spreads, it could transform the way companies work.

Listing badly

The appeal of the insurgents' model is partly a result of the growing dissatisfaction with the public company. True, the best public companies are remarkable organisations. They strike a balance between quarterly results (which keep them sharp) and long-term investments (which keep them growing). They produce a stream of talented managers and innovative products. They can mobilise talent and capital.

But, after a century of utter dominance, the public company is showing signs of wear. One reason is that managers tend to put their own interests first. The shareholder-value revolution of the 1980s was supposed to solve this by incentivising managers to think like owners, but it backfired. Loaded up with stock options, managers acted like hired guns instead, massaging the share price so as to boost their incomes.

The rise of big financial institutions (that hold about 70% of the value of America's stockmarkets) has further weakened the link between the people who nominally own companies and the companies themselves. Fund managers have to deal with an ever-growing group of intermediaries, from regulators to their own employees, and each layer has its own interests to serve and rents to extract. No wonder fund managers usually fail to monitor individual companies.

Lastly, a public listing has become onerous. Regulations have multiplied since the Enron scandal of 2001-02 and the financial crisis of 2007-08. Although markets sometimes look to the long term, many managers feel that their jobs depend upon producing good short-term results, quarter after quarter.

Conflicting interests, short-termism and regulation all impose costs. That is a problem at a time when public companies are struggling to squeeze profits out of their operations. In the past 30 years profits in the S&P 500 index of big American companies have grown by 8% a year. Now, for the second quarter in a row, they are expected to fall, by about 5% (see page 59). The number of companies listed on America's stock exchanges has fallen by half since 1996, partly because of consolidation, but also because talented managers would sooner stay private.

It is no accident that other corporate organisations are on the rise. Family companies have a new lease of life. Business people are experimenting with "hybrids" that tap into public markets while remaining closely held. Astute investors like Jorge Paulo Lemann, of 3G Capital, specialise in buying public companies and running them like private ones, with lean staffing and a focus on the long term.

The new menagerie

But the most interesting alternative to public companies is a new breed of high-potential startups that go by exotic names such as unicorns and gazelles. In the same cities where Ford, Kraft and Heinz built empires a century ago, thousands of young people are creating new firms in temporary office spaces, fuelled by coffee and dreams. Their companies are pioneering a new organisational form.

The central difference lies in ownership: whereas nobody is sure who owns public companies, startups go to great lengths to define who owns what. Early in a company's life, the founders and first recruits own a majority stake—and they incentivise people with ownership stakes or performance-related rewards. That has always been true for startups, but today the rights and responsibilities are meticulously defined in contracts drawn up by lawyers. This aligns interests and creates a culture of hard work and camaraderie. Because they are private rather than public, they measure how they are doing using performance indicators (such as how many products they have produced) rather than elaborate accounting standards.

New companies also exploit new technology, which enables them to go global without being big themselves. Startups used to face difficult choices about when to invest in large and lumpy assets such as property and computer systems. Today they can expand very fast by buying in services as and when they need them. They can incorporate online for a few hundred dollars, raise money from crowdsourcing sites such as Kickstarter, hire programmers from Upwork, rent computer-processing power from Amazon, find manufacturers on Alibaba, arrange payments systems at Square, and immediately set about conquering the world. Vizio was the bestselling brand of television in America in 2010 with just 200 employees. WhatsApp persuaded Facebook to buy it for $19 billion despite having fewer than 60 employees and revenues of $20m.

Three objections hang over the idea that this is a revolution in the making. The first is that it is confined to a corner of Silicon Valley. Yet the insurgent economy is going mainstream. Startups are in every business from spectacles (Warby Parker) to finance (Symphony). Airbnb put up nearly 17m guests over the summer and Uber drives millions of people every day. WeWork, an American outfit that provides accommodation for startups, has 8,000 companies with 30,000 workers in 56 locations in 17 cities.

The second is that the public company will have the last laugh, because most startups want eventually to list or sell themselves to a public company. In fact, a growing number choose to stay private—and are finding it ever easier to raise funds without resorting to public markets. Those technology ▸▸

companies that list in America now do so after 11 years compared with four in 1999. Even when they do go public, tech entrepreneurs keep control through "A" class shares.

The third objection is that ownership in these new companies is cut off from the rest of the economy. Public companies give ordinary people a stake in capitalism. The startup scene is dominated by a clique of venture capitalists with privileged access. That is true, yet ordinary people can invest in startups directly through platforms such as SeedInvest or indirectly through mainstream mutual funds such as T. Rowe Price, which buys into them during their infancy.

Today's startups will not have it all their own way. Public companies have their place, especially for capital-intensive industries like oil and gas. Many startups will inevitably fail, including some of the most famous. But their approach to building a business will survive them and serve as a striking addition to the capitalist toolbox. Airbnb and Uber and the rest are better suited to virtual networks and fast-changing technologies. They are pioneering a new sort of company that can do a better job of turning dreams into businesses. ■

China and Britain

Friends in need

Britain has rolled out the red carpet for Xi Jinping. It must not forget its better friends

XI JINPING'S procession down the Mall towards Buckingham Palace, with the queen sitting alongside in a resplendent gold-roofed carriage drawn by six grey horses, is a scene that the Chinese president will have relished. Never mind that a year ago a state-run newspaper in China had derided Britain as the relic of an "old, declining empire" given to "eccentric acts" to hide its embarrassment over its fading power. British pomp, as laid on for Mr Xi in its full gaudiness during his first state visit to London this week, was relayed at fawning length to television viewers back in China.

Britain is not the only Western country to court China. Mr Xi was welcomed in Washington, DC, last month. The leaders of France and Germany will soon travel to Beijing. Mr Xi is head of the world's most populous country, second-largest economy and fastest-rising military power.

But China is also secretive and authoritarian. Mr Xi has been harder-line than even his two immediate predecessors, suppressing an emerging civil society, tightening controls over the internet and flexing muscle in Asia's disputed seas. China's intentions towards the rest of the world are hard to fathom (they may not even be clear to China itself).

For Britain, and all Western democracies, the dilemma is over how to deal cordially and profitably with China, as they must, while encouraging it to develop in a way that neither oppresses its own people nor destabilises the world. Ostracism would be counterproductive. China is strong enough to go it alone and treating it as an enemy would be the best way to turn it into one. Yet kowtowing is damaging, too, because it encourages China to demand concessions (only to take mighty offence when they are refused) and to think that, with a little ingenuity, it can weaken the Western alliance.

The West thus needs a nuanced policy that includes trade and investment; widespread engagement; and when necessary a readiness to defend its principles and security interests.

On this measure David Cameron, Britain's prime minister, has failed the test of statesmanship. This week Mr Xi was asked to address both houses of Parliament, an honour normally accorded only to leaders of democracies. He was to be hosted at Chequers, the prime minister's country residence—again a first for a visiting Chinese president. Organised pro-Xi crowds were allowed to drown out protesters. Given Mr Cameron's public silence on human rights, his talk of a "golden age" suggests he is subordinating his principles to the lure of China's gold.

That is a miscalculation. China is sitting on the world's largest pile of foreign exchange. As its economy slows it is eager for its companies to find opportunities abroad. Britain has them aplenty, whether in financial services or in building infrastructure (at which China excels). It does not have to bow before Mr Xi. As part of the European Union, the world's largest market, it can wield economic heft by acting with its allies instead of scrambling separately.

However, not all the criticism is well aimed. The idea that Chinese acquisition of stakes in firms (or whole companies) in the West damages the economy is wrong-headed. One eye-catching deal was for China to take a one-third stake in Britain's first new nuclear-power plant in a generation, possibly leading to the construction of more using China's own technology (see page 53). There are grounds for questioning the economic logic of this deal—the power would be bought at guaranteed prices far above current market rates. But if the project is subject to the full rigour of safety and security reviews then there is no reason to think that it will give China a strategic stranglehold on Britain any more than, say, the stake it owns in London's water supply.

Trading with China is doubly beneficial: both for the British economy and by binding China into the Western system of international rules. More than 150,000 Chinese are studying in Britain; a similar number come annually as tourists. If they return to China with a better understanding that stability and prosperity—China's oft-stated goals—do not require omnipresent police, thugs and spies, that is all for the good. So it makes sense to facilitate visas and to help train Chinese judges.

Feet on the ground, please

The worry is that the new golden friendship with Beijing will endanger the old "special relationship" with America. China's assertiveness in its backyard may not affect Europeans—yet. But they have a vital interest in a peaceful, well-ordered world. If China clashes with America, still East Asia's foremost power, Europe will not be spared the consequences.

So once Mr Xi has gone, Mr Cameron should be sure to talk about the problems in China, not just the promise. He should support America when it challenges China's claims in the South China Sea. Even better, he could send along a ship. ■

Republicans in Congress

The Speaker's shoes

Paul Ryan is a good man to lead the congressional Republicans

IT IS a measure of how far the Republican Party has fallen that Paul Ryan was so reluctant to lead it. For weeks, the 45-year-old congressman's colleagues urged him to stand for the job of Speaker of the House of Representatives, which they control. At first his response was to refuse, go home to his young family in Wisconsin and switch off his phone. But then Mr Ryan relented. He agreed to stand, provided all the Republicans' feuding factions pledged to support him.

After securing the backing of most of the troublesome, right-wing House Freedom Caucus on October 21st, Mr Ryan seems sure to get what he wanted. Barring a disaster, he will be nominated next week. Yet, for their own sake, and the sake of Congress, the Republicans need not only to elect Mr Ryan as Speaker, but also to ensure that he is a successful one.

Nice work if you can get it

The job of Speaker is the most important in Congress. It became available after members of the Freedom Caucus forced the incumbent, John Boehner, whose pragmatism they detest, to resign last month. Their views do not represent those of most House Republicans. Yet because their 40-odd votes are needed to make up the Republican majority, the diehards have, in effect, a veto in the House—which put paid to Mr Boehner's anointed successor, Kevin McCarthy, the House majority leader, whom they refused to support. This created the vacuum that Mr Ryan offered to fill—lest his party, the year before a presidential election, do itself worse damage.

In some ways Mr Ryan, Mitt Romney's running-mate in 2012, makes an unlikely saviour. As chairman of the House tax-writing committee, he is considered something of a fiscal sage. This is undeserved. A dogmatic conservative, Mr Ryan has often used the budget process to score ideological points. He puts too much faith in supply-side reform as a growth-boosting counterweight to austerity. He launched a hapless effort to defund the health-care reform that is President Barack Obama's main domestic achievement.

Yet this at least gave him a hearing with the Freedom Caucus, whose members loathe Obamacare. And Mr Ryan also has strengths. He is clever, hardworking and, in his support for immigration reform, say, unafraid to take positions that are unpopular in his party. He can be pragmatic, too, as when negotiating an end to the shutdown in 2013—and in the tough conditions he attached to his candidacy as Speaker.

It was to stop the Freedom Caucus doing to him what it did to Mr McCarthy that Mr Ryan demanded the backing of all the Republican factions in the vote to decide the party's nomination, due on October 28th. He has also asked for changes to his party's rules to make it harder to oust the Speaker. And he has insisted that he would do less arduous fund-raising and spend more time representing his party on television. That will let him see his three children—and also nurture his presidential ambitions. More important, he will be able to elevate and explain the role of America's reviled legislature, something that is much needed.

Some Freedom Caucus members reject these demands: they have spent enough time setting traps for their leaders to know when they are facing one themselves. Yet resisting Mr Ryan will get them nowhere; the costs of more congressional chaos are too high. By November 3rd the House must vote to raise the federal debt ceiling, or risk causing America to default; by December 11th it must pass a new budget, or there will be a government shutdown. One would be a calamity, the other an embarrassment: the diehards would rightly be blamed for both. Mr Ryan has offered a plausible way out. ■

Argentina's election

Cleaning up after Cristina

The front-runner promises continuity. The country needs change

FOR eight years Cristina Fernández de Kirchner has beguiled, enraged, entertained and divided Argentines. She is one of Latin America's most popular presidents, but her combative style has alienated some of her citizens and much of the outside world. Constitutionally unable to run again in Argentina's general elections, the first round of which takes place on October 25th, she will be succeeded by a duller figure. The two leading candidates to replace her, Daniel Scioli of her Peronist Front for Victory and Mauricio Macri, Buenos Aires's mayor, have none of her pizzazz. But either would be a great improvement.

True to her Peronist pedigree, Ms Fernández has hoarded power and suppressed dissent. She has bent the central bank to her will, muzzled the government's statistics institute and bullied the media. She has tried, less successfully, to suborn the independence of the judiciary (see page 33).

She leaves an economy in even worse shape than it looks. Like other commodity producers, Argentina is suffering from falling prices for its exports. To this, Ms Fernández has added woes of her own making. The government keeps the peso overvalued. It taxes soyabeans and other exports, thereby punishing the country's most competitive producers. It has repelled foreign capital by defaulting on debt and refusing to set- ▸▸

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tle with its creditors. To husband foreign exchange, it restricts imports. Ms Fernández distracted Argentines with lavish spending on welfare and energy subsidies. That trick will not work for much longer. The country is in danger of running out of reserves; the budget deficit this year is likely to be 6% of GDP; inflation is estimated at 25%; and growth is absent.

The next president will need to escape disaster. That will mean letting the peso fall, reducing subsidies and ending the stand-off with creditors. In the short run, the *volte face* will hurt. Spending cuts, plus higher interest rates to contain inflation, are likely to push the economy into recession. Only as exports pick up and capital flows back will confidence, and growth, gradually return.

All the main presidential candidates would change the economy's course, though it is hard to tell from their campaigns just how they would go about it. Running as Ms Fernández's heir, Mr Scioli suggests that he does not need to make abrupt changes. Despite being a speedboat racer in his youth, he wants to change the economy's course only gradually. Sergio Massa, a Peronist who has fallen out with Ms Fernández and is running third in the polls, is somewhat more forthright about the need for adjustment. But it is Mr Macri, an economic liberal, who comes closest to admitting the scale of the problem. He acknowledges the need for a big devaluation and seems readier than his rivals to remove capital controls.

Choose Macri-economics

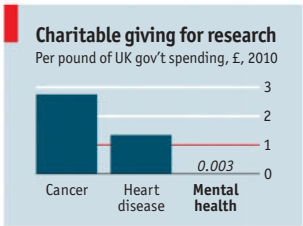
That is one reason to prefer Mr Macri to his two Peronist rivals. The other is the prospect that he would undo the damage Ms Fernández has inflicted on Argentina's politics. His team promises an "institutional shock", a change of practice that would make the presidency more accountable and strengthen other bodies, including the central bank and the judiciary. That is the sort of change that Argentina needs if its democracy and economy are to mature.

It will not happen under Mr Scioli. His defenders say that he will be better at dealing with Congress, which will be dominated by his allies. The others, they say, will get nothing done. That is a risk. But the risk of obstruction is a bad reason to pick a second-best president. Argentines should choose Mr Macri. ■

Mental-health research

Mind stretching

Fine words on mental health should be matched with money for research—but not just from the state



BELATEDLY, Western politicians are waking up to the grave harm caused by mental illness. Justin Trudeau, Canada's incoming prime minister, promises to spend more money on treating it (and on many other things besides). Before Britain's general election in May, every plausible political party pledged to treat the mentally ill more generously. In America politicians look at a rash of mass shootings by deranged young men and draw the second-most-obvious conclusion: that psychological problems must be dealt with better.

These are fine sentiments. But there is also a hard-nosed case to be made for spending more money on mental health—and particularly on research into mental illness. The problem is widespread, costly and growing. Looking into mental illness produces decent returns, and holds out the hope of a huge distant pay-off to boot.

Shake the collection bucket

Mental ill-health costs as much as 4% of GDP in lost productivity, disability benefits and health-care bills, according to the OECD, a think-tank. Many illnesses afflict the old disproportionately, but mental illness tends to strike the young, undermining productivity. In Sweden three-fifths of new disability claims are for mental ill-health. Lives are cut short: seriously mentally ill people die 15-20 years younger than the rest of the population. And the economic burden seems to be growing heavier. A few years ago, the World Economic Forum estimated that in the two decades to 2030 the cumulative cost of mental illness could be $16 trillion.

Yet spending on research into these conditions is paltry. In most wealthy countries there is a big discrepancy between mental-health research spending and the total cost of mental illness. In Britain (a place with particularly good statistics, thanks to the unitary National Health Service) 5.5% of health-research funding goes to mental disorders, though their share in the country's burden of disease is more than double that. Research spending per cancer patient receiving treatment is over £1,500 ($2,300) per year; the equivalent for someone suffering from mental illness is less than £10.

Sadly, almost none of the money that goes on mental health research comes out of collection tins. For every pound the British government puts into cancer research, the public chips in £2.75. For every pound the state spends on mental-health research, by contrast, ordinary people scrape together just £0.003, calculates MQ, a charity.

Yet a British study by the Health Economics Research Group and others has suggested that for every pound spent on mental-health research, the economy gained a recurring 37p per year in benefits from increased productivity and reduced health-care bills—about the same as the return to cardiovascular research. Past investigations into early interventions in psychosis have since repaid themselves many times over.

Though the brain is extraordinarily complex, further scientific breakthroughs can be expected. Post-traumatic stress disorder was only defined in 1980; understanding of that condition has jumped forward in the past few years, as have the treatments for it (see page 56). Certainly, without more scientific study better treatments will never be found for debilitating disorders such as autism.

Mental illness is often stigmatised. It lacks an effective lobby to match the groups that represent victims of cancer and heart disease. It is not as obviously fatal as many physical illnesses. But it still takes a heavy human and economic toll. That is why it is important that politicians make good on their promises—and that ordinary people dig deep, too. ■

BEPS steps

Far from being a missed opportunity ("New rules, same old paradigm", October 10th), the OECD's BEPS project opens up a new era in international taxation. Its main goal is to change the behaviour of multinational companies and governments, and in this it has already been successful. Companies are balancing the desire to minimise tax with the reputational and financial risks associated with aggressive tax planning. And gone are the days when governments could do secret deals.

BEPS puts a new emphasis on multinationals complying with the spirit and letter of the law as set out in the OECD's guidelines. You say that the OECD has stuck with a deeply flawed "independent entity" principle rather than venturing into the brave new world of a global formula apportionment. But the latter is conceptually flawed, a political non-starter and would not be in the interest of developing countries.

The OECD recognises that implementation will be "messy", as you put it. That is inevitable given the complexity of the issues and that some of the recommendations will require changes in national laws and more than 3,000 bilateral tax treaties. On treaty revision, one of the most innovative and far-reaching proposals is the idea of a multilateral instrument to speed up necessary changes to the network of treaties, which might otherwise take up to 15 years.

One area where more progress would have been desirable is in mandatory tax arbitration. The current procedures to resolve cross-border wrangles won't cope with the tsunami of disputes that will arise in the post-BEPS environment. To get a broader take up from countries we need a new framework for resolving disputes that addresses the concerns of developing countries.

JEFFREY OWENS
Director
Global Tax Policy Centre
Vienna University of Economics and Business

The Norwegian model

Schumpeter (October 10th) is correct in thinking that Norway will need a period of adjustment in the face of falling oil prices and diminishing production. But his disparagement of firms such as Statoil and Telenor, where the state has an ownership stake, is misguided. These firms are generally well run and have almost full independence, with little to no interference from politicians. You yourself have approvingly referred to Statoil as a "leading global company" ("The rich cousin", February 2nd 2013) and as "a match for almost anyone" ("Big Oil's bigger brothers", October 29th 2011).

Schumpeter encourages Norway to "rediscover its Viking spirit". Luckily, with partially state-owned firms in the vanguard, we are well on our way. You recently reported that Telenor "has rediscovered the Viking spirit of adventure, launching into foreign markets ranging from Bulgaria to Bangladesh" ("Mobile mania", January 24th).

JOHANNES MAURITZEN
Bergen, Norway

China left out of the TPP

In an understatement, you say that the Trans-Pacific Partnership trade deal "has flaws" ("Every silver lining has a cloud", October 10th). The most glaring one that you did not flag is that China, the largest Pacific Rim trading nation and the world's top exporter, was deliberately left out by America. As a result, TPP is the near-equivalent of NAFTA without the United States. It is a protectionist regional device to contain China's further rise as the world's number one trading nation.

The share of world trade of the pact's two biggest countries, America and Japan, has been declining for some time in world and Pacific exports, because of the spectacular rise of China. TPP confirms once again that Washington's China policy is less about win-win situations and more about seeking zero-sum outcomes, in this case by creating an integrated counter-weight to China in East Asia. The deal was designed to establish America as a leader in Pacific trade.

The WTO does not describe regional trading deals as preferential trade agreements for nothing: one implicit objective is to discriminate against non-members. The pact's signatories would be wise to leave the door open to newcomers, including China.

ISTVAN DOBOZI
Former lead economist at the World Bank
Gaithersburg, Maryland

The train takes the strain

The Labour Party does not go far enough in its plans to renationalise Britain's railways ("Gravy trains", October 3rd). As you noted, attaining rail renationalisation by allowing franchises to lapse will take more than a decade. Instead a new bill, a Railways Act 2020, should be passed by Parliament to terminate the franchises. The bill might consider re-establishing British Rail's passenger businesses, which were fragmented into 25 separate entities by privatisation.

Among them was Intercity, which operated high-speed trains, and Network South East, London's commuter service. Policymakers have been reluctant to acknowledge the cost to the taxpayer and the British economy of rail privatisation. That amnesia ignores the remarkable performance of these two businesses: in 1993-94, both made an operating profit and did not require a penny of public subsidy.

ROGER LEWIS
Campaign to Bring Back British Rail
London

Why does *The Economist* persist in repeating the view that Britain's rail privatisation was "in many ways, flawed" because the splitting of tracks and trains "led to inefficiencies"? There is never a perfect way to privatise a complex, natural monopoly. New Zealand and Estonia privatised their networks without splitting tracks and trains. The result was disinvestment in infrastructure. With vertical separation, Britain has not had this problem. With competition to operate train services, ridership has doubled. What measure could possibly be better? Britain now arguably has the most frequent, modern and reliable trains in Europe, maybe the world. On average, fares have remained constant, although the range is much wider.

The problem is not with the train companies but with the monolith of Network Rail. It also needs to be broken up to create, if not full competition, at least opportunities for diversity and innovation.

MICHAEL SCHABAS
Partner
First Class Partnerships
London

The betting on Corbyn

Bagehot thinks that Jeremy Corbyn will eventually be replaced as Labour leader, but until then the party "is taking a long luxurious holiday from the chill winds of electoral reality" (October 3rd). Yet in the same issue you say that "the old party machines are imploding, and political entrepreneurs have the wherewithal to take over old parties…Anti-capitalism is once more a force to be reckoned with" ("Capitalism and its discontents"). Is this the sort of internal disagreement that Mr Corbyn wants in his party?

MARTIN MCCAIG
Titchfield, Hampshire ■

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Deputy Director—Statistics Department

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Reinventing the deal

America's startups are changing what it means to own a company

ATTENDING a baby-shower is not an obvious means of contributing to the vigour of American capitalism. But when thrown for one of 24 investors in Julia Jacobson's small startup, NMRKT, which enables boutiques and small manufacturers to create appealing electronic marketplaces for their products in half an hour, it is vital. Since 2013 the company has amassed 150 clients and is now considering its fourth round of financing. Attending social events helps Ms Jacobson and her equivalent at other startups to take stock of what investors want. This enables them to confront an enduring inefficiency of the market: aligning the interests of investors and owners.

Investors' opinions matter hugely to young firms like Ms Jacobson's. Judgments abound and diverge on the value of a startup without the ability to test it in an open market. One investor pushed Ms Jacobson to think about a dreaded "down-round", basing new fund-raising on a reduced valuation of the company. Others were eager to invest at a higher valuation or buy the company outright. By controlling the purse strings, investors have a great deal to say about the future growth of tiny endeavours like hers.

The personal touch may be useful but it is not the main way that startups stand apart from traditional firms. The most distinctive aspect of America's vibrant startup sector is the way the ownership of companies is structured. A new breed of firms such as Uber, a taxi-hailing app, or Airbnb, a website that lists properties for short-term rental, is establishing a novel type of corporate arrangement. Investors, founders, managers and, often, employees have stakes that are delineated by carefully drawn contracts, rather than shares of the sort that trade on exchanges.

For people like Ms Jacobson these contractual arrangements provide an experience of ownership that sidesteps the concerns of public companies, by avoiding the contentious regulations and politics that surround big businesses. That should make for better-run firms if managers are fully focused on transforming a concept into a successful company.

Working this way is not easy. Conflicts between the parties arise all the time, over valuations and much else. But it allows such firms to reach pools of capital that an old-fashioned family business would not have got its hands on. Startups typically begin with savings, or money from family and friends, but then tap outside investors for seed funding through a variety of channels, including lawyers, accelerators (in essence, schools for startups) and other "angel" investors with cash to back founders with ideas. These increasingly include entrepreneurs who made money from their own startups and now invest in others. Indeed, the number of small deals has increased substantially in recent years (see chart 1 on next page).

Jerry Schlichter's day-to-day experience untangling questions of ownership is less uplifting. Mr Schlichter is a lawyer who works not on heading off conflicts in small firms but on attempting to get better deals for investors in larger ones. He specialises in suing firms and financial institutions over their management of 401K pension accounts, through which a large number of Americans save for retirement. The money invested is automatically removed from pay cheques by employers, making workers, in the words of Leo Strine, chief justice of the Delaware Supreme Court, "forced capitalists".

Contract and expand

As in Ms Jacobson's world, there is a distinction between what it is to be an owner and an investor. But unlike the contract-heavy world of the startup, that distinction is not well defined and indeed in many ways it is denied. The language used, and the law applied, seems to treat such forced capitalists as owners. But they lack almost all the rights and freedoms that privilege might normally afford.

Interests are misaligned along the entire chain. An employer running a 401K selects a committee which selects an investment provider which in turn selects fund managers who select companies whose—selected—board members appoint managers. Each step is swathed in regulation that, ▸▸

even if well-intentioned, is shaped by lobbyists to benefit one or other of the parties rather than the system as a whole.

This layer-cake provides ample scope for mischief, as Mr Schlichter's business attests. But even if it were to operate without added complications, the different interests of the different layers would impose large and inescapable costs. Fees, such as those charged by mutual funds, are unavoidable at every level. More insidious is the "agency problem" that arises from conflicts of interest between people who provide money and all the parties through which it travels to and from investments.

Agency problems make the idea that a company is actually owned feel almost illusory. The link between the interests of the forced capitalists in 401ks (and federal-government pension schemes that are broadly similar) and the management of the assets they purportedly own is, at best, compromised. The experience of owning a company no longer accords with what is normally meant by ownership.

The new model of capitalism practised by Ms Jacobson and thousands of other startups is an attempt to get around the inefficiencies and costs imposed by the agency problem. The allocation of rights in a public company is unarticulated and ambiguous. Attempts to fix this through demands for more transparency and regulatory changes, such as the Sarbanes-Oxley reforms introduced in the wake of the Enron scandal, may have helped in some ways but have added to the costs and complications by adding another level of bureaucracy and more red tape.

The fragmentation of ownership is an unintended consequence of the rise and development of the public company. In the 19th century, American limits on banks' ability to lend restricted credit, but a strong legal system supported contractual agreements, notes Robert Wright of Augustana University in South Dakota. That enabled capital to be raised through direct public offerings, which were instrumental in the early development of American industry.

Over time, mechanisms emerged to trade these direct offerings in regional and national financial markets. Stockmarkets were not the only source of finance and the joint-stock company not the only model of ownership. But big public companies became the capitalist norm.

A result of this democratisation of ownership was its dilution and the loss of one of its components—control. Shareholders lost their grip on ownership and the collective strength to manage their agents, who ran companies. In 1932 Gardiner Means and Adolf Berle argued in "The Modern Corporation and Private Property" that the outcome was that companies became akin to sovereign entities, divorced from the influence of their "owners" by retained earnings that allowed managers to invest as they chose. As companies became ever larger and more powerful, government felt the need to constrain them.

Laws and regulations have increasingly limited what companies can do, including, most recently, the amount of profits they can return to shareholders. To help owners evaluate whether to buy or sell shares, companies are forced to disclose ever more of what they are up to, but the usefulness of this information is undermined by the layer-cake of agency issues.

Individuals have been net sellers of shares for decades; in their place institutions have expanded relentlessly. Financial institutions now hold in excess of 70% of the value of shares on America's stock exchanges (see chart 2). The leaders include such familiar names as BlackRock, Vanguard and JPMorgan Chase.

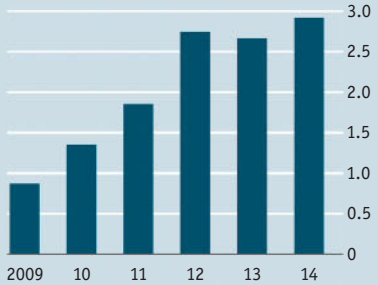
Their size gives the biggest financial firms a great deal of influence. But just as managers of a company may not find their interests aligned with those of shareholders, so the managers of these investment firms may not share the interests of their investors. This creates what John Bogle, founder of Vanguard, calls a "double-agency" society in which the assets nominally owned by millions of individuals are in the hands of a small group of corporate and investment managers whose concerns may differ from those of the masses.

Surprisingly, given America's litigious nature, few, if any, legal actions emerged in this area until 2006 when Mr Schlichter initiated a string of cases that accuse American companies of not acting in the best interest of their employees who participate in 401k plans. His first court victory came in 2012. This year he has won settlements from Boeing and Lockheed Martin. His extensive briefs provide a window into a complex world with layer upon layer of hidden costs and conflicting interests.

The disparity between the fees some institutions charge and their performance has recently received much attention, in part because, as an issue, it is both understandable and relatively transparent. Less easily quantified bones of contention may matter as much or more. For instance, a disparity between the pressure investment firms place on companies to perform in the short term and the time-horizon of investors, which may be much longer, has given rise to complaints voiced by Mr Bogle and others about a destructive "quarterly capitalism". And Jamie Dimon, head of JPMorgan Chase, has criticised investment managers as "lazy capitalists" for farming out decision on crucial shareholder votes to consultancies. Those consultancies, working as they do for many investors, are open to conflicts of interest themselves.

Flying startups 1

Number of venture-capital deals* for US companies '000



Source: CB Insights *Excludes earliest stage of funding

Shares aren't shared alike 2

Ownership of US company equity, %

Source: Bogle Financial Markets Research Centre

No fund to be with

Agency issues are particularly acute in the fastest growing part of the money-management business: the index funds which now represent a third of all the money in mutual funds. They are popular because in an efficiently priced market they are hard to outperform and can be managed at almost no cost. But they do not make their own decisions about when to buy and sell but simply seek to match the holdings of the index, such as the S&P 500, that they track. This low-maintenance approach does not generally include employing stakes to intervene in company decision-making.

Large index managers such as Vanguard, BlackRock and State Street, along with Legal & General in Britain, are acutely aware of this issue. They are responding by trying, in the words of Vanguard's Glenn Booraem, to be "passive investors but active owners". Each firm has created a department to consider shareholder motions and management issues, and to interact with activist investors. It is unclear how this will work or what will be considered. As their power grows, so will controversy.

As huge funds ponder the agency problem, New York's startups are trying to do away with it. In years gone by, entrepreneurs in small businesses would have existed in an informal state. Now the terms of ownership for investors, founders and employees are being defined ever more tightly almost at the time of the creation of new businesses. Clarifying issues of ownership along with innovations in finance is encouraging the availability of capital and ex-

pertise, once harder to come by for the small business.

Visit 85 Broad Street in downtown Manhattan to see this in action. Until 2009 it was the headquarters of Goldman Sachs and at the beating heart of American finance. WeWork, a firm that houses young companies, has now taken over six of its 30 floors to house 2,000 of what the firm likes to call its members. The stream of limousines with blacked-out windows that surrounded the building during Goldman's tenure has thinned, replaced by swarms of people in an array of startup-wear, from tartan shirts to hoodies.

WeWork has 30,000 members in over 8,000 companies in 56 locations in 17 cities. A number of other co-working spaces exist, such as the Projective, which housed early incarnations of Stripe, an online-payment system, and Uber. Demand is booming for the desks that served as launching pads for firms that now flourish. Apartments in Williamsburg, Greenpoint, Bushwick and other newly fashionable neighbourhoods are filled with startups.

In at the startup

Startups with appealing ideas and driven employees but with no contacts, business expertise or capital can receive all those through institutions such as Techstars and Dreamit Ventures, which receive thousands of applications every year. The handful that are selected get money, advice on strategy, marketing, leadership, legal help and access to investors—all functions large firms either provide internally or through pricey consultancies. In return, the nurturers receive small equity stakes and, if they have chosen the right startups and given them the right boost, a reputation that will attract further promising corporate youngsters into their orbit.

New companies have always suffered because commercial banks cannot lend to firms lacking assets and revenues, nor can the firms pay the high fees and retainers demanded by traditional investment banks and law firms. But an elaborate system has begun to emerge for both. Some will be able to get initial capital at effectively no cost from crowdfunding sites like Kickstarter and Indiegogo. An enthusiastic reception can attract bigger investors. This was the route taken by Oculus VR, a virtual-reality startup acquired in 2014 by Facebook for $2 billion.

More common is the creation from the outset of a company that can receive more usual forms of investment, albeit in a novel way. Law firms with experience in the older startup culture of the west coast, such as Cooley and Gunderson Dettmer, do a lot of business setting up such things in New York; so, perhaps unsurprisingly, do a number of law firms that are startups themselves. Spencer Yee left a career at Simpson, Thacher & Bartlett, an established law firm, to work from home on Manhattan's Lower East Side but has since moved to a co-working space.

Lawyers in the startup world play a vastly different role from those who advise—or sue—large companies. This is in part because of the nature of their clients; often tottering between failure and success they rely more heavily on outside advice. But it is also because lawyers, in the early stages, have replaced banks as the key intermediary for financing. But most importantly they negotiate directly with investors and physically maintain the "cap structure"—the all-important legal contract noting who owns what.

The ambiguities and obfuscation of public companies contrast sharply with the new corporate structures set out by legal contracts that make the rights of both investors and owners more explicit. These legal agreements tackle two fundamental difficulties. The first is the need to mitigate agency problems. This is handled by detailed agreements that include control issues, such as the allocation of board seats. Investors usually insist that management, and often employees, own large stakes to ensure their interests are aligned to the success of the venture.

The second difficulty concerns enabling investment in the absence of an important detail: a plausible valuation. Startups are pioneering a novel answer: an agreement at the early investment stages that enables an investor to buy a proportion of the venture, but at a price determined at a subsequent round of fund-raising, typically a year or two in the future.

The website of Wilson Sonsini, a California-based law firm, offers a 47-step process for generating such contracts; it is free to use as long as you tick a box promising not to claim Wilson Sonsini is your lawyer.

The growth of Mr Yee's tiny firm—he has closed six rounds of financing and two company sales—depends on the need to negotiate each term carefully.

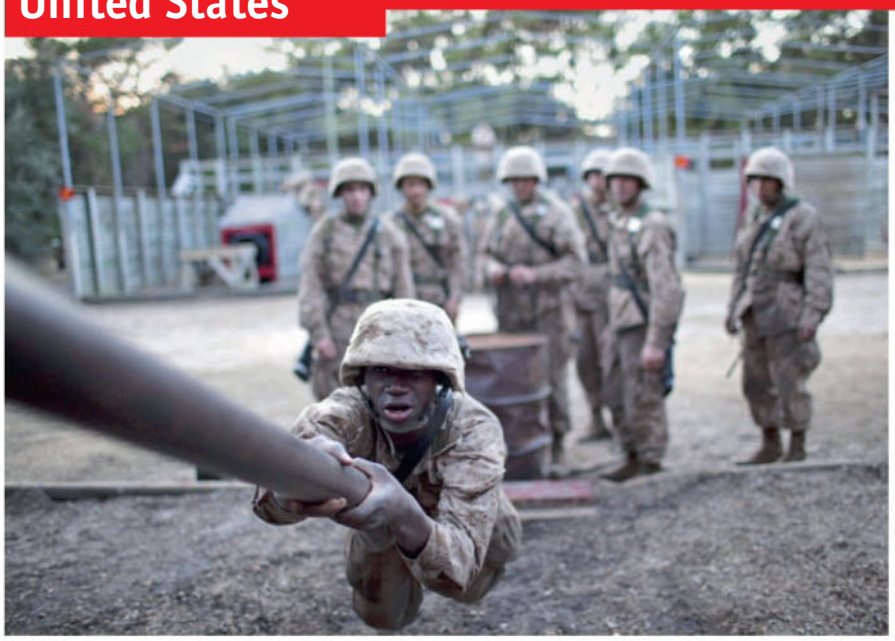
Typically, after initial funding, a founder will retain as much as 60% of the company, with 10-20% reserved for employees and the rest for outside investors. But terms are fluid. Each subsequent round of financing usually dilutes the original stakes by a fifth. That may sound harsh but if the firm's value is growing fast it can transform a large stake worth nothing into a small one worth a fortune.

The more appealing the idea and the more plausible their record as mangers, the better the terms founders can demand. Annie Lamont, a venture capitalist, points to a management team which, for its first startup, raised an initial $25m and held 10% of the equity by the time the venture was sold. Its most recent startup raised $160m and the team held 18.5% of the company when it was sold. Success lets you raise more money and negotiate a better deal in subsequent rounds of financing. There is no shortage of individuals and institutions straining for a chance to invest in some of the more successful but yet-to-go-public startups like Uber and Airbnb, which have done a series of fund-raising rounds on increasingly attractive terms.

This new way of doing business does not mean there is no role for conventional finance. For all the startups that promise they will never go public—Kickstarter is one—others are keen to do so at some point. Some hope to follow the trajectory of Facebook and Google—vast enterprises, led for a time by their founders, whose shares trade on public markets.

At the moment, however, successful businesses find raising money quick and easy through private means, which gives them no incentive to rush. Using technology to create a secondary market for shares might also means that the biggest no longer need to go public because the ability to extract liquidity from private firms is becoming much simpler. For now, at least, public markets are seen less as a place to raise money and create enterprises than as a mechanism to cash out if and when the time is right.

