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A SPECIAL REPORT ON ENERGY GEOPOLITICS

MARCH 17TH–23RD 2018

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Politics this week

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Donald Trump sacked **Rex Tillerson** as secretary of state, announcing the defenestration on Twitter. Mr Tillerson had become increasingly detached from the White House as the president let it be known that he wanted to pursue a more muscular foreign policy. Concluding that his unconventional approach was reaping benefits, Mr Trump had earlier surprised South Korean envoys, and his own national-security team, by agreeing to meet Kim Jong Un for talks on **North Korea's** nuclear aims. See article .

The new secretary of state will be **Mike Pompeo**, who currently runs the CIA. **Gina Haspel** steps up from deputy director to the top job at the CIA. She will be the first woman to hold the position if her appointment clears the Senate, where she will face tough questioning about her past supervision of "enhanced" interrogations at secret sites. See article .

Republicans on the House Intelligence Committee released their report on **Russian meddling** in the 2016 election, concluding that provocateurs had interfered, but that there had been no collusion with the Trump campaign. Robert Mueller, the special counsel, is still investigating.

The governor of Florida, Rick Scott, signed a bill that raises the state's legal age for all **gun** purchases from 18 to 21 and introduces a three-day waiting period when buying a weapon. The law would have stopped the 19-year-old who massacred 17 people at a school near Miami from buying his semi-automatic rifle.

The Democrats claimed victory in a special election for a congressional seat in the suburbs of **Pittsburgh**. The seat had been held by the Republicans since 2003 and its voters chose Mr Trump in the presidential election by a 20-point margin. The win fired up the Democrats' hopes of taking the House in the mid-terms. See article .

Forever Xi

China's rubber-stamp parliament, the National People's Congress, removed the two-term limit for presidents, allowing Xi Jinping to remain in office for life. It also announced the re-organisation of more than two dozen ministries and departments.

In **Hong Kong**, by-elections were held in four of the six seats where pro-democracy candidates had been removed from office for criticising the governments of China and Hong Kong during their swearing-in. The pro-democracy movement lost two of the seats, a blow to its standing. See article .

Rodrigo Duterte, the president of the **Philippines**, threatened to withdraw his country from the International Criminal Court because it is investigating human-rights abuses in his bloody campaign against drug pushers and users.

A scandal over the sale of state land at a huge discount to a school with links to the wife of **Japan's** prime minister was revived, after the finance ministry admitted it had doctored documents relating to the sale before submitting them to parliament. See article .

The mother of diplomatic rows

Britain said it would expel 23 **Russian** diplomats in response to a nerve-agent attack on a former Russian spy and his daughter in Salisbury. Theresa May, the prime minister, said Moscow had reacted to the attack with "sarcasm, contempt and defiance". Russia said it would retaliate. See article .

Lucy Allan, the MP for Telford, renewed her call for an independent inquiry into the alleged **sexual abuse** of up to 1,000 "white working-class girls" in the English town by suspected gangs of men of South Asian origin. As with a similar case in Rotherham, the authorities have come under intense criticism for not investigating the claims because of the racial sensitivities.

Angela Merkel was sworn in as **Germany's** chancellor for a fourth term. The Social Democrats, coalition partners to her Christian Democrats, have been given the jobs of finance minister and foreign minister, filled by Olaf Scholz and Heiko Maas respectively. See article .

The prime minister of **Slovakia**, Robert Fico, offered to stand down, following the murder of a young journalist who had been investigating official corruption. Huge crowds had demonstrated against Mr Fico in the capital, Bratislava, and other cities. See article .

Anti-revolutionary forces

Colombians voted in legislative elections and presidential primaries. They rejected the candidates from the political party created by former rebels from the FARC, though the party is guaranteed ten seats in congress. Rodrigo Londoño, the FARC's leader, withdrew from the presidential race because of bad health. Iván Duque, the right's candidate, and Gustavo Petro, the left's man, are the front-runners in the presidential election. See article .

Federal police in **Mexico** arrested a man they say was involved in the disappearance of 43 students from the town of Iguala in 2014. Erick Uriel Sandoval is accused of helping burn the students' bodies at a rubbish dump. Independent experts have cast doubt on prosecutors' version of events.

Lawmakers in **Peru** put forward a motion to begin impeachment proceedings against Pedro Pablo Kuczynski, the president, who is defending himself in congress against accusations that he lied about donations from Odebrecht, a Brazilian construction firm.

Close shave

A roadside bomb in Gaza targeted the convoy of the **Palestinian** prime minister, Rami Hamdallah. The Palestinian Authority called the explosion an assassination attempt and held Hamas, the Islamist group that controls Gaza, responsible for the breakdown in security, but did not accuse it of carrying out the attack.

Israel's government settled a dispute over a bill that would extend an exemption from military service for ultra-Orthodox *yeshiva* students. The row threatened to bring down the government. However, there is speculation that Binyamin Netanyahu, the prime minister, wants an early election as he faces multiple corruption investigations.

Haider al-Abadi, the **Iraqi** prime minister, issued a decree lifting a ban on international flights to and from the **Kurdistan** region. Kurdish authorities agreed to place the airports under federal control, according to the decree.

Julius Maada Bio, a former leader of a military coup, won the first round of **Sierra Leone's** presidential election. He will face Samura Kamara, the ruling party's candidate, in the run-off.

Happiness, happiness

Burundi came last in the annual **World Happiness Report** by the UN, which ranks countries on factors such as life expectancy, freedom and corruption. Burundi edged out the Central African Republic, which came bottom last year. Norway, the happiest country in 2017, was nudged out of the top spot by Finland.

Business this week

Print edition | The world this week Mar 17th 2018

In an extraordinary intervention, Donald Trump blocked **Broadcom's** hostile bid for **Qualcomm** on national-security grounds. Based in Singapore but with half its staff in America, Broadcom had been pursuing its rival chipmaker for months. To defend itself, Qualcomm had turned to the Committee on Foreign Investment in the United States, which recommended that Broadcom should be stopped. The president's order is based on a fear that allowing Qualcomm to fall into foreign hands would boost China's role in global chipmaking.

The end of a forgotten era

Blackstone, one of America's private-equity titans, revealed that China's sovereign-wealth fund had sold its holding in the firm. The stake had been purchased in 2007, the first time the Chinese fund had invested commercially in America, eliciting hopes at the time of closer business ties between the two countries.

The **securities regulator** in China slapped a 5.5bn yuan ($871m) fine on the country's largest private owner of cargo railcars for manipulating the share price of three companies it had invested in. It was the largest penalty handed down by the regulator to date, equivalent to 70% of the fines it dished out in total last year.

Larry Kudlow was given the job of Mr Trump's economic adviser, following Gary Cohn's resignation in the wake of the president's imposition of steel tariffs. Mr Kudlow is a conservative broadcaster who may be more in tune with Mr Trump's economic agenda than Mr Cohn was. He worked in Ronald Reagan's budget office and describes himself as a "supply-sider". See article .

The identity of the likely successor to Lloyd Blankfein as chief executive officer of **Goldman Sachs** became clearer when Harvey Schwartz abruptly stepped down as co-president, leaving the path clear to the top job for David Solomon, the other co-president. Mr Blankfein has led the bank since 2006.

The Securities and Exchange Commission fined Elizabeth Holmes, the founder of **Theranos**, a blood-testing startup that was once a darling of Silicon Valley, $500,000 to settle claims of fraud. Theranos fell foul of regulators in 2015 amid revelations that it had misled investors. Ms Holmes agreed to settle the charges without admitting wrongdoing. See article .

Martin Shkreli was sentenced to seven years in prison, after being found guilty last August of securities fraud related to hedge funds he once ran. Mr Shkreli is notorious for increasing the price of some medicines by up to 5,000% at a drugs company he founded, earning him the sobriquet of America's "most hated man".

Dropbox priced its forthcoming IPO at between $16 and $18 a share. That values the file-sharing service at up to $7.9bn, much less than the $10bn it was thought to be worth at its last round of fundraising in 2014.

Following a similar decision by Facebook, **Google** said it would ban advertisements for **crypto-currencies** such as bitcoin across all its platforms, including YouTube and its display-ad network.

Tesla beware

Volkswagen laid out plans for the "massive expansion" of its range of **electric cars**. The German company will open 16 production sites within five years in Europe, China and America to make electric vehicles, with a goal of selling 3m a year by 2025. It also announced partnerships with manufacturers to supply car batteries to Europe and China. Meanwhile, GEM, a battery-recycling firm in Shenzhen, signed a contract with Glencore to provide it with 50,000 tonnes of **cobalt**, a key element in car batteries. That is half the total amount of cobalt produced worldwide last year.

Unilever chose Rotterdam as the site for the headquarters of a new unified company. It is a symbolic blow to the British government, which had hoped the Anglo-Dutch consumer-goods group would keep its headquarters in London. The company denied that the decision was connected to Brexit. See article .

In a complex transaction that reshapes Germany's power industry, **E.ON** and **RWE** agreed to swap assets in a deal that leaves E.ON as an operator of energy networks with a large retail presence and RWE as a producer of renewable energy. Utilities have been forced to reconfigure their businesses in response to the government's *Energiewende* policy, which directs them to pivot towards renewables. See article .

Shop till someone else drops

Under pressure from Amazon in the mushrooming market for online food shopping, **Walmart** announced that it will extend its grocery-delivery service to more than 100 American cities. Instead of using its own drivers Walmart will employ transport startups, including Uber.