The flow of money into the startup world is, to some extent, for want of a better alternative. Low interest rates have undermined returns from "safe" investments and encouraged speculation. It would not be surprising if the current upheaval in equity markets curtailed this flow. A similar dampening will be felt if lots of the new firms fail, or if down-rounds become common. Even so, the new structure pioneered by startups is likely to endure as long as it serves as an effective response to the flaws of the public markets. Ms Jacobson is unlikely to have visited the last baby-shower in honour of an investor. ■



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ATLANTA

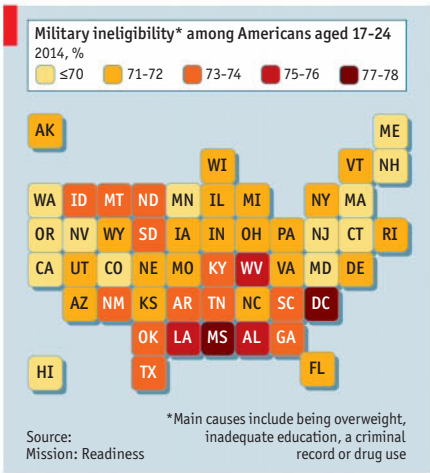
Failures in Iraq and Afghanistan have widened the gulf between most Americans and the armed forces

CRUISING a Walmart in Clayton County, Georgia, with Sergeant Russell Haney of US army recruiting, it would be easy to think most Americans are aching to serve Uncle Sam. Almost every teenager or 20-something he hails, in his cheery Tennessee drawl, amid the mounds of plastic buckets and cut-price tortilla chips, appears tempted by his offer. Lemeanfa, a 19-year-old former football star, says he is halfway sold on it; Dseanna, an 18-year-old shopper, says she is too, provided she won't have to go to war. Serving in the coffee shop, Archel and Lily, a brother and sister from the US Virgin Islands, listen greedily to the education, training and other benefits the recruiting sergeant reels off. "You don't want a job, you want a career!" he tells them, as a passer-by thrusts a packet of cookies into his hands, to thank him for his service.

Southern, poorer than the national average, mostly black and with longstanding ties to the army, the inhabitants of Clayton County are among the army's likeliest recruits. Last year they furnished it with more soldiers than most of the rest of the greater Atlanta area put together. Yet Sergeant's Haney's battalion, which is responsible for it, still failed to make its annual recruiting target—and a day out with the unit suggests why.

Much of the friendly reception for Sergeant Haney he puts down to fine southern manners; in fact, no one in Walmart is likely to enlist. Lemeanfa has a tattoo behind his ear, an immediate disqualifier. Dseanna has a one-year-old baby, and would have to sign away custody of him. Lily's girlfriend has a toddler she does not want to leave; Archel won't leave his sister. Even the cookie-giver is less propitious than he seems: he symbolises, Sergeant Haney says ruefully, as he bins his gift, that paying lip-service to the armed forces, as opposed to doing military service, is all most Americans are good for.

In a society given to ostentatious public obeisance to the services—during National Military Appreciation Month, on Military Spouse Day and on countless other such public holidays and occasions—the figures that support this claim are astonishing. In the financial year that ended on September 30th America's four armed services—army, navy, air force and marines—aimed to recruit 177,000 people, mainly from among the 21m Americans aged 17-21. Yet all struggled, and the army, which accounted for nearly half that target, made its number, at great cost and the eleventh hour, only by cannibalising its store of recruits for the current year. It failed by 2,000 to meet its target of 17,300 recruits for the army reserve, which is becoming more important to national security as the full-time army shrinks from a recent peak of 566,000 to a projected 440,000 by 2019—its lowest level since the second world war. "I find it remarkable," says the commander of army recruiting, Major-General Jeffrey Snow. "That we have been in two protracted land campaigns and we have an American public that thinks very highly of the military, yet the vast majority has lost touch with it. Less than 1% of Americans are willing and able to serve."



That is part of a longstanding trend: a growing disconnect between American society and the armed forces that claim to represent it, which has many causes, starting with the ending of the draft in 1973. Ever since, military experience has been steadily fading from American life. In 1990, 40% of young Americans had at least one parent who had served in the forces; by 2014, only 16% had, and the measure continues to fall. Among American leaders, the decline is similarly pronounced. In 1981, 64% of congressmen were veterans; now around 18% are.

Seasonal factors, including a strengthening labour market and negative media coverage of the wars in Iraq and Afghanistan, have widened the gulf. So have the dismal standards of education and physi- ▸▸

cal fitness that prevail in modern American society. At a time of post-war introspection, these factors raise two big questions. The first concerns America's ability to hold to account a military sector its leaders feel bound to applaud, but no longer competent to criticise. Andrew Bacevich, a former army officer, academic and longstanding critic of what he terms the militarism of American society, derides that support as "superficial and fraudulent". Sanctified by politicians and the public, he argues, the army's top brass have been given too much power and too little scrutiny, with the recent disastrous campaigns, and similarly profligate appropriations, the almost inevitable result. The second question raised by the civil-military disconnect is similarly fundamental: it concerns America's future ability to mobilise for war.

During the Korean war, around 70% of draft-age American men served in the armed forces; during Vietnam, the unpopularity of the conflict and ease of draft-dodging ensured that only 43% did. These days, even if every young American wanted to join up, less than 30% would be eligible to. Of the starting 21m, around 9.5m would fail a rudimentary academic qualification, either because they had dropped out of high school or, typically, because most young Americans cannot do tricky sums without a calculator. Of the remainder, 7m would be disqualified because they are too fat, or have a criminal record, or tattoos on their hands or faces. According to Sergeant Haney, about half the high-school students in Clayton County are inked somewhere or other; according to his boss, Lieutenant-Colonel Tony Parilli, a bigger problem is simply that "America is obese."

Spurned by the elite

That leaves 4.5m young Americans eligible to serve, of whom only around 390,000 are minded to, provided they do not get snapped up by a college or private firm instead—as tends to happen to the best of them. Indeed, a favourite mantra of army recruiters, that they are competing with Microsoft and Google, is not really true. With the annual exception of a few hundred sons and daughters of retired officers, America's elite has long since turned its nose up at military service. Well under 10% of army recruits have a college degree; nearly half belong to an ethnic minority.

The pool of potential recruits is too small to meet America's, albeit shrunken, military needs; especially, as now, when the unemployment rate dips below 6%. This leaves the army, the least-favoured of the four services, having either to drop its standards or entice those not minded to serve with generous perks. After it failed to meet its recruiting target in 2005, a time of high employment and bad news from Baghdad, it employed both strategies zealously. To sustain what was, by historical standards, only a modest surge in Iraq, around 2% of army recruits were accepted despite having failed to meet academic and other criteria; "We accepted a risk on quality," grimaces General Snow, an Iraq veteran. Meanwhile the cost of the army's signing-on bonuses ballooned unsustainably, to $860m in 2008 alone.

That figure has since fallen, as part of a wider effort to peg back the personnel costs that consume around a quarter of the defence budget. Yet the remaining sweeteners are still generous: the army's pay and allowances have risen by 90% since 2000. In a role-play back at Sergeant Haney's recruiting station, your correspondent, posing as an aimless school-leaver, asked what the army could offer him. The answer, besides the usual bed, board and ▸▸

The Democratic race

Joe says no

The vice-president finally rules himself out

LIKE bungee-jumping or pregnancy, running for president of the United States is not something you can do by halves. The schedule is unimaginably gruelling, the toll on the candidate and his or her family immense—and that is just the primaries. So Joe Biden's prevarication about joining the Democratic race always made it unlikely that he would, notwithstanding his occasional flashes of ankle. In the Rose Garden of the White House on October 21st, with Barack Obama at his side, the vice-president confirmed what his indecision had always implied: despite some indications that he was planning to, he would not launch a third bid for the top job.

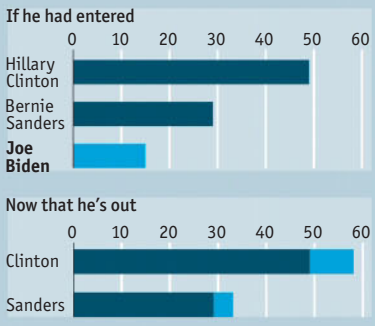
That came after yet another flurry of interest in his putative candidacy, this one sparked when he refined his position on the raid that killed Osama bin Laden in 2011—claiming not, in fact, to have opposed it, thereby burnishing his national-security credentials. In his announcement, Mr Biden referred to the death of his son, Beau, in May; in previous, sometimes moving comments, his grief, and the fragility of his family, were the reasons he gave for his uncertainty about running. Now, he said, his family was "ready" for the challenge. But, Mr Biden had concluded, the window for "mounting a realistic campaign" has closed. "Unfortunately," he said, "I believe we're out of time."

He may well be right. Hillary Clinton has already sewn up key donors and endorsements from many Democratic bigwigs; her assured performance in her party's first televised debate on October 13th persuaded some waverers of the strength and inevitability of her candidacy. Talk by Mr Biden's boosters of his superior appeal to ethnic minorities, particularly in the South, may anyway have been overblown. Quite probably, had he run, he would have succeeded in hurting Mrs Clinton—the barbs and tension between them seemed already to be mounting—but ultimately would have failed to win the nomination.

After Mr Biden's official withdrawal from a contest he never officially entered, Mrs Clinton is in a formidable position: she is the party establishment's only viable candidate. It also leaves the Democrats without an obvious backup plan, should the row over her private e-mail habits when she was secretary of state, or some other furore, fell her.

The Biden effect

First choice among Democratic primary voters*, %



Source: NBC/WSJ poll, October 15th 2015 *Registered voters who say they would vote in the Democratic primaries

Ready, but too late

medical insurance, included $78,000 in college fees, some of which could be transferred to a close relative; professional training, including for 46 jobs that still offer a fat signing-on bonus; and post-service careers advice. Could the army perhaps also overlook the youthful drugs misdemeanour your correspondent, in character, admitted to? Sergeant Fred Pedro thought it could.

It is a good offer, especially set against the bad jobs and wage stagnation prevalent among the Americans it is mostly aimed at. That the army is having such trouble selling it is partly testament to the effects on public opinion of its recent wars. In the three decades following America's withdrawal from Vietnam, in 1973, the army fought a dozen small wars and one big one, the first Gulf war, in which it suffered only a few hundred casualties in total. Even as Americans grew apart from their soldiers, therefore, they were also encouraged to forget that war usually entails killing on both sides.

In that blithe context, America's 5,366 combat deaths, and tens of thousands of wounded, in Iraq and Afghanistan have come as a terrible shock. Most young Americans associate the army with "coming home broken, physically, mentally and emotionally", says James Ortiz, director of army marketing. Almost every member of the journalism class at D.M. Therrell High School in Atlanta concurs with that: "I'd maybe join if there's no other option. But I just don't like the violence," shudders 16-year-old Mayowa.

Decades of army advertising that focused largely on the college money and other perks of service probably added to the misapprehension. "Americans do not understand the army, so do not value it," says Mr Ortiz. A marketing campaign launched last year, Enterprise Army, instead emphasises the high values and good works the army seeks to promulgate. Yet it will take more than this to turn Americans back to a life which many consider incompatible with atomised, sceptical, irreverent modern living. Moreover, it is also likely that, when the army next needs to surge, it will be for a war much bloodier than the recent ones. America's biggest battlefield advantage in recent decades, its mastery of precision-guided weapons, is fading, as these become widely available even to the bigger militant groups, such as Hamas or Hizbullah.

The result is that America may be unable, within reasonable cost limits and without reinstituting the draft, to raise the much bigger army it might need for such wars. "Could we field the force we would need?" asks Andrew Krepinevich of the Centre for Strategic and Budgetary Assessments. Probably not: "The risk is that our desire to ask only those who are willing to fight to do so is pricing us out of some kinds of warfare." ■

Playboy in Chicago

Sex doesn't sell any more

CHICAGO

An American icon covers up

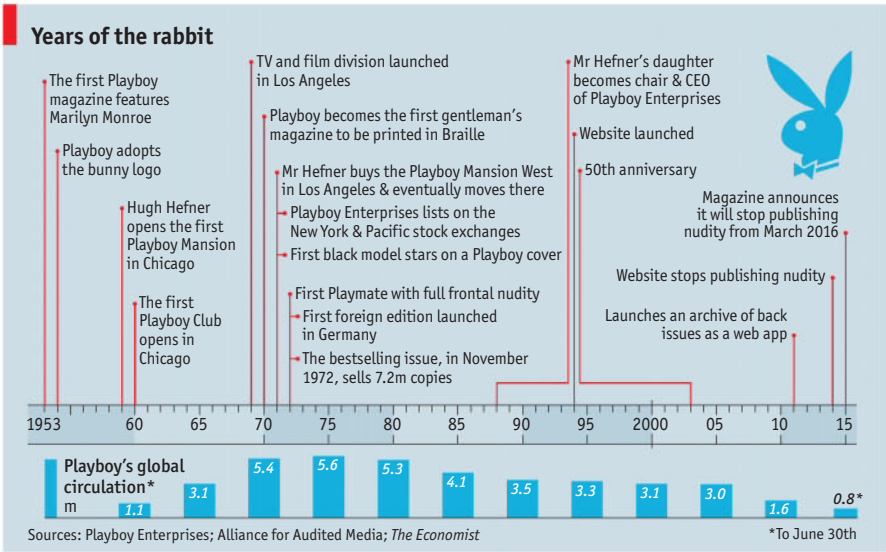
CHICAGO considers *Playboy*, the men's magazine and its multiple commercial offshoots, as part of its heritage. A bunny costume is on permanent display at the Chicago History Museum on the city's North Side. And the "little black book" of Hugh Hefner, the Chicago-born founder of *Playboy*, filled with names, phone numbers, code names and titillating notes on scores of women, was a much-talked-about curiosity at the museum's "Unexpected Chicago" exhibition in 2012.

That was the year Mr Hefner closed Playboy's offices in Chicago, after almost six decades in the city, and moved his business headquarters to Beverly Hills. In the *Chicago Tribune* he wrote that it was bittersweet to leave the city he loved. "Chicago provided the magazine's connection to the true American male," wrote Mr Hefner. In return, *Playboy* gave the city an edge, he said: a reminder to the rest of America that the first stirrings of a sexual revolution took place at a card table at 6052 South Harper Avenue (where *Playboy* started), ran wild in a large, elegant house in State Street (where Mr Hefner established the first Playboy mansion) and swelled into a global presence on Michigan Avenue (where *Playboy* set up shop in a famous skyscraper after it had become a commercial hit).

The move to California was also part of an attempt to consolidate the creaking Playboy empire. A year earlier, in January 2011, Mr Hefner, then a sprightly 84-year-old, had reassumed power over his shrunken company by buying 30% of the shares of Playboy Enterprises (the owner of *Playboy* and related media and licensing activities) that he didn't already own. At the time, Playboy Enterprises was leaking money at an ever-increasing rate. Scott Flanders was the chief executive. He had taken over from Mr Hefner's daughter Christie, who had run Playboy Enterprises for 20 years, a couple of years earlier.

Hefner's little helper

Mr Flanders remained boss of Playboy Enterprises after buying back his company in tandem with Rizvi Traverse Management, an investment firm, and continued to look for a new business model. He ▸▸



slashed costs by reducing staff by 75% and outsourcing some of the firm's business. His biggest problem was *Playboy*, the bedrock of the business empire—and its most troubled part. The magazine was losing about $12m a year when Mr Flanders took over and continues to lose money to this day, though now to the tune of only about $3m annually. Despite its compelling journalism, most readers bought it for naked female flesh, now much more readily available online. From a peak of 7.2m copies in November 1972, its circulation has shrunk to a mere 800,000 today.

Mr Flanders decided to start reinventing the brand by banning full nudity from the Playboy website in August last year. This made the site safe to surf at work and in public places, and helped it to get onto social-media platforms such as Facebook or Twitter. Its online audience soared, increasing fourfold from 4m unique users per month to 16m. The average age of its readers dropped from 47 to just over 30.

This month Mr Flanders made his most audacious move yet. On October 13th Playboy Enterprises said that from March next year *Playboy* will not publish full nudity any more, though it will continue to show "sexy, seductive pictorials of the world's most beautiful women". It will also continue to choose a "Playmate of the Month" and hire a "sex-positive female" as a sex columnist. And it says it will go on publishing long-form journalism, interviews and fiction.

"The quality of the content was always overshadowed by the nude pictures," says Americus Reed at the Wharton School of the University of Pennsylvania. *Playboy* has published fiction by James Baldwin, and Vladimir Nabokov, as well as interviews with Jimmy Carter, Malcolm X and Martin Luther King. (Mr Carter came to regret admitting to *Playboy* journalists that he had "committed adultery in my heart many times".) In 1990 *Playboy* ran a cover photo of Donald Trump dressed in black tie, an adoring Playmate at his side. Asked on October 20th whether he would consent to *Playboy*'s request to write an article for the magazine, Mr Trump replied that maybe he will pass. "It's not the same *Playboy*. In those days that was the hottest thing you can do," he said, referring to the cover splash about himself.

Mr Trump is not the only one hankering for the old *Playboy* days. Candace Jordan, a former Playmate and a *Playboy* centrefold in December 1979, laments in the *Chicago Tribune* that the magazine's revamp comes at the expense of the "glamorous iconic *Playboy* Playmate image". Others warn that *Playboy* risks losing its brand identity. But the bowtied-rabbit logo remains popular, and clothes, wallets, briefcases and handbags featuring it are all the rage in China—where *Playboy* itself, with its alluring nudes, has never yet been sold. ■

Social change and the Southern Baptists

Love the sinner

OXFORD, MISSISSIPPI

A bittersweet tale of prejudice, overcome and enduring, in the deep South

ERIC HANKINS had been pastor of the First Baptist Church in Oxford, Mississippi, for seven years when he learned of a shaming episode in its past. Good-looking, charismatic and articulate, he is a spine-tingling preacher, combining biblical erudition with folksy humour, compassion with fierce devotion. He was already an ornament to First Baptist: Oxford's oldest church in America's biggest Protestant denomination, the Southern Baptists, and so a flagship institution, boasting beautiful stained-glass windows and two thronged Sunday-morning services.

In the minutes of church meetings Mr Hankins found, as he puts it, that "a great wrong had been done" on April 21st 1968. Four years after the passage of the Civil Rights Act—and less than three weeks after the assassination of Martin Luther King—the members of the First Baptist Church voted to exclude black people from their congregation. They may have been concerned by the prospect of a "kneel-in", as black protests in white churches were known. For a while, the church remained adamant: it also refused to let its bus be used to carry black children.

At the time, discrimination was routine in Southern Baptist congregations. "The church was the last bastion of segregation," says Wayne Flynt, a historian and pastor who left the denomination in the 1980s amid ongoing clashes over integration. But it wasn't usually codified in this way, and Oxford's own recent past lent this instance a special piquancy. Genteel and urbane today, in 1962 the town became a byword for racist hatred when a 2,000-strong mob fought a fiery battle with federal marshals, National Guardsmen and paratroopers in a last-ditch bid to prevent the registration of James Meredith, the University of Mississippi's first black student. "Can they hit Oxford?" Robert Kennedy joked shortly afterwards of the Soviet missiles in Cuba. You can still see the bullet marks made by the mob on the façade of the university's Lyceum.

Donald Cole—a freshman at the university in 1968, now an assistant provost—recalls that when, in this climate, he and a group of fellow black students were turned away from First Baptist (they generally moved in groups), he wasn't especially shocked. But 45 years later Mr Hankins was, and he "wasn't going to do nothing". Sceptics regard the interracial initiatives of some churches as ploys to swell declining congregations, by attracting ethnic minorities and liberal youngsters. But Mr Hankins was sincere. His father was an enlightened pastor, too; and as a novice preacher in rural Mississippi, Mr Hankins was called a "nigger-lover" by bigots. Believing there is "no such thing as passive anti-racism", he drafted a resolution of apology. It drew on one issued by the Southern Baptist Convention in 1995, when it finally repented of its support for slavery (God, Southern Baptists taught, wanted slaves to obey their masters) and its defence of segregation (He assigned each race its proper place). In July 2013, Mr Hankins read the resolution in

Mr Hankins urges repentance, to a point

church during Sunday service.

He didn't sugar-coat it. "We sinned," he told his congregation, deploying his electric repertoire of breathless crescendos and dramatic pauses. Had they been at church that day in 1968, they would have done the same, he told his white listeners. That is almost all of them: in Oxford as elsewhere, 11am on Sunday remains—in King's famous words—the most segregated hour in America, albeit voluntarily. At the last count only 14% of congregations were multiracial. "Does it not break your heart?" Mr Hankins asked. Around 600 members endorsed the resolution; only a handful demurred.

Next he personally conveyed the apology to the nearby Second Baptist Church. It was an appropriate recipient, not only because it was founded by former slaves, who met at first in the woods; after the vote in 1968, First Baptist also declined to host communal prayers involving the Second's black members. "It was very moving", says Andrew Robinson, its pastor. "It showed a great deal of humility." The congregation "had never witnessed anything like that". It voted unanimously to accept.

Mr Hankins wanted to achieve more than symbolic gestures and, given his church's wealth and prominence, he was well-placed to. When he was pondering the resolution he consulted Susan Glisson of the university's William Winter Institute for Racial Reconciliation, which runs innovative, farsighted programmes to bring about interracial dialogue and improvements in traumatised southern communities. Her advice—not to pass judgment, to let people talk—was, he says, "invaluable". Afterwards they discussed new projects, such as co-authoring an article and educating other churches. Mr Hankins seemed enthusiastic.

Then, last year, he abruptly pulled back. "It was very disappointing," Ms Glisson says, because Mr Hankins could be a "persuasive advocate in churches grappling with their history". His reticence derived at least partly from another, seemingly unrelated issue: gay rights and same-sex marriage, which Ms Glisson and her institute publicly support, and which Mr Hankins, like many evangelical Christians, vehemently opposes.

Sin no more

Mr Hankins says he and Ms Glisson have never discussed that subject, but that he was concerned lest the focus on race "be pulled into some other agenda". But he acknowledges, too, that he disagrees with the university's approach to sexuality. Indeed, at around the time he stopped communicating with Ms Glisson, he used a sermon to criticise a textbook, co-authored by the institute, which offers guidance to students, including Christians, on coming out as gay. In another sermon he relayed rumours of professors vowing to convert students from Christianity to godlessness.

For Mr Hankins disapproves of homosexuality as passionately as he deplores racism. Homosexuality is different from other sins, he has preached: it is "a signal of a culture that's coming apart at the seams". Gay marriage is "insane". He envisages a time in which, because of secularism's advances, he is forced from his pulpit and God from the country: God "may decide to move on from America". Some see resistance to gay rights as the latest iteration of Southern Baptists' habit of intransigent (if doomed) opposition to social change; Mr Hankins rejects any analogy between gay rights and the civil-rights movement.

The pastor and his church, like other southern congregations, have hosted mixed-race prayers and sponsored outreach efforts among deprived black youngsters. But the projects he and Ms Glisson were planning collapsed. Their article was never completed. A talk, no doubt powerful, by Mr Hankins to another congregation never happened. Ms Glisson still hopes they may collaborate. Mr Hankins seems almost crestfallen, too. "I have not known quite what to do," he says.

He and his flock do a lot of good. His views on sexuality are orthodox for his creed, just as racism once was (though there have always been dissenters: as he was turned away from First Baptist, Mr Cole says, some white worshippers extended their hands in friendship). Indeed, the way orthodoxies fall, rise and displace each other is among this episode's lessons. Rarely, though, does adherence to one prejudice collide so directly with a bid to ameliorate another. The tale of Eric Hankins and the First Baptist Church is a sad story with a happy ending, and vice versa. ■

Google Books in court

Keep calm and click on

NEW YORK

Snippets are not an infringement of copyright

THE hero of "The Library of Babel", a story by Jorge Luis Borges, loses himself in a gargantuan repository of every possible book in the universe. Google Books isn't quite that vast, but it is big. Since 2004, Google has teamed up with libraries to scan over 20m titles—many of them out of print—and put them on the web for all to view. Users cannot read whole books unless they are in the public domain. But unlike the sad character in Borges's tale, who never finds the library catalogue, Google Books browsers can search for specific phrases and read snippets of countless volumes, free.

A decade ago a group of alarmed authors sued Google, claiming the service cut into their copyrights. After years of legal machinations, a federal district court ruled in favour of the internet giant in 2013. The plaintiffs appealed to the Second Circuit Court in New York. On October 16th, they were rebuffed again.

How can a company get away with digitising millions of books without the authors' consent and showing them to the world? In his ruling, Judge Pierre Leval explained that copyright law gives "potential creators" the exclusive right to copy their own work in order to expand everybody's "access to knowledge". It is not all about enriching authors. The "ultimate, primary intended beneficiary", he wrote, "is the public."

Besides, if the work is put to a "transformative purpose", it counts as permissible "fair use" under the Copyright Act of 1976. Google does just that, said Judge Leval, by uploading millions of books and rendering them searchable by the masses. The "purpose of Google's copying of the original copyrighted books", the ruling reads, "is to make available significant information about those books, permitting a searcher to identify those that contain a word or term of interest." Another tool enables Googlers "to learn the frequency of usage of selected words in the aggregate corpus of published books in different historical periods". Both these functions were "quintessentially transformative".

The ruling does not give away the store: Google supplies only three eighth-of-a-page snippets for each book. And publishers and authors may opt out of snippet-showing altogether. But the Second Circuit ruling gives ordinary readers instant access to a world of knowledge—and one far more friendly and manageable than Borges imagined.

Lexington | Democrats in them thar hills

Rural America is becoming more diverse politically. Thank retired baby-boomers

FOR Americans who love road trips but despise Democrats, the Obama years have been a golden age. Rural America does not like this president—an antipathy that only deepened between his election in 2008 and his re-election four years later, when he picked up just 37% of rural voters. Add that trend to a decades-long swing of southern states away from the Democratic Party, and the size of conservative America, measured in square miles of majority-Republican territory, has grown and grown. In 2012 the Republican candidate, Mitt Romney, won fully 77.9% of the counties of America (though, sadly for him, those counties are home to just 42.7% of the population). With a bit of planning, you can drive across the lower 48 states from east-to-west or top-to-bottom without entering a single county won by Barack Obama in a presidential contest—though you'd need a stomach for barbecued meat, country music and conservative talk-radio.

Small wonder that so many Democratic campaigns focus on cities and college towns, hoping to offset rural losses by running up huge margins of victory among such groups as urban youngsters, non-whites and highly educated liberals. In contrast Republicans need little prodding to don jeans, brag about their love of hunting and denounce gun controls or environmental rules as an imposition by bossy, out-of-touch Washington elitists. Each election sees campaign outfits pop up with names like "Farmers and Ranchers for Romney Coalition".

But a paper published in the latest issue of *Political Geography*, an academic journal, suggests that both parties may need to refine their thinking. The paper, by scholars at the University of New Hampshire (UNH), finds that rural America is far from monolithic in its politics. The country boasts roughly 2,000 rural counties. They cover three-quarters of its land area and are home to about 50m of its people, just under one-sixth of the population. Most have mixed economies, containing everything from farms to slaughterhouses or prisons (guarding ne'er-do-wells is a big rural industry). One in five is classified as a "farm county" by the government, meaning that its economy is dominated by agriculture. At the other end of a socio-economic spectrum lie the 289 rural counties deemed "recreational", meaning that their prosperity rests on enjoyment of the Great Outdoors and other forms of leisure. These counties range from Rocky Mountain ski valleys to New England hamlets teeming with baby-boomers, most planning retirements full of hiking, cycling or organic bee-keeping.

The new paper, "Red rural, blue rural? Presidential voting patterns in a changing rural America", focuses on farm and recreational counties. Counties dominated by the "old" rural economy of farming are sternly conservative, handing Mr Obama just over a third of their votes in 2012. Digging into a nationwide survey that included 9,000 rural voters, the Co-operative Congressional Election Study, the UNH academics found farm-county residents strongly opposed to gay marriage and legal abortion, and more sceptical than the average American about the menace posed by climate change. By contrast, the mountain-biking, canoe-paddling, golf-playing residents of recreational counties handed almost half their votes to Mr Obama in 2012 and take a liberal line on all manner of social issues (not least because they are significantly less likely than other country-dwellers to call religion "very important" in their lives).

Many farm counties have seen their populations stagnate or shrink for decades, and struggle to hold on to their youngsters once they reach adulthood. In contrast, far-flung counties offering pretty landscapes or such attractions as golf courses, ski slopes or even rural casinos have seen big inflows by what demographers call "amenity migrants", though arrivals slowed during the recent recession. Such newcomers tend to be richer and better-educated than typical rural residents. The migrants bring different ideas with them and, although many of them are retired, they also create jobs for younger people. As Kenneth Johnson, an author of the paper, notes: "Somebody has to staff the hospitals and build the houses." Some recreational counties have seen growth rates that rival those of successful cities.

Different strokes for different folks

In a few cases, migration flows have been large enough to help create new presidential swing states, argues another of the authors, Dante Scala. A case in point is New Hampshire, which wields outsize clout as an early-voting state in the Democratic and Republican contests to choose a presidential nominee. The lovely, thickly forested north of the state is the ancestral home of the Yankee Republicans—a flinty, taciturn bunch with little time for either government meddling or fire-and-brimstone social conservatives. But lots of those moderates have moved either to Florida or to meet their Maker, says Mr Scala, a political scientist. In New Hampshire's four recreational counties, their places have often been taken by folk from such states as New York and New Jersey, who have brought their Democratic-leaning politics along with their walking books. In 2012 Mr Obama averaged more than half of the vote in those recreational counties, helping him to victory in New Hampshire. The president did equally well in the ski towns and hiking centres of Colorado, another battleground state.

Change will take a while. To borrow an elegant cultural measure invented by Justin Farrell, a Yale University sociologist, in lots of rural states drivers with gun racks still outnumber those with bicycle racks. In such electoral battlegrounds as Virginia and North Carolina, the Democrats' rural bastions remain counties with lots of black residents. But some 70m baby-boomers are due to retire in the next two decades. If only some of them yearn to picnic in pine forests or swim in glacial lakes, local power-brokers such as farmers, ranchers or miners will find their clout challenged. Back-country road trips may never be the same. ■

Also in this section

Canada's election

Ready or not...

OTTAWA

Justin Trudeau has proved he can campaign, but can he govern?

BEFORE campaigning began in August for Canada's general election, pundits speculated that the country's centrist Liberal Party, which had governed for most of the past century, might soon fade into irrelevance. Stephen Harper, the Conservative prime minister, hoped to be elected to a fourth term. His main challenger looked like being Thomas Mulcair, leader of the left-leaning New Democrats (NDP), which had supplanted the Liberals as the official opposition but had never governed the country before. Mr Harper spent much of the campaign mocking the Liberals' inexperienced leader, Justin Trudeau, the son of a former prime minister, as "just not ready" to lead the country.

On October 19th Canada's voters toppled the prime minister and humbled the pundits who had predicted the Liberals' demise. Mr Trudeau's party won a majority of the 338 seats in the House of Commons and can govern without support from the NDP, which finished third.

The election was a referendum on Mr Harper's divisive decade in power. As a net exporter of energy, Canada was hurt by the drop in oil prices. Its economy contracted in the first half of 2015, undermining Mr Harper's claim that only the Conservatives could manage it. Two-thirds of voters wanted him out of office, but it was not clear they would coalesce around either of his main challengers.

In the end they swung behind Mr Trudeau, thanks to his deft campaign and to mistakes by the NDP. Mr Mulcair, fearing that the NDP would be branded tax-and-spend socialists, joined the Conservatives in promising a balanced budget. Mr Trudeau seized the opportunity to differentiate the Liberals. He promised to run deficits temporarily to pay for a C$60 billion ($46 billion) programme of infrastructure spending over ten years. That chimed with the sunny outlook of the Liberals' campaign. Mr Trudeau, voters decided, was the better anti-Harper.

It will take something more than a cheerful disposition to cope with Canada's problems. The commodities boom, which had shielded Canada from the worst effects of the global financial crisis, has ended, revealing economic malaise. GDP and productivity have been growing at a plodding pace, firms do not innovate enough and infrastructure is overburdened. Consumer debt and house prices are frighteningly high. Business investment and exports have yet to take over from indebted consumers as motors of economic growth. Mr Trudeau's infrastructure-spending plan is a start, but it is not enough.

The change from Mr Harper's prairie conservatism could be abrupt. The new prime minister plans to give the middle class a lift by cutting income taxes, which Mr Harper might have done, while raising the rate on incomes of more than C$200,000, which the Conservatives would certainly not have done. Where Mr Harper was reluctant to act on climate change, the new prime minister plans to reach agreement with Canada's provinces on national targets for reductions in greenhouse-gas emissions. He wants to legalise marijuana and take in 25,000 Syrian refugees by the end of the year. He has promised to replace the British-style first-past-the-post voting system, though with what is not yet clear.

On foreign policy, Mr Trudeau will return to Canadian traditions of co-operation that Mr Harper abandoned. However, he plans to withdraw six fighter jets from the United States-led coalition against Islamic State, while leaving military trainers in place. That could make it harder for Mr Trudeau to achieve another diplomatic goal: warmer relations with the United States. Barack Obama "understands" his wish to pull back from the fight against IS, said the newly elected prime minister after his congratulatory telephone call. Mr Trudeau has been non-committal on the Trans-Pacific Partnership, a proposed trade agreement among a dozen countries. But he is a long-standing supporter of free trade and is unlikely to pull out of the deal.

Perhaps the most noticeable change will be a return to a more collegial style of government, ending Mr Harper's practice of concentrating power in the prime minister's office. In part, that is a commendable recognition by Mr Trudeau of his relative inexperience. A 43-year-old ex-teacher, he has never served in government, let alone run a ministry. He is likely to rely on colleagues who have, including Ralph Goodale, a former finance minister, and Stéphane Dion, a former minister of the environment and intergovernmental affairs. Mr Trudeau has shown he can revive a party and lead an election campaign. Running a country will be harder. ■

Argentina's elections

The end of kirchnerismo

BUENOS AIRES

And the beginning of saner economic policies, perhaps

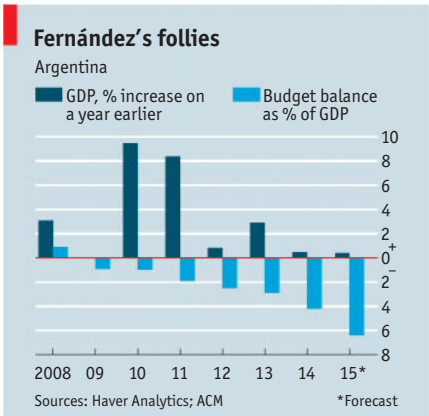
FIRST, she thrust her finger skyward. Then came a right-left combo, punctuated with an eruption of hip swaying. Beside her with a rigid smile stood Daniel Scioli, the governor of Buenos Aires province and presidential candidate, looking like a child mortified by the antics of his mother. The campaign rally, held earlier this month, was meant to be for him, but the outgoing Argentine president, Cristina Fernández de Kirchner, stole the spotlight.

For the last time, Mr Scioli hopes. On October 25th Argentina will hold the first round of elections to choose a new president, along with half the lower house of Congress and a third of the Senate. They will bring to an end 12 years of government under Ms Fernández and her husband, Néstor Kirchner, who died in 2010. The main question to be settled is how much continuity there will be with the Kirchners' populist and divisive rule. Mr Scioli is running as Ms Fernández's heir, under her Peronist party, the Front for Victory (FPV), yet hopes to be his own man. His main rival, Mauricio Macri, the mayor of the city of Buenos Aires, leads an electoral coalition called Cambiemos, "Let's Change".

Argentina needs change. As Ms Fernández slips out of office the economy is starting to crumble. Currency controls and trade restrictions, which she imposed in 2011, are choking productivity; inflation hovers at around 25%. The budget deficit is swelling and foreign-exchange reserves are dwindling. Argentina cannot seek external financing until it ends its standoff with creditors who rejected a debt-restructuring plan. Unless the new president quickly reverses Ms Fernández's populist policies, a crisis is inevitable.

Few Argentines know that yet. Many credit the Kirchners with rescuing the economy from a slump in the early 2000s and for the growth that ensued (which owed a lot to high prices for soyabeans, the biggest export). They were open-handed leaders: 40% of the population receives a pension, salary or welfare from the government, a share that has doubled since Ms Fernández took office in 2007. Among recent presidents, only her husband left office with higher approval ratings.

That is why Mr Scioli subjects himself to awkward appearances with her. Recent polls suggest that he is close to the threshold needed for victory in the first round: 40% of the vote with a lead of ten percentage points over his nearest competitor. Mr



Macri's lacklustre campaign has been hurt by corruption allegations against a congressional candidate from his coalition. He splits the anti-Fernández vote with Sergio Massa, a feisty Peronist who left FPV and is third in the polls. If Mr Macri can force a second round, to be held on November 22nd, he might beat Mr Scioli by picking up Mr Massa's votes. Poliarquía, a polling group, puts support for Mr Scioli in a runoff at 49%, with Mr Macri at 45%.

Whoever wins will have to disappoint voters. To restore competitiveness and open production bottlenecks the next president will have to allow the peso to depreciate and lift restrictions on exports and imports. The gap between the official value of the peso and the "blue-dollar" (ie, free-market) rate has widened to around 70%. Subsidies will have to be cut to narrow the budget deficit, expected to be about 6% of GDP this year (see chart). The central bank is likely to raise interest rates to force down inflation. That may trigger a recession. To have any hope of attracting international capital Argentina will have to strike a deal with its hated creditors.

Mr Scioli hopes that both *kirchneristas* and their foes will see in him what they want to see. The country can solve its economic problems with "no [fiscal] adjustment, no mega-devaluation and no [economic] shrinkage," he told *The Economist*. Any measures will be "gradual". An inflow of dollars will keep the peso strong. "There will be joy," he promises.

Mr Macri is more market-minded than Mr Scioli and does admit that the peso will have to devalue. But he also downplays the hardship to come. That said, the frontrunners have more in common with each other than they do with Ms Fernández. They are less confrontational and have gathered impressive teams of advisers to whom they listen and delegate. Each is eager to repair Argentina's strained relations with the United States. Both want to attract investment, relax trade controls and resolve the debt standoff.

What distinguishes Mr Macri most is his determination to break with the Peronist practice of aggrandising presidential power at the expense of other institutions. Ms Fernández enfeebled Congress, the central bank and the official statistics agency, which she stopped from reporting bad news. She undermined the independence of the press and had a go at the judiciary. Mr Macri's advisers say he would build up institutions with the power to check the presidency. He "will do a real shock to recover the institutional credibility of the country very fast," promises Federico Sturzenegger, a pro-Macri congressman.

The risk, though, is that Mr Macri might not be able to do much of anything. If elected he will lack a majority in both houses of Congress. At most, two of Argentina's 24 governors will be his allies. His campaign manager, Marcos Peña, insists that he overcame similar hurdles as mayor of Buenos Aires. But managing a rich city is far different from governing a fractious country of 40m. The two non-Peronist presidents since the military dictatorship ended in 1983 were both forced out of office early.

Mr Scioli has a different worry: that Ms Fernández will continue to upstage him after she leaves the presidency in December, especially if the economy runs into trouble. Many congressmen are loyal to her, as is his likely successor as governor of Buenos Aires province, the country's most populous. Ms Fernández has said little about her plans, but the song that set her dancing may provide a clue: "A thousand years can pass, you will see a lot fall down. But if we stick together, they won't hold us back." It did not sound like a farewell. ■

Haiti's elections

No bums to throw out

PORT-AU-PRINCE

A troubled country has the chance to take a step forward

FOR the capital of a country where recent election turnouts have been low, Port-au-Prince does not lack for political advertising. Lampposts, electricity poles, even the lintels of lottery shops are plastered with toothy photos of the 53 candidates who are competing to be Haiti's president in elections that begin on October 25th. Hundreds more are vying for parliamentary and municipal seats.