KAL’s cartoon

Print edition | The world this week Mar 17th 2018

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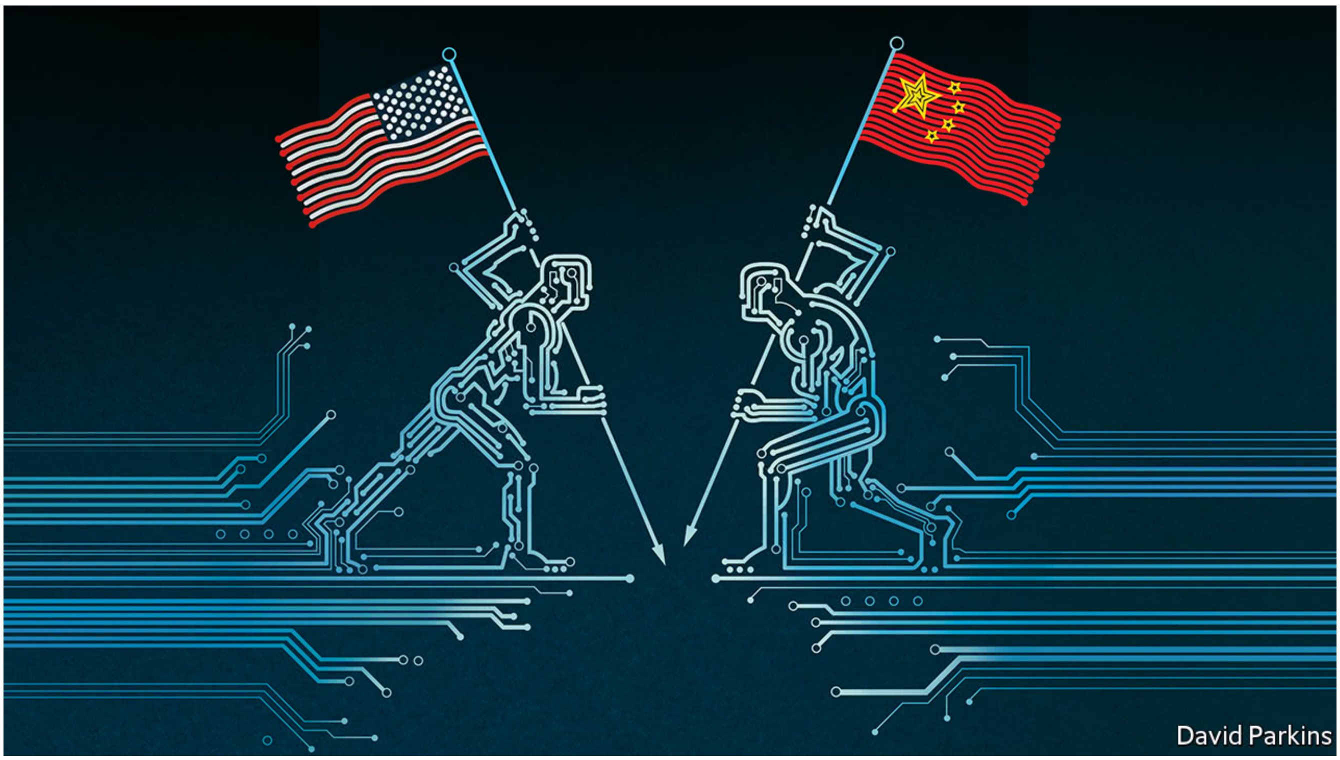
America v China
The battle for digital supremacy

America v China

The battle for digital supremacy

America's technological hegemony is under threat from China

Print edition | Leaders Mar 15th 2018



"DESIGNED by Apple in California. Assembled in China". For the past decade the words embossed on the back of iPhones have served as shorthand for the technological bargain between the world's two biggest economies: America supplies the brains and China the brawn.

Not any more. China's world-class tech giants, Alibaba and Tencent, have market values of around $500bn, rivalling Facebook's. China has the largest online-payments market. Its equipment is being exported across the world. It has the fastest supercomputer. It is building the world's most lavish quantum-computing research centre. Its forthcoming satellite-navigation system will compete with America's GPS by 2020.

America is rattled. An investigation is under way that is expected to conclude that China's theft of intellectual property has cost American companies around $1trn; stinging tariffs may follow. Earlier this year Congress introduced a bill to stop the government doing business with two Chinese telecoms firms, Huawei and ZTE. Eric Schmidt, the former chairman of Alphabet, Google's parent, has warned that China will overtake America in artificial intelligence (AI) by 2025.

This week President Donald Trump abruptly blocked a $142bn hostile takeover of Qualcomm, an American chipmaker, by Broadcom, a Singapore-domiciled rival, citing national-security fears over Chinese leadership in 5G, a new wireless technology. As so often, Mr Trump has identified a genuine challenge, but is bungling the response. China's technological rise requires a strategic answer, not a knee-jerk one.

The motherboard of all wars

To understand what America's strategy should be, first define the problem. It is entirely natural for a continent-sized, rapidly growing economy with a culture of scientific inquiry to enjoy a technological renaissance. Already, China has one of the biggest clusters of AI scientists. It has over 800m internet users, more than any other country, which means more data on which to hone its new AI. The technological advances this brings will benefit countless people, Americans among them. For the United States to seek to keep China down merely to preserve its place in the pecking order by, say, further balkanising the internet, is a recipe for a poorer, discordant—and possibly warlike—world.

Yet it is one thing for a country to dominate televisions and toys, another the core information technologies. They are the basis for the manufacture, networking and destructive power of advanced weapons systems. More generally, they are often subject to extreme network effects, in which one winner establishes an unassailable position in each market. This means that a country may be squeezed out of vital technologies by foreign rivals pumped up by state support. In the case of China, those rivals answer to an oppressive authoritarian regime that increasingly holds itself up as an alternative to liberal democracy—particularly in its part of Asia. China insists that it wants a win-win world. America has no choice but to see Chinese technology as a means to an unwelcome end.

The question is how to respond. The most important part of the answer is to remember the reasons for America's success in the 1950s and 1960s. Government programmes, intended to surpass the Soviet Union in space and weapons systems, galvanised investment in education, research and engineering across a broad range of technologies. This ultimately gave rise to Silicon Valley, where it was infused by a spirit of free inquiry, vigorous competition and a healthy capitalist incentive to make money. It was supercharged by an immigration system that welcomed promising minds from every corner of the planet. Sixty years after the Sputnik moment, America needs the same combination of public investment and private enterprise in pursuit of a national project.

Why use a scalpel when a hammer will do?

The other part of the answer is to update national-security safeguards for the realities of China's potential digital threats. The remit of the Committee on Foreign Investment in the US (CFIUS), a multi-agency body charged with screening deals that affect national security, should be expanded so that minority investments in AI, say, can be scrutinised as well as outright acquisitions. Worries about a supplier of critical components do not have to result in outright bans. Britain found a creative way to mitigate some of its China-related security concerns, by using an evaluation centre with the power to dig right down into every detail of the hardware and software of the systems that Huawei supplies for the telephone network.

Set against these standards, Mr Trump falls short on every count. The Broadcom decision suggests that valid suspicion of Chinese technology is blurring into out-and-out protectionism. Broadcom is not even Chinese; the justification for blocking the deal was that it was likely to invest less in R&D than Qualcomm, letting China seize a lead in setting standards.

Mr Trump has reportedly already rejected one plan for tariffs on China to compensate for forced technology transfer but only because the amounts were too small. Were America to impose duties on Chinese consumer electronics, for example, it would harm its own prosperity without doing anything for national security. An aggressively anti-China tack has the obvious risk of a trade tit-for-tat that would leave the world's two largest economies both worse off and also more insecure.

Mr Trump's approach is defined only by what he can do to stifle China, not by what he can do to improve America's prospects. His record on that score is abysmal. America's federal-government spending on R&D was 0.6% of GDP in 2015, a third of what it was in 1964. Yet the president's budget proposal for 2019 includes a 42.3% cut in non-defence discretionary spending by 2028, which is where funding for scientific research sits. He has made it harder for skilled immigrants to get visas to enter America. He and some of his party treat scientific evidence with contempt—specifically the science which warns of the looming threat of climate change. America is right to worry about Chinese tech. But for America to turn its back on the things that made it great is no answer.

The attempted murder of Sergei Skripal

Britain's poisoned relationship with Russia

And why the prime minister has to go after Russia's dirty money

Print edition | Leaders Mar 15th 2018

WHEN Theresa May stood before the House of Commons on March 14th to set out her response to the use of a military-grade nerve agent to poison a Russian ex-spy, she seemed to describe what was almost an act of war by a rogue regime. The attack, she said, amounted to the "unlawful use of force by the Russian state against the United Kingdom". The attempt to kill Sergei Skripal, a former double agent—and the poisoning of his daughter and a British policeman—was "an affront to the prohibition on the use of chemical weapons".

Britain's ultimatum for an explanation from Moscow had been contemptuously ignored. As a result, Mrs May announced a series of measures against Russia, starting with the expulsion of 23 members of the Russian embassy whom she identified as intelligence officers, the largest such clear-out in three decades (see article).

With a murky assassination attempt (see article), it was always going to be difficult for Britain to muster a credible response. Domestically, Mrs May certainly looked more the prime minister than Jeremy Corbyn, the leader of the opposition Labour Party, who seemed to want to minimise the blowback on Russia. In terms of deterrence, however, Mrs May has yet to rise to the gravity of the situation.

Burden without proof

There may never be conclusive evidence that Russia's leader ordered the attack. Ambiguity and deception lie at the heart of his regime. Violence is often decentralised; the line between private and state is blurred. Russia, after all, is perfecting hybrid tactics short of overt warfare. All the Russian attacks listed by Mrs May—the annexation of Crimea, the war in Ukraine, the meddling in elections, and the hacking of defence ministries in Denmark and Germany—involved freelancers. That allows Vladimir Putin to claim, however implausibly, that he had nothing to do with them.