Though teeming with would-be presidents, Haiti barely has any elected officials. Just 11 are in office in the entire country: the current president, Michel Martelly, and ten senators. Elections were delayed twice—in 2011 and 2013—and parliament was dissolved early this year, leaving Mr Martelly, who cannot run again, to govern by decree. This month's vote is thus a step towards restoring a functioning elected government. ▸▸

Advertisement feature

A NEW APPROACH TO CYBER SECURITY

Changing the economics of cyberattacks to improve security and enable innovation

Davis Hake
Director of Cybersecurity Strategy

Today's cybersecurity landscape is marked by news of one data breach after another, each seemingly bigger than the one that preceded it. "It's happening partially because the economics of the problem aren't being addressed," says Davis Hake, Director of Cybersecurity Strategy at Palo Alto Networks.

Given the value of business and personal data held in IT networks and the increasing connectedness of the Internet of Things, cyber criminals are becoming more aggressive. At the same time, improving technology is arming those criminals with tools that are ever less expensive and more powerful.

Against that backdrop, too often businesses' cybersecurity response is to fix problems once the damage is done.

"The adversaries are getting more aggressive, they're using these advanced tools and they're working together to try to get things right," Hake said. "But from our view, we haven't really changed our approach." Against those adversaries, the right course, he said, is to make the playing field less favorable for the attackers. "You actually need to change the economics of the situation," Hake said and, "make it increasingly expensive for adversaries to launch successful attacks." Essentially, if you make it too difficult and expensive for the criminals to attack your networks, they'll go elsewhere.

The Palo Alto Networks approach delivers breach prevention along the attackers' lifecycle, providing numerous points at which an attack can be thwarted by the company's integrated security platform, which includes a Next-Generation Firewall, Advanced Endpoint Protection, and Threat Intelligence Cloud. The platform is designed to learn from attacks as they happen, as well as applying intelligence gathered from attacks on other Palo Alto Networks clients. Forcing attackers to try new attacks, rather than rely on their existing infrastructure, makes their efforts more difficult and costly, prompting them to seek easier targets.

In building its platform, Palo Alto Networks looked not just at security for security's sake, but at how security can enable innovation. While board members and C-level executives are increasingly aware of their responsibility for cybersecurity, many are still trying to understand how to make their organizations secure. Meanwhile, few see the link between effective cybersecurity and business opportunity, according to Hake.

"Where we feel that the conversation still lacks is getting that message up to the officer and director level and translating those technical risks into not just risks but business opportunity," he said. "If you can do something more securely than you'd been able to in the past that allows new business opportunities," and the ability to use technology such as SaaS.

To address those issues, Palo Alto Networks is working with the New York Stock Exchange to bring the conversation to the board room level. A major element of that effort is a new book, Navigating the Digital Age, an anthology of works by more than 30 CEOs, consultants, and technical practitioners sharing their views on how to effectively address cyber threats. The anthology is meant as a reference guide and, along with a vendor agnostic portal Palo Alto Networks is launching to build a community around cybersecurity best practices and advice, a resource for board members.

"We hope that this is the start of the conversation around best practices and expert use case advice," said Hake. "The other part of it is enlisting those board members to go back out there and engage in that conversation with their peers."

Ultimately, the goal is not just security but opportunity. "Securing innovation really should be our key goal here," says Hake. "It's not just saying no. It's about getting to yes and seeing security as strategic to an organization's livelihood and growth."

paloalto NETWORKS

Whoever leads it will face huge challenges. More than five years after an earthquake flattened much of the capital, Haiti is hobbled by corruption and political instability, and still vulnerable to disasters. The biggest shortcomings are in education, electricity and governance, says Gilles Damais of the Inter-American Development Bank. Money to fix them is scarce. Income from foreign donors dropped from 12% of GDP in 2010 to 7% last year. The government's domestic revenues were a scant $1.1 billion, or 13% of GDP, in 2013.

Few people and firms pay taxes, and the state "struggles to provide services and appropriate regulation," notes a recent report by the World Bank. The next president's most urgent task will be to repair the broken social contract between citizens and the state, first of all by enforcing an anti-corruption law passed last year.

Of the dozens of contenders for the job, three stand a reasonable chance. Jude Célestin, a leftist, initially made it to the run-off in 2010 but withdrew after reports of widespread vote-rigging. Jovenel Moïse, a banana farmer, represents Mr Martelly's right-of-centre party. Moïse Jean-Charles is a populist ex-senator, loudly critical of the government. If no one wins a majority, a run-off will take place in December.

The road back to democratic normality is perilous. The first round of parliamentary elections, held in August, were violent and chaotic. A newly formed election commission pronounced them fair nonetheless. That undermined Haitians' faith in the commission and in the integrity of this month's vote. The risk of violence is high, and the losers may take to the streets. If chaos gets bad enough, analysts fear that Haiti could end up with an appointed transitional government rather than the elected one it badly needs. Who wins the elections matters less than how they do so. ■

Bello | Damage control in Chile

Michelle Bachelet's reluctant retreat towards the centre

LIKE the rest of South America, Chile has been badly hit by the end of the commodities boom. But it has also gone further than most of its neighbours in adjusting to a harsher world. The peso has depreciated by around 45% since January 2013, helping to extinguish a big current-account deficit. Low debt and years of macroeconomic rigour mean the government has been able to run an expansionary fiscal policy while the Central Bank's interest rate, despite an increase this month, is negative in real terms.

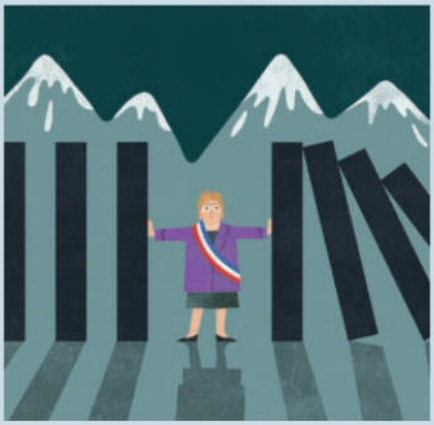
And yet economic recovery remains elusive. Most forecasters think growth this year will be barely more than last year's anaemic 1.9%. Next year looks only slightly better. Investment continues to fall. This, then, is no longer the Chile that was Latin America's model economy, growing at a steady clip of 5%.

For that, supporters of Michelle Bachelet, the Socialist president, blame the outside world. The price of copper, Chile's main export, has almost halved since 2011, causing mining firms to slash investment. The government's critics point to the uncertainty caused by Ms Bachelet's programme of radical reforms which, they say, is destroying the Chilean "model" and the incentive to invest. So far the government's explanation is more plausible: growth rates in free-market Peru have halved, too. But the longer the slowdown lasts, the stronger is the opposition's argument. Chile faces a real risk of losing its way, and for that history may ascribe most of the blame to Ms Bachelet herself.

She swept to power in 2013 with 62% of the vote on the most left-wing programme since the 1970s, aimed at reducing inequality. It was a critique of the Chilean model—free-market economics combined with gradually expanded social provision—adopted by the centre-left governments (including her first administration in 2006-10) which ruled for two decades from the end of the Pinochet dictatorship. She pushed through controversial reforms of tax, education and the electoral system in her first year in office; another bill gives more rights to trade unions.

Two things threw her off course. The first was the economic slowdown. The second was a scandal, to which she was slow to react, in which her son appeared to use his influence to obtain a $10m loan for a business deal. The president's approval rating has plummeted, to around 25%. And the reforms themselves are unpopular. She has sounded the retreat. In May she brought in as finance minster Rodrigo Valdés, a moderate who is respected by business. He says he plans to "simplify" the tax reform, and will partially restore an investment credit. The government is modifying the union bill, to balance rights for workers with flexibility for business.

Nicolás Eyzaguirre, one of Ms Bachelet's closest aides, admitted recently to *El Mercurio*, a conservative newspaper, that the government tried to do too much: "we'd clearly got ourselves into a maelstrom of reforms that we were not going to be capable of either designing appropriately or processing politically."



Ms Bachelet calls the change of tack "realism without resignation"—the Spanish *sin renuncia* meaning both that she will not resign (as some had speculated) and that she will not resile from her programme. That phrase is worryingly contradictory. She is pressing ahead with the biggest change of all, a new constitution (the current one, though much reformed, was drawn up under Pinochet). On October 13th she announced a drawn-out timetable by which the government will send a draft to Congress in 2017, but it will only be the next Congress, from 2018, that decides on the mechanism to approve it.

Polls show that a majority of Chileans favour a new constitution. But it is not an issue they care about deeply—Ms Bachelet tacitly admitted as much by ordering a six-month "civic education" campaign. At least her plan respects the existing institutions. But it will do nothing to reassure investors. "Chile needs a constitutional reform now, and not a process of uncertainty that will last for years," complained Sebastián Piñera, who was the centre-right president in 2010-14.

Chile's clannish business lobbies are wrong to oppose all change. To carry on growing the country needs better education, better public services, more competitive markets, more meritocracy and less privilege. The most telling critique of Ms Bachelet's programme comes from the wiser heads on her own side. They warned her that her reforms were technically botched. And they told her that what Chileans care about most is the lack of equality of opportunity and social mobility—the chance to share in the "model" rather than to abolish it, as she has flirted with doing. They were right.

Also in this section

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Nepal and India

Mr Oli's winter challenge

BIRGUNJ AND DELHI

A growing fuel crisis is the outcome of Nepal's divisive constitution

USUALLY thick with smog, the sky above Kathmandu is strangely clear. For weeks a blockade at Nepal's border with India has strangled the capital's supply of fuel. The country relies almost entirely on its big southern neighbour for its oil and gas, along with much else. In the capital, cars and lorries sit idle. Hotels and restaurants have run out of cooking gas. Young middle-class families cannot buy nappies. Kathmandu is supposed to be celebrating Dashain, the biggest Hindu festival of the year, in honour of Durga, the goddess of power. But blackouts loom. The new coalition government of Khadga Prasad Sharma Oli, a veteran politician who was made prime minister on October 11th, after a long-debated constitution was finally passed, has been born into crisis.

By contrast, the atmosphere in Birgunj, Nepal's main border-crossing with India, is almost festive. For weeks growing crowds of protesters have occupied the no-man's-land between the two countries, giving India an excuse not to send across thousands of lorries that are lined up on its side of the frontier. The protesters are largely from the bottom rungs of Nepali society, notably the Tharu and Madhesi ethnic minorities who inhabit the lowland Terai region that runs along Nepal's long southern border. The Madhesi, in particular, have strong links with Indians in the nearby states of Bihar and Uttar Pradesh. The people of the Terai have long felt marginalised by Nepal's upland elites in Kathmandu. In Birgunj, to India's evident approval, they think they have found their voice. Every day they march to the beat of drums. Sometimes an elephant leads their rally.

A few weeks ago the Terai saw ugly violence. Protests broke out as the protracted process of drawing up a constitution—the seventh since 1950—came to an unexpectedly rapid close. A new one was promised in a peace agreement, signed in 2006, that ended Nepal's long Maoist insurgency and civil war. The country's first elected legislature failed to come up with an acceptable draft; a second, elected in 2013, made little headway either. But then four major parties, among them monarchists, Communists and Maoists, came together after a devastating earthquake in April, each eyeing a swiftly enacted constitution as a route to furthering its interests.

It looked like a stitch-up among the upper castes. In particular, the people of the Terai felt that proposed new state boundaries gave them less political representation than they had been promised. They want the constitution to guarantee diversity in all state bodies. In August violence flared with the killing of eight policemen and a ruthless and at times indiscriminate response by police and paramilitary forces. Over 40 died. Yet the constitution was adopted on September 20th.

Protesters in Birgunj say they will continue demonstrating until the government treats them as equal citizens. The constitution will surely have to be amended if Nepal is not to suffer further chaos. Nepali politicians resent India's big-brother meddling in trying to dictate to Nepal what should have gone into the constitution and then encouraging the blockage at the border when its word was not heeded. But Nepal now badly needs Indian help.

On October 19th Nepal's deputy prime minister, Kamal Thapa, met India's prime minister, Narendra Modi, in Delhi. Mr Modi's response—settle the dispute with the peoples of the Terai, and cross-border supplies can resume—was carried triumphantly back to Kathmandu, transmuted along the way into an Indian climb-down. It was anything but. Mr Modi did promise to help divert lorries to other border crossings untroubled by protests. But as the snows approach, hardships from the blockade are likely to worsen.

In Nepal, many will pin blame on India. Yet Mr Modi's stand has won him support among some Nepali observers, while he is a hero in the Terai. Some politicians in Kathmandu fantasise about playing a China card, by asking for help from a northern neighbour that is always angling for influence in Nepal. But China can do little, says Prashant Jha, author of a recent book on Nepal. The country's ties with India are too deep for China easily to supplant them. Carrying big quantities of Chinese oil over the Tibetan plateau into Nepal would present huge challenges (not least a road from Kathmandu to China's border that was damaged by the earthquake).

Pressure will therefore grow on Mr Oli to offer concessions. He will demur: before he came to office he had been vitriolic in denouncing Madhesis and Tharus critical of the constitutional process. He will have to do more than simply bite his tongue if he is to rescue Nepal from winter calamity. ■

Taiwan politics

Horses in midstream

TAIPEI

Three months before an election, the KMT ditches its presidential candidate

IN THE final sprint towards Taiwan's presidential elections on January 16th, the outlook for the ruling party, the Kuomintang (KMT), is grim. The party was drubbed in municipal polls in November by the opposition Democratic Progressive Party (DPP), which attracts those who want permanent separation from China. Opinion polls do not suggest that the KMT will win this race either. Now, in desperation, it has dumped its presidential candidate, Hung Hsiu-chu, because she seemed more unpopular than the party itself. Ms Hung's ill-considered gambit had been to call for even closer ties with China.

At an emergency congress held by the KMT on October 17th, an overwhelming majority of the nearly 900 delegates voted to rescind Ms Hung's candidacy. Polls had shown she was trailing the DPP's presidential candidate Tsai Ing-wen by over 20 percentage points. The KMT's chairman, Eric Chu, was chosen to replace her. It may make little difference. There is a good chance that the DPP will win not only the presidency (which it held between 2000 and 2008), but possibly also a majority in the legislature, for which polls will be held at the same time.

A silver lining for China is that Ms Tsai is more moderate in her views on Taiwan's independence than the last DPP president, Chen Shui-bian (who was jailed for corruption). But the cross-strait bonhomie so cherished by President Ma, whose government reached a slew of agreements with China over trade, tourism and other exchanges, would likely turn to rancour for the duration of a DPP presidency.

Oddly, given how much anxiety Mr Ma generated at home with his friendly approach to China, Ms Hung chose to double down: she expressed support for a peace treaty with China and eventual reunification—options that Mr Ma had toyed with too, but far more hesitantly. There were reports that some KMT candidates for the legislature had threatened to leave the party because her position was so abhorrent to voters. There was even speculation that the KMT might split again, as it had done both before and immediately after the DPP's victory in the presidential polls of 2000: the first defeat of the KMT in Taiwan since the end of the Chinese civil war more than five decades earlier. Mr Chu told the congress that it was a "critical moment" for the party's survival.

A split may have been averted, for now. Mr Chu is focusing his efforts on preserving the KMT's control over the legislature. That may be a more achievable mission than winning the presidency: a poll in early October, before the congress, put support for him at 29%, not much higher than the 24% who favoured Ms Hung. By publicly humiliating Ms Hung and seeming a bully, Mr Chu may have lost favour even among those who disliked her.

Mr Chu is touting the KMT as the only party that can maintain stable relations with China. But it is unclear whether playing to voters' fears of a return to cross-strait acrimony will work. His approach may not impress mainland Chinese leaders either. George Tsai of Chinese Culture University in Taipei, says they were alarmed by Ms Hung's ouster. "The KMT has revealed its true colours to Beijing: it is not for unification," he says. Tension with the mainland may well be very prolonged. ■

History lessons in South Korea

Manual drive

SEOUL

Government efforts to influence history teaching in schools create a furore

"GOOD presidents make history. Bad ones make history textbooks." This slogan from South Korea's main opposition party is splashed across campuses and spread by teachers and pupils through social media. Yet Park Geun-hye, the country's conservative leader, appears unruffled. She has reaffirmed support for a government plan, announced this month, for a state-authored history textbook to be used by all secondary schools by 2017. Liberals are distraught.

Ms Park's father, Park Chung-hee, a general who seized power in a coup in 1961, imposed state-issued history manuals in 1974. A freely elected president first loosened the system 30 years later, allowing private publishers to print history books subject to state approval. Today schools choose from eight of them.

But in 2013, after Ms Park was elected, the education ministry asked publishers to correct "left-leaning" accounts, as it regarded those highlighting the nastiness of South Korea's former dictators. The government approved a new manual written by scholars sympathetic to the South's former strongmen. It was revised in parts after protests. But the public outcry was such that only one school adopted the book.

The government seems undeterred. Kim Dong-won, an assistant minister of education, says competing histories have caused "great confusion in the classroom". He says pupils are "intellectually immature" and can be influenced by the North Korean slogans quoted in some books. Such fears appear odd in a thriving liberal democracy; but South Korea still punishes (with up to seven years in prison) those who praise the North.

Plenty support the government's move. Lee Kyung-ja of the Parents' Alliance for the Revival of Public Education, a lobby, laments that texts puff up Kim Il Sung, the North's first dictator, by calling him an anti-Japanese resistance fighter (he was), and malign Ms Park's father. "Our enemy teaches one idea, so why not teach our children one unified story to counter it?" she says.

But the Korean History Research Association, the country's biggest forum for historians, has said it will not participate in the writing of the textbook if asked to do so. Scores have sent letters of protest to the government, noting a proud tradition in which chroniclers in the Joseon dynasty (1392-1897) pledged to record events with a "straight brush" that did not bend to power. At Yonsei University one protest poster was mockingly written in the style of a North Korean bulletin, with references to "Supreme Leader Comrade Park Geun-hye" and her "boundless visionary decision to worship His Excellency President Park Chung-hee". Other critics accuse Ms Park of hypocrisy, given her rebuke of Japan's historical revisionism.

South Korea is becoming ever more divided between right and left. Hwang Woo-yea, the minister of education, suggests that government-approved history may be a remedy. "A country in which the public remembers history differently has only division in its future," he says. But one which binds the minds of its young surely has a bleaker one.

Nuclear power in Japan

Back to the nuclear zone

NARAHA

A lack of trust in the authorities is hindering resettlement near Fukushima

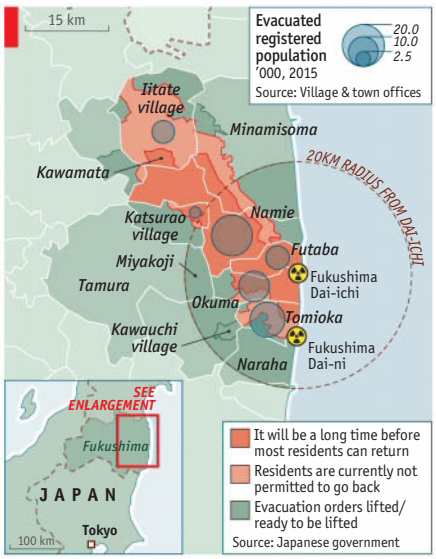
THE stench of rot and rat excrement fills the living room of Yoshiei Igari, one of thousands of residents who fled the town of Naraha on March 12th 2011 after an earthquake and tsunami had sent the nearby Fukushima Dai-ichi nuclear power plant into meltdown. After Naraha lifted its evacuation order on September 5th he hastened back to see his former home. While the house had lain abandoned, wild boars had wrecked its ornate garden of tall, curved stones. Yet freshly picked daisies on the family altar inside the decayed interior suggest that Mr Igari may decide to return to his ancestral home.

Naraha's opening is the first time that a whole town has been declared safe as the government gradually shrinks the evacuation zone around the plant (see map). "The clock that stopped [in 2011] has now begun to tick," says Yukiei Matsumoto, the mayor.

The plant's radioactive plume headed north-west. Towns in that direction, such as Namie and Futaba—where annual radiation levels are at more than 50 millisieverts (mSv), well beyond the 20 mSv that is considered safe—will probably stay empty for many decades. Yet thanks to the local wind direction four and a half years ago, and the government's decontamination efforts, radiation in Naraha and in two other affected residential areas slightly to the north-west is now such that these places are officially deemed habitable again.

In April last year the Miyakoji district of Tamura city became the first such area to allow people back. Kawauchi village followed last October. Both, however, are well served by shops, hospitals and schools located in areas that never had to evacuate. Naraha—where not long ago starving, abandoned cows wandered the streets—has no such backup. It is having to restart the basic services on which the community will depend. Its railway station reopened last year (it now features a digital radiation counter over the ticket gate). A new junior high school is due to open next year. But so far only 300 people have returned out of a former population of nearly 8,000. Worries still abound.

The government hopes a particularly Japanese attachment to one's *furusato*, or home town, will draw people home. By the time of the Tokyo Olympics in 2020 it is eager to show the world that the area has recovered. Well before then, it wants to demonstrate the government's competency as it begins to restart the country's other nuclear power plants, which were shut down after the nuclear disaster. By the time Fukushima prefecture finishes the task of decontaminating houses and farmland around the Dai-ichi plant, it will have spent an estimated $50 billion on the work.



Some argue it would have been wiser to have spent the money on resettling former residents elsewhere. Already many of the 80,000 or so people displaced from the areas around the plant have begun new lives. Those moving back are mainly elderly. Local officials expect that half of the evacuees, especially those with children who are more vulnerable to radiation, may never return.

Fear of radiation, and distrust of data from the government and from the Tokyo Electric Power Company (TEPCO), the Dai-ichi operator, on the risk it poses, are the biggest reasons. On October 20th it was announced that a worker who had helped to contain the accident had developed cancer linked to the meltdown. It was the first such diagnosis, but a recent medical study found a huge leap in cases of thyroid cancer among children and adolescents in Fukushima prefecture since the catastrophe.

Public faith in Japan's institutions suffered a severe blow as a result of the government's bungled response to the accident in 2011. So when officials of Tamura city wanted to open the Miyakoji district in 2013, residents resisted and demanded more decontamination work.

A year after the lifting of the evacuation order on his village, Yuko Endo, the mayor of Kawauchi, says distrust is so widespread that he doubts his community will return even near to its former size. But he has visited the area around Chernobyl in Ukraine, the site of the world's worst nuclear disaster 29 years ago. He says the sight there of abandoned villages resembling graveyards has stiffened his resolve to rebuild. Those who have now returned are still deeply sceptical about the assurances they receive. Many ask why, for instance, if the soil is safe, they must take their locally grown produce to be checked for radiation.

There is a particular ray of hope in Naraha—more of one than is evident in Miyakoji and Kawauchi. The town will benefit from jobs related to the decommissioning of the nearby nuclear plants, including Dai-ni, which got through the earthquake and tsunami relatively unscathed. Another of Naraha's immediate projects is to erect new streetlights. It will be helped by dollops of government aid. Mr Matsumoto, the mayor, talks of luring people back by making his town much more attractive than it was before. But for now, many streetlights do not even work. It is dark at night and the atmosphere is eerie. ■

The fresh air of Naraha

Banyan | Central Park

Diplomatic logjams in North-East Asia are breaking at last

AMERICA has no closer allies in Asia than Japan and South Korea, and no serious rival other than China. So it has vexed American officials that over the past three years its allies have barely been on speaking terms with each other. Indeed, on a number of issues South Korea has aligned itself with China in opposition to Japan and even America. At last, however, South Korea and Japan seem to be inching towards a rapprochement. At least one American worry in North-East Asia is easing. That is just as well: a bigger one, over North Korea's nuclear-bomb programme, is as intractable as ever.

In a report published in September on the foreign policy of President Park Geun-hye, the Asan Institute, a think-tank in Seoul, criticised her for being "preoccupied with China at the cost of ignoring the United States", which still has nearly 30,000 soldiers in South Korea. Like Britain and some other American allies, South Korea ignored American advice to shun China's new Asian Infrastructure Investment Bank. It agreed in March to sign up as a founder member. And in September, Ms Park, alone among the leaders of America's democratic allies, attended a military parade in Beijing with which China marked the 70th anniversary of Japan's defeat in the second world war.

Her trip to Beijing included her sixth summit meeting with China's president, Xi Jinping. They are said to hit it off personally; it helps that China is South Korea's largest trading partner. The two countries also share resentment at what they see as Japan's efforts to prettify its grisly war record, and suspicion at moves by Shinzo Abe, the prime minister, to reinterpret Japan's pacifist constitution. Both countries have territorial disputes with Japan over tiny islands. Both felt that the cabinet statement Mr Abe issued on the anniversary of Japan's surrender in August was inadequate. They complained when Mr Abe ("in his private capacity") this week sent a tree as a ceremonial offering marking the autumn festival to the Yasukuni shrine in Tokyo, where convicted war criminals are among those honoured.

But Ms Park now appears eager to redress the balance. Earlier this month, she held an apparently amicable summit in Washington with Barack Obama. The American president did make a point of telling a joint press conference he held with Ms Park that America expects South Korea to speak out when China flouts "international norms and rules". South Korean listeners heard this as a mild rebuke of Ms Park's apparent tilt towards China. But her visit signalled that the alliance remained in fairly good shape.

Recent moves to mend fences with Japan should help it become more so. This week Gen Nakatani became the first Japanese defence minister to visit Seoul in nearly five years. Japan hopes his visit may lead to the resuscitation of a planned agreement on sharing military intelligence that was scuppered in 2012 by South Korea because of a popular backlash against the deal.

Most important, Ms Park is preparing to end her boycott of Mr Abe. She has shunned bilateral meetings with him for the nearly three years they have both been in office, despite Mr Obama's efforts to get them to make up by inviting both to a meeting on the margins of a nuclear-security summit in The Hague last year. At the end of October Mr Abe will be in Seoul for a trilateral summit with Ms Park and a Chinese leader (probably the prime minister, Li Keqiang), reviving what used to be an annual event, also suspended since 2012 because of anger with Japan.

During the trilateral event, Ms Park has said she will hold a separate meeting with Mr Abe. It will not be an easy encounter. Ms Park has said it will be "meaningful" if progress is made on the "comfort women"—South Koreans abused as sex slaves by the Japanese army. Only 47 of these women who have made their histories public are still alive, in their 80s and 90s, so Ms Park pointed out that time is short "to bring closure to their pent-up agony". Previous obfuscation on the issue suggests Mr Abe is not the man to do it.

At least South Korea—government and public alike—seems to have decided that Mr Abe has spent long enough on the naughty step. Business is one factor behind this. The trilateral process will include discussions of a proposed free-trade agreement between the three countries. This seems more urgent now that the 12-country Trans-Pacific Partnership, led by America, has been signed. China is excluded, as is South Korea, though it wants to join. North-East Asia also badly needs a forum to discuss security tensions. Although they rarely make international news any more, Chinese air and sea patrols continue around the Japanese-controlled Senkaku islands (which China calls the Diaoyus). Japan scrambled fighter jets to prevent Chinese incursions 117 times in the three months starting in July, up from 103 times in the same period last year. Fears of an accidental clash persist.

Waiting for the Chosun Un

An even bigger security headache is North Korea. China's perceived sway over the country and its jejune dictator, Kim Jong Un, is Ms Park's biggest justification for her cosy ties with Mr Xi. China's influence was seen in North Korea's agreeing to the arrangements that led to this week's heartbreaking reunions of several hundred elderly people separated from their kin by the Korean war more than six decades ago.

The presence of a senior Chinese official at celebrations for the 70th anniversary of the founding of North Korea's ruling party on October 10th may also have deterred Mr Kim from marking it with a festive test of a nuclear bomb. This week, however, South Korea's spy agency reported that the North had made preparations for another nuclear test—its fourth, and the first since 2013. The spooks do not think it is imminent. But North Korea's small nuclear arsenal is growing and its next provocation in the form of an explosion or a ballistic-missile test is only a matter of time. And China remains either unwilling or unable to restrain it. ■

Also in this section

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Business and corruption

Robber barons, beware

SHANGHAI

A crackdown on corruption has spread anxiety among China's business elite

"PROBLEMS that occur in business ...should not be politicised." So said President Xi Jinping before leaving China for London on a state visit this week (see page 53). He was referring to foreign critics of Chinese investment in Britain's infrastructure. At home, however, his words had resonance too. Mr Xi's fierce and unusually sustained crackdown on corruption has led to much anxiety among businessmen—especially those with close ties to political leaders and other officials.

Mr Xi's campaign against graft has ensnared some prominent business figures. Last month it was announced that Song Lin, a former chairman of China Resources Group, a state-owned conglomerate, was being prosecuted. On October 7th came news that Su Shulin, a former chairman of Sinopec, a state-run oil company, was under investigation. Mr Su had been serving as governor of Fujian province, making him the first incumbent of that rank to be targeted in this campaign. Five days later Jiang Jiemin, the former head of PetroChina, another state-controlled petroleum firm, was sentenced to 16 years in jail. On October 13th Chinese media reported the arrest of Sam Pa, a middleman in resource deals done in Africa by Chinese state-owned firms.

As Mr Xi's purge expands, the anxieties of some businessmen are growing. *Hurun Report*, a rich list, shows there are now more dollar billionaires in China (596) than in the United States (537). According to its research, carried out after this summer's stockmarket plunge and currency devaluation, China added 242 of its billionaires just this year. Some of these fortunes were earned honestly, but some surely were not. A Chinese property tycoon (who has not been accused of wrongdoing) says many fellow billionaires are akin to corrupt robber barons in America over a century ago.

SOE worrying

Crooked businessmen have reason to be nervous. But some analysts worry that the recent arrests of business leaders signal a broader anti-corporate campaign. Some believe that Mr Xi is taking a leaf out of Vladimir Putin's playbook, learning from his campaign against Russian oligarchs. They see the recent arrests as the possible start of a long-running reign of terror waged by an anti-business regime.

Such fears are overblown. Businessmen targeted so far are mostly senior managers of state-owned enterprises (SOEs), not private firms. In China powerful SOE bosses are also important figures in the Communist Party, so there are likely to be political reasons as well as economic ones for many of the arrests. Some of those detained are linked to Zhou Yongkang, a former security chief and head of a corrupt network of officials known as the "petroleum mafia" (he was sentenced to life in prison in June). Of more than 100,000 people indicted for graft since Mr Xi became leader in 2012, most are politicians and officials—not private businessmen.

Some of them, like Mr Pa, have been caught up in the crackdown. But the purge has so far mostly steered clear of the private sector. Indeed, Mr Xi's government has been rather supportive of Chinese business. Internet giants have been encouraged to expand into the provision of government-related services, such as booking hospital appointments and processing utility bills. They have been kept largely clear of antitrust scrutiny. The government has slashed red tape and made more credit available to startup firms. This may reflect a degree of understanding of the private sector's importance: it produces perhaps two-thirds of economic output and almost all new urban jobs.

In his dealings with business, Mr Xi is no Putin. His campaign is very clearly an effort to clean up the party; going after crooked SOE bosses is a necessary part of that. When Mr Putin attacked Russia's oligarchs—handing over their assets to his cronies—it had nothing to do with putting his political party on the straight and narrow. Mr Xi is different. His crackdown is an effort to "get rid of the thugs at the SOEs," says an adviser to multinationals in China.

Economic growth has been hurt by bureaucratic paralysis. Fearful of being branded corrupt, officials have become reluctant to facilitate deals. In the long term, however, a cleaner and more predictable business environment will help. The property tycoon says he believes Mr Xi will soon have no need to keep lashing out, having already made it clear that he will not tolerate corruption. "You can't even give a bribe these days," he says. ■

The five-year plan

Command performance

SHANGHAI

The Communist Party is about to set its goals for 2020

IN 1953, taking cues from their Soviet advisers, Chinese leaders launched their first five-year plan. They charted a course for rapid industrialisation of the then-agrarian country. Now they are drafting their 13th such document. It will show how much has changed. Its main message will be that industrialisation has run its course and that China will have to find a new engine of growth. But the very existence of the plan (to run from 2016 to 2020) is indicative of how, in economic policymaking, much has stayed the same.

China will publish the first outline after an annual meeting of the Communist Party's Central Committee at the end of October. It will be very different from the party's early plans. It once set specific production targets for steel and grain, among other things—hallmarks of the central planning that led China so astray. Since the early 1980s, the role of the plans has been relaxed. They clarify medium-term policy priorities, but are not blueprints that must be adhered to slavishly.

Yet the plans are still important, not least because of the attention they receive. "They are large neon signs of where the party wants to take the country," says Scott Kennedy of the Centre for Strategic and International Studies, a think-tank in Washington. Local officials scurry to adjust their rhetoric and policies to fall in line with the plan. Banks direct capital to the industries the plan seeks to boost. Companies, both state-owned and private, alter their business models accordingly.

In recent years, the plans have come to encompass a wider range of priorities. Almost all the binding targets in the current one relate to the environment or social welfare. Officials were obliged to build 36m units of public housing, limit energy use and expand primary-school enrolment—all of which they accomplished, albeit sometimes by fiddling the numbers. Purely economic targets such as income growth and job creation were considered predictive, not mandatory.

For all that, the most-watched part of the new plan will still be its target for GDP. The current one aims for average annual growth of 7% from 2011 to 2015. In reality, it is likely to be about 7.8%. In the past, targets were often set well below the potential growth rate. That could change with the new plan. State media have suggested the new target will be 6.5%, beyond what many forecast for the coming years.

This could have big implications for economic policy. The farther growth slips below target, the more the government will be under pressure to stimulate the economy or, failing that, to doctor data. Given China's already-heavy debt burden (see page 71) and analysts' abiding cynicism about official statistics, neither outcome would be welcome. Some economists have called on China to abandon its growth target altogether, to give itself more breathing space. But Kuang Xianming of the China Institute for Reform and Development, a think-tank, says the GDP figure will remain in the plan, because it serves as a lodestar for all other economic policies.

There will be plenty of other targets to aim for. Just over 70m people still live under the official poverty line; the plan is likely to include a pledge to expand welfare payments to lift them all above it. The government has already started to relax its one-child policy; some believe the aim in the next five years will be to abolish it altogether. There will probably be objectives for reductions in carbon emissions, investment in high-tech industries and the building of megacities. Full details will not be released until March, when China's parliament approves the plan.

Perhaps the most intriguing element is one that will remain unmentioned by state media: the historic milestone of the new document. Such plans are one of China's cherished inheritances from the Soviets. But the Soviet Union collapsed before it was able to see its 13th one to completion. Beating the Soviets may provide China's party with a bigger-than-usual incentive for the rest of the decade. ■

Hong Kong's colonial relics

Postman expat

HONG KONG

A clash between the British past and Chinese present

HONG KONG is littered with reminders of its imperial past. Prisons, schools and parks bear the names of British monarchs. There are still public statues of them. The island's harbour, its hilly peak and a main road in the business district are named in honour of Queen Victoria. Almost all of the British colonial governors are remembered in street names.

But China is worried about what it sees as a lack of appreciation in Hong Kong for its salvation from colonial rule (sometimes evident at pro-democracy rallies where a few people are seen waving colonial-era flags). In September Chen Zuo'er, a former Chinese official who heads a think-tank in Hong Kong, criticised the island's "failure" to decolonise and the "refusal" of people to accept the territory's relationship with the mainland. Even FIFA, football's world governing body, is cross. This month it fined the Hong Kong Football Association because of booing by the territory's fans of China's national anthem (which is now their own) during a match.

Many suspect that the humble post box may now fall victim to what appears to be a new effort to reinforce patriotism. Hong Kong's postal service was set up in 1841 by Britain's Royal Mail. Its colonial past is visible in boxes embedded in the sides of buildings, or of the traditional "pillar box" variety—complete with royal insignia. A start was made on correcting this after the handover of Hong Kong to China in 1997: red post boxes, as they are coloured in Britain, were mostly repainted green (see picture).

Georgius rexit

In October the postal authorities said the use of royal symbols was "inappropriate" and "confusing" and announced plans to cover them up. Conservationists were dismayed. One of them, Sin Wai-man, accused officials of trying to "whitewash" colonial history and likened the proposed covering of the insignia to "killing the souls" of the boxes.

Postal officials appear unfazed by the outcry, though they have yet to say when they will carry out the makeover. Lovers of the 59 remaining colonial-era boxes can at least draw comfort from their freedom to complain. Losing that hallmark of Hong Kong's identity would be a far bigger blow than anything that may happen to the royal marks.

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Africa's middle class

Few and far between

ACCRA AND LAGOS

Africans are mainly rich or poor, but not middle class. That should worry democrats

LOOK out from the cafés of Accra's financial district and you could be almost anywhere. In the shadow of glassy skyscrapers, American-accented entrepreneurs order lattes and ponder spreadsheets. "You couldn't have imagined this even five years ago," Joseph Baffour, a local financier, says of his surroundings. "There's been an astronomical change."

On a continent once synonymous with war, famine and poverty, a middle class has started to emerge, propelled by growth and urbanisation. Its rise has much to do with the spread of democracy and greater rule of law—countries with such attributes tend to generate more economic opportunities than those in which a few rulers line their pockets. In turn, the new middle classes have raised their voices in demanding clean and accountable government and public services. A study by Nic Cheeseman of Oxford University, found that in Kenya the richer people were the more likely they were to support democracy (and vote for the opposition).

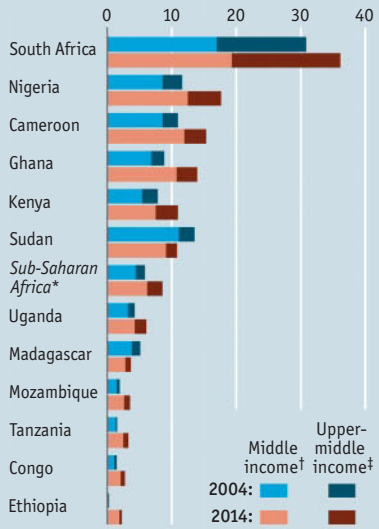
Yet step beyond the air-conditioned malls that are popping up like meerkats across the continent, and it is clear how thin this emerging middle class is. Just a few miles down the road from Accra's coffee-connoisseurs are the columns of smoke that billow above Agbogbloshie, a digital dumping ground. Here hundreds of men risk their health burning old electronics for useful parts. Leave the capital altogether and the celebrated middle class grows harder still to spot: high-rises give way to huts, suits to shoelessness.

So too with much of Africa. Good data on the exact size of the middle class are hard to come by, but it remains small across most parts of the continent. The Pew Research Centre, an American outfit, reckons that just 6% of Africans qualify as middle class, which it defines as those earning $10-$20 a day. On this measure the number of middle-income earners in Africa barely changed in the decade to 2011.