But Mrs May is surely right in arguing that the use of a nerve agent suggests either that the attack must have been carried out by the Russian state, or that Russia lost control of its stocks. A proper response must weave together the tools of government—diplomatic, military, intelligence and, crucially, financial. On many of these Mrs May has responded more robustly than Tony Blair did following the fatal poisoning in 2006, with polonium, of another Russian ex-spook, Alexander Litvinenko. She is right, for instance, to take the attack to the UN Security Council, NATO, the European Union and the Organisation for the Prohibition of Chemical Weapons. She received plenty of rhetorical support. Action is less likely.

Mrs May can and should do more to go after the money of Mr Putin's cronies. She should expand the list of Russian figures and entities with which British businesses are banned from having dealings. Those on the current European sanctions lists have so far been mostly linked to the war in Ukraine. The list should more closely resemble America's register of "specially designated nationals" who are close to Mr Putin and derive their wealth from his favour. Those who loot the country and abuse human rights should be targeted.

The problem is partly one of will. Tougher sanctions may affect Britain's flagship oil producer, BP, which owns a 20% stake in Rosneft, Russia's state oil firm whose boss, Igor Sechin, is one of Mr Putin's closest allies (he is under American but not European sanctions). Britain also worries that more intrusive sanctions will affect the status of the City of London as a global financial centre. That fear is misguided. And yet, Britain's reluctance to act is likely to lead to impunity. To Mr Putin it will seem like weakness, and that may tempt him to attack again.

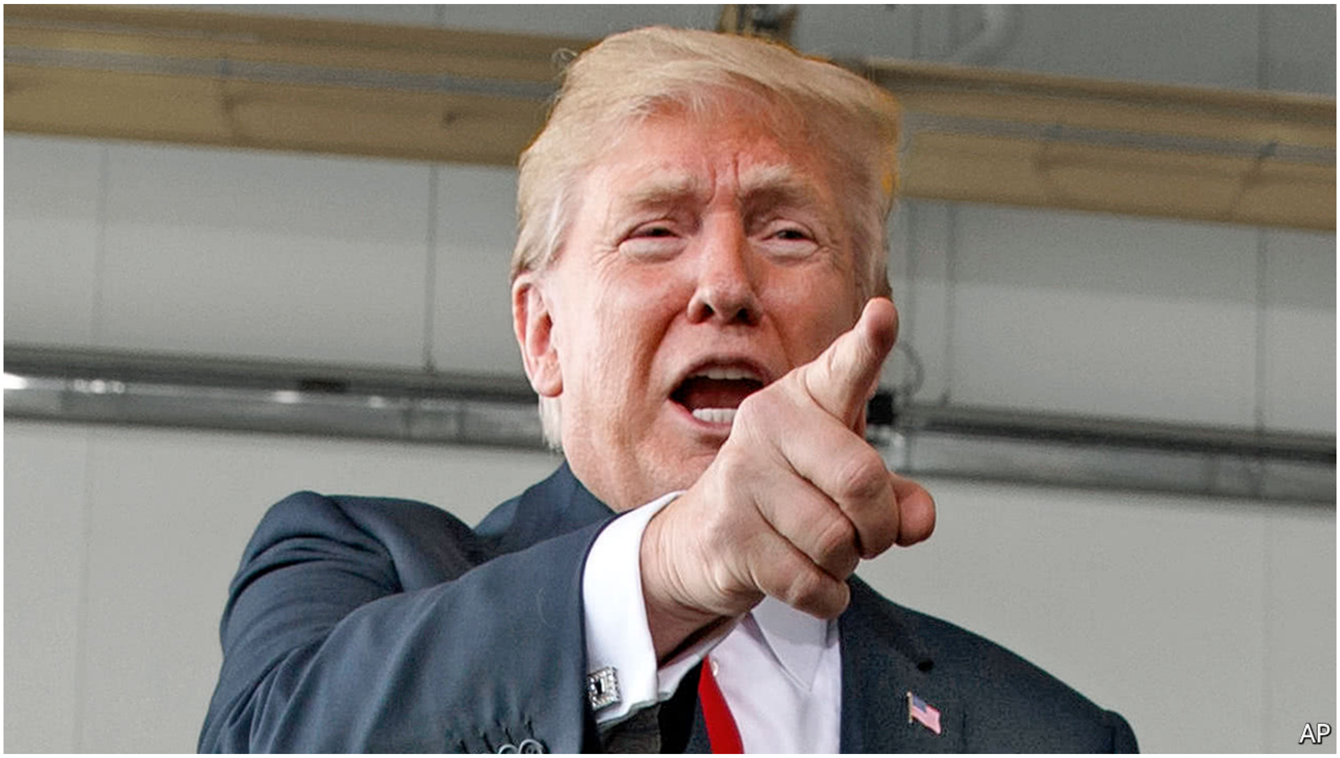
This article appeared in the Leaders section of the print edition under the headline "A poisoned relationship"

Trump's White House

American foreign policy after Rexit

Rex Tillerson was a poor secretary of state. What follows may be worse

Print edition | Leaders Mar 17th 2018



EVEN by the reality-TV standards of this White House, the manner in which Rex Tillerson was sacked as secretary of state was jaw-dropping. President Donald Trump fired him by tweet, saying that he would be replaced by Mike Pompeo, director of the CIA. He did not call him until much later, nor did he offer an explanation. Mr Tillerson's spokesman said that he had no idea why his boss had been fired. So he was fired, too.

Mr Tillerson was a poor secretary of state. Having run ExxonMobil, the tenth-biggest company in the world by revenue, he treated diplomacy like business and his department like a division ripe for restructuring. He seemed to regard his underlings as idle assets and they repaid him with their scorn (see article). So, too, did the president, at least after reports that Mr Tillerson had called him a "moron".

The new man, Mr Pompeo, has distinguished himself in Mr Trump's eyes by talking up a Trumpian, America First view of the world (see Lexington). The result may well be a more co-ordinated policy, with fewer public rifts between the State Department and the White House. But when you look at the two biggest tests facing American foreign policy, the new set-up does not inspire confidence.

The first of these is North Korea. Mr Trump's decision to kick-start negotiations by talking directly to Kim Jong Un is unconventional. A photo-op with the American president is a great prize for Mr Kim and, rather than holding it out as a reward, Mr Trump has chosen to give it away cheap. That is not necessarily a bad idea, given that other approaches have failed and that merely talking is a chance for him to reinforce deterrence by setting out his red lines.

The trouble is that, whereas the talks aimed at ridding the Korean peninsula of nuclear weapons will be delicate, complicated and technical, Mr Trump is impulsive and self-indulgent—as this week's sacking of Mr Tillerson showed. Mastering the specifications of the North's programme and knowing how to blunt it require deep expertise. Any deal to ensure that the North does not cheat, as it has so often before, will need to be thorough and enduring. America must not enhance its own security at the cost of lower security for its allies in South Korea and Japan. And if the talks should come to nothing, as is likely, both sides will need to be sure that the bad blood does not lead to conflict.

The combination, to put it mildly, sits ill with Mr Trump's style of government. In a properly run administration, the fiddly stuff could be left to underlings. Yet America has no ambassador to South Korea and no under-secretary for arms control. Even if it did, it is not clear that Mr Trump would give them the time of day. He shows every sign of thinking that he has the flair to broker a breakthrough all by himself. There is a risk Mr Pompeo would seek to flatter his boss by agreeing.

By a curious symmetry, the second test of American policy involves a nuclear deal that Mr Trump seems determined to wreck. In May he is due to decide whether to stick with the agreement that curbs Iran's nuclear programme or pull out. Mr Pompeo, unlike Mr Tillerson, is a longtime opponent, as are many Republicans. A pull-out is therefore likely.

That would be a mistake. When it comes to deals, Mr Trump always believes that he can get a better one—especially if they were negotiated by his predecessor, Barack Obama. But the Iran deal is already the result of hard-fought trade-offs. The chances that it can be substantially renegotiated are slim indeed. Opening it up in the hope that America can expand it to force Iran to limit its regional ambitions is almost certain to fail.

If America walks away, its European allies will stick with the deal but they will conclude that Mr Trump puts a low value on the transatlantic alliance. The nuclear agreement may not collapse immediately, but the odds would increase of a nuclear arms-race in the Middle East, as Saudi Arabia and Egypt began to prepare for the day when Iran had the bomb. And because of the symmetry, Mr Kim would surely be less willing to think he could trust an agreement struck with Mr Trump.

It's simple really

To hope that H.R. McMaster, the national-security adviser, who may shortly be fired himself, or James Mattis, the defence secretary, can be relied on to constrain the president is to clutch at straws. Mr Trump does not have a foreign policy so much as a worldview rooted in grievance and a belief that others must lose for America to win. He has his tariffs, his talks with North Korea and maybe soon a Middle East peace plan. The world is about to witness Trump unbound. What could go wrong?

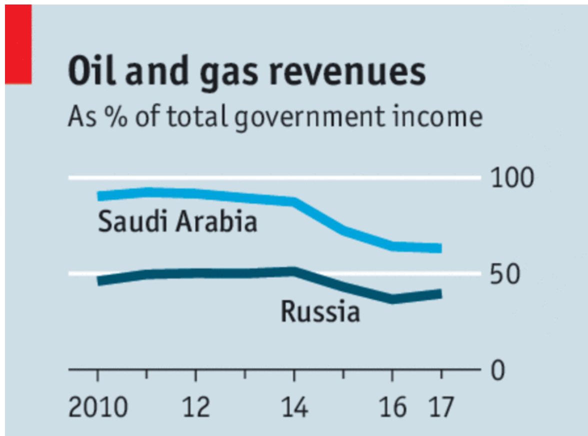
This article appeared in the Leaders section of the print edition under the headline "After Rexit"

Electric dreams

Welcome an electric world. Worry about the transition

As fuels, oil and electricity have meaningfully different characteristics

Print edition | Leaders Mar 15th 2018



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OIL shaped the 20th century. In war, the French leader Georges Clemenceau said, petroleum was "as vital as blood". In peace the oil business dominated stockmarkets, bankrolled despots and propped up the economies of entire countries. But the 21st century will see oil's influence wane. Cheap natural gas, renewable energy, electric vehicles and co-ordinated efforts to tackle global warming together mean that the power source of choice will be electricity.

That is welcome. The electricity era will diminish the clout of the $2trn oil trade, reduce the choke points that have made oil a source of global tension, put energy production into local hands and make power more accessible to the poor. It will also make the world cleaner and safer—reassuringly dull, even. The trouble is getting from here to there. Not just oil producers, but everyone else, too, may find the transition perilous.

Oil and electricity are a study in contrasts (see our special report). Oil is a wonder fuel, packed with more energy by weight than coal and by volume than natural gas (both still the main sources of electricity). It is easy to ship, store and turn into myriad refined products, from petrol to plastics to pharmaceuticals. But it is found only in specific places favoured by geology. Its production is concentrated in a few hands, and its oligopolistic suppliers—from the Seven Sisters to OPEC and Russia—have consistently attempted to drip-feed it on to the market to keep prices high. Concentration and cartelisation make oil prone to crises and the governments of oil-rich states prone to corruption and abuse.

Different kettles of fuel

Electricity is less user-friendly than oil. It is hard to store, it loses its oomph when shipped over long distances, and its transmission and distribution require hands-on regulation. But in every other way, it promises a more peaceful world.

Electricity is hard to monopolise because it can be produced from numerous sources of fuel, from natural gas and nuclear to wind, solar, hydro and biomass. The more these replace coal and oil as fuel for generation, the cleaner it promises to be. Given the right weather conditions, it is abundant geographically, too. Anyone can produce electricity—from greener-than-thou Germans to energy-poor Kenyans.

True, the technologies used to produce electricity from renewable resources, and the rare earths and minerals that some, including solar panels and wind turbines, rely on, could be subject to protectionism and trade wars. China, which produces 85% of the world's rare earths, sharply tightened export quotas in 2010 with OPEC-like zeal. America and the European Union have slapped tariffs on Chinese solar-panel imports. Yet the vital substances involved in generating and storing electricity are not burned up like oil. Once a stock of them exists it can for the most part be recycled. And, even if today's output is concentrated, for most materials the planet has undeveloped deposits or substitutes that can thwart a would-be monopolist. Rare earths, for example, are not rare—one of them, cerium, is almost as common as zinc.

Electricity also rewards co-operation. Because renewables are intermittent, regional grids are needed to ship electricity from where it is plentiful to where it is not. This could replicate the pipeline politics that Russia engages in with its natural-gas shipments to Europe. More likely, as grids are interconnected so as to diversify supply, more interdependent countries will conclude that manipulating the market is self-defeating. After all, unlike gas, you cannot keep electricity in the ground.

An electric world is therefore desirable. But getting there will be hard, for two reasons. First, as rents dry up, authoritarian oil-dependent governments could collapse. Few will miss them, but their passing could cause social unrest and strife. Oil producers had a taste of what is to come when the price plunged in 2014-16, which led to deep, and unpopular, austerity measures. Saudi Arabia and Russia have temporarily stopped the rot by curtailing production and pushing oil prices higher, as part of an "OPEC+" agreement. They need high prices to buy time to wean their economies off oil. But the higher the oil price, the greater the incentive for energy-thirsty behemoths like China and India to invest in renewable-powered electrification to give themselves cheaper and more secure supplies. Should the producers' alliance crumble in the face of a long-term decline in demand for oil, prices could once again tumble, this time for good.

That will lead to the second danger: the fallout for investors in oil assets. America's frackers need only look at the country's woebegone coalminers to catch a glimpse of their fate in a distant post-oil future. The International Energy Agency, a forecaster, reckons that, if action to limit global warming to below 2°C accelerates in coming years, $1trn of oil assets could be stranded, ie, rendered obsolete. If the transition is unexpectedly sudden, stockmarkets will be dangerously exposed.

The tension is inescapable. On the one hand government policy should press forward with the transition as fast as it can. On the other, a rapid transition will cause upheaval. Expect the big consumers, especially India and China, to force the pace.

This article appeared in the Leaders section of the print edition under the headline "Electric dreams"

Democracy in Africa

How to save Tanzania

Start by containing President John Magufuli

Print edition | Leaders Mar 17th 2018

THE white beach of Dar es Salaam may seem enticing. Yet the bodies that have washed up on it, almost in sight of the city's glistening offices and hotels, are a sign of Tanzania's sickening lurch to despotism. Opposition politicians are being shot; activists and journalists are disappearing.

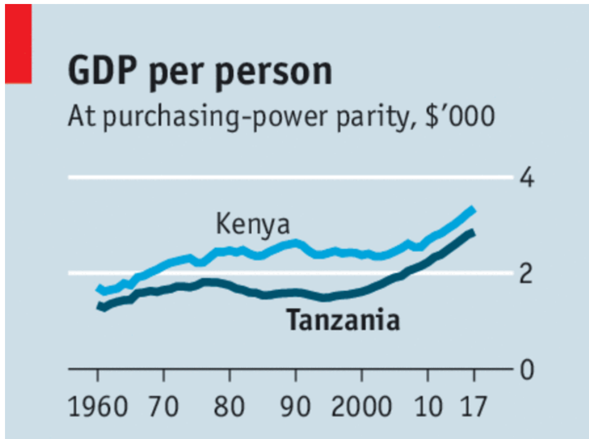
Until recently Tanzania's political stability drew investors and donors, spurring one of the fastest sustained streaks of economic growth in Africa. But John Magufuli, an authoritarian and erratic president in his third year in office, threatens to undo much that Tanzania has achieved over the past few decades. The rest of Africa, and the world, should not keep quiet.

The Teacher's flawed lessons

Tanzania matters, in part because of the aura of the late Julius Nyerere, its first prime minister, as a founding father of post-colonial Africa (he is still affectionately known as *Mwalimu* or "Teacher"). Like many other leaders of the time, he was an autocrat, instituting one-party rule on the ground that democracy was "an over-sophisticated pastime which we in Africa cannot afford". He impoverished a generation through his "African socialism". He nationalised companies and forced millions onto collective farms, burning their homes to stop them returning. The result was hunger and economic chaos.

Even so, he sought to unite his country in a region where many clung to power by stoking tribal tensions. He was, in general, less repressive than many of his peers. And by sending his troops into Uganda, he got rid of Idi Amin, one of the world's nastiest dictators. More recently, with the restoration of multiparty democracy in 1994, Tanzania has been the darling of investors. Its output has grown on average by about 6.5% a year for the past decade. It has attracted foreign direct investment worth an average of 4% of GDP each year. Tanzanians are now about twice as rich as they were in 1990.

Yet this progress is imperilled by Mr Magufuli, who is transforming a stable, if flawed, democracy into a brutal dictatorship (see article). Officials have taken to making arbitrary demands for taxes. Businesses are shutting, exports are slumping, investors are fleeing and economic growth is forecast to slow.



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Outsiders have been shamefully mealy-mouthed. Africa is almost silent. America and the European Union recently expressed concern about political violence, but did not criticise the government directly. Nor did they threaten to take action if the repression continues. Some diplomats argue that a part-suspension of American aid in 2016 was ineffective. Aid officials worry that further cuts would hurt mainly the poor.

They could and should be more forceful. Three years ago European countries temporarily withheld about $500m over corruption. The government soon fired and charged officials who were implicated. Tanzania is Africa's third-largest recipient of Western aid (and the largest per person); 10-15% of its revenues come from Western countries as fungible "budget support". Multilateral donors are still tripping over one another to give it cheap loans and grants. The World Bank, for instance, has increased its allocation to Tanzania by $500m, to $2.4bn.

For Western donors to look away as Tanzania descends into oppression would be to discard much of its progress in recent decades. Most of all, Tanzania's neighbours need to act. Failing to stand up for the rule of law is to encourage other would-be despots to do their worst.

This article appeared in the Leaders section of the print edition under the headline "Tanzania's sickening lurch"

On Afghanistan, Billy Graham, Malaysia, accounting, Tom Lehrer
Letters

Letters to the editor

Letters

On Afghanistan, Billy Graham, AI, Malaysia, accounting, Tom Lehrer

Print edition | Letters Mar 17th 2018

Letters are welcome and should be addressed to the Editor at letters@economist.com