More recent data from EIU Canback, a consultancy (and sister-company of *The Economist*), show some growth (see chart) in the decade to 2014 but it is painfully slow: 90% of Africans still fall below the threshold of $10 a day and the proportion in the $10-$20 middle class (excluding very atypical South Africa), rose from 4.4% to only 6.2% between 2004 and 2014; over the same decade, the proportion defined as "upper middle" ($20-$50 a day) went from another 1.4% to 2.3%. Other surveys are also disappointing. Standard Bank, a South African lender, thinks that though the number has increased, there are still only 15m middle class households in 11 of sub-Saharan Africa's bigger economies (excluding South Africa and using a range of $15-$115 a day).

Aspirational Africa

Africa's middle class, % of population



Source: EIU Canback
*Excluding South Africa †$10-20; ‡$20-50, per person per day at purchasing-power parity

The puzzling question posed by these data is why the middle class is so small after a decade in which economic growth has averaged more than 5% a year, about twice as fast as population growth. One reason is that the proceeds of economic growth are shared very unequally. In recent years inequality has increased alongside growth in most parts of Africa.

Another reason is that poverty in many parts of Africa is so deep that even though incomes may have doubled for millions of people, they are now merely poor rather than extremely poor. Laurence Chandy at the Brookings Institution, an American think tank, points out that the average person in extreme poverty in Africa lived on just 74 cents a day in 2011, compared with 98 cents in other parts of the developing world. Ethiopia, which is both one of Africa's most populous nations and best developmental performers, is a good example. Its share of people living on more than $10 a day has increased more than 10 times in the decade to 2014 to 2% of the population: but that still left close to 98% of Ethiopians living below this threshold.

A low wage is better than none at all, but those living on $10-$20 a day are hardly sipping sangrias at sunset. For most of ▸▸

them, life is still tough. "I came from the north because I needed a job," a sweating Awal Ibrahim says as he cuts the copper out of old computer wires in Agbogbloshie. Working relentlessly in the baking heat, he earns about 20 cedis ($5) a day. Does he still feel poor? He glances with commendable humour at the smouldering Sodom surrounding him: "If I could find other work I would."

That is the problem. Unlike Asia, Africa has failed to develop industries that generate lots of employment and pay good wages. Only a few countries manufacture very much, largely because national markets are small and barriers to trading within Africa are huge. Most people who leave the countryside move into labour-intensive but not very productive jobs such as trading in markets. John Page, also of Brookings, reckons that such jobs are on average only about twice as productive as the ones that many left behind.

For investors who piled in on the promise of a new African bourgeoisie, this is a worry. The commodities boom has ended and all but the richest tend to stop spending at the first sign of economic trouble, as they have done in Nigeria and South Africa, the continent's two largest economies. Having overestimated the number of upwardly mobile people, many big firms are expanding far more slowly than they expected. A few years ago, Shoprite Holdings, South Africa's largest retailer, envisaged opening 600-800 stores in Nigeria. It currently has 12. Across the continent in Kenya, Cadbury and Coca-Cola have closed factories. "We thought this would be the next Asia", Nestlé's chief executive for equatorial Africa said earlier this year. "But we have realised the middle class…is extremely small and it is not really growing."

Those investors with deep enough pockets can afford to wait. In the meantime, they are expertly targeting poorer shoppers with such things as tiny packets of washing powder and water. In Nigeria UAC Foods sells cheap sausage rolls through bus windows rather than in supermarket aisles.

But those concerned about raising economic growth and the spread of democracy in Africa should be less patient. The middle class that has emerged, small as it may be, is also vulnerable; even mild economic shocks may be enough to push households back below the threshold of poverty. That in turn may slow the impetus for reform, and perhaps even reverse it. ■

Tanzanian politics

Challenging the descendants of Julius

MWANZA

A real election at last

WHEN John Magufuli, the presidential candidate of Tanzania's ruling party, visits Mwanza, a mining city in the country's north-west, tens of thousands of fans pack into a park in the centre of the city. The crowd is a sea of green and yellow flags—the colours of Chama Cha Mapinduzi (CCM), Mr Magufuli's party. As they wait, supporters scream for breakdancing rappers, laugh at raucous comedians and take photos on their mobile phones. Entrepreneurs work the crowd selling ice creams, samosas, bottles of water and glasses of beer. Periodically a small drone flies overhead, beaming back photos onto an enormous screen behind the stage. So goes politics in a country where over 60% of registered voters are below the age of 35.

Yet this election, scheduled for October 25th, is exciting for reasons other than its sheer vibrancy. Jakaya Kikwete, Tanzania's president, is standing down, and for the first time since its creation in 1977, the CCM faces a serious challenge.

Chadema, the main opposition party, has formed an alliance with three other parties so as to avoid splitting the anti-establishment vote. Its presidential candidate, Edward Lowassa, is a well-known and popular former prime minister who defected earlier this year. The huge, well-funded rallies are an indicator of the fierceness of the competition; so too are the worries about post-vote violence, until now rarely heard of in mainland Tanzania. Whatever the result, it is likely to raise huge questions about the country's future. And yet, surprisingly, it may be Mr Magufuli rather than his opponent who offers the greatest hope of change.

Politics in Tanzania does not tend to be fought along tribal lines, as it is in its neighbour, Kenya. That is partly thanks to the legacy of Julius Nyerere, Tanzania's first post-independence leader, who tried to build a strong national identity as well as a socialist state. The CCM is his creation—a party that, thanks to its history, is in many places indistinguishable from the government. Since the advent of multiparty democracy in 1995 CCM has held on to power, providing stable, if fairly ineffective, government.

Yet opposition has been building steadily. Chadema has been winning over young voters, says Nicodemus Minde, a Tanzanian-based analyst for the International Law and Policy Institute, a Norwegian political consultancy. In particular, young men flock to it: Chadema is known for its support among *boda-boda* (two-wheeler taxi) drivers. They do not have the reverence for Nyerere's party that their elders have, says Mr Minde. Mr Lowassa flies to his campaign rallies in a helicopter. "We invented the use of helicopters in politics in Tanzania," says Reginald Munisi, Chadema's chief strategist.

Polling suggests that despite Chadema's surge, Mr Magufuli is still the solid favourite to become president. But a close election may have a messy aftermath. Chadema says the CCN plans to resort to foul means: inflating the voter rolls, or simply stuffing ballot boxes. The party has suggested that its supporters "defend" the vote, by crowding around polling stations while votes are tallied. CCM says that this is a ruse and that the real purpose is to intimidate voters, particularly women. They ▸▸

Having to fight for it

fear disappointed opposition supporters may cause havoc after the election.

The biggest flashpoint may be on the islands of Zanzibar, which are autonomous of the mainland's government, and where the main opposition, the Civic United Front (CUF), an ally of Chadema, is very likely to win. Zanzibar has been in uneasy union with Tanganyika, the mainland, since the revolution which overthrew the Arab sultan in 1964. In the 2010 election CCM won by only one percentage point—and was widely thought to have cheated. Even if protests are avoided, whatever the result, a furious debate about the future of the union may follow.

Yet those worries aside, there are reasons to be optimistic about the process. If Mr Magufuli wins, CCM will retain power, but put a technocrat in office. Should Mr Lowassa somehow succeed, and CCM concede honourably, he will push out a party structure that has dominated Tanzania for too long. In either case, Tanzania seems to be becoming a more democratic place. With luck, that will shake the sleepy country up, without doing too much damage on the way. ■

Iran and the nuclear deal

The next battle begins

TEHRAN

Iran starts to dismantle its nuclear facilities—and fight over its future

AS IRAN'S reformists see it, the noise from the country's hardliners has grown because they are in their death throes. Take, for example, the threat to kill and bury Ali Akhbar Salehi, the head of Iran's nuclear energy agency, "under the cement at Arak", a nuclear reactor now to be converted to produce much less plutonium. The Majlis, Iran's parliament, passed the nuclear deal by 161 to 59, as did the more powerful Guardian Council. On October 18th it was officially "adopted" by all its international signatories and the UN Security Council.

Yet negotiating the deal between Iran and six world powers may turn out to have been the easy part. Between now and "implementation day", probably in several months' time, Iran is required to dismantle much of its nuclear programme, decommissioning two-thirds of its uranium centrifuges and selling or diluting 96% of its stockpile of enriched uranium. In return, America and Europe are preparing to suspend or remove nuclear-related sanctions.

Iranians must now do battle over what the deal will mean for the country itself. The reformists, bolstered since President Hassan Rohani was elected in 2013, hope the agreement will usher in a broad economic opening, transforming a faltering, socialist-style economy into more of a capitalist one. Business delegations currently trekking through the capital will soon be investing and tourists will flock in. Cultural and social change, they reason, will follow. "It is the biggest, most significant event in recent years," says Ebrahim Asgharzadeh, a reformer these days who was among the students who took American's diplomats hostage in 1979.

From northern Tehran's chichi café-lined streets to the poor in its provincial towns there is widespread support for the idea of a more modern, open Iran. Even conservatives are open to European and Asian firms setting up shop, if not those of the Great Satan. "Europe has an advantage over other countries," says Nasser Hadian, an academic. "That is, their cultural pull."

But hardliners, worried about losing clout, are pushing back. "Not much will change, economically or otherwise," says Hussein Sheikholeslam, an adviser to the speaker of the parliament. "The regime is scared of the ramifications," says an analyst in Tehran. "American culture has more sexiness than a revolutionary guy can ever expect to have today."

Many of those resisting are more worried about their business interests than the challenge to the state's ideology, which has long been in decline. Sanctions have benefited those who smuggle goods into the country, many of which can be found on the shelves of well-stocked supermarkets. Revolutionary Guards factions are among the most resistant, claiming that America aims to interfere in Iran's domestic affairs. "There is no trust at all," says Mohammad Marandi, an academic close to the Guards.

One of the arguments hardliners are using to win people to their cause is that in reality the sanctions will never be lifted by America. It is true that those linked to Iran's sponsorship of terrorist groups across the region and abuses of human rights will remain. Hamidreza Taraghi, another conservative said to be close to the supreme leader, Ayatollah Ali Khamenei, claims that the deal was actually struck to show the Iranian people that it will not, after all, make their lives better. "It's popular with Iranians because of the West's propaganda," he says.

Mr Khamenei is keen to limit the impact of the deal. On October 7th he banned any further negotiations with America. Officials recently announced that Jason Rezaian, an American-Iranian reporter, in detention for 15 months, has been found guilty of sedition. Iran has presided over ▸▸

Roads to nowhere

Worse than malaria

Road accidents are the leading cause of death among 15- to 29-year-olds globally, according to a report published by the World Health Organisation on October 19th. Forty of the 50 countries with the highest road-death rates across all ages are in Africa. Traffic accidents now kill more people than malaria in many African countries, including Kenya, Ethiopia, South Africa and Sudan.

Africa's roads are the world's deadliest for a multitude of reasons including lax enforcement of traffic rules (much of that due to rampant corruption), poor road conditions, lack of pedestrian infrastructure such as pavements and crossings, and dismal accident and emergency care. Not to mention the cars themselves; all African countries except South Africa meet either none or just one of the UN's seven main vehicle safety standards.

Road traffic deaths, per 100,000 population
2013, selected countries

Source: WHO

Plastic surgery in Iran

Under the knife

TEHRAN

Why one particular operation is so popular

MANY would agree that Persians are among the world's most naturally attractive people. Yet ever more of them are submitting to the knife. It is common to see women walking Tehran's streets sporting a plaster on the bridge of their nose. "It's just a thing everyone does," says one woman who had the operation at the age of 19.

Sitting in his brightly coloured surgery in Tehran, Ali Asghar Shirazi explains that the majority of women—and an increasing number of men—are most preoccupied by the size of their snout. "Iranian noses are generally bigger than European ones," says Mr Shirazi. "They don't want Western noses; they want smaller ones."

The phenomenon is perhaps surprising in a country far more conservative than plastic surgery hotspots such as America, Brazil and South Korea. But there is a good reason why Iranians have a penchant for the alteration. "For ladies who have to cover themselves apart from the face, it is the only thing they can show," says Mr Shirazi. A boob job will only get you so far if you have to spend most of the day shrouded in a *manteau*, the mackintosh-like outer garment almost all Iranian women wear.

Unlike Lebanon, another Middle Eastern county keen on a bit of nip-and-tuck, banks haven't yet started offering purpose-made cosmetic surgery loans. Yet Tehran sports one of the leading research associations in the field. Despite one state TV channel last year introducing a ban on cosmetically altered actors, Iran's rulers see little wrong with surgery. Perhaps this is because Islam's holy texts have nothing at all to say on the subject.

If Iranians start to get richer as international sanctions are removed after the nuclear deal with America, more people may want the operation. A standard nose-job costs around $2,500, compared to twice that in America, though the range is from $1,000 to $10,000 in a country where the annual GDP per capita is just over $5,000. And as Iran opens up, Mr Shirazi, who has operated on people from countries including Syria, Oman and the United Arab Emirates, reckons more foreigners may come for reasons other than tourism and business.

Not much to work with

the execution of over 700 people this year, a 12-year high.

But Mr Khamenei and the hardliners who look to him for support have a problem. The same reason that drove the regime to make the deal will also stop it from stifling its effects. It knows that the economy is in dire straits and it fears that an overwhelmingly youthful population, no longer much interested in revolutionary fervour, is desperate for change.

The next big test will be elections in February for the Majlis and for the Assembly of Experts, the body of around 80 people that will select the next supreme leader should Mr Khamenei die or step down (he is 76 and has had prostate cancer). Few people think the regime can again risk rigging an election as blatantly as it did in 2009. But analysts are watching to see who gets through the vetting process, run by the Guardians Council, a hand-picked body of 12 Islamic jurists, and onto the ballot paper. Some 10,000 names are already rumoured to be on its blacklist. "I am confident about Iran in the long term," says an analyst in Tehran. "I just have no idea about the short-term." ■

Israeli politics

The sound of the drum

JERUSALEM

Appointing a general is probably not enough to help Labour

WHILE a spate of stabbings and shootings have unsettled Israel, the country's Labour Party is going through one of its regular periods of infighting. The party's constitution specifies that Yitzhak Herzog, having led it to defeat in a general election in March, must now submit himself to a leadership contest by May 2016.

Mr Herzog gets little credit for having run a close race against Binyamin Netanyahu, whose Likud Party won only six seats more than did the Zionist Union, of which Labour is the main component. In the macho world of Israeli politics, the slight lawyer with a high-pitched voice is, unfairly perhaps, deemed unelectable. Attempts by campaign strategists to boost the image of "Bougie" Herzog, as he is known, by talking up his military career as an intelligence officer (not to mention publishing pictures of him sporting manly stubble) have failed to make up for his lack of natural charisma.

The recent wave of violence between Israelis and Palestinians, to which Labour has yet to articulate a coherent response, has highlighted Mr Herzog's unsuitability. A survey carried out last week by one polling company found that only 5% of Israelis see him as the best-suited leader to handle the current security crisis.

With Mr Herzog obviously struggling, senior party members are casting around for a better challenger to Mr Netanyahu, a four-time election winner. As often in its past, Labour is yearning for a general. The theory is that only a certified war-hero can withstand yet another onslaught from the Likud's propaganda machine branding Labour as "weak leftists."

Cometh the hour, cometh the man: a suitable general may be poised to enter the fray. He is Gabi Ashkenazi, a former chief of staff of the Israel Defence Forces (IDF), who is credited with reinvigorating them after a less than stellar performance during the war against Hizbullah in Lebanon in 2006. Mr Ashkenazi's politics are unclear, but the fact he opposed the orders of Mr Netanyahu and the then defence minister, Ehud Barak, to prepare for an attack on Iran's nuclear installations, gives grounds to believe he is relatively moderate.

Labour formed all Israel's governments in the first 29 years of independence, but since losing power to Likud in 1977 it has won only two elections. Both times it was led by former generals, Yitzhak Rabin and Mr Barak. Likud in this period won nine elections and of its four prime ministers

Ehud Barak, Labour's last prime minister

only one, Ariel Sharon, was a general. Nonetheless, the theory whereby only with a general at its helm can centre-left Labour beat right-wing Likud may no longer be valid.

While opinion polls consistently find that the IDF is Israel's most popular public institution, only four people who attained the rank of major-general serve in the current Knesset (parliament) of 120 members. The officer corps has kept away from politics in recent years, more from revulsion than ideology. Today's Knesset members tend to be activists, lawyers and journalists. Retired generals were once lauded by the media and awarded safe spots on candidate lists. Today they have to fight primaries against younger and savvier opponents and are hampered in their nascent political careers by a three-year "cooling-off" law passed in 2007 by allies of Mr Netanyahu, who has always been suspicious of ambitious generals.

Some in Labour see the hankering for a general as a sign of the party's backwardness. "It's like driving with the rear-view mirror," says Erel Margalit, a Labour legislator. "They have experience in operational decision-making but that's less relevant in today's technological new economy and won't help us become a modern social-democratic party." ■

The war in Yemen

The unbeautiful south

CAIRO

As the fighting moves north, chaos is left behind

OFTEN called the forgotten war, the seven-month-old conflict in Yemen deserves the world's attention given the misery it has caused. Air strikes by the Saudi-led nine-country coalition, fighting on behalf of the deposed government, have hit nearly as many civilians as rebels. A blockade of Yemen's ports by the coalition has brought the country to the brink of famine. So great is the suffering that tens of thousands of residents have fled to the relative comfort of Somalia, which is saying something. Travelling in the other direction, to join the coalition, are Sudanese troops, not known for their restraint.

By the time the war is over, there may not be much of a country left. Months of aerial bombardment by the coalition has devastated Yemen. But it has also allowed local fighters, aided by troops from Bahrain, Saudi Arabia and the United Arab Emirates (UAE), to evict the Iranian-backed Houthi rebels, themselves a destructive force, from the southern coast. The fighting is slowly moving north, where the Houthis, backed by forces loyal to Ali Abdullah Saleh, Yemen's former president, still control most of the territory, including Sana'a, the capital, which is now under constant bombardment.

The war is growing increasingly bloody, with over 5,400 dead so far. And far from pacifying the south, the coalition has left it in chaos. In the strategic port city of Aden, in just one day, Islamic State, which operates in Yemen's ungoverned spaces, claimed attacks on the UAE's command post, an encampment of its troops and a hotel housing Yemeni politicians. Fighters from al-Qaeda, already in control of the eastern city of Mukalla, have pushed west, imposing their radical brand of Islam on conquered territory. Locals fear they will try for Aden next.

Aden was meant to be the exemplar of a "liberated" Yemen. Instead it serves as a terrible warning. The region around it is armed to the teeth. But when the Houthis pulled out, so too did the state security forces. The government in exile of Abd Rabbo Mansour Hadi made a show of returning in September, but quickly scurried back to Saudi Arabia after failing to assert itself. Local fighters, representing a hodgepodge of interests, have been left to their own devices. "No one is handling law and order," says Mohammed Albasha of the Navanti Group, a research firm. Services have also broken down. Aden is now said to be awash in sewage.

Arising from the mess is a separatist movement that has been fuelled by both the Houthis' destruction and the government's many failures. Yemen was formally divided after independence until 1990, and the flag of the old South Yemen is once again a common sight in Aden. Southerners have long complained of unfair treatment by the north, which they accuse of plundering the region's jobs and resources. On October 14th thousands called for secession at a demonstration in the city. But even the separatists are split between several different factions.

The coalition has added to the discord. The Emiratis, who detest Islamism, have scorned Islah, Yemen's branch of the Muslim Brotherhood and an important source of resistance fighters. Saudi Arabia supports Islah, but bankrolls the ultraconservative salafists. It also hosts Mr Hadi, still the internationally recognised president despite his unpopularity back home.

Mr Hadi and the Houthis have agreed to take part in a new round of talks sponsored by the UN. But the prospect of peace is dim. The Houthis are laying siege to Taiz, Yemen's cultural capital, and have threatened to step up their attacks on Saudi Arabia. The coalition appears to be preparing for a ground attack on heavily populated Sana'a, which analysts say would be catastrophic. Neither side seems too concerned about what the country will look like if and when they lay down their arms. ■

Also in this section

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Poland's resurgent right

Voting for a better yesterday

JEZOWE

A country that has benefited hugely from EU membership turns a bit Eurosceptic

JEZOWE, a five-hour bus ride from Warsaw, is officially designated an agricultural village. But it is one where the agriculture now tends to take place elsewhere. Jezowe's fields lie mostly fallow; its workers now seek higher-paid jobs in wealthier European Union countries, harvesting grapes in France and cabbages in Germany. Among the village's weathered wooden houses stand gaudy villas, paid for with euros earned abroad. "Disneyland," says one resident, pointing to the turrets and gilded fences. The town's public buildings, too, have been spruced up, mainly with injections of EU cash. A grant of 525,000 zloty ($140,000) paid for the renovation of the old parsonage, which now houses a museum devoted to carved figurines of Christ.

In short, Jezowe has done well by the EU. Yet the village has long backed the right-wing Law and Justice party (PiS), a mildly Eurosceptic and socially conservative party that has been in opposition since 2007. The PiS candidate for president, Andrzej Duda, took a startling 92% of the vote here in an election in May; nationwide, he won with a more modest 52%.

The rest of Poland is moving in Jezowe's direction. With a parliamentary election due on October 25th, one poll puts PiS support at 36%, far ahead of the 22% for the ruling centrist Civic Platform (PO) party. Ewa Kopacz, who succeeded Donald Tusk as prime minister and PO party leader when he became president of the European Council last year, has failed to give her party a new sense of momentum.

Poland's economy has grown by a third since 2007, when PO came to power. But the country's rural, conservative east feels neglected. Easterners have the sense that the government is punishing them for voting for the opposition, says Gabriela Maslowska, a PiS member of parliament. What do they lack? "Everything," says a trade-union activist in the eastern city of Lublin. "This is the backwater of Europe. If it could, Warsaw would fill it with forest." Only PiS cares, he says.

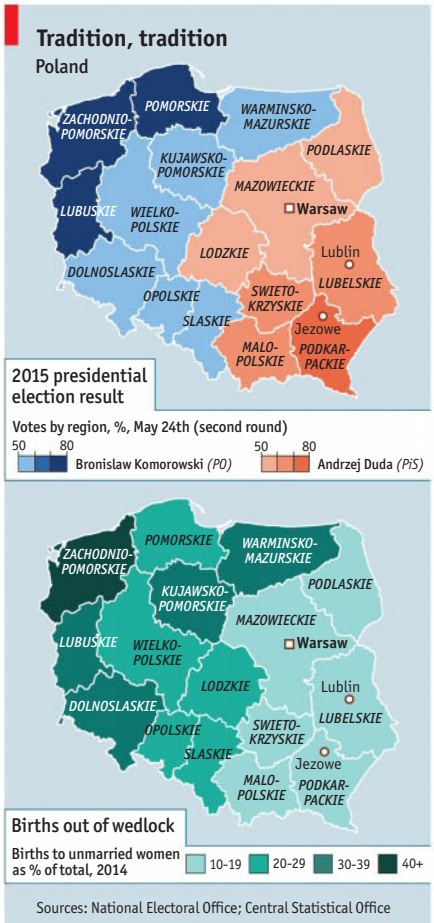
Unemployment is higher in the east; in the area around Jezowe it stood at 20% in August, double the national average. But much of the resentment is cultural, not economic. The government, says Ms Maslowska, promotes "pseudo-equality" and "gender ideology"—euphemisms Polish conservatives use to describe feminism and gay rights. In the south-east, patriotism and religion have always been intertwined, says Marek Stepak, the PiS mayor of Jezowe. On the wall behind his desk hangs a trinity of symbols: the village's coat of arms, the Polish eagle and a crucifix.

PO's only hope of staying in power hinges on a motley anti-PiS coalition of agrarians, social democrats and liberals—smaller parties which might not win enough votes to enter parliament. PiS, by contrast, is intent on winning enough seats to govern alone. Jaroslaw Kaczynski, the party's veteran leader, urges voters to opt for rule by a single party (his) over a multiparty government mired in "chaos and perpetual war".

Popular exhaustion with eight years of PO rule helps the right. In 2014 tapes secretly recorded by a conspiracy of waiters at posh Warsaw restaurants revealed senior PO politicians making embarrassingly candid remarks. (The former foreign minister, Radek Sikorski, disparaged David Cameron's EU renegotiation stance as "stupid propaganda"; a central bank governor discussed altering monetary policy to help PO.) The tapes cemented an image of PO as self-satisfied and elitist.

That has helped neutralise the memory of PiS's chaotic stint in power in 2005-07, when Mr Kaczynski picked needless fights with Germany and embraced the less realistic variety of anti-Russian conspiracy theories. PiS has courted young urban voters with an upbeat social-media campaign run by a zealous team of activists in their 20s. In rural areas, PiS has challenged the agrarian Polish People's Party, PO's junior coalition partner, for farmers' votes. It has made lavish promises of spending on social benefits: a monthly 500-zloty-per-child subsidy, and jobs programmes for depressed regions. "We have something for everyone," says Stanislaw Karczewski, head of PiS's campaign.

The divisive Mr Kaczynski wisely spent the summer behind the scenes, naming his deputy, Beata Szydlo, as the party's candidate for prime minister. But he attracts fervent loyalty from supporters who say the mainstream media is biased against him. ("You should watch *TV Trwam*," suggests a pensioner in Lublin, referring to an ultra-conservative television channel run by a ▸▸



Sources: National Electoral Office; Central Statistical Office

Catholic priest with links to PiS.) And as the country erupted in debate over the EU's plans to resettle tens of thousands of asylum applicants, Mr Kaczynski resurfaced with characteristic frenzy. The migrants carry "various types of parasites" which "could be dangerous here," he said last week.

Jezowe, like other communities in the area, has refused to take in migrants. Mr Stepak says the village lacks suitable housing. He frets about the "Islamisation" of Europe, and is unconvinced by offers of EU subsidies to accommodate refugees. Rather than taking in Middle Eastern asylum-seekers, PiS wants to "repatriate" people with Polish roots from the former Soviet Union. Jezowe already has one family of ethnic Poles from Kazakhstan.

As Poles prepare to vote, centrists and liberals have been issuing somewhat exaggerated predictions of doom. Ms Kopacz's 31-year-old daughter, a gynaecologist, says she may emigrate if PiS wins. In Jezowe, many people have left already—to earn more money elsewhere in Europe. They will continue to do so, even if their favoured party wins. They are glad of the freedom of movement the EU affords them. But accepting that this freedom of movement means they might have to take in some of the refugees who reach Europe's shores appears to be a step too far. ■

The migrant crisis

German flexibility

No one was sure Germany could handle its migrant crisis. It turns out it can

WHEN Angela Merkel, the German chancellor, made her case in August that the country could manage its record inflow of refugees, she added an exhortation. "German thoroughness is super," she said, "but now German flexibility is needed." A snigger went through the room; Germans rarely consider flexibility a national virtue. Yet they are doing admirably.

Between 800,000 and 1.5m refugees will arrive in Germany this year, straining every part of Germany's usually orderly administration. The problems begin in the processing centres where asylum seekers are registered. Many are overwhelmed, leaving some refugees unrecorded and raising fears that terrorists may enter. The federal government wants to hire thousands of staff, but training them takes time.

The next challenge is housing. "Terrible," is how Michaela Vogelreuther describes the situation in the Bavarian city of Fürth, where she is in charge of accommodating refugees. When its reception centre filled up, she added satellite facilities in surrounding towns and requisitioned a gymnasium. Schoolchildren must now do without physical education. Ms Vogelreuther also lacks beds, showers and lavatories. Security is understaffed; fights among refugees are frequent, often between different religious or ethnic groups.

Refugee children must attend school. One teachers' association reckons an additional 25,000 teachers are needed. Some schools simply place the refugees, most of whom speak no German, in regular classes. In elementary school this approach may be better than separate "welcome classes", says Ludger Wössmann at the Ifo Institute, a think-tank; children pick up languages quickly. But in large numbers, refugees can lower the academic level for German children. "Welcome classes", by contrast, may be necessary for older children, but can keep them from integrating. Eyüp Yildiz, the deputy mayor of Dinslaken in North-Rhine Westphalia, worries that segregated classes will leave refugees unemployable and susceptible to extremism.

Refugees of university age face different problems. They are entitled to study just as Germans are, but in practice they lack school records and language skills. This gave Markus Kressler, a psychology student in Berlin, the idea to found Kiron University, a transitional academy where refugees can take online courses before being placed in a regular university. Donors and sponsors cover the fees (€1,200 per student). About 150 have enrolled, and there is no upper limit, Mr Kressler says.

For educated refugees, the prospects are good. After three months in the country they gain permission to work. For the first 15 months they must prove that no unemployed EU citizen wants their job, but this is usually feasible: German industries face major labour shortages. Such young, skilled newcomers represent an antidote to Germany's shrinking population.

Integrating unskilled refugees is harder. The World Bank estimates the illiteracy rate among those aged 14-24 at 4% for Syrians, 18% for Iraqis and 53% for Afghans. Germany's new minimum wage of €8.50 does not help. Asylum applicants who fail to get a job end up on welfare. The latest figures from the federal labour agency show that the number of refugees in work was up by 8% year-on-year in July, but the number of those on the dole was up 23%. Among Syrians, who often cannot read Latin script, the figures are even higher.

Most economists think the economic effects of the refugee crisis are positive. Germany's additional spending to house and feed the refugees—estimated at €4 billion this year and €10 billion next—acts like a stimulus programme. Commerzbank, Germany's second-largest bank, reckons that this will lift German growth from 1.7% to 1.9% in 2016. Germany's local, state and federal governments will still have a budget surplus of €23 billion this year and €13 billion in 2016, according to an estimate by four leading German think-tanks.

In its logistical response, Germany is thus proving itself more flexible than Germans could have hoped. Whether the country can avoid long-term cultural alienation is harder to measure. ■

She'll pick up German in no time

Swiss elections

Head them off at the pass

GENEVA

Fear of refugees swings Switzerland even farther right

A RECENT Swiss newspaper cartoon depicts the ship of state bearing down on a small boat crammed with migrants, as the lookouts cry "Hard right!" That is the direction Swiss voters opted for in their parliamentary election on October 18th.

If any prosperous European country has been left untouched by Europe's latest migrant crisis, it is Switzerland. While the country is not a member of the European Union, it belongs to its Schengen visa-free travel zone, and has agreed to take part in the mandatory relocation scheme for asylum applicants the EU adopted in September. But it intends to take on only a few additional migrants. The government of the Alpine country had planned to admit about 29,000 asylum-seekers in 2015. Over the summer, as hundreds of thousands of refugees surged through the Balkans into neighbouring Austria and Germany, Switzerland expanded that estimate—but only to about 30,000.

The country's mountainous terrain and lack of major rail hubs seem to have kept it off of the major migrant routes. Nevertheless, voters rewarded right-wing politicians who campaigned on promises to curb immigration. The Swiss People's Party (SVP), already the biggest in the federal assembly, pushed its share of the popular vote to 29%, surpassing its previous record in 2007. It picked up 11 seats in the 200-member lower house to finish with 65. Its nearest competitor, the centre-left Socialist Party, could only muster 19% and ended up with 43 seats, three fewer than before.

After weeks of news images of migrants swarming trains at Budapest, Munich or Calais, one opinion survey found the crisis topped the list of voters' concerns. It also aggravated long-festering worries about immigration, overcrowding and the impact of foreign cultures on Switzerland's social cohesion. Such anxieties came to the fore in 2009, when the SVP led a successful campaign to ban the building of new minarets. They resurfaced in February 2014 when voters defied bilateral agreements with the EU (and the advice of business leaders) by voting in a referendum to impose immigration limits even on EU citizens.

Those restrictions remain in limbo, waiting for the government to pass them into law. Centrist parties have been reluctant to do so: the EU says any limits on the free movement of European workers violate treaty obligations, and it could retaliate by terminating all of its trade agreements with Switzerland. The Swiss would like to negotiate a way to implement the limits without ripping up the treaties; to date, Brussels has refused. It is even less likely to accommodate a government in which the SVP plays a more substantial role.

Space invaders

However, the SVP is still short of a majority in the federal assembly. Its triumph is less likely to translate into radical policy shifts than to move the centre of Swiss politics to the right on issues ranging from social benefits to energy policy and the environment. It may be able to leverage the results to win a second seat in Switzerland's seven-person cabinet, which will be elected by parliament in early December. Some commentators foresee fiercer debate and greater polarisation chipping away at Switzerland's traditionally consensual style of government.

But the SVP's success was not just a product of fear. It also ran the most effective campaign. In place of the combative slogans of years past, which were often criticised as racist, the party wooed voters with softer, even humorous messaging, eclipsing the fustier campaigns of older centrist parties. It exploited social media, releasing a slick YouTube video that attracted more than 800,000 views—impressive in a country of just 8m inhabitants. At gfs.bern, a social research institute, analysts estimate the SVP won around 40% of new voters. If it can keep them, its brand of protective nationalism will remain the strongest force in Swiss politics for many years to come.

Romania's jail literature

Time off for bad prose

BUCHAREST

Corrupt politicians are churning out books to reduce their sentences

THE makers of the Romanian edition of the board game Monopoly may want to consider altering the "Get out of jail free" card to one reading "Wrote a book in jail". A change in the law in 2013 allows convicts to claim 30 days off their sentences for every work they publish while in prison. This has led Romanian tycoons and politicians imprisoned on corruption charges to indulge in a frenzy of scribbling. It is a system as corrupt as they are.

Among those who have taken advantage of the loophole, or hope to do so, are Adrian Nastase, a former prime minister; Gheorghe Copos, a businessman and former government minister; Gigi Becali, another tycoon-cum-politician; and Ioan Niculae, reputedly the richest person in Romania. Gica Popescu, a former star footballer convicted of money laundering, is on the verge of early release after penning no fewer than four titles. Other hopeful authors include bigwigs in sports management and yet more politicians.

Before 2013 a clause in the law permitted reduced sentences for those who produced works of academic research, but the criteria were narrow enough to prevent abuse. The new law, too, was supposed to be accompanied by strict guidelines determined by the ministry of justice and approved by government. This never happened. Until the loophole is closed, those with the means to do so will continue to pour out valueless work.

Prisoners are not allowed computers and prison libraries are basic. Manuscripts must be written with pen and paper. According to Romanian journalists, wealthy prisoners generally hire outside academics as "research supervisors". They, or other ghostwriters, do the actual writing; the work is then smuggled into jail, where the prisoner copies it out by hand. A publisher is paid to print a few copies, which are presented to the parole board, which (with no guidelines or expertise) judges whether it is worthy of a reduced sentence.

Most of the work has met with derision. Mr Copos, who wrote about the matrimonial alliances of medieval Romanian rulers, was accused of plagiarism. Mr Becali produced a picture-heavy book about his relationship with Steaua Bucharest, the football team which he controls. Realini Lupsa, a pop singer, wrote about stem cells in dental medicine. No one knows how many people have taken advantage of the system. One recent report put the figure at ▸▸

73, with some prisoners producing up to five books in only a few months.

Cristi Danilet, a member of Romania's judicial council (which oversees the country's judges), says he cannot work out whether "incompetence or political interference" has allowed the loophole to be left open. Another source, who requested anonymity, argued for the latter. Victor Ponta, the prime minister, is due to go on trial soon for corruption, the source noted; it is hardly surprising that politicians are not eager for a change.

At some point, the loophole will be closed. Romania's National Anti-corruption Directorate (DNA) has been clamouring for the law to be fixed since April. In the past couple of years the DNA has emerged as one of the most powerful institutions in the country. In the first nine months of 2015, says Livia Saplacan, its spokeswoman, it indicted 15 members of parliament and nine out of the country's 41 provincial heads, as well as sending Mr Ponta to trial.

The DNA has lent a newfound credibility to the Romanian judicial system. But it is still too early to say whether it will bring about a fundamental change in the corruption ingrained in its political and business culture. Politicians are already mobilising to curb its powers. Some worry that the DNA's information, much of it gleaned from Romania's intelligence services, is giving the spooks too much power. Romanians are delighted that the rich and powerful are being sent to jail, says Oana Popescu, the head of Global Focus, a think-tank. But they are resigned to the fact many of them will wriggle their way out early. "It is the Romanian way," she sighs. ■

Rural France

Village croissant

NÂVES

After a century of decline, France's villages have started growing again

EIGHTEEN hairpin bends on a mountain road separate the four Alpine hamlets of Nâves (pictured) from the towns in the valley below. At this time of year villagers are busy preparing winter stocks: chopping firewood, harvesting sugar beet, or laying down carrots in crates of sand. A century ago 650 people lived in Nâves, tending cattle and living off the land. Today the figure is just 123. Yet for the first time in a century, the decline has reversed.

Across western Europe, once-populous hamlets like Nâves are challenging policymakers to find a way to keep services going and villages viable. Rural areas in most of Europe's poorer regions, including the former east but also Spain, Portugal and Greece, are emptying out as younger generations head for the cities. Yet after decades of decline, France's villages have been growing again—even in unfashionable parts that tourists seldom reach. In 1982-1990, the remotest rural areas in France were still losing 6,400 people a year. By 1999-2007, those same areas had recorded an annual net gain of 59,800.

The reasons are a mix of public policy and changing aspirations. France's strong transport links and public services help to make village life workable. Even today, the school bus drives up each morning from the valley to collect just eight primary-school pupils from Nâves. The beat of nature attracts former city-dwellers known as *néoruraux*: those who decamp to remote parts now that the internet allows them to indulge their desire for isolated living without truly disconnecting.

For older residents in Nâves, this is welcome. "When I was a kid in the 1950s there were 60 children in primary schools here, and the baker drove up with fresh bread each morning; now that's all gone," says Lucien Delapierre, whose 97-year-old mother still lives in the village. But today there are trampolines and little bicycles outside the new wooden chalets on the village edge, where younger families have settled. Nâves has also lured some *néoruraux*. "New technology gives old villages a future," says Jacques Delorme, who runs an IT business and lives in Nâves.

The difficulty is how to make such a fragile uptick sustainable. Nâves is only 42km (26 miles) by road from the glitzy ski resort of Courchevel, but no tourists venture up this side of the valley. Services are stretched too: there is no bus, doctor, school, shop or café. Patrick Gohel, the mayor, notes that if the number of children drops again, the school bus cannot be guaranteed. The nearby hospital in Moûtiers has closed its accident and emergency department. It used to specialise in bone surgery, thanks to the ski resorts. Now, under a rationalisation plan, Moûtiers is supposed to specialise in gerontology.

Alpine villages are sheltered from the worst cuts by the relative vibrancy of regional cities like Lyon and Grenoble. Other rural parts are under more strain, notably the Massif Central in the country's hollow middle. There is a general sense that rural needs are not a national policy concern. Mindful of this, François Hollande, the president, last month launched a new scheme to improve rural services. He promised that by 2017 some 1,700 newly qualified doctors would get a bonus for working in remote places, and that high-speed internet will be extended into remote corners of the land. But with France's strained public finances, he has only meagre sums to back his words.