Ata Mohammad Noor

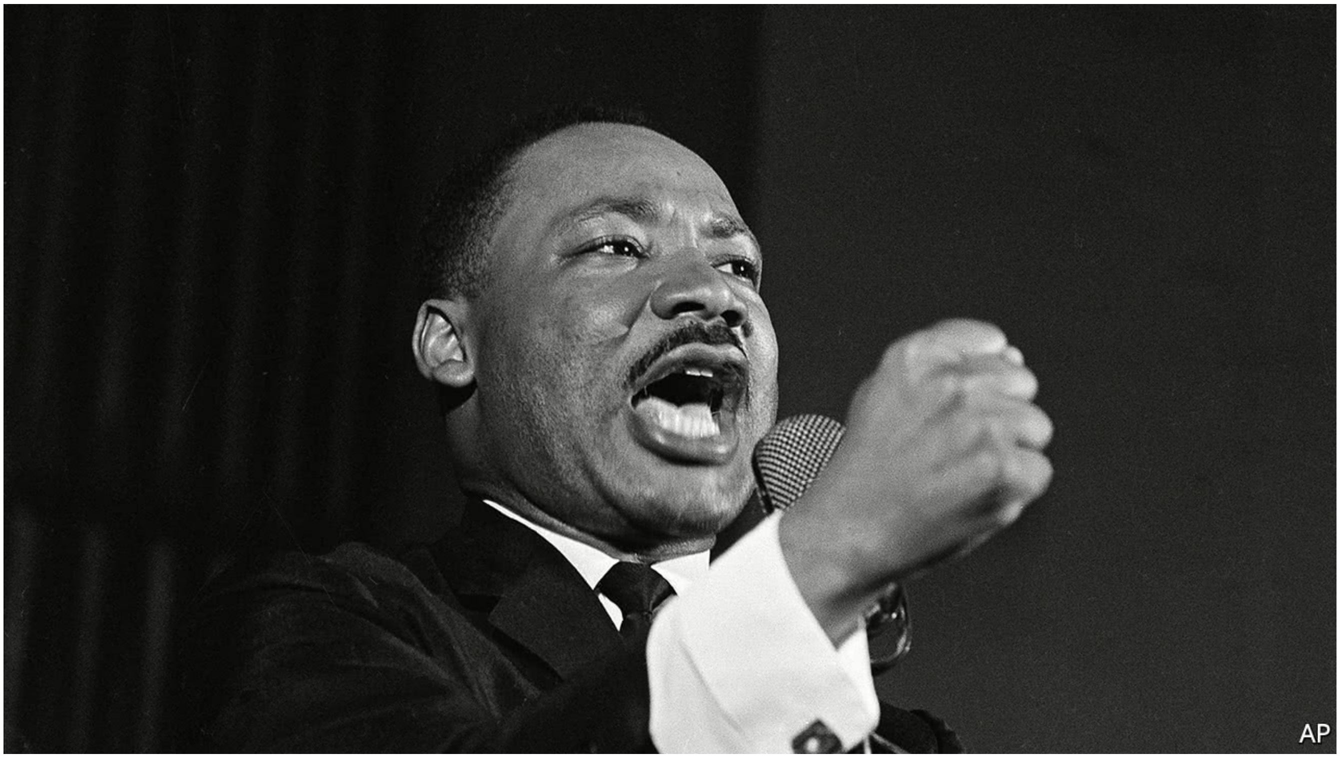
I want to respond to your article on the attempt by the president of Afghanistan to dismiss me as governor of the province of Balkh ("Power-shedding", March 3rd). President Ashraf Ghani derives his legitimacy from a power-sharing agreement with Abdullah Abdullah, the Jamiat-e Islami party's candidate for the presidential election in 2014, to form a national unity government. Under this agreement President Ghani is bound to consult Jamiat-e Islami's leadership council on all key government appointments, but he unilaterally attempted to sack me as governor, triggering a stand-off between Jamiat-e Islami and the presidency.

Under my leadership over the past decade, Balkh has turned into an oasis of peace, security and development, despite receiving less foreign aid per person than the rest of the country. Balkh stands out as a successful case of development in the post-Taliban era where every dollar of aid has improved the delivery of services, basic infrastructure, good governance, the rule of law and has attracted private-sector investment.

There have been concerted efforts to discredit me and my legacy, as was the case with the allegations made against me in your article. Balkh raises nearly $200m a year in direct taxes and customs duties that is paid into the central government's coffers. Revenue from Hairatan, a border crossing with Uzbekistan, constituted $80m of the amount generated in the most recent fiscal year. Revenues from Hairatan port have nearly doubled in the past three years, as trade with our Central Asian neighbours increased to compensate for a drop in imports from Pakistan because of the deterioration of our bilateral relationship with Islamabad.

I would like to reiterate that every dollar of public money is accounted for, as it is my duty before God and the nation.

ATA MOHAMMAD NOOR
Governor of Balkh province
Mazar-i-Sharif, Afghanistan



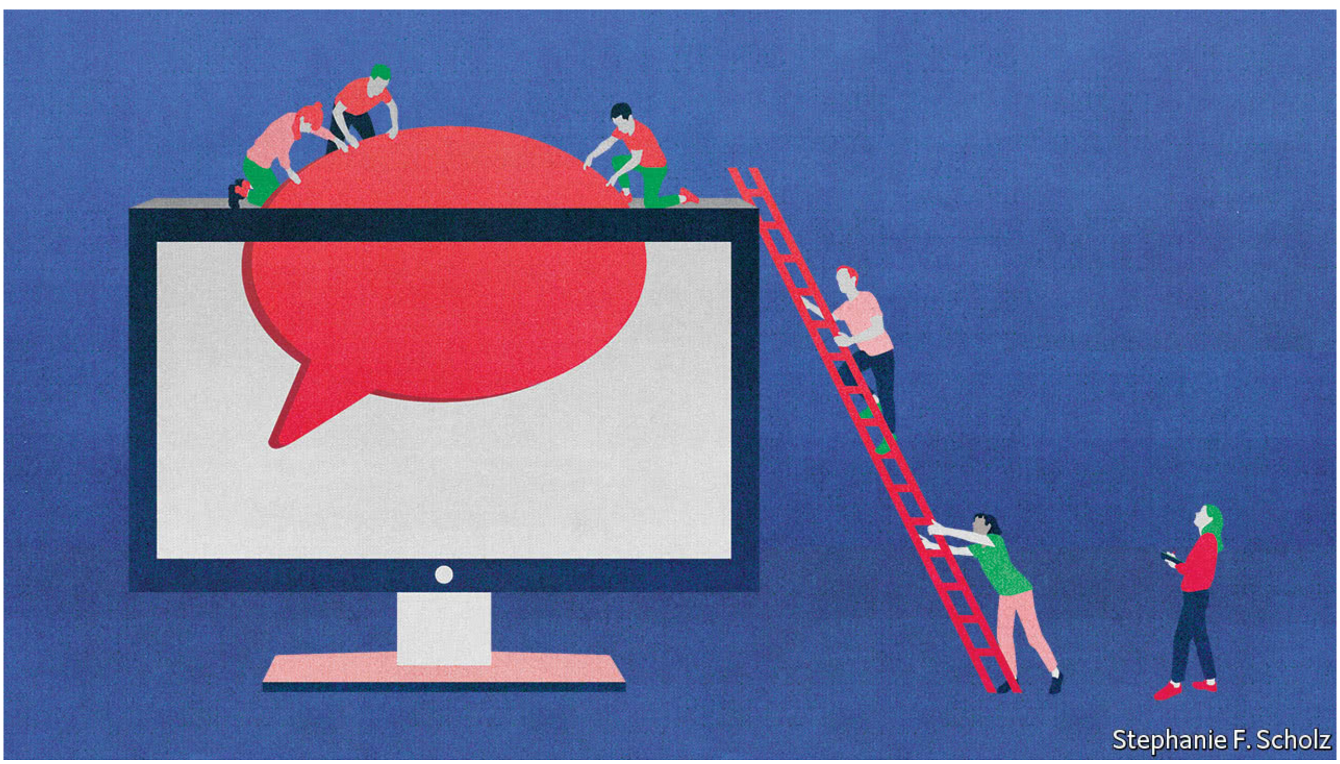
AP

When King met Graham

Your obituary on Billy Graham stated that he had once bailed out Martin Luther King from jail (March 3rd). This has been widely reported recently, but it never happened. Whatever misinformation about this that is out there on the web can probably be traced back to an "authorised" biography of Graham.

I might add that while King was invited to appear at one of Graham's crusades in the summer of 1957 the two men were never close personal friends nor political collaborators. Veterans of the civil-rights movement do not view Graham as an active or visible supporter of their efforts during the 1960s.

DAVID J. GARROW
Pittsburgh



Stephanie F. Scholz

No, honestly

* " The unexamined mind " (February 17th) implies that our future faith in artificial intelligence hedges on some other human's ability to light up the AI "black box". So, paraphrasing David Foster Wallace, what you are saying is that our belief in AI amounts to "a complex and sophisticated 'Trust me.'"

ALEXANDER ARNOLD
Minneapolis

Malaysian politics

Your recent articles on Malaysia contained serious errors and reeked of an arrogant colonial mindset, disparaging our prime minister, government, police, judiciary, election commission, media and even our voters (" Stop, thief! ", " Tilting the playing field ", March 10th).

For example, America's Department of Justice never accused Najib Razak, the prime minister, of "siphoning" off funds, nor has Mr Najib ever suggested that the funds were a "gift from an unnamed admirer". In fact, the prime minister and numerous officials have stated that the funds—the vast majority of which were returned—were a donation from the royal family of Saudi Arabia. This has been confirmed by the Saudi foreign minister, who has publicly stated that the funds were "a genuine donation with nothing expected in return" and that the Saudi authorities consider the matter closed.

Separately, to suggest that the redrawing of electoral boundaries to account for population growth is somehow "rigging the system" reveals your double standards for Western countries and the rest of the world. Your allegation would imply that numerous democracies are guilty of the same charge, not least Britain, where significant constituency changes are expected in advance of the next election. In Malaysia these changes were proposed and implemented by the independent Election Commission and subsequently approved by the judiciary, whose impartiality is evidenced by the fact that it frequently rules against the government and senior ministers.

Since Najib Razak took office in 2009, Malaysia's gross national income has increased by more than 50%, 2.3m jobs have been created, unemployment and inflation have been kept low and poverty reduced significantly. Indeed, the Malaysian economy is growing at such a fast rate that the World Bank had to increase its estimates for our growth three times over 2017, to 5.8%. The government's plan for the economic well-being and security of Malaysia and its people is delivering.

This is the true story of Malaysia. Your reporting appears to have been based exclusively on falsehoods pushed by opposition parties and their sympathisers for political gain ahead of the coming election.

DATO' AHMAD RASIDI HAZIZI
High commissioner of Malaysia
London

Who's counting?

The problem with saying that the American taxpayers' exposure to housing is "hidden off the government's balance-sheet" is that if the federal government actually had a balance-sheet then this and other liabilities would doubtless appear on it (" Tackling Fannie and Freddie ", February 24th). The real problem is that unlike some other countries, the American government still keeps its public accounts on a purely cash basis. In New Zealand, the Public Finance Act of 1989 requires its government's accounts to be prepared according to generally accepted (private-sector) accounting practice, so that its annual accounts now include a balance-sheet that consolidates the government's financial position, including even contingent liabilities.

Almost immediately this drew attention to such unfunded liabilities as the defined-benefit public superannuation obligations in respect of public-sector employees and the government's housing liability in the event of a severe earthquake. Both led to prompt policy changes.

Although far from straightforward to implement, the seemingly simple step of adopting private-sector accounting standards would shed light on many public liabilities, including those for American housing.

DAVID CAYGILL
Former minister of finance
Christchurch, New Zealand

Oh my darling…

Johnson suggests that it is not possible to say to one's beau "I love she and she loves I" (March 3rd). Fortunately, Tom Lehrer did not consider this a restriction when he penned his reimagining of the folk song "Clementine". His last stanza culminated in:

"But I love she, and she loves me

Enraptured are the both of we

Yes, I love she and she loves I…

And will through all eterni-ty!"

DAVID MAERZ

Melbourne, Australia

* My case against whom is simple. The corresponding pronouns what, that and which remain the same in the subjective and objective case, without causing ambiguity. Hence, there is no good reason to retain whom.

AXEL BIEHL

Vancouver

* Letters appear online only

Technopolitics

The challenger

In blocking Broadcom's takeover of Qualcomm, Donald Trump showed that America is worried about Chinese tech. It has a point. It doesn't have an answer

Print edition | Briefing Mar 15th 2018

NOTHING moves in the 40 black cabinets in the facility outside Shanghai except the water in the cooling system. But the 10m processing units within crunch through numbers at an incredible speed. The Sunway TaihuLight can perform 93,000trn calculations a second. It is currently by far the fastest supercomputer in the world.

Supercomputers have their origins in national security. The biggest are still mostly, like TaihuLight, paid for by governments, and they still play a role in national self-esteem. For decades, it was axiomatic that the fastest of these computers would mostly be American, or at least use American chips. No longer. When Top500, a website, released its latest list of the world's fastest machines last November, 202 of them were Chinese, accounting for 35.4% of the list's combined computing power; America's 143 machines accounted for just 29.6%. Many of the Chinese computers, admittedly, use American chips. But TaihuLight, the champion, proudly uses chips made in China.

No one would take the Top500 list as a broad measure of technological leadership. But it does reveal ambition. If you have smart people, money and a desire to appear on the list, you can. The same applies to dominating it. Xi Jinping, China's president, wants to take the same approach to technology more generally. He talks of making China a "cyber superpower"—one that, within a dozen years, will lead the world in artificial intelligence (AI), quantum computing, semiconductors and the coming "5G" generation of mobile networks, not to mention synthetic biology and renewable energy.

Talk to American business leaders and they are aflutter with anxiety about China's progress in such technologies—especially AI. Having more than 800m internet users means the country has an overabundance of data, the most important input for AI services. The sum of all fears for America's national-security establishment is that China will not only match its military capabilities but also dominate, and have the power to subvert, the industries on which those capabilities are based.

It was against this background that, on March 12th, President Donald Trump's administration blocked the $142bn hostile takeover of Qualcomm, an American wireless-technology company, by Broadcom, a chipmaker currently based in Singapore and California which is in the process of becoming fully domiciled in America. The Committee on Foreign Investment in the United States (CFIUS) recommended the ban to Mr Trump. It worried that a merged Qualcomm and Broadcom, which would be led by Hock Tan, a Malaysian entrepreneur and investor,would, either by design or neglect, allow Chinese companies to become the hardware providers of choice for 5G networks and control much of the intellectual property for them.

These networks are supposed to connect everyone and everything, from self-driving cars to wireless sensors on the shop floor. If China were to dominate this new infrastructure, some fret, it not only may be able to hoover up a lot of data, but also perhaps switch it off—or indeed weaponise it in the event of a conflict.

Such worries also lie behind renewed American attacks on Huawei, the world's largest provider of mobile network equipment, which has big ambitions for 5G. The company is all but banned in America for fear that its wares contain "backdoors" for Chinese spooks to eavesdrop on data transmissions. In January AT&T, America's biggest network operator, ended a deal to distribute Huawei's latest smartphone, after politicians warned it off. At a congressional hearing in February the National Security Agency (NSA) and others warned American citizens against using handsets made by the firm.

The Broadcom ban is likely to be just the first volley of what the administration seems to see as a counter-attack. An investigation into allegations that China has forced American companies to hand over intellectual property, or in some cases stolen it, will soon report its findings. It is widely expected to conclude that China's bad behaviour has cost American companies more than $1trn, and that Mr Trump will use that conclusion to lash out against Chinese imports, using section 301 of the trade act to impose some $60bn in tariffs.

None of this, though, will change the fact that over the past generation China really has become a technological power comparable in many of its capabilities to Europe, Japan or America. It cannot do everything. One does not go to China to buy jet engines or targeted cancer therapies; China spends more on importing semiconductors than it does on importing crude oil. But it can do a lot, it aims to do more and it is not likely to play fair.

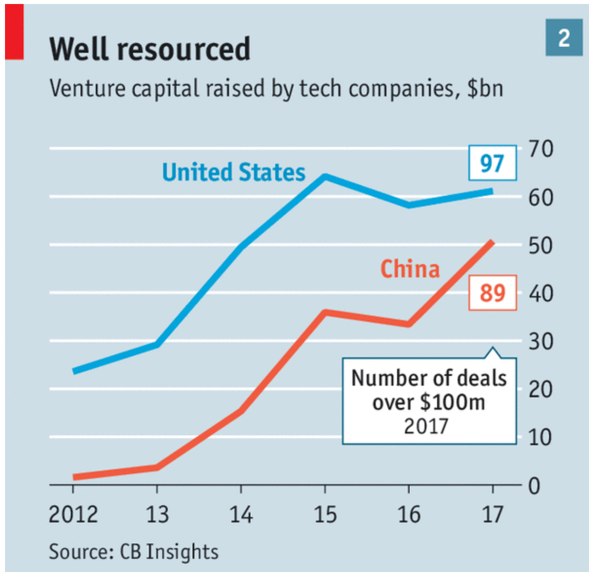
Droning on

This is a huge challenge for America. From the 1940s to the 1980s, it faced the military and ideological threat of the Soviet Union. In the 1980s, it came to feel increasingly threatened by the rise of Japanese technology, which had become, in some areas, world-beating. What it faces in China is, roughly speaking, the two threats rolled into one—but twice as big.

American companies and politicians have been complaining about China's restricted markets, the closeness of its companies to its spooks and its intellectual-property strong-arming for years. The current confrontation feels weightier. One reason is that China, which once merely seemed to be catching up, now wants to overtake. The "Made in China 2025" initiative, released in 2015, seeks to dominate the industries of the future. The "13th five-year plan for national informatisation", launched in 2016, will see the chip industry subsidised to the tune of $150bn.

China also now has a truly impressive tech sector. The Pearl river delta does not only make phones and other electronics for companies at home and worldwide. It houses big hitters of its own, such as DJI, the world's biggest maker of consumer drones. China's online giants, Alibaba and Tencent, once seen as imitators pumped up by the protection of a huge home market, have proved themselves truly impressive innovators. Thanks to their hugely popular mobile-payment systems, Alipay and WeChat Pay, cash has more or less vanished from China's eastern cities. The systems' monthly transactions top $1.2bn.

Their success at home has been great enough that, between them, Alibaba and Tencent are now worth more than $1trn. Market analysts include both alongside Alphabet (Google's parent), Amazon, Apple and Facebook in their lists of global online titans (see chart 1). Both have embarked on expansions beyond China: Alibaba owns part of PayTM, a big Indian e-commerce firm; Tencent recently invested in GO-JEK, a fast-growing logistics and payment startup in Indonesia. A formidable phalanx behind them, including Baidu, Bytedance and JD.com, are just as ambitious, to say nothing of the throng of startups eager for their day in the sun—a cohort just as diverse in its offerings, and almost as well-funded, as its counterpart in America (see chart 2).



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The country also benefits from an increasingly well trained and educated workforce; last year the World Economic Forum reported that China had 4.6m recent graduates in science, technology, engineering and mathematics (the vast majority of them engineers). America, with a quarter of China's population, has about an eighth of that number. China has a pretty enthusiastic public, too. They worry about the problems which come from old technologies, such as dirty power plants and internal-combustion engines; they do not yet worry so much about the problems which might come from new ones, though that time may come.

Various pundits, including Ian Bremmer of the Eurasia Group, a think-tank, warn that the emergence of a geopolitical rival with this sort of technological capacity could lead to a "tech cold war", with each side seeking to dominate the other by fair means and foul. Unless something goes very wrong, this would not be an existential confrontation, as the original cold war was. But it may well see fierce competition over disputed spheres of influence, with each side determined to spread the nexus of its products, protocols, rules and software standards—its technosystem, if you will—beyond its borders. Underneath hints of NATO versus the Warsaw pact there will be a stronger flavour of the battle between Android and iOS, the two dominant mobile operating systems.

The analogy risks making the conflict sound like a narrow technical issue, or simply one of which side makes more money. It is not. As more and more of human life is mediated by technology, what that technology makes possible to whom, and what it does not, becomes more and more important. Technology is rarely, in and of itself, ideological. But technosystems have an ideological side—witness the struggles of open-source advocates against proprietary-software developers—and can be used to ideological ends. The global spread of a technosystem conceived in, and to an unknown extent controlled by, an undemocratic, authoritarian regime could have unprecedented historical significance.