Back in Nâves, there is a form of upland resilience. Some locals still use the icy running water, piped into the stone troughs in the village centre, for washing vegetables. At this time of year, they are collecting walnuts and edible mushrooms from the hillside forest. But winters are harsh and the hairpin bends can be treacherous in the snow. Cold and isolation can challenge rural romanticism. Rural villages like this are not on the way to anywhere, and nobody arrives by chance. "To live here," says Mr Delapierre, "you have to like solitude." ■

Charlemagne | Refugee realpolitik

Angela Merkel's response to the migrant crisis is less emotional, and more risky, than it looks

SYED SHAH, a young Pakistani asylum-seeker loitering outside a registration office in Berlin, has a theory about Angela Merkel. He isn't entirely sure who she is. But, he notes, "Great people have great leaders." The Germans he has encountered since his arrival a week ago have been so welcoming and friendly that it stands to reason that their chancellor would share their qualities.

Perhaps he is right. Mrs Merkel's response to the refugee crisis certainly seems to belie her popular image as a political weathervane who dares not step too far beyond public opinion. The chancellor has held firm as parts of Germany, including her conservative coalition, have wobbled under the strain of refugee numbers. Her new catchphrase, "We will manage!", marries a faith in German efficiency with a rather un-Teutonic optimism.

What has come over the Iron Chancelloress? A recent edition of *Der Spiegel*, a German weekly, depicts Mrs Merkel as a twinkly-eyed nun and avers that on refugees, she is "driven more by her sentiment than she is willing to admit." In truth, her approach is still hard-headed. Although Germany, like most European countries, was caught on the hop by the migrant surge, its policy has now crystallised into three elements: pragmatism at home; power politics within Europe; and *realpolitik* with Turkey. None is the stuff of the convent.

Germany will accept hundreds of thousands of Syrians this year, and more in the future. Mrs Merkel knows that few will leave; her can-do approach is therefore designed both to lift her compatriots' weary spirits and to acknowledge that Germany has no choice but to manage this crisis as best it can. Her government has passed measures to help the newcomers integrate. As for her decision in August to waive Germany's right to return Syrian asylum-seekers to their European country of entry, that changed little in practice: few Syrians had previously been turned away. What it did do was send a signal that encouraged lots more migrants, including non-Syrians, to head for Europe. Publicly, European officials applauded Mrs Merkel's humanitarianism. Privately, they fumed at her recklessness. The view of Muhammad, a Syrian refugee who reached Berlin two months ago, is typical: people are heading to Germany because Mrs Merkel "opened the door".

But because Germany will have to absorb them in large numbers, Mrs Merkel is determined that others share the burden. Her patience with countries she considers to be shirking has worn out. Last month Germany led the charge to impose a one-off plan to redistribute 120,000 asylum-seekers across the EU, despite bitter opposition from Hungary, Slovakia and the Czechs. Now Mrs Merkel is bracing for a fight over a permanent scheme to relocate migrants automatically when arrivals in a given country exceed a threshold. German officials have let it be known that countries that resist such efforts will meet a sceptical eye when they next try to win subsidies from the EU budget.

The rest of Mrs Merkel's energies will be devoted to reducing the numbers inside Germany and stopping people from arriving in the first place. Germany has cut benefits for asylum-seekers and wants to speed up the return of those whose bids fail, partly by establishing "transit zones" near its borders to expedite their processing. Mr Shah, who fled clan fighting in his home town of Haripur, may struggle in this environment. Only 12% of Pakistani asylum bids in Germany this year have succeeded.

Perhaps Mrs Merkel's boldest step is her overture to Turkey. Last weekend she visited Recep Tayyip Erdogan in Istanbul, promising to lavish the president with gifts if he would help stem the migrant flows. A few days earlier an EU delegation had drafted a plan with Turkey on matters like aid and visa rules. But it took a visit from Mrs Merkel to inject political energy into the deal. The chancellor also made explicit something Eurocrats could only hint at: Turkey's co-operation on refugees might speed its bid to join the EU. Concerns over human rights and press freedom have been brushed aside with almost Kissingerian disdain.

All this is less a strategic vision than a piecemeal reaction. Grand ideas like a massive resettlement of refugees from Turkey and elsewhere directly to Europe are on hold (though some in the government have begun to think about it). First, the borders must be controlled and the burden within Europe shared.

First, Fortress Europe

Each of these policies represents a gamble. The relocation plan pushed by Germany may flop. Mr Erdogan is about as unreliable a partner as it gets. If he cannot or will not stick to his side of the deal, Mrs Merkel will find herself in grave difficulties at home. But the fact that Mrs Merkel's policies are risky and often improvisational does not mean that they are not hard-headed.

The chancellor is, by instinct, a cautious, sober decision-maker. But she has been repeatedly plunged into situations where she has no choice but to make bold decisions and stick to them. Recall the euro-zone crisis of 2010-12. Mrs Merkel hemmed and hawed but held the euro together, making unpopular decisions when needed. Her gift is less for identifying public opinion's limits than for knowing when she has no choice but to test them.

As a result, Europe's most powerful politician seems destined to be shaped by events rather than to help shape them. The sight of Mrs Merkel currying favour with the autocratic Mr Erdogan two weeks before a crucial parliamentary election in Turkey was not particularly edifying. She could have visited months ago, when the migrant flows were already picking up. Instead she waited until her hand was forced by the tensions at home.

So Europe is stuck with a leader who will chance her way through crises. That her responses are improvised does not make them any less drastic, from a permanent bail-out fund to a rewrite of European asylum laws. Here, perhaps, is the Merkel paradox: that such a rational politician can be so hard to predict. ■

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Britain and China

We can pivot too

The government makes a big bet on Asia's rising power

TWO previous Chinese presidents have been granted state visits to Britain, in 1999 and 2005, but on neither occasion was the red carpet rolled out with quite so much gusto as it was for Xi Jinping this week. As well as the usual pomp, pageantry and banquets in white tie at Buckingham Palace and the Guildhall in the City of London, there was an almost bewildering variety of official visits to squeeze into the president's four-day trip, from universities to football clubs, from London to Manchester. Mr Xi even addressed both houses of Parliament, a privilege reserved for very few dignitaries.

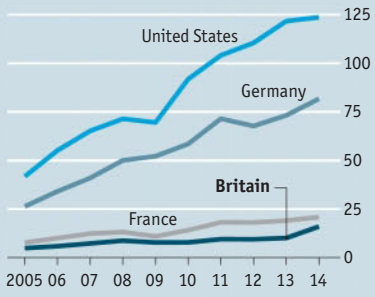
Rarely has a visiting head of state been granted such a tour—but then rarely has a British government staked so much on one relationship. While many Western countries, including America, still prefer to keep the people's republic at arm's length, ready to trade with the world's second-largest economy but not much else, Britain is positively embracing China, hailing the start of a "golden era" in relations.

During Mr Xi's visit the two countries announced a string of deals that aim to position Britain as China's principal interlocutor with the West, adding a significant new dimension to Britain's foreign policy. "This is a long-term strategic call," argues Robin Niblett, head of Chatham House, a think-tank. If all goes well, Britain will certainly benefit, but it is already clear that those benefits will have to be considerable if they are to outweigh the scepticism—hostility, even—that Britain's Asian pivot has provoked among the country's allies. Even George Osborne, the chancellor of the exchequer and principal proponent of the pivot, has said it is a "risk".

So what do the two former antagonists, on opposite sides of the cold war and imperial adversaries before that, hope to get out of this new golden era? The Chinese are not so much interested in Britain as an overseas market, with its relatively small population, but as a "great platform from which China can go global," says Mr Niblett. In this respect, access to the City and its financial markets has become of critical importance to China's thinking, particularly as it seeks to internationalise the yuan.

Weakling in the West

Exports to China, $bn



Source: IMF

As Mr Xi told Parliament, "the UK is the leading offshore trading centre outside Hong Kong," and the City has already taken a lead with respect to offshore yuan trading. The Bank of England was the first G7 central bank to sign a swap agreement with China's central bank; Chinese commercial banks recently sold offshore yuan-denominated bonds in the City; and on October 20th, the first full day of Mr Xi's visit, China sold its first sovereign bond in London, worth over $4 billion.

As well as boosting Chinese liquidity, and hopes that the yuan will one day become an internationally traded currency to rival the dollar, dealing in the City will "give the Chinese enhanced credibility", says Gary Campkin, a director of TheCityUK, a finance lobby group. That is also why the Chinese so valued Britain's decision to become the first major Western power to join the new China-led Asian Infrastructure Investment Bank in March.

From Britain's point of view, it is rather more simple. The cash-strapped chancellor needs all the inward investment he can get, particularly in infrastructure and energy, and China seems keen to oblige. Up to now, Chinese investment in Britain has been relatively modest, but this is set to change dramatically. On October 21st the government sanctioned a £6 billion ($9.3 billion) investment by a Chinese state power company in a nuclear plant being built at Hinkley Point in Somerset by the French company EDF (see page 63), with the promise of more nuclear deals to come. Mr Osborne also hopes to secure Chinese money for several projects in the development of a "Northern Powerhouse" of English cities—hence Mr Xi's side-trip to Manchester. In a further attempt to boost Chinese spending, the government has announced that it will cut the cost of two-year multiple-entry visas for Chinese tourists, ▸▸

who are particularly good at parting with their money in Britain.

In terms of exports to China, Britain has long lagged behind European rivals such as France and Germany (see chart), even if it has been doing considerably better with China than with other emerging markets. But, as Stephen Phillips of the China-Britain Business Council argues, as the Chinese try to rebalance their economy away from cheap manufacturing towards more sophisticated services, this might play to Britain's competitive advantages in sectors like education, high-end engineering and scientific research. One stop on Mr Xi's trip was Imperial College London, which announced a slew of new education and research collaborations with China.

However, the plethora of deals was accompanied by plenty of complaints about the consequences of cosying up so warmly to the authoritarian Mr Xi. Many parliamentarians are aggrieved at how far trade has come to trump any official concerns over human rights in places like Hong Kong, let alone within mainland China, including Tibet. It was left to John Bercow, the speaker of the House of Commons, to talk about the importance of civil rights, pointedly referring to the last Asian leader to address both houses of Parliament: Aung San Suu Kyi, a campaigner for democracy in Myanmar. One Labour MP remarked that Britain was behaving "like a supplicant fawning spaniel that licks the hand that beats it." More ominous was a drumbeat of criticism from Washington, where there are grave worries that Britain's kowtow is separating it from America and undermining Western resolve to stand up to China in regions like the South China Sea, and on questions of human rights.

Even on the economic front, Mr Xi's visit attracted plenty of controversy, coinciding with the announcement of painful job losses in Britain's steel industry that are blamed on a flood of cheap Chinese imports (see next story). Nor is everyone completely comfortable with the role that China will now play in Britain's nuclear industry. As Mr Osborne concedes, it is a pivot with risks. ■

Steelmaking

Steeled for worse

A global glut has clobbered British mills. But a bail-out would be a mistake

AMID the choreographed announcements about Chinese investments in British business, news from one ailing industry provided an awkward backdrop to President Xi Jinping's state visit to Britain this week. On October 20th, as Mr Xi lunched with the queen, Tata Steel, the country's biggest steelmaker, announced that it would mothball two Scottish mills and scale down its operations in Scunthorpe. The previous day Caparo Industries, another steel firm, had called in administrators; and earlier this month SSI, the country's second-biggest steelmaker, had closed its site in Redcar. The number of people working in Britain's steel industry could now fall below 30,000, one-tenth the number employed in 1971. Many blame a rush of cheap imports—especially from China, which is accused of "dumping", or selling below cost to crush foreign rivals.

Steelmakers are in trouble all across the world. Thanks to China, world steel production doubled in the 15 years to 2015. The country's annual output quintupled to 800m tonnes as it forged the beams and girders it needed to build railway lines and apartment blocks. China now makes half the world's steel. But its galloping economic growth is slowing, and its government is spending less on building. So China has a steel glut. The OECD, a rich-country club, estimates that world steelmaking capacity exceeds demand by up to 600m tonnes per year. China probably accounts for over half of that. Its annual exports have soared to 90m tonnes, overwhelming markets everywhere. Meanwhile, a plunging rouble has flooded European markets with cheap steel from Russia.

Those who accuse China of predatory pricing have a point. According to figures from Metal Bulletin, a research outfit, Chinese companies typically export steel at prices 10% below what they charge locally—the textbook definition of dumping. The European Commission has imposed retaliatory duties on China several times this year, most recently on October 14th.

But extra tariffs will not return the industry to profitability. With wholesale prices down by one-third this year, even the big Chinese steelmakers are losing money. In a normal market that would force the least efficient producers to quit the business. Not so with steel. Mills from Taranto to Tianjin are prized as strategic assets and big employers, meaning that governments don't let them shut down easily. They use anti-dumping measures, soft loans and cheap energy to keep their plants open. That pushes the adjustment onto countries which meddle less and have high energy prices. Britain fits the bill.

This has led some in Britain to call for help for the industry. That would be tricky, since fiddling with energy prices might fall foul of the European state-aid rules (not to mention environmental commitments); tariffs are also set at the European level. But even if there were a way around these rules, a bail-out would be a mistake.

For one thing, global overcapacity isn't going away any time soon, so a promise of aid would be a blank cheque. Nor would it nurse the industry back to health. If every country protected its producers, the glut could last into the next decade. Britain's steel industry is not strategically important: it accounts for 0.1% of employment and unlike German mills, which specialise in the alloys and sheeting used in the German car industry, much of what Britain makes is low-grade bars and rails. The country imports over half its steel.

The industry's decline is dreadful for the 30,000 Britons who still make a living in the steelmills. But it would be worse to hit the rest of the country with an ongoing bill to prop up a single industry—all the more plainly so when such a plan would not work. Scunthorpe's metalworkers, who charged their first blast furnace in 1864, are forging on, for now. Sadly, there are probably further trials to come. ■

Bagehot | Physician, heal thyself

Jeremy Hunt's battle with junior doctors exposes an awkward truth: Britons do not love the NHS

MEDICS are not in the habit of applauding their prosecutors. But cheer they did in their thousands at a demonstration in London on October 17th as Peter Stefanovic, a medical-negligence lawyer, rasped his disapproval of the health secretary's plans to reform junior doctors' contracts: "Mr Hunt seems to believe that if he says the same thing over again, even if it's bollocks, we'll all believe it." Many of these practical, mustn't-grumble types—scrubs on, stethoscopes around their necks and children on their arm—had never demonstrated before. "The change in attitude has been astounding," one obstetrician told Bagehot: "people who would never have discussed politics before are fired up."

Something has snapped in the medical profession. Junior doctors (a misleading term encompassing quite senior medics well into their 30s) work punishing hours in Britain's strained National Health Service (NHS) and fret about making bleary-eyed mistakes. Burnout is common. Unlike their counterparts elsewhere, they must pay for their own training, indemnity insurance, car parking and even hot drinks at work. Many are leaving for Australia and New Zealand, where conditions are better. For others, Jeremy Hunt's proposals—under which "normal" working time will include evenings and Saturdays, reducing the top-up pay for antisocial hours—are the final straw. The British Medical Association (BMA), the doctors' trade union, is balloting for a strike.

Neither side, it is fair, has acquitted itself perfectly. The BMA has pulled out of negotiations with the government without providing a decent justification for doing so and appears, at points, to have exaggerated the likely effect of the contract changes. Calling for the mild-mannered health secretary to resign, as its members do, is not constructive.

On the central points, however, the junior doctors are right. Mr Hunt has scaremongered about the higher death rate in the NHS at weekends and his talk of a "seven-day NHS" has needlessly insulted doctors who already work seven-day weeks. He wants to get more work out of the same workforce ("an unusually productive part of the public sector", notes Andrew Haldenby of Reform, a pro-market think-tank) and for the same overall cost. Though the government is vague about the precise effect of the revised contracts, independent analysis suggests that pay cuts could hit most junior doctors and will almost certainly affect those in high-pressure fields with abnormal hours, such as accident and emergency, obstetrics and anaesthetics. Yet the doctors should not just blame the health secretary. On a deeper level, their beef is with the British public.

Though the health budget has been spared the cuts of the past years, it has remained flat at a time of rising pressures: the population is becoming older and fatter. Waiting lists have hit seven-year highs. Austerity in other areas, most notably social care, has left folk in expensive hospital beds who should be at home. A year ago Simon Stevens, the chief executive of NHS England, published an ambitious plan of reforms to do more with less, most of which involve stopping people from getting ill in the first place and diagnosing their problems faster. Another solution, propounded by Sir Bruce Keogh, the NHS medical director, is to expand evening and weekend services in order to cut waiting lists and make better use of operating theatres. Some of this can be done by procedural changes like those already in practice in "seven-day" trusts such as Salford.

But as both Sir Bruce and the board advising the government on NHS pay have argued, it will also cost more money. Of that there is little. In England, the service faces a £30 billion ($46 billion) shortfall by 2020. The government is increasing spending by £8 billion—details of which will emerge next month—but that still leaves £22 billion of savings to be made. So the health secretary has to negotiate seven-day working with no extra money to oil the wheels.

The apathy that dare not speak its name

The question is: is Britain willing to pony up? It is a cliché to talk of the NHS as the country's secular religion, a service still adored in the context of the post-war era in which it was born. But as the collectivist afterglow of that age fades, each generation is less misty-eyed than the last. Like a tired marriage held together only by the tax benefits, Britons' purported love affair with the NHS has become transactional. They are horrified by America's private insurance system and like the services that they and their nearest use, but less out of "love" than out of a baser enthusiasm: for good stuff at low cost. Thus Britain spends relatively little on health as a share of its GDP, and ever-less in comparison with other rich countries. The essential fact circumscribing Mr Hunt is that, according to the Kings Fund, a health think-tank, 72% of Britons think the NHS should provide all drugs and treatment at any cost, but only 38% are willing to pay more tax for it. The junior doctors are caught between those figures.

A reality check is thus long overdue. The new Conservative government has a majority and faces a Labour opposition ineffectual in most respects and especially on health (on which it screeches about privatisation irrespective of what the government actually does). So let Mr Hunt, along with the prime minister and chancellor of the exchequer, confront voters with the truth: if Britons love their tax-funded health system so much and want it to work, they will have to pay more for it. And if not, they should start considering the alternatives: probably a social insurance system akin to that used elsewhere in Europe. The objection to such a shift—that the taxpayer-funded model is more efficient—is correct, but counts for little if the status quo is politically unworkable. It may be that a more individualistic, consumerist country simply needs a more individualistic, consumerist health service; one of personal accounts, more choice and clearer rights and responsibilities. Perhaps it is time for that divorce. ■

Post-traumatic stress disorder

Fear itself

A mental illness caused by trauma may be one of the first to be understood in physical terms

ONE night in 2009 Jennifer Hopper and her fiancée, Teresa Butz, woke to find a man standing over them with a knife in his hand. He raped them both and killed Ms Butz with a stab through the heart. Ms Hopper was left with scars from slash wounds to her throat and arms. Her mental wounds healed more slowly. She became petrified of the dark and her sleep was disturbed by nightmares of intruders. A tap on the shoulder left her terrified. She could not get into her car: during the attack her worst fear had been that their assailant would drive them somewhere they would never be found.

Accounts of debilitating fear after trauma date back to the Trojan wars. In the 19th century survivors of train crashes were diagnosed with "railway spine" because doctors thought their hysteria was caused by compression of the backbone. In the first world war it was known as shell shock, soldier's heart or battle fatigue. Not until soldiers returned from the Vietnam war with the same symptoms of hypervigilance, flashbacks and nightmares was the disorder truly taken seriously. In 1980 an umbrella term was coined: post-traumatic stress disorder (PTSD).

Attitudes are now quite different from those that prevailed during the second world war, when George Patton, an American general, threatened to court-martial men with battle fatigue. And research is progressing swiftly. A remarkable amount has been discovered about the causes of PTSD and how to treat it—which is welcome, because another discovery is how common it is.

War is the emblematic cause of PTSD. A recent study found that a quarter of American Vietnam veterans have had it and a tenth of those still alive continue to have severe symptoms. Last year a study among Syrian refugees in Turkey estimated that one in three had PTSD. Yet it is also widespread among people who live in poor, violent neighbourhoods: a study of inner-city Atlanta found rates higher than among veterans.

A disorder's deep roots

PTSD is more common after repeated traumas than after a one-off; it is also more likely to emerge if the perpetrator is known to the victim. Trauma in early childhood, when the brain is still learning about the world and what should be feared, makes people more vulnerable in later life. So children abused by family members are at high risk of developing PTSD. Women are twice as likely as men to suffer, partly because domestic violence is a common cause of repeated trauma and because women are at much greater risk of sexual assault, which is particularly likely to cause PTSD.

What happens after a traumatic event influences people's chances of developing the disorder, including whether others are supportive or sceptical. Social and economic circumstances matter, too. Among Vietnam war veterans, school dropouts were more likely to develop it, even when levels of combat exposure were accounted for. But Matthew Friedman of America's National Centre for PTSD says some situations will overwhelm even those who have not a single risk factor. "It's a bit like George Orwell's Room 101 in '1984'," he says. "Everyone has a breaking point."

Sufferers are at much higher risk of developing other health problems, including diabetes, heart ailments, depression and addiction. They are also much more likely to be out of work, have marital problems or become teenage parents. As with other mental illnesses, they often have to bear the additional grief of their condition being dismissed as a character failing or at least less real than a physical illness.

But PTSD differs in one crucial respect from most other mental disorders: it can be modelled in other mammals, since they feel and show fear in much the same way humans do. Terrifying a mouse with an electric shock is simple; giving it a negative self-image is harder. Whereas many mood disorders are still mysterious, PTSD is increasingly well understood. According to Charles Marmar, a psychiatrist at New York University's medical centre, it may be the first psychiatric disorder "where we crack the mind-brain connections".

Neural research is helping to reveal how people get stuck in a state of fear. The ▸▸

amygdalae, a pair of almond-sized regions deep in the brain, are the main orchestrators of fear, reading incoming signals such as smells and sounds and sending messages to other bits of the brain, which filter the signals before reacting. In someone with PTSD the filters struggle to distinguish between real threats and those that can safely be ignored.

The brain of a healthy person given cause to panic will tell the body to activate various reactions, including releasing adrenalin. A person's heart rate will increase and they will have a strong urge to fight or flee. Once back to safety, symptoms subside and all that remains is a bad memory. A woman assaulted in a noisy bar may react fearfully to the sound of clinking glasses for a few weeks, but over time, in what is called "fear extinction", the positive association of celebrating with friends will outweigh negative ones. The more often people receive such reminders without suffering a disaster, the more likely the fear is to dissipate—which is why it is important not to hide away after a trauma.

Retraining the brain

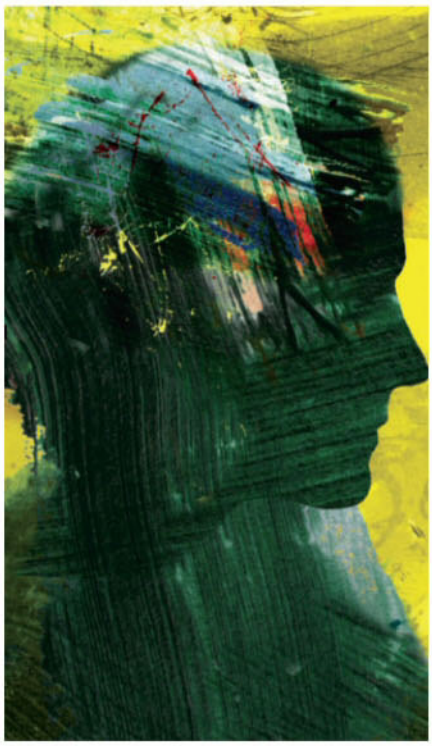
When this mechanism fails, the result is PTSD. A soldier returning from war may continue to freeze and have debilitating flashbacks when anything reminds him of combat. One ex-soldier tells of "freaking out" every time his wife baked: it turned out that the smell of almonds evoked Semtex, an explosive. People who were abused as children may suffer when it is dark, because such abuse often happens at night.

Studies of twins suggest that susceptibility to PTSD is about 30% genetic. Researchers in the new field of epigenetics—the study of how external factors influence the way the instructions written in genes are expressed in organisms—have produced some evidence to suggest that stress might be passed on to offspring.

An exciting recent development is the discovery of markers that show differences between the brains, genes and even blood of people with and without PTSD. When a sufferer sees a picture of a frightened face, the amygdala shows a heightened response. At the same time the prefrontal cortex, which regulates fear, is suppressed. Researchers are hot on the trail of chemicals that could indicate PTSD in a blood test, says Kerry Ressler, a molecular scientist and psychiatrist at McLean Hospital of Harvard Medical School.

Treatments mostly aim to retrain the brain's fear response. Many patients are given cognitive therapy, which teaches them to think differently about what happened and trains them to cope with triggers. Debra Kaysen of the University of Washington says severe symptoms recede in about four out of five patients following a dozen or so sessions. Other patients are given exposure therapy, in which they are confronted with the feared stimuli. Adults may be asked to describe a traumatic event in excruciating detail until it loses its potency; young children might play out what happened with toys. Virtual-reality simulations have been used on soldiers. One therapist compares the work to treating a burn victim: layer after layer.

Soon after her ordeal, Ms Hopper started cognitive therapy. The first aim was to get her back in her car. Her counsellor taught her to walk to it and replace intrusive thoughts (there could be someone hidden inside) with safe ones (I have parked here for years without problems). On around the tenth attempt, she managed to get back in. Conquering her fear of the dark took much longer, but eventually "one day



my brain and body just caught up with my mind," she says.

Most research on PTSD has focused on victims in rich countries, particularly America. But trauma happens everywhere. Dr Kaysen has adapted therapies developed in rich countries to survivors of torture in Iraq and rape in Congo. The results suggest that the disorder has the same characteristics in different locations and cultures, and also that similar treatments work—even in tough settings such as refugee camps.

New treatments are now being developed through animal experiments. One trial taught rats to fear a scent by spraying it at the same time as administering an electric shock; if it was sprayed repeatedly soon afterwards without a shock being administered, PTSD symptoms such as uncontrolled fear, measured by the animal's "freezing" or heart-rate response, did not develop. Researchers then sought to find out whether there is a similar window of opportunity in humans who have experienced trauma. In a pilot programme in 2010, some patients who came into the emergency room at Grady Memorial Hospital in Atlanta following a rape, gunshot wound or car crash were given "imaginal exposure therapy", in which they were asked to recall vividly what happened. Three months later, only half as many developed PTSD as in a comparable group that did not receive such therapy. Further trials will be needed to confirm that such early debriefings can help.

Recently Dr Ressler immobilised mice for two hours. They became more likely to develop PTSD-like symptoms after future trauma. Autopsies of their brains showed a change in gene expression that the researchers think might have caused the vulnerability. In a follow-up trial an experimental drug was used to target this gene and block the formation of fearful memories. Encouragingly, mice that had previously gone through the ordeal and then received the drug did not develop symptoms of PTSD when exposed to another frightening situation.

Amit Etkin and colleagues at Stanford University are studying how the brain circuits that control fear can be tweaked with the aid of SSRIs (a class of drugs, some of which are used to treat depression or anxiety) and transcranial magnetic stimulation, in which an electromagnet held close to the scalp transmits magnetic pulses to the brain. They found that stimulating a part of the frontal lobe can reduce activity in the amygdalae, which could lessen the symptoms of PTSD. Within five years, thinks Dr Etkin, new therapies will be available, including applying brain stimulation or using drugs to enhance the effects of talk therapy. Better treatments for other anxiety disorders, which afflict a third of Americans, could follow.

Even if new treatments for PTSD take longer to develop than hoped, acceptance of PTSD's inherently physical nature could encourage sufferers to seek help earlier. Rape victims in Dr Kaysen's practice typically waited 20 years before turning to her; Dr Marmar has treated veterans of the second world war who had tried to cope with their nightmares for as long as 40 years.

In a freezer in Boston are 50 samples of brain tissue donated to the world's first brain bank dedicated to the study of PTSD, set up by the Department of Veterans Affairs. More veterans and civilians, with and without the disorder, are filling in health questionnaires and pledging to donate brain tissue after death. Those who could not be healed themselves might help arm future generations against the same suffering, or perhaps, one day, help prevent it altogether. ■

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Peak profits

The age of the torporation

NEW YORK

Big listed firms' earnings have hit a wall of deflation and stagnation

THE idea that profits grow is embedded in the corporate world. Bosses' pay rises if they boost earnings per share. Managers who admit their firms may shrink are viewed as cowards and taken outside and shot. Lenders assume that firms' cashflows will grow, allowing them to repay debts. In a daft ritual, Wall Street analysts start most years by collectively forecasting that earnings per share will rise at double-digit rates. Actual growth has been lower but has still had a dazzling run, averaging 8% over the past 30 years for the S&P 500 index of big American firms. Even after the 2007-08 crisis floored the global economy, profits recovered smartly.

Perhaps that is why reality has yet to sink in: the business world is stagnating. For the second quarter in a row the sales and profits of members of the S&P 500 are expected to fall; for the three months to September they are forecast to be 3-5% lower than in the same period last year. Earnings recessions are rare, happening only about once in each decade.

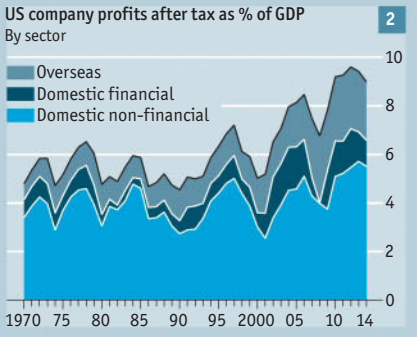
The Panglossian response this time is to blame one-off factors, in this case low energy prices and a strong dollar. The latter crimps the value of foreign income once it is translated into greenbacks.

Alas, corporate sloth is a far deeper and more widespread problem than that. Consider that half of big listed American firms now have shrinking profits (see chart 1). Even excluding energy and the dollar, S&P 500 earnings growth is slow. Many bellwethers—Walmart, IBM, General Electric (GE)—face flat or declining top lines. While traditional industries, from hotels to television, grumble that technology firms are eating their lunch, even the tech industry's earnings are flat, with the likes of Alphabet (formerly known as Google) approaching middle age. Sluggishness is everywhere. Worldwide earnings per share have stopped growing, measured in dollars. In local-currency terms sales growth has stalled in Asia, slowed in Europe and is expected to collapse in Brazil. On October 16th Nestlé, Europe's second-most-valuable firm, said it would miss its long-standing sales target this year.

At the economy-wide level companies' sales are closely related to nominal GDP growth (which includes inflation). So it should be no shock that firms are struggling given that deflation stalks rich countries and growth is slowing in the emerging world. After two lost decades, Japanese firms' sales per share are still similar to the level in the 1990s. For Western firms there is also a suspicion that the methods used to crank out profits during the golden era were unsustainable. The unease is compounded by the fact that earnings are high relative to two yardsticks. S&P 500 earnings per share are 28% above their ten-year average. And in America profits are stretched relative to GDP (see chart 2).

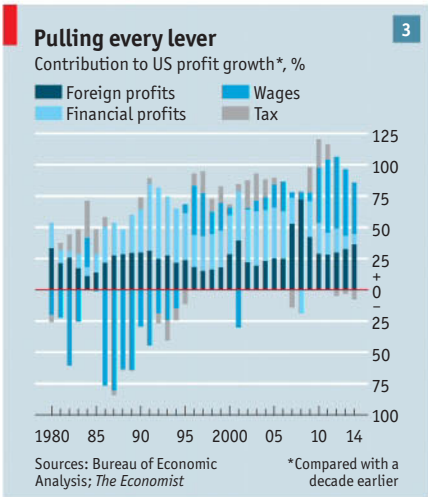
Since the 1970s American firms have yanked on three big levers to boost profits. First, multinationals expanded abroad, ▸▸

The pips squeak



Sources: Bloomberg; Bureau of Economic Analysis; *The Economist*

*Quarterly, compared with a year earlier



with foreign earnings supplying a third or so of long-term earnings growth. Today, however, it seems that emerging economies are at the end of their 15-year boom. Second, finance was a crucial prop for profits in the two decades to 2007 (see chart 3), with the banking industry expanding rapidly and industrial firms such as GE and General Motors building huge shadow banks. The regulatory clampdown since the financial crisis means this adventure is now over.

Third, after 2007-08 firms relied heavily on pushing down the share of their profits that they paid out in wages. But now there are hints that wages are rising. On October 14th Walmart said that higher pay and training costs would lower its profits by $1.5 billion, or just under 10%, in 2017. A week later Chipotle, a fast-food chain specialising in burritos big enough to ballast a ship, blamed falling margins on labour costs. If the share of domestic gross earnings paid in wages were to rise back to the average level of the 1990s, the profits of American firms would drop by a fifth.

Faced with stagnation, the quick fix is share buy-backs, which are running at $600 billion a year in America. They are a legitimate way to return cash to investors but also artificially boost earnings per share. IBM spent $121 billion on buy-backs over the past decade, twice what it forked out on research and development. In the third quarter its sales fell by 14%, or by 1% excluding currency movements and asset disposals. Big Blue should have invested more in its own business. Walmart spent $60 billion on buy-backs even as it fell far behind Amazon in e-commerce.

A radical option is to embrace torpor. The Brazilian investment firm 3G has become a specialist in buying mature firms and cutting what it claims is fat. Sales at its most recent target, Kraft, are falling at a rate of 5% a year. 3G is the force behind the proposed $120 billion takeover of the brewer SABMiller by AB Inbev. Inbev's volumes are shrinking at a rate of 2%. In America the telecoms, cable and health-insurance industries are consolidating. The aim is to create stodgy oligopolies.

For business as a whole profit margins may eventually erode as wages rise. Regardless of whether that happens, though, most firms will still be faced with static top lines. Relative to sales and assets, capital investment in America has at least been steady and the shift of production to China and technological changes may mean the "natural" rate of investment firms need has fallen. But there is little doubt that a splurge in capital spending is necessary to get big companies growing again.

For all their obsession with growth, big listed firms appear paralysed. They long to expand, yet also want to protect peak profits, restrain wages and investment, buy back shares and hold armfuls of excess cash on their balance-sheets. What might make sense at the firm level causes stagnation across the economy, which in turn guarantees firms will stagnate. How many big companies will summon the strength of will to escape this exquisite trap? ■

Yahoo

A portal to nowhere

SAN FRANCISCO

Marissa Mayer has failed to revive the internet sloth

WHEN Marissa Mayer was young, she wanted to become a neurosurgeon. Instead she went into the technology business and was called to perform a different sort of life-saving operation, when she was hired to revive Yahoo, an ailing internet firm, in 2012. Her role as Yahoo's boss has come with plentiful pay and plenty of setbacks, the latest of which occurred on October 20th when the firm reported quarterly profits below analyst expectations.

Ms Mayer's three-year-long effort to save Yahoo has not resulted in the recovery many had been hoping for. When she was first hired away from Google, where she had been an engineer and early employee, she enjoyed cooing press reports. To welcome their new leader Yahoo employees reportedly made "Hope" posters like those from Barack Obama's race for the American presidency, bearing Ms Mayer's face instead. Yahoo was once a huge internet company, but lost out to more innovative rivals, and churned through four chief executives in the three years preceding Ms Mayer's arrival, demoralising employees and investors. Perhaps expectations were too high for the young, ambitious, media-hungry new boss.

Yahoo's share price has more than doubled since she took over, but that has mostly to do with the firm's stake in the Chinese internet company Alibaba, which it bought for a mere $1 billion in 2005. Investors have seen Yahoo as a way to gain exposure to Alibaba, which only went public last year. Yahoo sold part of its stake in 2014 and is spinning off the rest into a separate company. Ms Mayer is hoping to avoid taxes on the transaction, but recently America's tax authority has cast doubt on that possibility. Whatever the outcome, Yahoo will soon be a shell of its current self. Today it has a market capitalisation of $31 billion, but its core business is worth only about a tenth of that. Most of its market value stems from its stakes in Alibaba and Yahoo Japan, a separate company.

Since Ms Mayer took the helm at Yahoo, revenues and profits have fallen. This year the company will probably make $928m in pre-tax earnings, down 45% since 2012 and the lowest figure in a decade, according to Mark Mahaney of RBC Capital, an investment bank. Ms Mayer has focused on making Yahoo's products snazzier and expanded into areas where it had been weak, like social networks and mobile advertising. She has spent around $2.2 billion on deals, buying Tumblr, a blogging platform, and BrightRoll, a video-advertising firm. But Yahoo's share of online advertising spending has declined, while that of rivals like Google and Facebook has risen.

As the third-largest web platform in America after Google and Facebook, Yahoo has plenty of scale, but it does not offer the same level of specific audience targeting that competitors do. In a recent survey by Ad Age and RBC that asked advertisers to rank online properties according to their return on investment, Yahoo came in sixth after Google, Facebook, YouTube, Twitter and LinkedIn. Some onlookers say it was a mistake to hire someone with no experience leading a company and without ex-

Still waiting for that flash of inspiration

pertise in or appreciation for the advertising business. Recently the firm has experienced a high degree of turnover among top management and employees.

Yahoo's dim outlook is all the more striking when contrasted with that of AOL, which was sold to Verizon for a hefty $4.4 billion in June. Like Ms Mayer, Tim Armstrong, AOL's boss, once worked at Google, and both were intent on turning around former internet behemoths that had fallen on difficult times. But Mr Armstrong was bolder in investing in growth areas, mainly distinctive content, video and technology that enables targeted advertising, says Brian Wieser of Pivotal Research.

When Yahoo stands on its own, without the cushion of a savvy Chinese investment made by a predecessor, it could become a target for larger companies. Private-equity firms, attracted to Yahoo's $5.7 billion of cash, could be suitors, as might telecoms or media businesses. Ms Mayer might welcome the opportunity for a graceful exit. In business, unlike surgery, you can leave before you are finished. ■

Coach travel in Europe

Revolution on wheels

MILAN AND PARIS

The options for passengers are multiplying

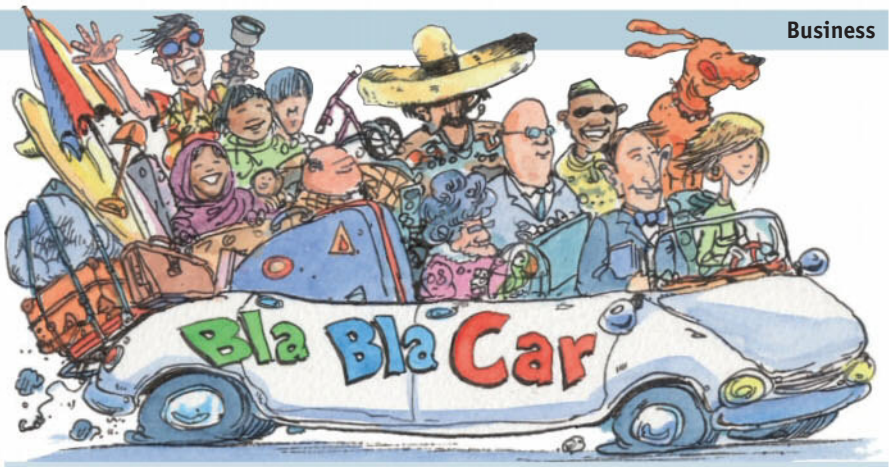
CLARK GABLE did most to get Americans aboard long-distance coaches. The romance between two passengers on a crowded bus travelling from Florida to New York in the 1934 film "It Happened One Night" somehow made coach travel appear glamorous. Today Americans cover 20.4 billion miles (33 billion km) on buses each year. Cheap, extensive and lightly regulated, they are a boon for the time-rich and money-poor.