China is not just in a better position to challenge America's hegemony than it used to be. It is a good time to do so, too. It is not only the roll out of 5G. AI has started to move from the tech world to conventional businesses; quantum computing seems about to become useful. All this creates openings for newcomers, especially if backed by a state that takes a long view and doesn't need a quick return.

Progressing processing

Nowhere is this more true than in semiconductors. For decades the microprocessor market was dominated by Intel. It more or less invented Moore's law (Gordon Moore was one of its founders) and rode it to worldwide success, producing generation after generation of faster processors for servers, personal computers and smartphones. But Moore's law is breaking down, and processors designed for different tasks and a wider range of products are coming into their own, making the market more fragmented. Intel and the standards it promulgated no longer rule. That is a big opportunity for Chinese chip designers.

Huawei's latest Mate 10 handset—the one which AT&T will not now distribute—comes with a "neural processing unit" designed by HiSilicon, a firm based in Shenzhen, near Hong Kong. Bitmain, which is the world's biggest maker of computers to mine bitcoin and other crypto-currencies, already develops AI chips much like the ones made by Google and has the means to do much more. Bernstein Research, an equity-research firm, estimates that Bitmain made a profit of between $3bn and $4bn last year, about the same as NVIDIA, America's biggest AI-chipmaker.

To focus on individual companies, though, is to miss the point. China's leaders want to bind firms, customers and government agencies together with "robust governance", in the words of Samm Sacks of the Centre for Strategic and International Studies (CSIS), a think-tank in Washington, DC. They want to build a technosystem in which incentives to use other people's technology are minimised. These are, as it happens, the same goals as those of the companies which run America's large technology platforms, whether they are operating systems, social networks or computing clouds.

Gardening tools

A cardinal rule of managing such walled gardens is to control access. Developers of apps for Apple's iPhone have to go through a lengthy application process with an uncertain outcome; for example, in an unexpected but welcome development, the firm now seems to reject apps using emojis. Similarly, foreign technology firms that want to sell their wares in China face at least six different security reviews, each of which can be used to delay or block market access. As with America's worries about Huawei, this is not entirely unreasonable. The NSA has in the past exploited, or created, vulnerabilities in hardware sold by American companies. Local firms, for their part, are pushed to use "indigenous and controllable core cyber-security technology", in the words of a report presented at last year's National People's Congress.

Good platform managers also ensure that all parts of the system work for the greater good. In China this means doing the government's bidding, something which seems increasingly expected of tech companies. About three dozen tech companies have instituted Communist Party committees in the past few years. There are rumours that the party is planning to take 1%

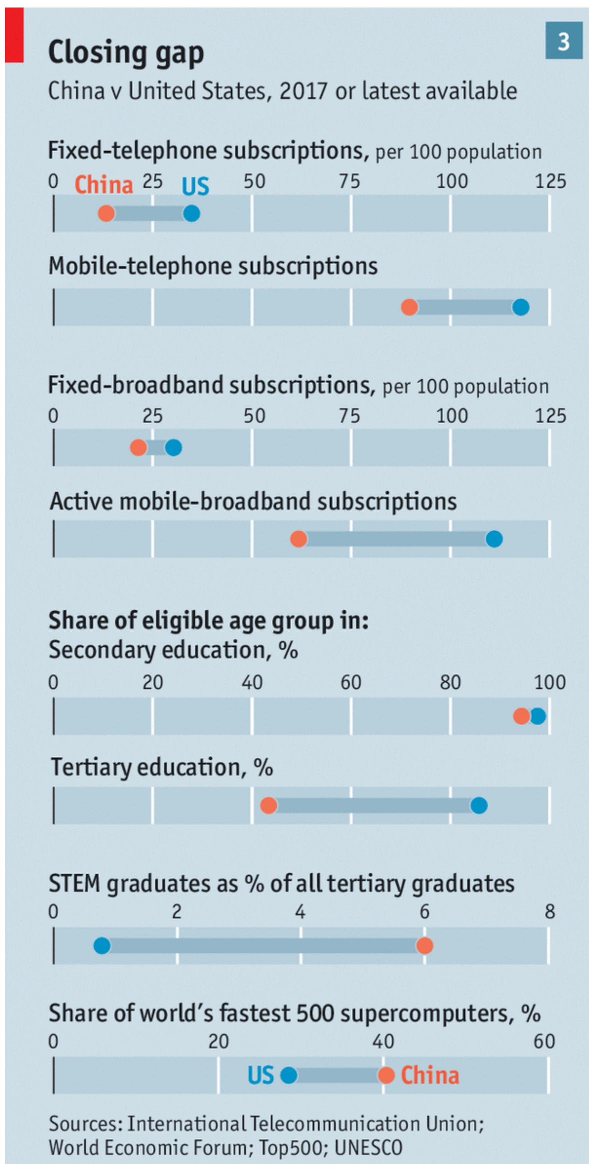
stakes in some firms, including Tencent, not so much to add to the government's control as to signal it—and to advertise that the company enjoys official blessing.

Many of China's tech firms help develop military applications for technology, too, something called "civil-military fusion". Most American hardware-makers do the same; its internet giants, not so much. "There's a general concern in the tech community of somehow the military-industrial complex using their stuff to kill people incorrectly, if you will," Eric Schmidt, the head of the Pentagon's Defence Innovation Advisory Board said last November, when he was still Alphabet's executive chairman. When it recently emerged that Google was helping the Pentagon with the AI for a drone project, some of its employees were outraged.

And then there is the walled gardens' most prized bloom: data. China's privacy regulations can look, on the face of it, as strict as Europe's. But privacy is not a priority in practice. Control is. Article 37 of China's new cyber-security law, which went into effect last year, states that "personal information and other important data gathered or produced by critical information infrastructure operators" should be stored in mainland China. Although details have yet to be worked out, the definition of "important data" looks likely to be sweeping.

A vast pool of data is a blessing for AI developers. If China is leading in facial recognition, it is in part because its visual-computing firms, including Megvii and SenseTime, have access to the government's image database of 700m citizens, who are each given a photo ID by the age of 16. Each of the Chinese tech giants has been put in charge of a crucial type of digital information, turning them in effect into national data champions: Alibaba collects the data needed for smart cities, Baidu for autonomous vehicles and Tencent for medical imaging.

Government agencies also use these data for policing. IHS Markit, a market-research firm, recently put the number of CCTV cameras in the country at 176m. More and more of them come with AI chips for facial recognition. In Xinjiang there are cameras on every street corner to track the movements of Uighurs, an oppressed minority. Then there is the "social-credit" system, which one day is supposed to combine all the data about a citizen into one handy "score". This will be used to determine the rights of people to travel abroad, for instance.



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It is easy to see all this as more purposefully joined up, and more sure of success, than it really is. A technosystem the size of China's is much more complex than a social network. The making of Chinese cyber-laws is a chaotic process, with many interests and bureaucracies pulling in different directions; their implementation is even more so. Bureaucracies may be good at telling firms to do things; they are not necessarily good at getting them to do things in the best way, because they allow too little room for manoeuvre, or of thinking up what the most interesting things for them to do might be. In the long run, state-ordained digital infrastructures may well be a drag on innovation, argues Peter Cowhey of the School of Global Policy and Strategy at the University of California, San Diego. And though China's internet titans have ambitions abroad, they have yet to chalk up any great successes there.

Still, taken together, China's efforts are shaping a technosystem quite different from any in the West. It is more tightly integrated, more co-ordinated, more government-dominated. It manages data differently. And it empowers the Communist Party as well as enriching shareholders.

China obviously wants its system to spread. So far, it has done so mostly through the world's mobile-phone boom. The various brands owned by Transsion Holdings, based in Shenzhen, have 40% of the African mobile-phone market. Most wireless networks in Africa are built using gear from Huawei and ZTE, its domestic rival, because they are cheaper than their western competitors. A lead in 5G could spread their advantage into more lucrative, mature and strategically interesting markets, in which the new networks could become a "vector of China's influence", as Paul Triolo of Eurasia Group puts it.