In Britain, coach travel also thrived after deregulation in 1980. But in most of the European Union, buses make up just a quarter of miles covered on public transport (in America it is a third). Germany and France, in order to protect state-run, subsidised railways, blocked operators from scheduled intercity routes: a bus that started in Munich couldn't run to Berlin, for example. Just before deregulation two years ago, German coaches carried only 8.2m passengers, a paltry 6% market share, despite rail travel typically costing twice as much as a bus over the same distance.

Yet things are changing. "There is a small revolution going on in the core of Europe," says Oleg Kamberski of the International Road Transport Union, a lobby group based in Geneva. Liberalisation is sweeping over the continent, extending to carpooling, too (see story above). In 2012 Sweden deregulated its national market, letting private coaches compete even against state-run, short-distance buses. Germany threw open its long-distance domestic transport market to private operators in 2013. Italy, deregulating in stages, completed the process last year. And in August France, the last big holdout, implemented a sweeping law that lets coaches compete with its treasured TGV trains.

Early gains look dramatic. Coach travellers in Germany, for instance, doubled to 16m in 2014 (all but 4m on domestic routes). They now account for 11% of the public-transport market. Cross-border travel is also surging. Rewards remain fairly small, however: in Germany the industry generates only €500m ($567m) in revenues, a twentieth of what the railways make. But this should double in the next few years.

Bus firms are launching services across western Europe. Britain's Megabus (of the Stagecoach group), which has flourished in America, opened domestic routes in Germany in April, in Italy in June and is now in France. Edward Hodgson, an executive, expects rapid expansion. He points out that ▸▸



BlaBlaCar

Something to chat about

PARIS

A $1.6 billion French startup revs up

ANIL GAUR is planning to drive from Delhi to Jaipur shortly, and is offering to fill his three empty seats for 700 rupees ($10) each. He is chatty—he advertises the ride as "Blablabla", or suitable for those who like to natter—and he enjoys listening to music on the road. Based in India, he is among the latest recruits to the world's biggest ride-sharing service, BlaBlaCar, which now boasts 20m users in 19 countries from Mexico to Russia.

The idea behind BlaBlaCar, a French startup, is simple: the driver "sells" empty seats to cover petrol and road tolls, but not at a profit; the passenger gets a cheap trip, even last-minute. The business model is that of Airbnb: BlaBlaCar takes an average 10% cut on transactions once it is established in a market; trust is built through peer review. Investors seem to bet that it could do for transport what Airbnb has for accommodation. Last month BlaBlaCar raised €180m ($200m), taking its valuation to €1.4 billion, making it one of the rare European billion-dollar-plus technology startups.

For now, BlaBlaCar has avoided Uber-style collision with regulators and incumbents. This is chiefly because it is not competing with taxis: its average trip is 320km (200 miles). Rather, it is undercutting trains and coaches, proving popular among young people and students, short of cash and allergic to forward planning. A road trip from Paris to Marseille using BlaBlaCar, for instance, would cost half that of a high-speed TGV train ticket. Frédéric Mazzella, the founder, says diplomatically that it is disrupting the mobility business, by opening up the inventory of empty car seats, not any particular transport sector.

Originally called Covoiturage (carpooling, in French), BlaBlaCar is focusing now on building a global brand, rather than on profitability. The firm has expanded both by buying competitors, such as Germany's Carpooling, which it acquired in April, and launching in emerging markets less familiar with the concept, such as India and soon Brazil. The service does well where public transport is chaotic, or driving costs high. In Europe, over 72% of kilometres travelled are by car, but petrol is expensive so drivers are keen to cover costs. This makes its appeal to drivers less obvious in America—but BlaBlaCar is ruling nothing out. "When you start from France," Nicolas Brusson, the firm's co-founder, joked at a technology conference earlier this year, "everything looks simple."

France had only 100,000 intercity coach passengers in all of 2014, but saw 250,000 in the single month from mid-August.

The country's liberalising economy minister, Emmanuel Macron, claims 2,000-3,000 jobs could be created in France for drivers, ticket-sellers and bus manufacturers. Paolo Beria, a transport expert at Polytechnic University of Milan, says hundreds of new jobs have been created so far in Italy as coach travel has expanded, especially in the north.

So far, few customers appear to have abandoned trains to take the coach; long-distance rail-passenger numbers in Germany dropped by only about 1% last year. Coach bosses claim they get new people travelling. Nonetheless, cheap coach tickets are likely to put a squeeze on rail fares. France's national rail monopoly, SNCF, is responding with its own coach services. Another new French coach firm, Transdev, is 60% state-owned. It hopes to become a €100m business in two years, with 1,000 employees carrying 5m passengers.

More likely, however, neither of that pair will flourish. Success lies less in owning fleets or hiring drivers, and more in marketing, online ticket sales, reaching youngsters and scheduling vehicles cleverly so they are always in use.

Germany's leader is Flixbus, claiming 70% of the coach market and 1.5m monthly passengers. It owns none of its 700 green-and-orange vehicles and employs no drivers. Instead, explains a manager, it has persuaded independent businesses, such as hotels hoping to bring customers to stay, to invest €250m in buying vehicles. He calls it an "Uber model" of franchising, where revenues and risk are shared, and cheerily admits "we know nothing about buses". On some competitive routes Flixbus staff sometimes hand out cash to customers so they board its coaches rather than a rival's. It aims to have at least 60% of seats occupied, and plans to serve 50 French towns and cities by the year's end (and a similar number in Italy), in a bid to dominate the industry there as it does in Germany.

Expansion in France is now easy: beyond basic safety requirements, you need no licence to run a coach service. "We asked for a properly deregulated market and that's what happened," says Mr Hodgson of Megabus.

Change leaves some bewildered. Johan Blom, a Belgian Flixbus driver, smokes a cigarette in the autumn sunshine in Paris. A 40-year tour-bus veteran, he does not grasp the new firm's business model. His mighty bus, one of eight owned by a hotel in Brussels, had arrived a few hours earlier with 54 passengers. All had bought tickets online, many at rates he considers laughably low, below the cost of conveying them. He shrugs and says he is about to retire, when he will take his wife on holiday to Portugal—though not by bus. ■

Multi-level marketing in America

Pharaonic creations

The growing battle over how to spot a pyramid scheme

TO SOME young adults, Vemma Nutrition looked like a path to wealth—the chance to sell energy drinks, recruit other sellers and, according to a company video, enter a world of private planes, fast cars and pretty women. To America's Federal Trade Commission (FTC), Vemma looked like a pyramid scheme. In September a judge barred Vemma from conducting its main business while the FTC makes its case in court. The FTC's suit is, however, relatively rare. Pyramid schemes remain devilishly hard to identify.

Nearly three years ago Bill Ackman bet $1 billion that Herbalife, a multi-level marketing company (MLM) selling nutrition products, was a pyramid scheme. The hedge-fund manager is still arguing his case. But a broader fight is brewing. Some industry observers want new rules to spot pyramid schemes. On October 21st the Direct Selling Association (DSA), the lobby for MLMs, went to Capitol Hill to eviscerate the idea; its members have the backing of a congressional caucus, formed in September to support the interests of the multi-level marketers. At issue is a simple question: what is a pyramid scheme?

No national law or regulation offers a definition. When the FTC alleges a pyramid scheme, it cites a law against "unfair or deceptive" practices. It has brought successful cases against pyramids, but there is ample debate over the implications of those rulings (and some rulings conflict with individual states' definitions).

The trick is distinguishing a legitimate MLM, a type of direct seller, from a scam. MLMs do business globally, but the world's biggest, such as Amway, Avon and Herbalife, are American. They sell all kinds of products; supplements, energy drinks and lotions are among the most common. What differentiates these firms is their unusual business models. They sell products to independent distributors and reward them for hawking their wares and finding further recruits.

Most of these firms are privately held, making them harder to understand. What data do exist suggest that they have substantial sales but an outsized number of sellers. The lobby group reports that direct sales, mostly by MLMs, reached $34 billion last year, up 16% from 2004 (see chart). However, the number of those at some point involved in the business grew at twice that pace, reaching 18m people in 2014, or one in 13 American adults. Just 12% of these earned more than $25,000 in 2014 and 62% earned less than $6,000. That does not account for expenses, such as purchases of the companies' products.

Such figures suggest this is a poor way for most people to make money—but they do not make MLMs pyramid schemes. In the simplest version of such a scheme, distributors pay a firm for the opportunity to recruit other distributors, so that they can receive a cut of their earnings. The company's revenue comes mainly from recruitment, not from selling services or products. The scheme transfers money from losers at the bottom of the pyramid to winners at the top.

In reality scams are usually far more complex. The main debate is whether scant sales to the public make a company a pyramid scheme. Amway established itself as legitimate after a 1979 ruling requiring distributors to sell a certain share of the products they had bought. Since then many firms have adopted similar policies, though some either fail to enforce them or adhere to perverted versions. "I could have a company that follows Amway 100% and you still have pyramiding taking place," admitted one lawyer for MLMs.

Peter Vander Nat, a former economist for the FTC, and William Keep, of the College of New Jersey, want new regulation to define a pyramid scheme clearly. A pyramid would be a company based primarily on recruitment, with most sales made not to customers but to distributors trying to enter the scheme or earn rewards. But the DSA has gone to Congress to fight the idea; it commissioned a report to rebut the notion that meagre retail sales imply a pyramid scheme. Joe Mariano of the DSA argues that many distributors are simply seeking discounts on products they like. "The legal analysis should be: is the product being used by real consumers?" he argues. Whether the consumer is a distributor is immaterial, he says.

Pershing Square, Mr Ackman's hedge-fund firm, says it is not involved in this debate, but its themes are at the heart of his fight. They are far from being resolved. ■

Corruption and natural resources

A fight for light

NGOs and governments grapple over ownership of mining and energy firms

WHETHER the awarding of a licence, the sale of state production quotas or some other transaction, dealings in oil, gas and mining are notoriously prone to corruption. This is a problem in countries that have weak rule of law and rely heavily on extractive industries. Sub-Saharan Africa is particularly at risk: its ten largest oil-producing states derived 56% of their public revenues from oil exports in 2011-13.

Light is the best disinfectant, say anti-corruption campaigners—and many think the best hope for greater transparency lies with an emerging global standard known as the Extractive Industries Transparency Initiative (EITI), which has grown to include 48 members (either compliant or candidate countries) since it was formed 12 years ago. But the EITI has reached a crossroads: it must now choose either to push ahead with bold disclosure requirements first floated in 2013, or back away under pressure from those who argue that revealing the true ("beneficial") owners of companies involved in extractive deals with the state is tricky. This was to be discussed at a gathering of the EITI's "multi-stakeholder" board—including representatives from NGOs, companies and governments—which was due to finish on October 22nd, after *The Economist* went to press.

Tracking ownership is important because opaque shell companies are the vehicle of choice for those seeking to divert public oil wealth into private pockets. In a ground-breaking move two years ago EITI members agreed that from 2016 private firms making or receiving payments in extractive industries should be required to disclose their ownership. This put the EITI at the front of a global push to reveal more about who is behind shady firms.

After testing this requirement in 11 countries, the EITI must now decide whether to extend it to all members. Everyone agrees the pilot was only a partial success, but not on why. Campaigners say information was often not gathered because disclosure was, in practice, more encouraged than required. Governments retort that getting to the bottom of who really controls firms whose registered owner is another obscure company or a three-year-old child can be devilishly difficult.

Whatever the reason, pro-transparency groups say the EITI urgently needs to make public disclosure of ownership a condition of membership, with the threat of suspension for countries that drag their feet. The campaigners fear that if the 2016 deadline is allowed to drift, transparency will become less of a priority. The EITI faces a "credibility test", says Brendan O'Donnell of Global Witness, an NGO.

Whose are the dirtiest hands?

Another worry is that back-pedalling will encourage countries to use the EITI as a figleaf. A new report by Global Witness details how in recent years $4 billion was siphoned off to opaque companies, some of them linked to current or former officials, in just a handful of deals in four African countries: Nigeria, Angola, the Democratic Republic of Congo and Congo-Brazzaville. Three of the four are full members of the EITI.

Congo-Brazzaville hosted the last EITI board meeting, in April. Yet secrecy continues to surround the beneficiaries of companies profiting from its oil wealth. Some fear that the situation has not improved much since 2005, when a British court ruled that AOGC, a firm that had bought cargoes at below-market rates from the national oil company, SNPC, was owned and controlled by the then director-general of the SNPC, Denis Gokana. This arrangement was ostensibly to disguise the state's interest and avoid claims by sovereign-debt holders.

Mystery continues to surround firms involved in key deals, including three joint-ventures between SNPC and the 88 Queensway Group, a Hong Kong-based outfit that has brokered many Chinese-backed energy deals in Africa (and whose presumed head, Sam Pa, was detained recently in Beijing). The firms were reportedly set up to sell Congolese oil in Asia. Global Witness found that their directors include Mr Gokana and Denis Christel Sassou Nguesso, a son of the president who has held various positions in the national oil industry. Though the opacity of these arrangements raises questions, there is no evidence of wrongdoing.

Clare Short, who chairs the EITI board, says the initiative has greatly increased the flow of information about payments to and by governments in just a decade. But she acknowledges that progress can be painfully slow at times, with the risk of setbacks. The broad composition of the EITI's board ensures that "conflict is entrenched in the very model", she sighs. The fight to shine more light on oily deals goes on. ■

EDF's nuclear ambitions

French lessons

FLAMANVILLE

EDF plans a big nuclear expansion in Britain, just as it faces problems at home

LIVING in the shadow of a nuclear-power plant does not bother the three occupants of the "Bar Des Sports", a one-room affair with formica tables and a blaring television. The owner of 18 years, ("Jacques, only Jacques"), is about as unruffled by fears of an accident as his balding white dog slumped by the door.

That attitude is common in Flamanville, a north-coastal village of stone houses and hanging baskets, where 4,000 employees and contractors work on the two reactors at the local nuclear-power plant, opened in the mid-1980s. But a third, much larger reactor, called Flamanville 3, is likely to become the focus of international attention because it is the model for an imminent expansion across the channel, in Britain. It is being built by Electricité de France (EDF), the world's biggest power ▸▸

company, which on October 21st agreed with China General Nuclear Power Corp (CGN), a state-owned entity, to build two reactors of the same design in south-west England called Hinkley Point C. EDF will own two-thirds of the project and CGN a third. The plant in Somerset is supposed to open by 2025, after construction that is forecast to cost £24.5 billion ($37.8 billion).

The history of Flamanville 3, where work began in 2007, indicates how difficult that might be. It was planned as a five-year scheme, but this month EDF, which is mostly state-owned, formally asked officials to extend the deadline to 2020. Its original budget of €3.3 billion has more than tripled, to €10.5 billion ($11.9 billion). Getting its new European Pressurised Reactor (EPR) into service is proving harder than expected. One problem is the troubled condition of Areva, another mostly state-owned French firm, which supplies reactor components. It reported losses of nearly €5 billion in March, because of soaring costs and long delays at the only other EPR being built in Europe, Olkiluoto 3, in Finland. Work began in 2005 but it will not open before 2018 at the earliest.

The main technical problem at Flamanville 3 concerns suspicions of high levels of carbon in the steel of a crucial component, the vessel, already installed under the dome of the new reactor. Replacing it now, if inspectors conclude it is too brittle, would be costly. In June the company also said it was double-checking the working of safety valves.

EDF's boss, Jean Bernard Lévy, says bravely that "experience gained at Flamanville will be invaluable for other EPR projects, such as Hinkley Point." The firm claims 98% of the main construction work is now finished, though that is mostly irrelevant if other problems linger. A sympathetic banker in Paris likens problems at Flamanville to France's recent thumping in the rugby World Cup, saying "failures spur you to rebound."

Meanwhile EDF's financial burden grows. It boasts of €73 billion in global revenues, but faces a threefold strain. Demand for electricity is stalling in France, its main market—and, as problematic, the country plans to cut nuclear's share of electricity generation to half of the total, by 2025, from 75%. Next, though details are not finalised, EDF will absorb the nuclear unit of troubled Areva. Last, it has to upgrade, or at least maintain, France's stock of ageing reactors. Mr Lévy told French radio on October 18th that capital expenditure for that alone would be around €50 billion.

No wonder ratings agencies judge that EDF's financial prospects are secure only because of its state backing. The firm's balance-sheet looks stretched, mostly because of high provisions set aside for dismantling plants in future. So, to help pay for its planned expansion in Britain and reduce debt, EDF will sell perhaps €10 billion of other assets, in Italy and elsewhere. That assumes they can attract buyers.

EDF's prospects, indeed those of any nuclear company, depend on the backing of politicians who want to preserve nuclear expertise and jobs at home. The project at Hinkley Point is viable only because Britain's government has agreed that consumers will pay £92.50 for every megawatt hour of electricity produced, vastly above current market rates, and because China is chipping in; so far no one else has come forward. EDF's strategy is to build and operate more EPRs at two sites in Britain, and to cooperate further with its Chinese partner. Seen from the bar in Flamanville, after a couple of Ricards, such a bet might make sense. In the grey light of day, it is questionable whether taxpayers and consumers, paying big bills, will agree. ■

Reviews on Amazon

Five-star fakes

NEW YORK

The evolving fight against sham reviews

"I WILL post awesome review on your amazon product," bess98 declared on Fiverr, a website where individuals sell freelance services for $5 or more. On October 16th Amazon charged that bess98 and more than 1,000 others were illegally hawking customer reviews. The case comes just six months after Amazon sued the operator of four sites peddling similar stuff, including the subtly named buyamazonreviews.com.

Like Amazon, other websites have fought fakes with lawsuits, carefully honed algorithms and even sting operations—Yelp, a popular review site, has had undercover staff answer ads from firms seeking glowing write-ups. Yet the problem persists.

For as long as there have been online reviews, there have been fakes. The motivation is clear: for example, one extra star on a restaurant's Yelp rating boosts revenue by 5-9%, according to Michael Luca of Harvard Business School. Mr Luca and Georgios Zervas of Boston University have shown that restaurants seeking fake acclaim are likely to be independent—online reviews matter more to them than to chains with established reputations. So some businesses ask friends to post raves, seek reviewers-for-hire and offer customers discounts in exchange for praise.

For websites that claim to be an impartial resource, such practices are troubling. "While small in number," Amazon contends in its new suit, "these reviews can significantly undermine the trust that consumers and the vast majority of sellers and manufacturers place in Amazon." The problem is particularly irksome for sites dedicated to offering reviews, such as Yelp and TripAdvisor. Amazon sells everything from books to lawnmowers; Yelp's main offerings are its 83m reviews. "If consumers can't rely on the content," says Vince Sollitto of Yelp, "then the service is of no value."

So websites have tried to fight fakes. Algorithms comb reviews for suspicious wording. Expedia allows hotel recommendations only by those who have paid for a room there. Amazon tags a review as "verified" if the writer has indeed bought the product. Presumably such reviews are more reliable, though bess98 is one of many who claim to be able to game Amazon's system.

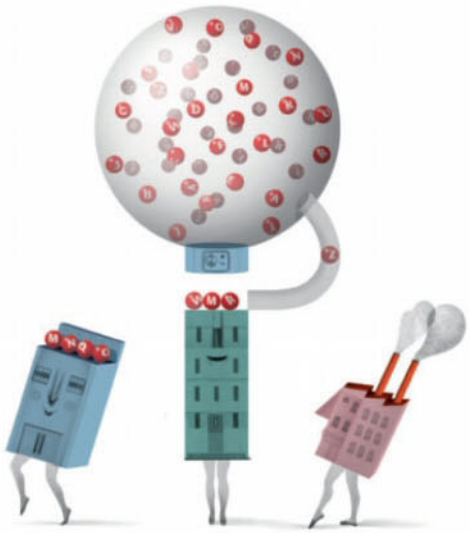
Yelp may have the most aggressive strategy. An algorithm removes a whopping 30% of posts from Yelp's list of "recommended" reviews, though consumers can still see the suspicious ones if they like. Businesses that try to weasel their way to a higher rating (paying off grumpy clients, for instance) have their Yelp pages branded with a red warning.

Despite all this, some false acclaim and critiques inevitably slip past firms' defences. For websites, fake reviews will remain a stubborn headache. Meanwhile businesses are finding new ways to boost their reputations online. Social bots—lines of code that pose as real accounts—can build buzz on social-media sites like Twitter and Facebook. For the average consumer, it may become ever harder to distinguish real praise from puff.

See you in Somerset

Schumpeter | Nine billion company names

Businesses are coming up with ever-sillier ways to identify themselves



ARTHUR C. CLARKE'S "The Nine Billion Names of God" (1953) tells the story of a group of Tibetan monks who believe that an ethereal "bingo!" moment will arrive when they have discovered all the possible names for God. They calculate that this will take 15,000 years to complete if they continue with their old-fashioned method of writing by hand. So they rent a computer to speed things up. The computer duly gets to work—and when it spits out the final combination of letters the monks get what they wanted: "without any fuss" the stars begin to go out.

The world may one day discover whether there is a corporate equivalent of that bingo moment when all the possible names for companies have been tried. The West is creating start-ups at an unprecedented rate. Emerging-world companies are going global. Established companies are merging to form mind-boggling combinations: the soon-to-be ABInBev/SABMiller beermoth is rooted in five separate companies, Anheuser-Busch, Interbrew, AmBev, South African Breweries and Miller Brewing.

Companies are right to devote a lot of effort to thinking up names: they are the best chance of making a good first impression. Great names such as Google can provide the ultimate bonus of turning into a verb. Dismal ones like Monday (briefly the name of a consultancy) can cast a pall. But overcrowding is only one reason why finding a name is becoming more difficult. Globalisation has increased the possibility of giving offence in one language or another. Copyright law is a pain: companies have to go to great lengths to make sure that nobody has staked a claim to their favourite names. The biggest culprit is the internet: companies put a premium on finding convenient "domain names" that direct you to their websites, but many of the good ones have already been grabbed by name speculators.

The naming business has been shaped by four developments that suffer from the same generic problem: they briefly expand the number of names available but then succumb to tedium. The first is the fashion for made-up names that don't mean anything in any known language but have a vaguely classical ring (Totvs, a Brazilian software firm, even uses a Latin-looking "v"). The trend probably began with Zeneca when it separated from ICI, a British chemicals company, in 1993. Two recent additions to the genre are Mondelez International, maker of Oreo biscuits, formerly part of Kraft, and Engie, the new identity for French utility GDF Suez. These ersatz names may be mildly preferable to an alphabet soup, but they actually do the opposite of what they were intended to do: rather than putting a human face on companies, they emphasise their lack of soul. Diageo imprisons some of the world's most storied brands such as Guinness in one of the world's blandest words.

The tech boom gave the naming industry a boost by introducing a new stream of tech-words: Google got its name from the mathematical term for ten to the power of 100 (a googol) and Tesla from a unit for measuring the density of a magnetic flux. But it is also responsible for a lot of tripe. Too many tech companies are either tediously wacky (Yahoo) or overly familiar (PayPal). Tech firms are as plagued by naming-imitation as by product-imitation: witness the fashion for incorporating "Buzz" in your name (after BuzzFeed) or the "-ify" suffix (after Spotify).

The third development is the fashion for "creative" names—the nominal equivalent of hipster beards. These are supposed to be the opposite of generic corporate names: concrete rather than abstract, eye-catching rather than bland. But, like hip beards, they suffer from the law of diminishing returns. Orange was probably the last company to get away with calling itself after a fruit. There are now so many financial-services companies giving themselves "pally" names (Wonga and QuickQuid) that you long for the good old days when banks called themselves after their founders (Lloyds) or even adopted bland initials (HSBC).

The most disappointing development has been globalisation. Some rising multinationals have memorable names that derive from their founding families, such as India's Mahindra & Mahindra, a vehicle maker. But globalisation has not brought a naming renaissance. Mark Lee of Watermark & Co, a (cleverly named) branding consultancy, points out that four of the world's ten biggest public companies have the word "China" in their names, such as PetroChina. Latin American companies are heavy on "x"s but light on inspiration, as in Cemex and Pemex. Brazil's Eike Batista put an "x" in all his companies' names to signify that he would multiply his investors' capital—but then went bankrupt.

Rathr Xstrme

The result is that companies are resorting to ever more desperate means in order to stand out from the crowd. They are running words together into a verbal hodgepodge (PingStamp), misspelling familiar words (Kabbage), or jamming unrelated words together (Digital Marmalade). The most irritating fashion is for creating names that look like typographic errors: dropping letters in arbitrary ways (Flickr) or adding ampersands for no apparent reason: poor old Booz & Company, a consultancy, has been taken over and forced to call itself Strategy &.

In Clarke's story the computer-programmers devise "suitable circuits to eliminate ridiculous combinations". In the world of corporate naming the best defence against absurdity is common sense. We are still a long way from finding the equivalent of the nine billionth name. There are plenty of good English ones left: Google came up with the clever name Alphabet for its holding company earlier this year. And after that there are lots of non-English words that won't offend anyone. It is also better to be old-fashioned than absurd: rather Smith & Jones than what looks like a Scrabble spillage. The biggest mistake is to expect too much. Great companies can survive boring names but even the best names cannot save dismal companies. ■

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Retail banking

Cracking the vault

The grip banks have over their customers is weakening

A FEW dollars spent at Starbucks, a monthly mortgage payment, a Netflix fee, Starbucks again: bank-account statements are not exactly exciting stuff. But there is gold hidden in this by-product of our financial lives, or so many budding technology firms believe. A host of startups crave access to the data and are pitching services, from budgeting apps to cheaper loans, to those who open their books to them. Yet banks worry that co-operating is the first step towards losing the lucrative grip they have on their customers.

Squeezing insights out of a bank statement is hardly at the cutting edge of big data. Years of salary payments confirm stable employment; bounced cheques hint at carelessness; regular green fees suggest an interest in golf. Banks implicitly use balance and income information when making loan decisions. That has typically given them a leg up over such rivals as consumer-lending companies, which have to base offers of credit on less detailed information.

Add the fact that switching bank accounts is seen as a chore, and incumbents are in effect shielded from competition. But three things have changed in recent years. The first is the plethora of "fintech" competitors trying to take on banks. The second is internet banking, which has given nearly everyone access to reams of their own financial information in handy digital form. The third is regulation, which is swinging in favour of the upstarts by forcing banks to share the data generated by all those trips to the coffee shop.

Data are already seeping out of banks' digital vaults and, in the process, giving a sense of why such leaks are damaging. A slew of firms, such as Mint in America, offer to aggregate the data from customers' various bank accounts, credit-card statements and retirement-savings plans in a single place. This gives customers a comprehensive view of their finances. Because these firms have a startup's focus on being easy and appealing to use, their apps make most banks' mobile offerings look clunky.

Worse, banks' efforts to sell multiple products to current-account holders are being undercut by the financial aggregators, which pitch financial products to customers using the data they have accumulated. "If we see you are paying 4% on your mortgage and there is a product in the market that would let you pay 2%, we think you will want to know about it," says Joan Burkovic of Bankin', a French aggregator. Your bank would rather you didn't.

Among the keenest potential users of personal bank data are peer-to-peer lenders, platforms that match those wanting to borrow money with those wanting to lend it. The likes of Zopa in Britain and Lending Club in America boast about their algorithms' ability to sift good credit risks from bad ones. But the computer programs are only as good as the data fed into them. Information from credit bureaus is useful but limited. "Bank-account information is probably the most valuable data source for underwriting credit that isn't in widespread use," says Martin Kissinger from Lendable, a peer-to-peer firm.

Not only the balance and cashflow are interesting; individual transactions can be revealing, too. How much a small business pays in taxes, say, can give insight into its profitability months before it files its accounts, says Anil Stocker of MarketInvoice, a lending platform. Payments to and from directors, or refunds to customers, can also help gauge its financial health.

Banks are understandably hesitant to send their customers' information to potential competitors, even with the customer's consent. In America banks have long allowed customers to download their data to compile tax returns; that capability is now being jerry-rigged to feed into other services (Mint belongs to Intuit, a purveyor of tax software). Regulators compel British banks to allow customers to download data in a standard-format spreadsheet.

If banks are not willing or obliged to share, there are services that will retrieve current-account data without the bank's approval. These startups ask customers to share their online banking passwords, in order to log into their accounts and copy and paste page upon page of online statements. Such "scraping" happens in a legal grey area. Banks moan about their terms of service being breached. British regulators frown upon it, for security reasons, making life difficult for would-be Mints; American regulators are said to be unhappy as well. Services such as Yodlee, a Californian outfit, offer to scrape or download bank records, whichever is least inconvenient.

Online lending platforms are wary of ▸▸

scraping: customers are understandably reluctant to hand over their passwords. Only people turned away for credit elsewhere (often for a reason) are likely to do so. Instead, aggregators often make do with data which are patchy or delayed. The likes of Zopa and Lending Club, for example, merely ask for smartphone snapshots of bank statements—a retrograde step, by fintech's standards, and one that limits the insights they can gather.

Policymakers in Europe have concluded that forcing banks to share data at consumers' request will yield big benefits for the banking public. Earlier this month the European Union adopted a directive on payment services, which will in effect force banks to impart data to third parties in a convenient format. Customers will also be able to authorise fintech firms to make payments from their bank accounts.

Banks say publicly they are open to the idea of more competition. Some are starting to release data more readily. But many fear they are fighting fintech with one hand tied behind their backs. Startups operate with the privacy mores of the technology sector; consumers opt in to their products, and so expect to be bombarded with ads. Banks are more like utilities, trusted to safeguard information rather than use it. When ING, a Dutch bank, last year mulled offering advertisers the opportunity to pitch to its customers based on their spending data, an outcry forced a quick reversal.

Having seen consumers desert their branches, banks now worry that customers will desert their apps and websites, too. Bosses glimpse a future where customers use banks merely as a utility, depositing their money there but using unregulated startups to manage it. Smoother data-sharing would make that a reality. It is a prospect that should indeed frighten bankers as much as it delights their customers. ■

Buttonwood | Out of fashion

Investors have become pessimistic about emerging markets

LIKE hemlines and hairstyles, emerging markets swing in and out of fashion. A burst of enthusiasm in the late 1980s was followed by the financial crises of the late 1990s. In the first decade of the 21st century, they were all the rage again, and the term BRIC (for Brazil, Russia, India and China) was coined. When the economies of the rich world swooned in 2008, emerging markets seemed to be the best hope for the future.

But the past few years have seen their popularity wane once more (see chart). The change in mood is understandable. The IMF has forecast that 2015 will be the fifth successive year in which economic growth in emerging markets has slowed. Two of the BRICS—Brazil and Russia—are in recession. Many are uncertain whether the Chinese authorities can engineer a soft landing for their economy, as it slows from the furious growth of previous decades. Emerging markets' advantage over rich countries, in terms of a faster growth rate, will be the smallest this year since 2001, according to IMF forecasts.

It is easier these days to find pessimists than optimists. Andrew Haldane, the Bank of England's chief economist, sees emerging markets becoming the "third wave" of the series of crises that began in 2007-08 with American subprime mortgages and continued through 2010-12 in the euro zone. The third-wave theme was echoed in a recent research note by Goldman Sachs.

The underlying problem is that a slowdown in emerging-market growth has been accompanied by a build-up of corporate debt. Excluding financials, emerging-market companies have an average debt level of 90% of GDP, according to HSBC; in Asia, non-financial corporate debt has jumped from 80% of GDP in 2009 to 125% today. Slower growth will make it more difficult to repay that debt; declining currencies will make it more difficult to repay the portion of that debt (just under a third, according to HSBC) that is denominated in dollars. According to a poll of fund managers conducted by Bank of America Merrill Lynch, investors think the two biggest risks to the world economy are a Chinese recession and an emerging-market debt crisis.

Slip sliding away

MSCI emerging markets as % of MSCI rich world

*Rebased emerging-markets index as % of rebased rich-world index (January 1995=100)

Sources: Bloomberg; Thomson Reuters

Corporate profits have not been growing as quickly as many investors may have hoped. Goldman Sachs calculates that Asian companies have not managed double-digit growth in earnings per share since 2010. John-Paul Smith of Ecstrat says that, more generally, the return on equity at emerging-market firms has fallen by more than seven percentage points since the financial crisis.

Mr Smith worries that a vicious circle is starting to develop, "whereby poor governance and policymaking, currency depreciation and downward pressure on living standards are beginning to behave in a reflexive manner." Sluggish growth will encourage governments to intervene more in the economy, imposing higher taxes or price controls. Governments may also deflect criticism by blaming foreign speculators or companies for their problems.

Nationalistic rhetoric, in turn, will weaken investor confidence, reduce foreign direct investment and provoke capital flight. The effect, Mr Smith says, will "put further downward pressure on the currency and hence household living standards and encourage more populist policymaking."

Some of this pessimism has clearly filtered through to investors. In the Merrill Lynch poll, the share of fund managers whose exposure to emerging-market equities was lower than normal exceeded those with an unusually high allocation by 28 percentage points. Capital Economics reckons that more than $260 billion flowed out of emerging markets in the third quarter of the year. In nominal terms, this was even bigger than the outflow during the 2008-09 crisis. (As a proportion of emerging-market GDP, it was smaller: 4% versus 6% in 2008.)

When financial assets have been underperforming and investors are heading for the exits, contrarians naturally start to wonder whether it is a good moment to fill their boots. Emerging markets usually trade at a lower valuation than their rich-world counterparts, although there are moments when they are sufficiently fashionable to trade at a premium to rich-country shares (see light-blue line on chart). On this basis, they were most in vogue in the autumn of 2010, but are now trading at a discount again.

But that discount is not as big now as it was in the late 1990s. Until bargain-hunters see some sign of an improvement in the economic fundamentals, they will be forgiven for sitting on their hands.

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Economic data

Funny numbers

America's GDP statistics are becoming less reliable

IN THE coming week government statisticians in America and Britain will release their initial estimates of economic growth for the third quarter of the year. Markets will leap or sag, depending on the news. But investors are wrong to see the releases as a moment of statistical insight; they are merely the first round in a high-stakes game of "pin the tail on the donkey".

Take January-March last year in America, when an icy winter kept shoppers at home. The intial estimate of GDP growth from the Bureau of Economic Analysis (BEA)—an annualised gain of 0.1%—was disappointing but not disastrous. The second estimate—a decline of 1%—made things looks bleaker. By the time the third and final estimate came in, at -2.9%, it was clear the quarter had been the worst since the depths of the financial crisis (see chart).

Statistics are revised for years, but their relevance soon fades. The BEA recently reviewed its data for 2012-14 and discovered that the American economy had grown more slowly than it had previously thought. At a stroke it removed $70 billion, equivalent to Sri Lanka's entire output, from its figures. No one noticed. It is changes in the early estimates that move markets and influence policy.

Balancing reliability and timeliness is hard, however. The BEA releases its advance estimate about a month after the quarter has ended. By its own admission, it relies on incomplete data and projections of trends to meet this deadline. The second and third estimates follow at monthly intervals. Other offices operate more slowly: the Australian Bureau of Statistics waits three months before issuing its first numbers and does not release regular revisions.

A recent study by Jorrit Zwijnenburg of the OECD compares the size of GDP revisions for 18 rich countries between 1994 and 2013. It shows that whereas other agencies' initial estimates were typically too low, the BEA's tended to be too high. However, the average size of the BEA's revisions was comfortably mid-table, larger than those in Canada and Spain, but smaller than in Finland, Japan and Norway.

Alarmingly, though, the BEA appears to have become less accurate of late. The average revision from the first to the third estimate was 0.6 percentage points in 1993-2013, but has risen to 1.3 points since the beginning of 2014. That may reflect greater volatility in the economy itself. In the past six quarters growth has bounced around, rising to 3.9% or more three times and falling below zero twice.

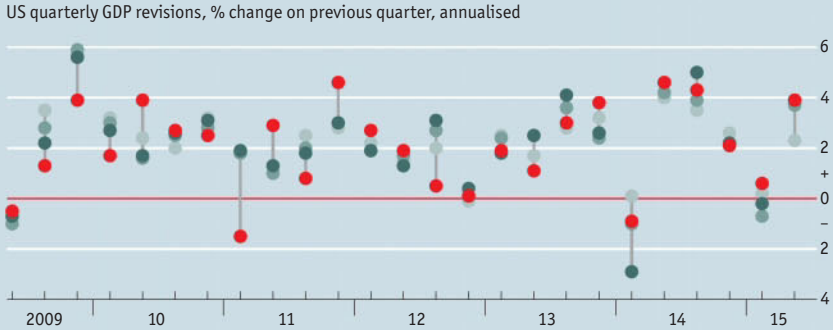
There may be other problems too. Between 2010 and 2014, first-quarter GDP averaged just 0.6%, a full two percentage points below the other quarters. The BEA has admitted that it may not have fully allowed for the seasonal effects of holidays and the weather. It has promised a "multi-pronged action plan" to fix the issue.

The BEA is not the only statistical agency mulling changes. In Britain, an independent review of the country's economic statistics is under way, encompassing both the methodology behind data releases and their scheduling. Delaying releases to improve accuracy would almost certainly result in complaints from businesses and policymakers, however.

An alternative would be to release more data in the hope that the overall picture this provides will be more accurate, if fuzzier. In addition to GDP, for instance, the BEA also publishes figures on gross domestic income. GDI, like GDP, is a broad measure of economic activity, but it tracks income instead of expenditure. GDP and GDI rarely match exactly, as in theory they should: in January-March of this year, America's GDP fell by 0.2% but GDI rose by 1.9%. The BEA's solution is to publish an average of GDP and GDI along with the quarterly GDP data. This average should reduce the influence of errors. It also gives investors another number to pore over. ■

Where's that donkey?

US quarterly GDP revisions, % change on previous quarter, annualised



Source: Bureau of Economic Analysis

Egypt's foreign reserves

Dwindling dollars

CAIRO

Facing a shortage of foreign exchange, Egypt allows its currency to fall

DESPITE the government's best efforts, the rattle of money-counting machines can again be heard in Egypt's back alleys, where traders sell dollars at a premium to the official rate. The government devalued the pound to match the black-market price earlier in the year, thereby wiping out the illicit trade. But demand for greenbacks is outpacing supply once more, leaving the government short of cash and putting the traders back in business.

Egypt's foreign reserves fell to $16.4 billion in September, enough to cover about three months of imports—the minimum the IMF considers advisable. But Egypt is not attracting many dollars at the moment. Years of political turmoil have hit tourism and foreign direct investment (FDI), which amounted to $6.4 billion in the last fiscal year (running from July until June). The government hopes for $10 billion in FDI this year—wishful thinking, analysts say.

At the same time, demand for dollars is rising. Egypt has run annual trade deficits for over a decade. Lately they have grown. Although the bill for oil has come down along with the price, Egypt still imported $12.3 billion-worth last year. It also spent $48.5 billion on other imports, including wheat, cars and metals. "This is where the pressure comes from," says Allen Sandeep of Naeem Holdings, an investment firm. The country's exports, totaling $22 billion ▸▸

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last year, don't match up.

No wonder, then, that the current-account deficit is expected to hit $20 billion this year. In addition to FDI, Egypt has financed such shortfalls in recent years with handouts from Gulf states eager to support its military regime. But these are likely to dwindle as the low oil price diminishes the revenues of Egypt's benefactors. The government has announced new loans worth $1.5 billion from the African Development Bank and the World Bank, and is negotiating a separate $3 billion loan, over three years, from the latter. More dollars may come from the sale of land to Egyptians living abroad, which the government hopes will earn $2.5 billion. But there is still a sense that the country will have to tighten its belt.

So it did not come as a total surprise when the central bank allowed the Egyptian pound to hit a record low on October 18th. As *The Economist* went to press, the pound sat at 8.03 to the dollar, 11% weaker on the year. The black-market rate is still over 5% cheaper, so a further decline is expected. "It probably needs to fall a lot further to restore Egypt's external competitiveness," says Jason Tuvey of Capital Economics, a research firm. He expects a dollar to buy 8.25 pounds by the end of this year and 8.50 pounds by the end of next year. Others are more bearish.

The central bank's reluctance to allow the pound to fall faster stems from a fear of stoking inflation. Egypt imports many staples, which would jump in price if there were a sudden depreciation. That would cause widespread pain and might stir social unrest. "They won't want to risk another revolution," says Mr Sandeep. But it is possible that a new head of the central bank, announced on October 21st, will adopt a more decisive policy.

In the meantime, the prospect of further devaluation has put off investors, as have the capital controls intended to bolster the pound. Last year the government limited transfers abroad to $100,000 a year. Earlier this year, in an attempt to squeeze the black market, deposits in foreign-currency accounts were capped at $10,000 a day and $50,000 a month. Those moves, together with the government's rationing of foreign currency, have hurt business. Firms complain of a lack of cash for imports. Mr Tuvey believes this has contributed to a sharp slowdown in growth in the first half of the year.

If Egypt can muddle through the crisis, there is some cause for optimism. The government has invested in manufacturing in the hope of boosting exports. More importantly ENI, an Italian oil firm, has discovered a vast gasfield off the Egyptian coast. According to some estimates, the Zohr field could turn Egypt from an importer to an exporter of gas by 2020. That should bring in a dollar or two. ■

Debt in China

Deleveraging delayed

SHANGHAI

Credit growth is still outstripping economic growth

IN MOST respects, double-digit growth is a relic of the past for China. In the third quarter the economy grew by just 6.9% year-on-year according to official data, and probably by a percentage point or two less in reality. Yet bank loans increased by 15.4% in the third quarter compared with the same period in 2014. Having released a torrent of credit to buoy the economy during the financial crisis, China was supposed to have started deleveraging by now. Instead, banks are continuing to pump debt into the economy, while the authorities, apparently worried about the damage a contraction in credit might do, coax them on.

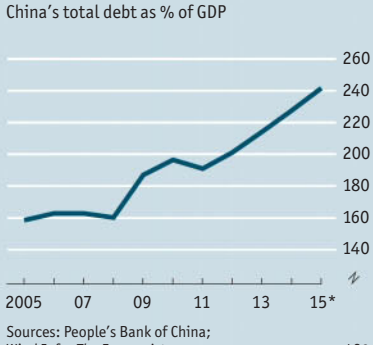
Growth in credit has at least slowed in recent years. A broad measure is "total social financing" (TSF), which encompasses bank loans, corporate bonds and a range of shadowy loan-like products. TSF growth soared to 35% in 2009 when the government called on banks to open the taps and support the then-faltering economy. It has since decelerated: it rose by 13% in the third quarter from a year earlier. The problem, though, is that nominal GDP growth has fallen much lower, to 6.2%.

This means that China's overall debt-to-GDP ratio is continuing its steady upward march (see chart). Debt was about 160% of annual output in 2007. Now, China's debt ratio stands at more than 240%, or 161 trillion yuan ($25 trillion), according to calculations by *The Economist*. It has risen by nearly 50 percentage points over the past four years alone, with slowing growth only serving to magnify indebtedness.

A rapid increase in debt in a short space of time has historically been a good predictor of financial trouble, from Japan in the 1990s to southern Europe in the 2000s. But there is no level that automatically triggers crises. Since most of China's debts are held within the government-controlled bits of its economy (state-owned firms are the biggest debtors and state-owned banks their biggest creditors), the country has the means to avoid an acute crisis. It can, in effect, roll over bad loans as they come due or abstain from calling them in. However, although that spares the economy short-term pain, it leaves it with a chronic ailment. Ever more credit is needed to sustain growth. Loans that should have gone to sprightly companies with promising new ideas go instead to corporate zombies.

Still bingeing

China's total debt as % of GDP



Sources: People's Bank of China; Wind Info; *The Economist* *Q3

There are worrying signs that China is heading in this direction. In the six years before the global financial crisis, each yuan of new credit brought about five yuan of national output. In the six years since the crisis, that has fallen to just over three yuan. It is not hard to find examples of companies on life support that in other countries might have perished by now. In September China National Erzhong Group, which makes smelting equipment, received a bail-out from its parent. Investors in Sinosteel, a metals conglomerate, are now hoping for the same after it delayed payment on a bond this week.

It is not too late for China to bring its debts under control. Regulators have taken steps in the right direction. They have obliged local governments to provide better data on their debts and have forced banks to bring more of their shadow loans onto their balance-sheets, providing a clearer picture of liabilities. One reason that banks have been issuing loans so quickly this year—faster than overall credit growth—is that they are replacing shadowier forms of financing. China has also used both monetary easing and a giant bond-swap programme for local governments to reduce the cost of servicing debts. The weighted interest rate on existing liabilities has fallen from roughly 6% to 4.5% this year.

But some worry that these measures are just pushing risks elsewhere. A bond-market boom is the newest concern. Net bond issuance in the first nine months of 2015 reached 8.7 trillion yuan, up 67% from the same period a year earlier. At the same time, the gap between funding costs for companies and the government has narrowed sharply. The one-year yield on government bonds has fallen by nearly a percentage point over the past year, whereas corporate yields have fallen by 1.5 percentage points. In other words, investors are lending to companies as if they were becoming safer borrowers, even as their liabilities increase. Yang Chen of Bank of America Merrill Lynch notes that some investors are buying bonds with borrowed cash, believing that the government will wade in to spare them from any big defaults—as it has done in the past. If that impression persists, China's debt mountain could grow bigger still. ■

The euro-zone economy

Under threat

A tepid recovery may get cooler

FOR much of the past five or so years, the euro area has been suffering from a toxic combination of economic, financial and political ailments, making it the main source of fragility in the global economy. That honour has now passed to emerging markets. Yet their difficulties are likely to impede what has in any case been an insipid recovery, making it harder for the euro zone to clamber out of deflation.

The European Central Bank (ECB) was not expected to announce extra monetary stimulus when its governing council met in Malta on October 22nd (after *The Economist* had gone to press). But many economists think it will act within a few months, maybe as early as December. The ECB's most likely response would be to extend its programme of quantitative easing (QE)—creating money to buy mainly public assets—beyond September 2016, when it is currently scheduled to end.

Until clouds gathered over China and emerging markets over the summer, the economic weather had appeared to be brightening. The euro zone's output grew at an average rate of 0.4% a quarter between late 2014 and mid-2015. That was no showstopper but marked an improvement on the anaemic growth of the previous 18 months.

The recovery has also been broadening. It was initially led by Germany, which makes up nearly 30% of euro-zone GDP. More recently it has been bolstered by surprisingly strong growth in Spain, the euro zone's fourth-biggest economy. Now Italy, the third-biggest and long comatose, is showing signs of life.

However, the French economy, the second-biggest, is still at best hobbling along. And the overall pace of recovery in the euro area remains disappointing given the strong stimulus it has been receiving. One fillip has been the fall in oil prices, which has acted in much the same way as a tax cut for both consumers and businesses. A second has been QE, which the ECB has been conducting since March, buying €60 billion ($68 billion) of assets a month. That has helped exporters in particular by keeping the euro low.

Exports to emerging markets may now slow, despite the competitive advantage of a cheap currency. These account for 25% of the euro zone's exports, and around 30% of those of Germany, France, Italy and Spain. Germany's success in exporting to China, which alone accounts for almost 7% of its exports, is now a source of vulnerability. Because of its prowess in manufacturing capital goods, the German economy has been a perfect match for the investment-driven growth of China. But China's growth is both slowing and rebalancing from investment and towards services.

Already there are warning signs. German exports fell sharply in August compared with July, while manufacturers' new orders also declined. In the euro zone as a whole industrial output also fell in August month-on-month, by 0.5%. Instead of quickening the recovery may slow; economists at Barclays are forecasting GDP growth of 0.3% in the third quarter.

That will make it harder for the ECB to get inflation back to its objective of nearly 2%. After a few months of merely very low inflation, the euro area experienced deflation again in September. The relapse will be fleeting, since the big falls in energy prices late last year will soon drop out of the annual numbers. But the euro area still looks likely to experience very low inflation next year—an unhappy prospect for the vulnerable countries such as Portugal that are weighed down by excessive public and private debt. ■

It could get messy after Malta

Corporate tax in Europe

State raid

The European Commission attempts to outlaw sweetheart tax deals

SELDOM do governments try to turn away extra tax. But that is just what Luxembourg and the Netherlands did this week, after the European Commission ruled that subsidiaries of multinationals in the two countries were paying €20m-30m ($23m-34m) too little. The commission argued that the favourable tax treatment the firms were receiving was tantamount to a government subsidy, and thus illegal under European rules on "state aid". The two countries, worried that the decision will deter other foreign firms from investing, demurred.

The ruling marks an important advance in the battle against tax avoidance by jurisdiction-shopping multinationals. The commission took issue with an advance ruling the tax authorities in the Netherlands had provided to a subsidiary of Starbucks, a coffee chain, confirming that its tax planning in the country was sound, and with a similar assurance Luxembourg had given a unit of Fiat Chrysler, a carmaker (whose chairman, John Elkann, sits on the board of *The Economist*'s parent company). Such "comfort letters" are fine in principle, the commission said, but in these two instances had been used to provide preferential treatment.

The commission suggested that the two countries had connived in the two firms' manipulation of transfer prices, the notional amounts for which different subsidiaries of the same firm sell goods or services to one another. It claimed a Fiat finance unit in Luxembourg had provided loans to other divisions at artificially low prices, shrinking the unit's revenue so that it paid a twentieth of the taxes it should have. By the same token, the commission said that a Dutch subsidiary of Starbucks had overpaid a Swiss unit for coffee beans and a British one for "coffee-roasting know-how".

A lengthy legal appeal is all but certain. In the meantime, the commission is conducting similar investigations into tax deals involving two tech giants, Amazon and Apple. Whatever the outcome of all four cases, the commission's stance will doubtless discourage other multinationals from resorting to such complicated arrangements to minimise their tax, to the delight of bigger countries dismayed by paltry corporate-tax receipts. As one Dutch tax lawyer quips, "If [multinationals] have to choose, they'll always pick avoiding court over avoiding taxes."

Free exchange | Putting Goldilocks to work

A new study shows that climate change is likely to sap productivity in the rich world

"ALWAYS pack a sweater," one local businessman advises visitors to Singapore, "because the best thing about our weather is the air conditioning." Singapore's first prime minister, Lee Kuan Yew, would have agreed—he considered the air conditioner the greatest invention of the 20th century. Another Singaporean politician once remarked that if it had not been for artificial cooling, local workers would be "sitting under coconut trees" rather than labouring away in high-tech factories.

Singapore is rich enough to keep its indoor spaces cool. Neighbouring Indonesia is not. Economists used to think that rich countries' greater cooling power would enable them to limit the damage to their economies from the higher temperatures brought by global warming. A cross-country comparison* published in 2012 found that higher temperatures did not seem to sap growth in rich countries, but did in poor ones. It is hard to compare the impact of temperature on growth in hot and cold countries directly, since there are too many variables to control for. Instead, the study compared growth in a given country during hot years with that during colder ones. It found that in poor countries, on average, higher temperatures were associated with slower growth. But some rich countries grew faster in hot years, and some in cold ones, suggesting that there was no clear correlation between temperature and growth in the developed world.

A paper published this week in *Nature* challenges this finding. The authors—Marshall Burke, Solomon Hsiang and Edward Miguel—suspected that economists had been looking for the wrong thing: a linear relationship between temperature and growth. Instead, they looked for an optimal temperature, on the assumption that excessive cold could harm growth as much as punishing heat. That is exactly what they found: hotter-than-usual years benefit countries, rich and poor alike, up to an average annual temperature of 13°C, after which hotter weather begins to sear growth. That allowed them to draw inferences about the likely effect of climate change: for Brazil, for example, an increase in temperature of 3°C will lead to a fall in output of 3% (see chart).

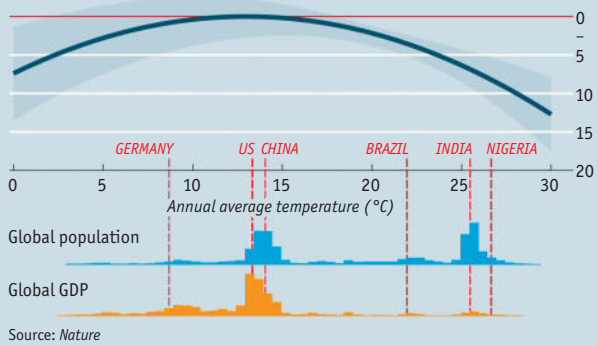
The apparent heat resistance of rich countries, it turns out, is simply because some of them, such as Germany and France, lie on the colder side of the optimum, so grow faster in hotter years, whereas others, such as America and Australia, lie on the hotter side, and so wilt as temperatures rise. Within individual counties in America, for instance, every hot day (with an average temperature over 24 hours of 24-27°C) lowers the average income per person that day by 20%, according to a working paper from the National Bureau of Economic Research by Mr Hsiang and Tatyana Deryugina. Very hot days (over 30°C) lower income per person by 28%. Looking at the average impact of rising temperatures in rich countries as a group had obscured such strong responses.

Ironically, the fact that global temperatures are changing has prompted some economists to question these results, since it means there is no firm baseline for comparison. But there is plenty of evidence for an optimal temperature at the micro level. Crops, for example, flourish when it is neither too hot nor too cold. Workers, too, do better in mild settings. The British navy commissioned the first research on temperature and productivity in the 1940s. In one experiment, Morse-code operators were placed in rooms of varying temperature. Those in rooms heated to 40°C made more than ten times more errors than those in rooms that were 30°C.

In a similar vein, a paper published in the *Journal of Labour Economics* last year found that American workers in construction, manufacturing and transport knocked off earlier when the temperature rose above 29°C, working an hour less per day on average. As the incidence of hot days increases, either more workers will be needed to finish the same project, or workers will need to be paid more to persuade them to stay on, just as workers are paid extra for the inconvenience of night shifts. Industries in which workers are exposed to the weather employ 28% of America's workforce, according to a recent study looking at how climate change will affect America's economy.

Cold comfort

Projected impact of changes in temperature on GDP per person, %



Source: *Nature*

Cool but costly

Countries can try to mitigate the effects of warming, but cooling things down is expensive. In Singapore, air conditioning consumes 40% of the power used in buildings. If nothing is done to stop global warming, the world will see an 83% increase in electricity consumption between 2010 and 2100, due simply to greater use of air conditioning, fans and refrigeration, according to a paper published in the journal PNAS in March by Lucas Davis and Paul Gertler. Richard Tol of the University of Sussex points out that homes and offices in cold countries are built to conserve heat, with large south-facing windows. Refurbishing such buildings could help keep people cool, but at great cost.

There are many other ways, of course, that global warming will harm rich countries besides falling productivity tied to higher temperatures. Climate change will not only heat up the planet, but will also lead to sea-level rises and an increase in extreme weather, such as hurricanes. Since many big cities are on the coast, they will require protection. Environmental economists have already been working for decades on Doomsday calculations, such as whether it would be better to build costly flood defences for Singapore's business district or let it be inundated.

Moreover, even if rich countries manage to fend off the worst effects of global warming, they will still feel its repercussions. Trade with more vulnerable places would decline; refugees would proliferate. The Paris climate conference this December is supposed to come up with policies to avoid such outcomes. The new findings on the baleful impacts of high temperatures should give rich countries an extra incentive to compromise. ■

* Studies cited in this article can be found at www.economist.com/heat15

Economist.com/blogs/freeexchange

Fusion power

Stellar work

Also in this section

Research into fusion has gone down a blind alley, but a means of escape may now be at hand

IN THE winter of 1968 three British physicists went to Moscow to examine a machine called a tokamak. This fusion reactor was a newly devised competitor to America's approach to fusion, known as the stellarator. The Russians said the tokamak left the stellarator in the dust. The Americans demurred. But the British found that the Russians were right. The tokamak was far better than the stellarators of the day at holding in place the hot soup of atomic nuclei and electrons, called plasma, that is fusion's fuel. Stellarators thus dwindled, and the tokamak became the preferred way to try to turn fusion into a practical and useful technology.

Fusion's promise was of copious, safe, clean power generated from deuterium, a heavy isotope of hydrogen that makes up about 0.016% of the "H" in "H_2O", and tritium, an even heavier form of hydrogen that can be made easily from lithium. Fusing deuterium and tritium generates helium (and also a neutron), together with a lot of energy. But that promise has not been fulfilled. An old joke—that commercial fusion is 30 years away, and always will be—is more true than funny. The latest tokamak, the International Thermonuclear Experimental Reactor, or ITER, being built in France, will (according to current plans) open for fusion a decade late, in 2027, at a cost of at least $15 billion. That is more than twice the original price tag. No one seriously expects a commercial successor before the middle of the century.

In recent years, though, something curious has happened. The sidelined stellarator has started to make a comeback, as computing power almost unimaginable in the 1960s has been brought to bear on the difficulties that dogged it. There is no guarantee that it will now succeed where the tokamak failed. But real hope, rather than the fingers-crossed-behind-the-back sort, is coursing through the fusion fraternity. For, in November, a German stellarator called the Wendelstein 7-x will start operating. And the Wendelstein 7-x is the first stellarator which can, according to that computing power, create perfectly the magnetic fields required for fusion.

The ideal and the good

Atomic nuclei are positively charged. Like charges repel. It is therefore hard to force two nuclei into sufficient proximity for the strong nuclear force, which holds nuclei together, to exceed the repulsive power of electromagnetism—thus permitting the nuclei in question to fuse into one. Temperatures of millions of degrees are needed to make nuclei move too fast for the repulsion to matter. High pressure, to concentrate them and increase the chances that they will encounter each other, also helps.

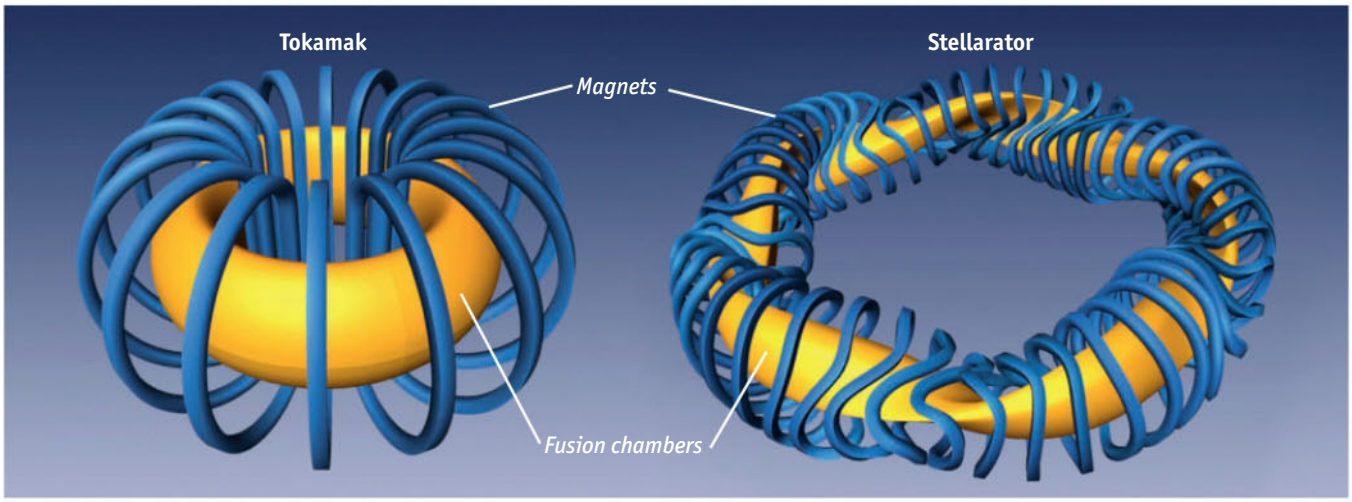
Controlling such hot, pressurised plasma—in particular, bottling it up so that it cannot touch the wall of its chamber and thus lose heat (and also damage the wall)—requires magnetic fields. If these fields are not perfect, the plasma will leak out.

Tokamaks, which have hollow, doughnut-shaped fusion chambers, do their bottling with two magnetic fields. One is generated by superconducting electromagnets that loop around the chamber and through its central hole (see diagram). The other comes from an electrical current induced in the plasma itself. This simple combination creates magnetic lines of force that corkscrew around the plasma, confining it as a smaller doughnut-within-the-doughnut. Cranking up the fields' strengths creates an ever-denser doughnut, which increases the plasma's temperature and pressure until it reaches the point where the nuclei within can fuse.

The price paid for a tokamak's simplicity, though, is that the field weakens towards its outside edge, and its lines of force tend to drift. The plasma drifts with them and, as a result, sometimes touches the chamber wall. By contrast, the fusion chamber of a stellarator and the magnets that surround it look like something Gaudí might have imagined: a mess of twists, turns and asymmetries. In theory, this complexity means that drift in one part of the chamber is offset in another, differently oriented part. On a full circuit of the chamber, the plasma is squeezed evenly all the way around.

In the 1960s designing and building stellarators was an art-form as much as a science. Hence the preference for tokamaks. But supercomputers and precision engineering have changed that. The reasons for preferring tokamaks to stellarators may thus have vanished. The Wendelstein 7-x will be the test of this.

Fingers will still be crossed, of course. Computer models are not reality, as an American project called the National Igni- ▸▸



Fusion startups

Nuclear proliferation

Can private enterprise do for fusion what governments cannot?

FOR six decades, research into fusion power has been ruled by giant national and international projects that have failed to turn a penny of revenue, let alone profit (see previous article). Not, you might think, promising territory for entrepreneurs. But if you did think that, you would be wrong. The past few years have seen the appearance of a sprinkling of firms that claim to know how, given an appropriately open cheque book, to overcome the problems that the bureaucracy and group-think of the established endeavours cannot.

Some of these startup ventures have raised only enough money to keep garage-scale efforts ticking over. Others have attracted considerable sums. Steven Cowley, the boss of Britain's Atomic Energy Authority, reckons there is more than $450m of private investment in various schemes around the world, and in May ARPA-E, an American government agency, put $30m more into the pot. None of the startups, in truth, is likely ever to construct a commercial-scale reactor. But their journeys may unravel bits of thorny plasma physics, or discover elegant engineering tricks, that help others to do so. They may thus reap rewards for their shareholders indirectly, via the patent system.

Freed from the constraints of mainstream thinking, the imaginations of the physicists and engineers behind these startups can run riot. Some propose new ways of tweaking the fields at the heart of magnetic confinement: dense plasma focuses, field-reversed configurations, magnetic mirrors, polywells and spheromaks are all bits of jargon that often pop up. Others seek to tweak the design of tokamaks, the current workhorses of the field. A version that resembles a cored apple rather than a doughnut (the most common shape) looks promising.

Some want to give their gizmos different wrappings. Several groups are looking into magnets made of "high-temperature" superconductors, that operate at the temperature of liquid nitrogen, rather than the liquid helium now used. And a couple of companies are re-imagining the physics of fusion altogether, by advocating unusual fuels or exotic reactions that involve unstable particles called muons.

The most common schemes, though—and the ones being paid for by ARPA-E—belong to a class called magnetised-target fusion. These use magnets to wrangle the plasma before bashing it with huge pistons or the like to compress it to the point where fusion can take place.

There is, then, no shortage of ideas. But there is still a credibility gap. The history of government projects shows it is easy to get promising early results from some clever piece of apparatus, and use these to suggest that, with only a bit more work or investment, success is assured. Usually, it isn't.

Another trap is scale. A lot of startups have designs that are small, and therefore look cheap. Again, though, history shows that what starts off small rarely stays that way. Fusion energy, if it can be made to work at all, may simply be impossible on a small scale. But "venture capitalists don't want you to say it's going to cost five billion," says Stephen Dean, an old hand in the field who now runs a foundation called Fusion Power Associates. "They want you to say five million, and there's a tendency to tell them that."

tion Facility has discovered to its cost. (NIF is designed to carry out what is called "inertial confinement", by hitting pellets of frozen deuterium and tritium hard with lasers, to heat and compress them at the same time. It fits its design specifications perfectly, but still refuses to generate more energy than it consumes.) Earlier experiments with a smaller stellarator do however mean that the machine's masters at the Max Planck Institute for Plasma Physics are pretty confident.

Even if the Wendelstein 7-X does perform as predicted, though, the behemoth that is ITER will not go away. The fallacy of sunk costs and the national pride of the host and the other participants in the project will see to that. But ITER may find itself relegated from being the flagship of fusion to acting as a proving ground for technology, such as neutron-resistant materials, that ends up being used in stellarators.

None of this, meanwhile, answers the question of why fusion power is needed at all. Even if stellarators work well, the 30-year rule, or something pretty close to it, is likely to apply. And, by the middle of the century, the world's energy landscape will probably look completely different from now. Perhaps there will, indeed, be a gaping hole in supply that only fusion can plug. More likely, cheap photovoltaic and energy-storage technology will mean that much of humanity's energy comes from a different fusion reactor—one 150m kilometres away, called the sun. ■

Birth order and intelligence

Who's the number one son?

First-born children are different, but not as different as some once suspected

IN 1874 Francis Galton, a British polymath, analysed a sample of English scientists and found the vast majority to be first-born sons. This led him to speculate that first-born children enjoyed a special level of attention from their parents that allowed them to thrive intellectually. Half a century later Alfred Adler, an Austrian psychologist, made a similar argument relating to personality. First-born children, he thought, were more conscientious, while the later-born were more extrovert and emotionally stable. Many subsequent studies have explored these ideas, but their findings have been equivocal—some supporting and some rejecting them. Now a team led by Stefan Schmukle of the University of Leipzig, in Germany, has collected the most comprehensive evidence on the matter yet. Its conclusion, just published in the *Proceedings of the National Academy of Sciences*, is that Adler was wrong, but Galton may have been right.

The main problem with previous studies is that they have been, in several ways, too small. This would be true even if the statistics needed to analyse them were simple, but they are not. Distinguishing birth-order effects from those caused by family size complicates matters, meaning still bigger samples must be analysed to obtain meaningful results. And one particular approach often used, interviewing individual family members about themselves and their siblings, has generally been restricted (for reasons of cost) to one

interview per family, with researchers using these lone interviews to collect all the information they need. Not only does this restrict the sample size, it also introduces an obvious source of bias.

To try to end the confusion, Dr Schmukle and his colleagues analysed three huge sets of data from America, Britain and Germany. These data sets, though collected for other purposes, included personality and intelligence tests run on 20,186 people at different stages of their lives. The American tests were on those aged between 29 and 35. The British tests were conducted on 50-year-olds. The German tests ran the whole span of adult life, from 18 to 98.

Dr Schmukle and his colleagues knew that the large numbers involved meant they stood a good chance of detecting even quite small birth-order effects on personality or intelligence, if they existed. They also knew that, by working with surveys from three countries, and with such a wide range of ages, they would diversify the data and iron out confounding variables.

Birth order, they found, had no effect on personality: first-borns were no more, nor less, likely than their younger sibs to be conscientious, extrovert or neurotic. But it did affect intelligence. In a family with two children, the first child was more intelligent than the second 60% of the time, rather than the 50% that would be expected by chance. On average, this translated to a difference of 1.5 IQ points between first and second siblings. That figure agrees with the consensus from previous studies, and thus looks confirmed.

It is, nevertheless, quite a small difference—and whether it is enough to account for Galton's original observation is moot. In any event, it is clearly not deterministic. Galton was the youngest of nine. ■

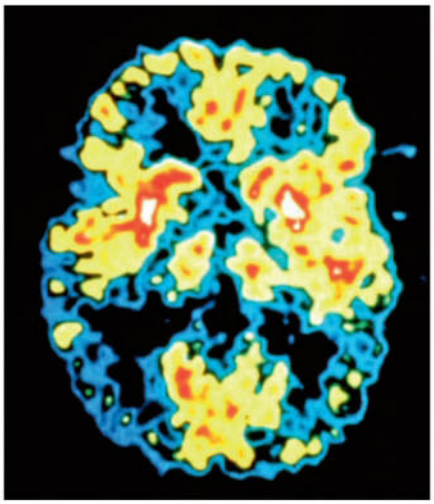
Alzheimer's disease

Fungus, the bogeyman

A curious result hints at the possibility dementia is caused by fungal infection

LIKE cancers and heart disease, Alzheimer's is a sickness of the wealthy. That is because it is a sickness of the old. A study carried out in Spain in 2008 suggested that the risk of developing it doubles for every five years you live beyond 65. A richer world means a longer-lived world—and that, in turn, means a world which will suffer more and more from dementia. At least 40m people are thought to be affected by it already. The true number is likely to be higher, as many sufferers, particularly in the early stages of the disease, have yet to be diagnosed.

What actually causes Alzheimer's disease, though, is obscure. Workers in the field know that tangles and plaques of misshapen proteins play a big role. These accumulate in and between nerve cells, eventually killing them to create voids in the brain (see picture). It may be that the accumulation of these proteins is merely a biochemical ill to which human flesh is unfortunately heir, and which is a normal (if unwelcome) consequence of ageing. But some researchers doubt that, and are searching for external causes. There is evidence, in varying degrees, for everything from bacterial or viral infections, via head injuries to smoking. But a paper just published in *Scientific Reports* adds another possibility to the pot. A group of researchers led by Luis Carrasco of the Autonomous University of Madrid, in Spain, have raised the idea that the ultimate cause of Alzheimer's is fungal.



Scarred by fungi?

Dr Carrasco and his team examined brain tissue from 25 cadavers, 14 of which belonged to people who had had Alzheimer's disease when alive. The other 11 (who had an average age of 61, versus 82 for the Alzheimer's sufferers) had been Alzheimer's-free. That may sound like a small sample from which to draw conclusions, but the signal the researchers found was overwhelming. Every single one of the Alzheimer's patients had signs of fungal cells of various sorts growing in his or her neurons. None of the Alzheimer's-free brains was infected.

Assuming Dr Carrasco and his team have made no methodological errors (and there is no suggestion that they have), then the question is one of causation. Do fungi usher in the disease, or does the disease usher in the fungi? An observational study like this cannot answer that question. But Dr Carrasco and his colleagues point out that what is known about Alzheimer's fits with what is known about fungal infections. Alzheimer's progresses slowly, as do untreated fungal infections. Alzheimer's patients exhibit signs of inflammation and an aroused immune system, which fungal infection might be expected to trigger. And the damaged blood vessels observed in many people with Alzheimer's fit with Dr Carrasco's observation of fungus growing in these vessels.

If fungal infection did turn out to be responsible for Alzheimer's, that would be excellent news. Medicine already possesses plenty of anti-fungal medications that could be raided to produce anti-Alzheimer's drugs. But Dr Carrasco's evidence, while intriguing, is far from conclusive. John Hardy, a neuroscientist at University College, London, points out that one (albeit rare) cause of Alzheimer's is well-understood. In a few unlucky families the disease appears to be an inherited disorder, caused by mutations of one of three genes. If a fungal infection were the ultimate cause, then those genetic mutations would have to make their carriers so susceptible that 100% of them end up infected, something he believes is unlikely. And the very clarity of Dr Carrasco's result also makes Dr Hardy suspicious.

If that result is right, though, it is still possible that the correlation runs the other way, with Alzheimer's opening the brain to fungal infection. After all, says Ian Le Guillou of the Alzheimer's Society, a British charity, the disease is thought to damage the blood-brain barrier, an immunological shield which keeps the brain safe from pathogens and toxins. The presence of fungi might merely reflect a greater susceptibility to infection.

Dr Carrasco and his team think a clinical trial of anti-fungal drugs is the next logical step. But there is yet another possibility. In the absence of a definitive ultimate cause, it may be that the symptoms of Alzheimer's disease can arise from many different types of insult to the brain. There have been several papers, says Dr Le Guillou, that have found correlations between various infectious organisms and Alzheimer's. "It could be a bit like the Mississippi river," says Dr Hardy. "You can start in all sorts of places, but eventually you're going to end up in New Orleans." If Alzheimer's is a general response to all sorts of neurological triggers then it may be that the fungal infections found by Dr Carrasco are simply one of a long list of causes. ■

Quantum theory

Hidden no more

One of the weirdest bits of physics is proved beyond doubt (almost)

IN THE 1930s Albert Einstein was greatly troubled by a phenomenon that came from quantum theory. Entanglement, as it is called, forever intertwines the fates of objects such as subatomic particles, regardless of their separation. If you measure, say, "up" for the spin of one photon from an entangled pair, the theory suggests that the spin of the other, measured an instant later, will surely be "down"—even if the two are on opposite sides of the galaxy. This was anathema to Einstein and others: it looked as if information was travelling faster than light, a no-no in the special theory of relativity. Einstein was quotably derisive, calling the idea "spooky action at a distance". But after 80 years of physicists' fretting, a cunning experiment reported this week proves that such action is in fact how the world works.

To save physics from the spooky, Einstein invoked what he called hidden variables (though others might describe them as fiddle factors) that would convey information without breaking the universal speed limit. It took until 1964, though, to tame this woolly idea into testable equations. John Bell, a British physicist, worked out the maximum effect hidden variables could have on a given test. Any influence beyond that, his equations suggested, must be down to spooky action. The Bell inequality, as it became known, sparked decades of clever experiments—sending entangled photons or atoms hither and thither with detectors triggered by this or that—each designed to catch nature out, to banish hidden variables once and for all.

Yet a number of loopholes remained—ways that hidden variables might exert some influence, though the purported mechanisms became increasingly contrived as years and experimental finesse advanced. One was the detection loophole. Reliably catching a single photon, for example, is tricky; lots of them go amiss in a given experiment. But if an experiment does not capture all of its participants, the loophole idea goes, perhaps hidden variables convey information through the missing ones. Another was the communication loophole. If the two measurements happen near enough to one another, some invisible hidden-variable signal might be passing between them (as long as that signal does not go faster than light).

Plenty of experiments have closed one or the other of these loopholes, for example by detecting particles that are more reliably caught than photons, or by sending photons so far apart that no slower-than-light signal could flit between them in time to have an effect. By now, most physicists reckon the hidden-variable idea is flawed. But no test had closed both loopholes simultaneously—until this week, that is.

Ronald Hanson of the University of Delft and his colleagues, writing in *Nature*, describe an experiment that starts with two electrons in laboratories separated by more than a kilometre. Each emits a photon that travels down a fibre to a third lab, where the two photons are entangled. That, in turn, entangles the electrons that generated the photons. The consequence is easily measured particles (the electrons) separated by a distance that precludes any shifty hidden-variable signalling.

Over 18 days, the team measured how correlated the electron measurements were. Perhaps expectedly, yet also oddly, they were far more so than chance would allow—proving quantum mechanics is as spooky as Einstein had feared.

Though this experiment marks an end to hidden variables, Dr Hanson says it is also a beginning: that of unassailably secure, quantum-enabled cryptography. It was shown in 1991 that the very Bell tests used to probe hidden variables could also serve as a check on quantum cryptography. A loophole-free Bell test, then, could unfailingly reveal if a hacker had interfered with the fundamentally random, quantum business of generating a cryptographic key. So-called device-independent quantum ciphers would, Dr Hanson says, be secure from hackers "even if you don't trust your own equipment—even if it's been given to you by the NSA".

There remains, alas, one hitch that could explain all these counterintuitive findings. Just maybe, every single event that will ever be, from experimenters' choices of the means of measurement to the choice of article you will read next, were all predetermined at the universe's birth, and all these experiments are playing out just as predetermined. That, however, is one for the metaphysicists. ■

A new Galápagos tortoise

The glory days of taxonomy, when new species from the mountains, jungles, deserts and oceans of the world fell into the hands of Western scientists on a daily basis, are long gone. But new species are still described from time to time, not least by the genetic analysis of populations that anatomists have been unable to separate. So it is with the tortoises of Santa Cruz, second largest of the Galápagos Islands, whose two isolated groups may or may not have been separate species. That they are has just been confirmed, in a paper in *PLOS ONE*, by Adalgisa Caccone of Yale University and her colleagues. Their study found that the two are at least as genetically distinct as Galápagos tortoise species from different islands. Dr Caccone has dubbed members of the smaller, eastern population *Chelonoidis donfaustoi*, to distinguish them from *Chelonoidis porteri*, a name now reserved for tortoises on the island's west side. She named them after Fausto Llerena Sánchez, a retired park ranger (pictured, with one of the newly described species) who helped preserve the archipelago's tortoises.

Correction: In "Eradicating disease", a leader published on October 10th, we said that Hepatitis C has no silent carriers. This is not the case, making early diagnosis harder, and the task of eradication trickier.

Also in this section

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The long 17th century

Understanding the universe

An intellectual and cultural revolution gave birth to modern science

The Invention of Science: A New History of the Scientific Revolution. By David Wootton. *Allen Lane; 769 pages; £30. To be published in America by Harper in December; $35*

SUPPOSE you had been born in Europe in 1500. You would have grown up on a globe that was thought to be at the centre of a fairly small, coherent cosmos, in which every natural body had its designated place. And you would have lived your life embedded in a complex web of sympathies, antipathies, correspondences and harmonies. Now suppose that you were born just 200 years later. Your world would be utterly different. The Earth would be in motion around the sun, a terrifyingly tiny dot somewhere in a universe of infinite size. The witch trials would be retreating into memory and your local wizard more likely to be laughed at than burned. Science would be a commodity: you would get yours by reading printed journals in coffee houses.

In a period when Europe underwent a number of profound, convulsive changes, this was perhaps the most important of all. The relationship between humanity and nature was transformed in every way, with consequences that people are still coming to terms with today. Since the mid-20th century this shift has been called "the scientific revolution". Explaining it is one of the most necessary, difficult and challenging tasks a historian can take on. Many have, and the curious reader can choose from half a dozen books that address different perspectives. David Wootton's is a redoubtable addition to the pile.

Mr Wootton, who has written widely on the history of political thought, brings the skills of the intellectual historian to his subject. Admirably sceptical of received interpretations, he is adamant that going back to contemporary sources, both celebrated and obscure, is the only way to detect most of the developments that gave rise to modern science. He is particularly interested in the appearance of new words—terms that were invented or appropriated by innovative mathematicians, physicians and philosophers, like discovery, experiment, fact, evidence, theory, and, in the end, even science. By looking in detail at when and how these were adopted into the sciences, Mr Wootton claims to be able to describe the advent of science itself with remarkable precision.

Modern science was invented, he asserts, between 1572 and 1704. It began the year that a young Danish nobleman, Tycho Brahe, saw a new star in the constellation of Cassiopeia and was able to show that it shone far above the orbit of the Moon. That should have been impossible—whoever heard of stars appearing out of nowhere? Brahe made astronomers confront the possibility that even the heavens could change. He followed this up by inaugurating a sustained and painstakingly accurate programme of monitoring at his palatial observatory of Uraniborg, turning astronomy into what Mr Wootton calls the first modern science.

Other people went on to produce one telling fact after another, making it all but impossible to go on believing the old truths. The phases of Venus, revealed by Galileo, were perhaps the most important, because they proved that a planet orbited the sun rather than the Earth. Then Blaise Pascal, a French mathematician and philosopher, showed that the height of mercury in a barometer reflected the weight of the atmosphere, not nature's abhorrence of a vacuum, as claimed by Aristotle. Isaac Newton demonstrated that white light was composed of a mixture of differently coloured rays, overturning received understandings of light and vision. It was Newton's publication of this "crucial experiment" and its many consequences in his "Opticks" of 1704 that set the seal on the new conception of nature.

In this short period—just four generations—a radically new enterprise had come into being. It was practical and mathematical at its core and based in a community that transcended nation, confession and language. It was dedicated to the continuing discovery and testing through experimentation of new facts that might not be true for all time, but would be reliable and robust. And it relied on the printing press, a new technology. Established once and for all by the early 18th century, this enterprise not only triggered the Industrial Revolution that created the modern world, but flourished essentially intact into the present time. Indeed, Mr Wootton predicts, it is destined to remain intact for good, for the simple reason that, as he puts it with emphatic capitalisation, "Science Works".

Does Mr Wootton's account itself work? Almost. "The Invention of Science" is full of insights, and even jaded scholars will find it fresh and compelling. What is not clear is whether this book is for everyone else. Mr Wootton is a characterful writer, and a pugnacious one. His story is suffused with attacks on every notable historian of science to have written in the past half-century. A glutton for the punishment of others, Mr Wootton is content to aim at any target. But he is particularly exercised by what he portrays as historians' dogmatic insistence on a kind of callow relativism, according to which people are free to believe whatever arbitrary assertion they come up with. He believes that he must rescue the scientific revolution from such foolishness. Connoisseurs of professorial cattiness may relish the performance at first, but what is fun for the first 50 pages becomes tiresome when pursued for almost 800. Had all this been excised and published as a separate book, then "The Invention of Science" would have been the best account of its subject on the market. Alas, it wasn't; so it isn't. ■

20th-century letters

Prince of poetry

Ted Hughes: The Unauthorised Life. By Jonathan Bate. *Harper; 662 pages; $40. William Collins; £30*

APPROPRIATELY for one born in the small, remote Yorkshire village of Mytholmroyd and who translated classical writers such as Euripides and Ovid, Ted Hughes was obsessed by the power of myth; and it had a crucial impact on his life and on his work. In a magisterial new biography Sir Jonathan Bate, professor of English literature at Oxford University, likens the poet's life to a Greek tragedy, with the death of Hughes's first wife, Sylvia Plath, as the first of a series of devastating events. Plath's suicide, in 1963, was followed six years later by that of Assia Wevill, who had succeeded her in Hughes's affections; and she took their four-year-old daughter with her. That same year another former lover died of cancer; his mother, too, Hughes believed, of shock. Finally, 11 years after his own death in 1998, his adored son Nicholas took his life, "the one thing that would have destroyed him."

The scandal that arose from the circumstances of Plath's death and Hughes's well-founded reputation as a promiscuous and energetic lover created a bitterness on both sides of the Atlantic that was to pursue him until the acclaimed publication of his final volume of verse, "Birthday Letters", a few months before he died. This moving account of his seven years with Plath, an American poet who was a flawed figure with a history of mental illness, evoked sympathy and some degree of closure. The suggestion that multiple infidelities were a form of fidelity to Plath may sound like special pleading but there is no doubt that she was the great love of Hughes's life—the Cathy of "Wuthering Heights" to the Heathcliff of his native moors—and that her ghost was with him to the end.

In his poetry Hughes was torn between the mythic "vision" of Coleridge and the elegiac "authenticity" of Wordsworth. A keen observer of the natural world, an "eco-warrior" in later life, he moved from work steeped in myth, claw and cage, a harsh, monosyllabic world of hawk, pike and crow, to poetry of a more reflective nature. Throughout he was deeply influenced by his early reading of Carl Jung and Robert Graves's "The White Goddess" as "Muse, the Mother of All Living, the ancient power of fright and lust."

Sir Jonathan is thorough. He has spent five years in the archives and examined 100,000 pages of manuscripts. Hughes told his long-suffering second wife Carol, about whom the reader hears little, that he did not want an authorised biography; ▸▸

Stare of an eco-warrior

Physics

The universe, writ small

Seven Brief Lessons on Physics. By Carlo Rovelli. Translated by Simon Carnell and Erica Segre. *Allen Lane; 83 pages; £9.99*

ACADEMICS are not known for brevity in writing. And physics does not lend itself to pithy introductions. What a surprise, then, that "Seven Brief Lessons on Physics" by Carlo Rovelli, a theoretical physicist, has been such a success. It began life in an Italian newspaper, *Il Sole 24 Ore*, as a series of breezy introductions to some of the densest corners of physics. Now the diminutive volume has become a bestseller in its native Italy.

It is a startling and illustrative distillation of centuries of science. Simon Carnell and Erica Segre, a poet-and-translator pair, have preserved the book's lyrical and stripped-down prose. Early chapters that describe more settled science are intense and flavourful reductions. Mr Rovelli moves elegantly between illustrative metaphors, without ever mixing or belabouring any of them. Outlining contemporary debates, he is a bit more expansive. The closing chapter, the longest, reflects on what it all means for the reader. Outward-looking cosmic questions turn inward, to the philosophy of science, to free will, to the meaning of self. Armed with a view of themselves in a seething milieu of particles careening around a stretchy space-time, readers are reminded they are "an integral part of the world which we perceive"—not at all central, but integral.

Just occasionally, the author fails to distinguish between those areas on which there is consensus and those on which he has particular ideas. Thus, in a chapter on the effort to unify general relativity (Albert Einstein's masterwork that describes gravity) with quantum mechanics (which describes just about everything else in the universe), Mr Rovelli outlines only the theory he himself helped to found, without much mention of rival explanations.

No matter: as Mr Rovelli himself has said, ideas are cheap. The book's triumph lies not only in presenting some of the headiest stuff science has produced in so few pages, but also in giving real insight into how science treats those ideas. It conveys fully both the frustration and the promise of those questions not yet answered. Mr Rovelli recounts several brilliant insights rejected in their youth and later celebrated. He also describes frontiers of science that are "incandescent in the forge of nascent ideas" and hints at experiments that will resolve the mysteries that remain. In the book's closing line he—rightly—deems this landscape breathtaking.

though there were hints to his sister Olwyn that spoke otherwise. Initially Sir Jonathan had Mrs Hughes's co-operation, but then, concerned that a "literary life" might be turning into a full-blown biography, she withdrew it. Hence the subtitle "The Unauthorised Life", a term which can also be taken as descriptive of an unbridled existence governed by passion and sense of vocation rather than social convention.

Correct though they may be, Sir Jonathan's sweeping assertions—"Lupercal" is "without doubt" Hughes's "best and most characteristic volume of poetry"; Coleridge's "Frost at Midnight" is "the loveliest poem in the English language"—and his scorn for reviewers by whom things were "unobserved" can grate, as does his talk of "lovely little" books. However, he writes with sympathy and perception about Hughes and his poetry, and displays tact in shielding the identity and feelings of several of those caught up in the maelstrom of the poet's life. No doubt there will be further and fuller biographies of Hughes once all those involved are dead. This fine book tells readers as much as they need to know for now. ■

Dark days of the 1940s

Re-examining the Holocaust

Black Earth: The Holocaust as History and Warning. By Timothy Snyder. *Tim Duggan Books; 462 pages; $30. Bodley Head; £25*

"A HISTORY of the Holocaust must be contemporary," writes Timothy Snyder in the prologue to "Black Earth", an impressive reassessment of the Holocaust, which steers an assured course between two historical traps. It is a mistake to see the Nazi genocide as an event too unique to be rooted in the past or to have relevance to the present. Yet it is also wrong to flatten the singularity of the deliberate mass murder of Europe's Jews into a general warning against racism or xenophobia.

Mr Snyder, a professor of history at Yale University who specialises in central and eastern Europe, begins by showing the Darwinian, deterministic thinking behind Adolf Hitler's ideal world. Superior races (Germans, British and Americans) were in a ruthless contest with lesser races for territory and natural resources. Even to consider a world in which human beings could live harmoniously side by side was in the words of "Mein Kampf", "un-nature".

In Hitler's universe the Jews were an alien "counter-race", whose unnatural beliefs included dangerous and subversive politics. For the good of the planet, therefore, Jews must be removed from the face of the Earth, though it would have been little comfort to the murdered millions to know that they were being shot and gassed for ecological, rather than racial reasons. Another of Mr Snyder's insights is that the Holocaust intensified as military success became more distant: having failed to vanquish the Soviet Union, the Nazis took extermination as a consolation prize.

When things turned really nasty

One of the most controversial arguments in Mr Snyder's book is the contention that absence of state structures, and the lack of legal status that ensued, aided the executioners. Jews were most vulnerable in places where citizenship, identity, protection, the right to property and ultimately life were no longer guaranteed by any kind of legal and bureaucratic structure. In France and Italy, where national governments continued more-or-less to function under occupation, three-quarters of the Jews survived. In eastern territories, which suffered "double occupation", first by the Soviets under the Molotov-Ribbentrop pact and then by the Nazis, at least 90% of them perished.

"Black Earth" will prove uncomfortable reading for many who hew to cherished but mythical elements of Holocaust history. It highlights how Stalinist policies paved the way for Nazi extermination. After the war, the Soviets often portrayed Jews as "victims of fascism", glossing over how communist cadres had often been the first collaborators, proving their loyalties to their new masters by murdering Jews. Mr Snyder also argues convincingly against the left-wing view that the Holocaust stemmed from imperialism, or the failures of bourgeois capitalism.

The weakest parts of Mr Snyder's book are the environmental and political prescriptions. Global warming does not have much to do with Hitler's dementedly brutal ecological thinking. Comparisons between Nazi propaganda and the current vogue for conspiracy theories in Muslim countries, that hold Israel responsible for most of the wrongs in the Middle East, are not conclusive. Paranoia and myth-making long predate Hitler.

Thinking about the Holocaust should not be easy. Mr Snyder's flawed but powerful book challenges readers to reassess what they think they know and believe: a worthy memorial to the victims. ■

The Chicago school of economics

Going off the rails

Chicagonomics: The Evolution of Chicago Free Market Economics. By Lanny Ebenstein. *St Martin's*; 278 pages; $29.99

SINCE its foundation in 1890, the University of Chicago has built a world-class reputation for economics. Since 1969 it has produced no fewer than 28 winners of the Nobel prize for economics, including Friedrich Hayek, Milton Friedman and George Stigler, far outnumbering any other institution. Its policy prescriptions—favouring freer markets and the strict control of the money supply—are seen as having dominated economic policy across the developed world since gaining favour under Ronald Reagan in America and Margaret Thatcher in Britain.

Since the financial crisis, however, the "Chicago school" of ideas has looked to be in retreat, at least in policy terms. The collapse of Lehman Brothers in 2008 brought the state back into economics on a grand scale in the form of bank nationalisations, fiscal stimulus and a huge increase in the money supply using quantitative easing. This year has also seen the spectacular rise

of left-wing populists—from Syriza in Greece and Jeremy Corbyn in Britain to Bernie Sanders in America—blaming "neoliberal ideas" for problems such as real-wage stagnation and rising inequality.

"Chicagonomics", a new book by Lanny Ebenstein, a prolific author on the history of economic thought, sets out to investigate the history of the Chicago school of economics, to see what can be learnt for today from its past. The author chronicles the intellectual history of what began life in the 1890s as the Department of Political Economy. Before the 1940s, Chicago's professors were much closer to the liberalism of British political economists such as Adam Smith, Jeremy Bentham and John Stuart Mill than the libertarianism of Hayek and Friedman in the 1980s and early 1990s. Mr Ebenstein looks at the ideas of scholars such as Jacob Viner and Frank Knight, and concludes that while they favoured individual freedom, their policy prescriptions did not exclude government action. Both perceived Smith as justifying the state intervening in the economy at times, such as with the provision of infrastructure, education for the young and the funding of arts, culture and science.

By the 1940s, the use of redistribution to ensure that everyone had a basic standard of living was accepted by most Chicago economists. For instance, Henry Simons, when he worked at Chicago between 1939 and 1946, set out how redistribution, by diffusing economic power in a society, was necessary in a free society. Even Hayek, in his libertarian polemic of 1944, "The Road to Serfdom", supported the use of environmental regulation and state-run social-insurance systems.

After they retired Hayek and Friedman became deeply libertarian. Mr Ebenstein says "the virtual neoanarchism that both preached" later on placed them "outside the classical liberal tradition". Hayek argued that citizens should have the right to have their taxes refunded if they did not consume government services and Friedman railed "against government at almost any time". Both enjoyed being in the limelight, even though their views did not fit with their earlier scholarly work. Mr Ebenstein bemoans the current popular perception of the Chicago school, as well as conservatives' embrace of it, as based on these more extreme later utterances.

Mr Ebenstein does not go into it, but of course, left-leaning economists, as well as conservative ones, sometimes also trade in their academic lecterns for political soapboxes. Yet Mr Ebenstein's book does a fine job of differentiating classical liberalism from libertarianism, a nuance now lost in a world where populists seek to brand all free-market thinking with the catch-all label "neoliberal". For that reason alone, the book deserves to be read by all those with an interest in economic policy. ■

Orhan Pamuk

The migrant's story

A Strangeness in My Mind. By Orhan Pamuk. *Knopf; 599 pages; $28.95. Faber & Faber; £20*

ORHAN PAMUK'S new novel, "A Strangeness in My Mind", has been six years in the making. A quiet saga of migrant experience, it follows an easy-going if somewhat melancholy fellow, Mevlut Karatas, from his arrival in late 1960s Istanbul to his coerced relocation under the ruling Justice and Development party's urban-transformation projects of the 2010s.

Looking this time through an outsider's lens, Mr Pamuk once again explores the familiar themes from his previous novels: the social and cultural complexities and personal histories that have shaped Istanbul into the multilayered city it is. "A Strangeness in my Mind" traces the lives of the Aktas and Karatas families from central Anatolia over five decades as they adjust to living in the slum outskirts of 1970s Istanbul. The protagonist, Mevlut, sells yogurt in the street by day, *boza*—an Ottoman fermented wheat beverage—by night. He clings to his *boza* profession with an air of sanctity, yet can only observe as his clientele and his friends (Istanbul house guards, Anatolian kitchen boys and Greek dowagers) dwindle into a thing of the past. As time, politics and social change wash over him, his one constant is his wife Rayiha: a marriage of happy accident as his real love interest when he was young lay elsewhere.

The rich backdrop to Mevlut's fumbling efforts at "making it" in the big city is Istanbul's changing landscape. As Anatolian cultures slowly displace the Greek and Armenian heritage that was part and parcel of old Istanbul, tensions flare among the new migrant communities of left-wing Aleviite Kurds and Turkish nationalists. Mr Pamuk also nods to the building boom that created so many construction millionaires out of migrant families who unofficially claimed land in the suburbs through speedy makeshift builds and questionable documentation. He chooses multiple perspectives over moral judgment, which allows him to focus on the inner lives of his characters as they shape the city that, in turn, shapes them. Some of the most memorable chapters are interior monologues from women who, every day, must negotiate defiance and deferral to their men and their in-laws.

Although the migrant experience opens up a new literary vista for Mr Pamuk, he largely returns to what he does best: exploring the inner turmoil of his characters against a background of *huzun*, the strangely pervasive melancholy of Istanbul, and coaxing these fragments into a textured and rewarding narrative. ■

Monotheism at the British Museum

The exact moment when humans moved from a world of many deities to worshipping just one god has long been the subject of fierce argument. But nowhere can the transition be better studied than in Egypt, where the arid air and centuries of accumulated trash have left a rich lode of papyri, sculpture, jewellery and textiles offering details of religious life among rich and poor alike. "Egypt: Faith after the Pharoahs", which opens on October 29th, uses objects such as the fifth-century ivory pyxis of Daniel in the lion's den (pictured) to tell the rich and complex story of how Egypt, a cultural crossroads, came to be transformed over 12 centuries by Jews, Christians and Muslims.

Fellowships

Economic data

% change on year ago

	Gross domestic product			Industrial production	Consumer prices		Unemployment	Current-account balance		Budget balance	Interest rates, %	Currency units, per $	
	latest	qtr*	2015†	latest	latest	2015†	rate, %	latest 12 months, $bn	% of GDP 2015†	% of GDP 2015†	10-year gov't bonds, latest	Oct 21st	year ago
United States	+2.7 Q2	+3.9	+2.5	+0.4 Sep	nil Sep	+0.3	5.1 Sep	-429.0 Q2	-2.5	-2.6	2.06	-	-
China	+6.9 Q3	+7.4	+6.8	+5.7 Sep	+1.6 Sep	+1.6	4.0 Q2§	+287.8 Q2	+3.1	-2.7	2.93§§	6.35	6.12
Japan	+0.8 Q2	-1.2	+0.7	-0.4 Aug	+0.2 Aug	+0.7	3.4 Aug	+118.8 Aug	+2.8	-6.8	0.32	120	107
Britain	+2.4 Q2	+2.6	+2.5	+1.9 Aug	-0.1 Sep	+0.1	5.4 Jul††	-149.2 Q2	-4.8	-4.4	1.87	0.65	0.62
Canada	+1.0 Q2	-0.5	+1.1	-1.1 Jul	+1.3 Aug	+1.2	7.1 Sep	-48.5 Q2	-3.0	-1.8	1.46	1.31	1.12
Euro area	+1.5 Q2	+1.4	+1.5	+0.9 Aug	-0.1 Sep	+0.1	11.0 Aug	+353.4 Aug	+2.8	-2.1	0.57	0.88	0.79
Austria	+0.5 Q2	-2.6	+0.7	+1.3 Jul	+0.7 Sep	+1.0	5.7 Aug	+10.7 Q2	+1.2	-2.1	0.91	0.88	0.79
Belgium	+1.3 Q2	+1.7	+1.3	+0.7 Jul	+1.1 Sep	+0.5	8.8 Aug	-5.8 Jun	+1.9	-2.6	0.95	0.88	0.79
France	+1.1 Q2	nil	+1.1	+1.6 Aug	nil Sep	+0.2	10.8 Aug	-0.4 Aug‡	-0.5	-4.1	1.00	0.88	0.79
Germany	+1.6 Q2	+1.8	+1.6	+2.5 Aug	nil Sep	+0.2	6.4 Sep	+280.7 Aug	+7.7	+0.7	0.57	0.88	0.79
Greece	+1.7 Q2	+3.7	+0.5	+4.5 Aug	-1.7 Sep	-1.1	25.0 Jul	-2.9 Aug	+2.5	-4.1	7.67	0.88	0.79
Italy	+0.7 Q2	+1.3	+0.7	+1.0 Aug	+0.2 Sep	+0.2	11.9 Aug	+38.3 Aug	+2.0	-2.9	1.61	0.88	0.79
Netherlands	+1.8 Q2	+0.8	+2.0	-0.7 Aug	+0.6 Sep	+0.4	8.3 Sep	+85.3 Q2	+10.3	-1.8	0.80	0.88	0.79
Spain	+3.1 Q2	+4.1	+3.2	+5.1 Aug	-0.9 Sep	-0.4	22.2 Aug	+19.6 Jul	+0.5	-4.4	1.81	0.88	0.79
Czech Republic	+4.6 Q2	+4.4	+3.4	+6.3 Aug	+0.4 Sep	+0.3	6.1 Sep§	+2.4 Q2	-0.1	-1.8	0.62	23.9	21.7
Denmark	+2.0 Q2	+0.6	+1.5	+2.4 Aug	+0.5 Sep	+0.6	4.5 Aug	+23.2 Aug	+5.4	-2.9	0.87	6.57	5.85
Norway	+2.2 Q2	-0.4	+0.7	+5.2 Aug	+2.1 Sep	+1.7	4.3 Jul‡‡	+37.8 Q2	+9.3	+5.9	1.66	8.18	6.56
Poland	+3.6 Q2	+3.6	+3.4	+4.1 Sep	-0.8 Sep	nil	10.0 Aug§	-1.9 Aug	-1.4	-1.5	2.71	3.78	3.32
Russia	-4.6 Q2	na	-3.8	-3.5 Sep	+15.7 Sep	+15.2	5.2 Sep§	+64.3 Q3	+4.9	-2.8	10.07	62.9	40.9
Sweden	+3.3 Q2	+4.6	+2.9	+3.8 Aug	+0.1 Sep	+0.1	6.7 Sep§	+35.1 Q2	+6.6	-1.2	0.73	8.31	7.23
Switzerland	+1.2 Q2	+1.0	+0.9	-2.5 Q2	-1.4 Sep	-1.1	3.4 Sep	+60.9 Q2	+7.8	+0.2	-0.23	0.96	0.95
Turkey	+3.8 Q2	na	+2.9	+8.4 Aug	+7.9 Sep	+7.5	9.8 Jul§	-43.0 Aug	-4.9	-1.6	10.01	2.90	2.24
Australia	+2.0 Q2	+0.7	+2.3	+1.2 Q2	+1.5 Q2	+1.7	6.2 Sep	-47.4 Q2	-3.7	-2.4	2.66	0.72	0.88
Hong Kong	+2.8 Q2	+1.6	+2.4	-1.2 Q2	+2.5 Aug	+3.1	3.3 Sep‡‡	+7.4 Q2	+2.8	nil	1.52	7.75	7.76
India	+7.0 Q2	+6.6	+7.4	+6.4 Aug	+4.4 Sep	+5.1	4.9 2013	-25.9 Q2	-1.1	-3.8	7.59	65.2	61.4
Indonesia	+4.7 Q2	na	+4.8	+4.4 Aug	+6.8 Sep	+6.4	5.8 Q1§	-21.6 Q2	-2.5	-2.0	8.72	13,717	12,000
Malaysia	+4.9 Q2	na	+5.4	+3.0 Aug	+3.1 Aug	+2.5	3.2 Jul§	+8.8 Q2	+2.5	-4.0	4.14	4.28	3.26
Pakistan	+5.5 2015**	na	+5.7	+4.7 Jul	+1.3 Sep	+3.9	6.0 2014	-2.6 Q2	-0.7	-5.1	8.90†††	104	103
Philippines	+5.6 Q2	+7.4	+6.4	+3.7 Aug	+0.4 Sep	+2.4	6.5 Q3§	+11.7 Jun	+4.1	-1.9	3.68	46.5	44.7
Singapore	+1.4 Q3	+0.1	+2.9	-7.1 Aug	-0.8 Aug	+0.2	2.0 Q2	+69.5 Q2	+21.2	-0.7	2.47	1.39	1.27
South Korea	+2.2 Q2	+1.3	+2.4	+0.3 Aug	+0.6 Sep	+0.8	3.2 Sep§	+104.8 Aug	+6.7	+0.3	2.11	1,132	1,055
Taiwan	+0.5 Q2	-6.6	+3.2	-5.7 Aug	+0.3 Sep	+0.1	3.8 Sep	+72.8 Q2	+12.8	-1.0	1.19	32.4	30.4
Thailand	+2.8 Q2	+1.5	+3.4	-8.3 Aug	-1.1 Sep	+0.8	1.0 Aug§	+24.4 Q2	+2.4	-2.0	2.58	35.6	32.3
Argentina	+2.3 Q2	+2.0	+0.5	+0.5 Aug	— ***	—	6.6 Q2§	-8.3 Q2	-1.7	-3.6	na	9.50	8.49
Brazil	-2.6 Q2	-7.2	-2.7	-8.9 Aug	+9.5 Sep	+8.9	7.6 Aug§	-84.5 Aug	-4.2	-6.0	15.79	3.95	2.47
Chile	+1.9 Q2	nil	+2.8	-5.1 Aug	+4.6 Sep	+3.9	6.5 Aug§‡‡	-0.3 Q2	-1.2	-2.2	4.47	692	583
Colombia	+3.0 Q2	+2.4	+3.3	+2.6 Aug	+5.4 Sep	+4.2	9.1 Aug§	-20.8 Q2	-6.7	-2.1	7.78	2,968	2,044
Mexico	+2.2 Q2	+2.0	+2.4	+1.0 Aug	+2.5 Sep	+2.9	4.3 Aug	-25.3 Q2	-2.3	-3.4	5.87	16.7	13.5
Venezuela	-2.3 Q3~	+10.0	-4.5	na	+68.5 Dec	+84.1	6.6 May§	+10.3 Q3~	-1.8	-16.5	10.51	6.31	6.35
Egypt	+4.3 Q4	na	+4.2	-5.5 Aug	+9.2 Sep	+10.0	12.7 Q2§	-12.2 Q2	-1.4	-11.0	na	8.03	7.15
Israel	+1.8 Q2	+0.1	+3.3	+1.1 Jul	-0.5 Sep	-0.2	5.3 Aug	+10.2 Q2	+4.9	-2.8	2.08	3.87	3.74
Saudi Arabia	+3.5 2014	na	+2.7	na	+2.3 Sep	+2.7	5.7 2014	+39.7 Q1	-2.7	-12.7	na	3.75	3.75
South Africa	+1.2 Q2	-1.3	+1.5	+0.6 Aug	+4.6 Sep	+4.8	25.0 Q2§	-15.6 Q2	-4.7	-3.8	8.40	13.5	11.0

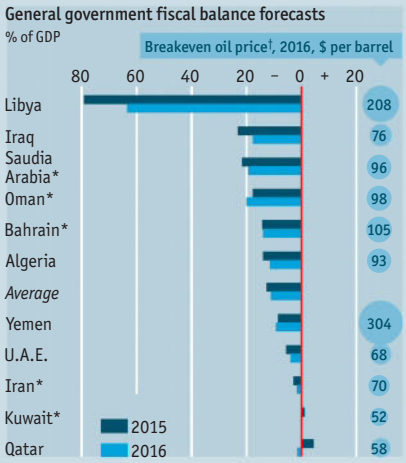
Source: Haver Analytics. *% change on previous quarter, annual rate. †*The Economist* poll or Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. ~2014 **Year ending June. ††Latest 3 months. ‡‡3-month moving average. §§5-year yield. ***Official number not yet proven to be reliable; The State Street PriceStats Inflation Index, August 27.01%; year ago 38.49% †††Dollar-denominated

Markets

	Index Oct 21st	% change on one week	Dec 31st 2014 in local currency	Dec 31st 2014 in $ terms
United States (DJIA)	17,168.6	+1.4	-3.7	-3.7
China (SSEA)	3,478.1	+1.8	+2.6	+0.3
Japan (Nikkei 225)	18,554.3	+3.7	+6.3	+6.3
Britain (FTSE 100)	6,348.4	+1.3	-3.3	-4.1
Canada (S&P TSX)	13,704.2	-1.2	-6.3	-17.2
Euro area (FTSE Euro 100)	1,090.9	+2.2	+5.2	-1.3
Euro area (EURO STOXX 50)	3,272.2	+2.5	+4.0	-2.4
Austria (ATX)	2,412.4	+3.3	+11.7	+4.8
Belgium (Bel 20)	3,427.2	+1.5	+4.3	-2.1
France (CAC 40)	4,695.1	+1.9	+9.9	+3.1
Germany (DAX)*	10,238.1	+3.2	+4.4	-2.0
Greece (Athex Comp)	698.9	+3.4	-15.4	-20.6
Italy (FTSE/MIB)	22,172.6	+1.5	+16.6	+9.4
Netherlands (AEX)	449.8	+3.6	+6.0	-0.6
Spain (Madrid SE)	1,024.7	+1.3	-1.7	-7.8
Czech Republic (PX)	970.3	+0.4	+2.5	-1.6
Denmark (OMXCB)	832.8	+2.6	+23.3	+15.5
Hungary (BUX)	21,548.6	-1.6	+29.5	+23.1
Norway (OSEAX)	658.7	+0.8	+6.3	-2.6
Poland (WIG)	51,183.1	nil	-0.5	-6.4
Russia (RTS, $ terms)	856.9	-0.7	+13.7	+8.4
Sweden (OMXS30)	1,452.1	+0.6	-0.9	-6.6
Switzerland (SMI)	8,602.1	+0.3	-4.2	-0.5
Turkey (BIST)	79,765.3	+0.5	-6.9	-24.9
Australia (All Ord.)	5,286.5	+1.1	-1.9	-13.4
Hong Kong (Hang Seng)	22,989.2	+2.4	-2.6	-2.6
India (BSE)	27,287.7	+1.9	-0.8	-3.9
Indonesia (JSX)	4,605.2	+2.7	-11.9	-20.5
Malaysia (KLSE)	1,707.1	-0.2	-3.1	-20.8
Pakistan (KSE)	33,943.7	-0.1	+5.6	+1.7
Singapore (STI)	3,025.7	+1.4	-10.1	-14.5
South Korea (KOSPI)	2,043.0	+1.7	+6.7	+3.5
Taiwan (TWI)	8,609.2	+1.0	-7.5	-9.8
Thailand (SET)	1,415.8	+0.8	-5.5	-12.5
Argentina (MERV)	10,824.5	-0.4	+26.2	+12.4
Brazil (BVSP)	47,025.9	+0.7	-6.0	-36.7
Chile (IGPA)	18,800.3	+1.1	-0.4	-12.6
Colombia (IGBC)	9,455.2	-1.9	-18.7	-34.9
Mexico (IPC)	44,426.1	+0.8	+3.0	-8.9
Venezuela (IBC)	12,680.5	+6.0	+229	na
Egypt (Case 30)	7,669.1	nil	-14.1	-23.5
Israel (TA-100)	1,350.3	+2.6	+4.8	+5.3
Saudi Arabia (Tadawul)	7,479.0	-3.9	-10.3	-10.2
South Africa (JSE AS)	52,998.0	-0.1	+6.5	-8.6

Oil exporters, Middle East and N. Africa

Fiscal deficits are at record highs for oil exporters in the Middle East and north Africa, thanks to a halving of the oil price since 2014 to around $50 a barrel. The IMF estimates that oil-export revenues will be $360 billion lower this year than if prices had remained at 2014 levels. Governments are already adjusting to the new price, cutting spending and running down foreign-exchange reserves—though this will prove unsustainable if, as looks likely, the oil price stays low. More extensive reforms are needed, including promoting a more diversified private sector. This year the region's economy is forecast to expand by 2.5%. Growth in its oil-exporting countries is expected to be lower, at 1.8%.



Source: IMF

*Central government
†Price at which fiscal balance is zero

Other markets

	Index Oct 21st	% change on one week	Dec 31st 2014 in local currency	Dec 31st 2014 in $ terms
United States (S&P 500)	2,018.9	+1.2	-1.9	-1.9
United States (NAScomp)	4,840.1	+1.2	+2.2	+2.2
China (SSEB, $ terms)	332.6	nil	+17.1	+14.4
Japan (Topix)	1,526.8	+3.8	+8.5	+8.4
Europe (FTSEurofirst 300)	1,431.6	+1.8	+4.6	-1.8
World, dev'd (MSCI)	1,672.9	+1.2	-2.2	-2.2
Emerging markets (MSCI)	859.1	+1.1	-10.2	-10.2
World, all (MSCI)	404.6	+1.2	-3.0	-3.0
World bonds (Citigroup)	889.9	-0.6	-1.4	-1.4
EMBI+ (JPMorgan)	712.6	+0.2	+3.0	+3.0
Hedge funds (HFRX)	1,190.3§	+0.2	-2.3	-2.3
Volatility, US (VIX)	16.7	+18.0	+19.2	(levels)
CDSs, Eur (iTRAXX)†	77.9	-4.3	+23.7	+16.1
CDSs, N Am (CDX)†	82.5	-2.9	+24.8	+24.8
Carbon trading (EU ETS) €	8.5	+0.1	+15.8	+8.6

Sources: Markit; Thomson Reuters. *Total return index. †Credit-default-swap spreads, basis points. §Oct 20th.

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

The Economist commodity-price index

2005=100

	Oct 13th	Oct 20th*	% change on one month	% change on one year
Dollar Index				
All Items	133.7	131.6	+1.9	-15.0
Food	154.8	152.1	+2.1	-11.0
Industrials				
All	111.7	110.2	+1.5	-20.1
Nfa†	111.5	111.6	+3.5	-13.6
Metals	111.8	109.6	+0.6	-22.6
Sterling Index				
All items	159.7	154.8	+1.1	-11.3
Euro Index				
All items	146.1	144.2	nil	-4.6
Gold				
$ per oz	1,166.6	1,178.1	+4.6	-6.0
West Texas Intermediate				
$ per barrel	46.7	45.8	-0.7	-45.1

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

The joy of jambalaya

Paul Prudhomme, king of Cajun cooking, died on October 8th, aged 75

IF YOU wanted the very image of a chef, you couldn't do better than Paul Prudhomme. An enormous girth crammed into chef's overalls of gleaming white; a white snap-brim cap; and a beaming smile, especially when stirring a bowl of thickly unctuous ham-flavoured red beans and rice, or pouring over the creamy, smothering sauce (ooh, yes!) for a Crawfish Etoufée. His TV spots ended with the words: "That's good cookin', good eatin', good lovin'!"—and a wagging-finger order to do likewise.

He was a missionary as well as a chef, for in Louisiana food is a religion and the kitchen table an altar. Before he appeared, Cajun and Creole cuisines were local and didn't travel; afterwards they became a passion all across America, to the point where his signature dish, Blackened Redfish, reached such heights of popularity that fishing for the vital ingredient had to be restricted. Food critics, even at the *New York Times*, swooned over his cookbooks. Before him, chefs at fancy American hotels tended to be Europeans; after him, an authentic native cuisine knocked the gastronomes from Paris sideways.

Wherever he opened a restaurant (not liking to take either cards or reservations), queues immediately formed for several blocks. His kitchens were hot as hell, filled with smoke from the blackening in scalding skillets, and amid it all the vast white form of Chef Paul would squeeze from station to station, sniffing here and tasting there and singing Cajun songs. For he couldn't be happier: giving people great food, watching their eyes open in disbelief with that first bite, and hearing them say to their neighbour, "Try this! It's fantastic!"

So he had dreamed since the age of eight, when he heard that a cook-relation was earning $150 a week. He was well on the way to chefdom even then, hanging on his mother's hip as she made her Sticky Chicken (cooked in seasoned flour over low heat for hours) or Dirty Rice (boiled up with ground gizzards and chicken livers), or gave him, for a treat, the leftover filling from her Fig Sweet-Dough Pie. She had to cook for a farmer-husband and 13 children; he, the youngest, absorbed it all, in every sense. When he could barely reach the stove, he would cook pork chops the way he particularly liked them: no doubt with his "Holy Trinity" of onion, celery and bell peppers, a bit of flour to make everything glue deliciously to the bottom of the skillet for the gravy, and his own "magic" (later marketed) seasoning of black pepper, white pepper, salt, cayenne, thyme, bay leaves, paprika and garlic powder. For naturally, living in Louisiana, there was no herb or spice or sauce piquant (the more piquant, the better) he didn't like.

Whether his cuisine was Cajun or Creole was furiously debated throughout the state. He himself called it Cajun: French country cooking, in effect, passed down by the French Acadians after their forced trek south from Canada to the bayous of the Gulf. When he started as head chef at Commander's Palace in New Orleans, a Creole city, in 1975, he brought in foods that had seldom if ever crossed the parish line. *Andouille* (smoked sausage) and *tasso* (spiced ham) he fetched himself from his family's old butcher. Every bit of an animal was used and every vegetable was fresh as could be, remembering how good his mama's potato salad was when the spuds had been in the ground two hours before.

He was prepared to chop and change a little. Even he didn't dare to cook with rustic pork lard at Commander's, and had to learn to make a roux with butter instead. He tried to lighten up recipes for more sophisticated Creole tastes, including putting shrimp in gumbo instead of his beloved crawfish, which Creoles scorned. No sooner had he got his own place, though—K-Paul's Louisiana Kitchen on Chartres Street, all cast-iron balconies and tall shutters, where from 1979 he ruled the kitchen and his wife K ran the dining room—than decorum went to the winds. Diners sat at communal tables, ate with their greasy hands, got yelled at if they didn't clear every scrap of their Poor Man's Jambalaya, and were blissfully happy.

Flies and pies

This untrammelled joy in dining sometimes travelled badly. In 1985, when he hit New York (taking his pots, rice and shrimp with him), the Health Board refused to let his restaurant open because they found flies in the kitchen. With hundreds of customers already waiting, he faced them down. First, there were always flies around; and second, in New Orleans "you give [the Health Board] a piece of pie and the violations are going away, you know?" Country boy or not, he loved his adopted city, and when Hurricane Katrina struck in 2005 he worked to feed, for nothing, hundreds of stranded citizens and army helpers. His life was to lift people up with food.

As American tastes changed at the end of the 20th century, he adapted more nimbly than might have been expected. The gigantic amounts of butter were reduced a little, as were the spoons of salt; he professed to be liking roasted wholegrains. As long as cayenne, jalapeños and Tabasco were around, the Cajun *appellation* was still safe. He actually lost weight himself, by managing to eat smaller portions; and was surprised to find (mmmm! oooh! just dip a spoon in!) that he treasured and savoured those Louisiana dishes even more than he had before. ■

Escale Time Zone.

LOUIS VUITTON