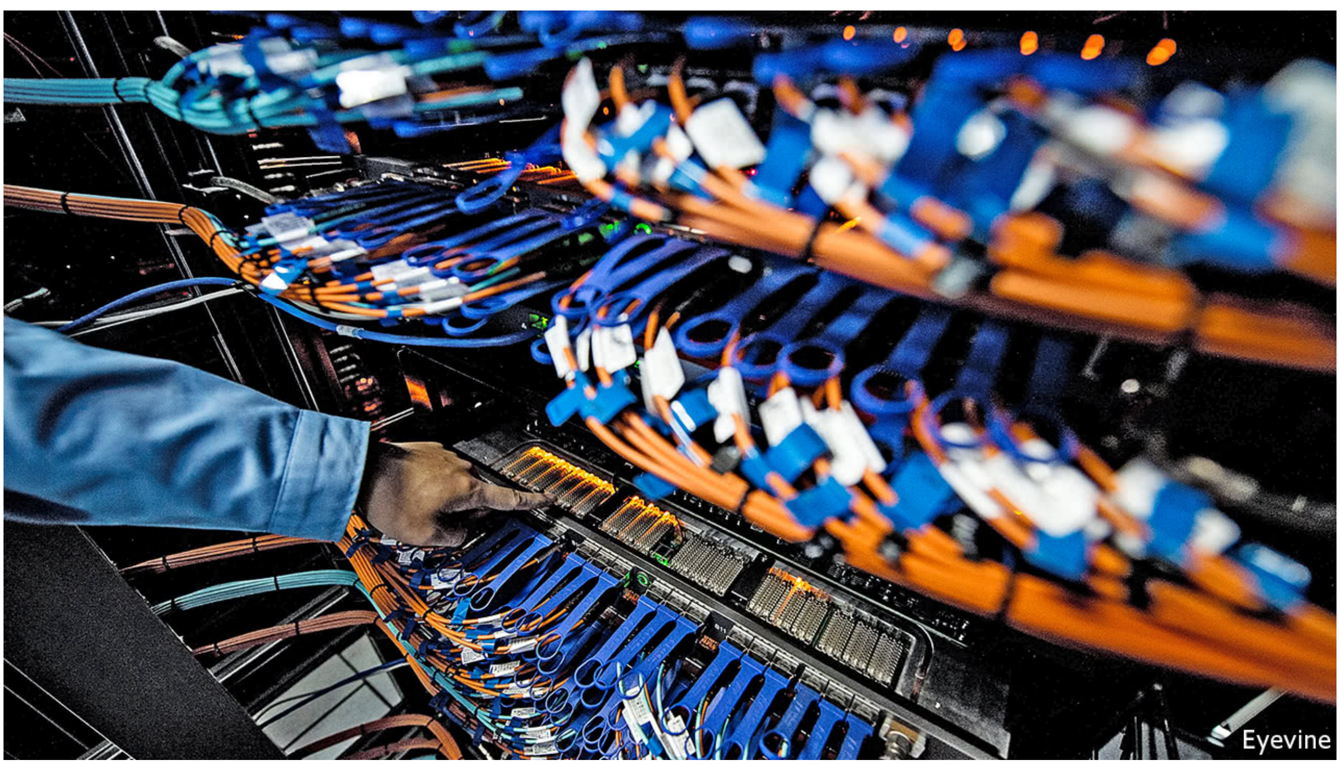
Pig-biting mad

China's cloud-computing firms are also pushing abroad. Simon Hu, the boss of Alibaba's cloud business, recently said that China's Belt and Road initiative, a set of Eurasian infrastructure projects which includes an IT component, the "Digital Silk Road", makes him confident that his company can "match or surpass" Amazon as the world's biggest provider of cloud-computing services.

Some countries are already taking more than one page from China's model of techgovernance. A draft of Vietnam's "Law on Cyber-security", for instance, requires foreign firms to store "within the territory of Vietnam...data of Vietnamese users, and...other important data collected and/or generated from the use of Vietnam's national cyber infrastructure." Singapore's new "cyber-security bill" imposes China-like rules on digital-service providers, although as passed it is less draconian than some of the drafts were. "China's approach to cyber-security and internet governance creates a model that may appeal to countries with similar concerns," says Elsa Kania of the Centre for a New American Security (CNAS), a think-tank.

For America, having a high-tech competitor which is not an ally (and not, like Russia, only competitive in the arms trade) is a new and uncomfortable thing. China has not played fair, and the urge to try and punish it is unsurprising. But blocking deals and raising tariffs will be ineffective and counterproductive. So too will half-baked notions of new national champions. A recent memo from a staffer on the National Security Council suggesting a fully nationalised 5G network was shot down after being leaked but such thinking is still alive and well in the White House, says William Carter of CSIS.

Better that it should develop a broader policy to strengthen its technosystem, argues Ms Kania of CNAS. Instead of making it as closed as the Chinese one, which would seem to be Mr Trump's preference, it needs to engage with allies such as Europe, Japan and Korea to spread open standards. It needs to build a shared digital infrastructure, such as common pools of key data for things like self-driving cars. And it needs to rediscover what has made it great in technology: investing in both basic and applied research and being an attractive destination for highly qualified immigrants (a requirement which, it must be admitted, the Trump administration is not well placed to meet).



Many in Silicon Valley think that their legacy of experience and culture of openness will continue to work in their favour. A lot of bright Chinese students come to America to study engineering and then stay on; as yet, few Western entrepreneurs and academics do the reverse, notes Nick Adams of AME Cloud Ventures. Though there are some 600 AI companies in China, most "deep research" is still done in the West, says Kai-Fu Lee of Sinovation Ventures, a venture-capital firm in Beijing. And though Alipay, WeChat and other online services generate oceans of consumer data, as yet its companies do not do the same for corporate data, which will make potentially groundbreaking applications of AI to business hard for it. What is more, the brute-force application of big data, impressive though some of its achievements have been in recent years, is not the only way to get smarter algorithms. Many Western AI firms already use computer simulations and games to that end.

Indeed, some worry that America's reactions will do the country's tech scene more harm than Chinese attention, which they quite like. Congress is considering handing CFIUS new powers to look at investment decisions. If it does, startups that had been banking on an ability to raise Chinese funds or sell to the Chinese might see their plans squashed, says Alan Cohn of Steptoe, an American law firm. Areas like chips, artificial intelligence and quantum computing will undergo particular scrutiny, and might become off limits to Chinese investors.

Silicon Valley risks complacency. Technology hotspots fade with time—for one to stay pre-eminent for ever would be very peculiar. But freewheeling openness is surely worth valuing, not least because it holds out the promise that this confrontation between America and China need not be the zero-sum game that the cold-war metaphor suggests. Openness allows connections, and keeping people and knowledge moving is the best way to ensure that aspects of the West's technosystems gain a foothold in China. It will help avoid a world where every nation has to join one camp or the other.

The idea that there will be a single winner is anathema to some. "No one country will be ahead of anyone else everywhere," says Andrew Ng, an AI expert who has worked for Google and Baidu and now runs his own Silicon Valley startup, Landing.ai. "AI is the new electricity, but no one won the electricity race."

Thomas Edison, whose electricity standard lost out to George Westinghouse's, might disagree. Innovation is always a bit of a race, and in the race to come some American companies will lose out to Chinese competition, some of which will be unfair. But that does not mean America will lose. Unfairness must be guarded against and sometimes punished. And America, like all nations, should take steps to keep its digital infrastructure secure. But that can be done without turning its back on the openness that has helped provide the technology which its citizens, and those of much of the rest of the world, enjoy today. Among other things, openness is one area where the West really should be able to keep its lead.

The White House
After Rexit

Trump unbound

The president has had enough of being challenged over foreign policy

In foreign affairs, America just moved closer to one-man rule

Print edition | United States Mar 15th 2018


AP

ON THE eve of a high-stakes trip to Asia in November 2017, President Donald Trump was asked by a Fox News anchor whether the State Department might be thwarting his America First agenda. Do you need more Trump nominees to push your vision through, the anchor asked? She was referring to scores of political positions that then remained (and still remain) unfilled at American diplomatic posts and agencies worldwide. Her question reflected a conventional Republican gripe, namely that the State Department is a cooing dovecote, full of apologists for Abroad. Mr Trump offered an unconventional answer. Lots of posts never need to be filled, he replied: "I'm the only one that matters, because when it comes to it, that's what the policy is going to be."

Mr Trump meant what he said, as he showed on March 13th after publicly sacking his secretary of state, Rex Tillerson, in a tweet. His new chief diplomat will be Mike Pompeo, a hardline partisan and former member of Congress who as director of the CIA for the past year has become one of Mr Trump's favourite aides and loyal defenders (see Lexington). Offering his highest praise for an underling, Mr Trump told reporters that when he is with Mr Pompeo, "We're always on the same wavelength." That, he added as he headed to southern California to inspect border-wall prototypes, is "what I need as secretary of state."

Nor is the president done. Signalling the "Trump Unbound" stage of his presidency, he announced: "We're getting very close to having the cabinet and other things that I want." A senior Republican senator, John Barrasso, draws on the cowboy heritage of his home state, Wyoming, to describe what is coming next. "A year into it, the President is taking the reins of the stagecoach," he says. Mr Barrasso recommends study of Mr Trump's campaign priorities—border security, trade fights and tax cuts—to know what is coming. As for the new team that Mr Trump is assembling, he advises: "The president certainly values loyalty."

Foreign diplomats are braced for the possible sacking of the National Security Adviser, Lt. General H.R. McMaster, who rubs Mr Trump up the wrong way. They would not be astonished to see the axe fall on the White House Chief of Staff, John

Kelly, a former four-star general who has sought to bring order to Trump-world, irritating his boss. Sober sorts in the White House insist that John Bolton, a ferocious warhawk, is not really on track to become National Security Adviser, despite reports that he has been interviewed for the post. But "I'll believe it when I don't see it," says an unhappy source.

Mr Trump spelled out specific policy areas in which he disagreed with Mr Tillerson, starting with the deal forged by Barack Obama with other world powers to freeze Iran's nuclear weapons programme, the Joint Comprehensive Plan of Action (JCPOA). "I wanted to either break it or do something. And he felt a little bit differently," Mr Trump sniffed. That nodded to a decision that the president must by law make every few months to endorse the pact or walk away from it.

That is a hard call because Iran is in technical compliance with the deal, even though Mr Trump thinks it a "terrible" agreement that fails to rein in Iran's missile programmes and broader troublemaking in the Middle East, and, worse, is time-limited by a series of "sunset clauses". The next deadline falls in May. Mr Tillerson was a prominent voice, along with the Defence Secretary James Mattis, for heeding the warnings of allies such as Britain, France and Germany that they cannot and will not rewrite the Iran deal. Mr Pompeo is an Iran hawk, and the JCPOA's existence "hangs by a thread," says an insider. Allied governments have sought to placate Mr Trump with offers of a side declaration, in which JCPOA signatories say they do not intend to let Iran resume nuclear work. Mr Trump has signalled scorn for this solution, without saying what would satisfy him. Should America quit the JCPOA, expect European governments to say it is not dead. But it could die, as European companies choose between Iran's markets and risking American sanctions.

In one sense Mr Pompeo's elevation is a relief. Even in tranquil times the world needs a chief diplomat who speaks with authority for America's president. These are not tranquil times and Mr Tillerson, a gravel-voiced former CEO of ExxonMobil, has been a dreadful secretary of state, humiliated for months, most recently when Mr Trump decided to meet the North Korean dictator, Kim Jong Un, without consulting him (see article). A Texas oilman and former president of the Boy Scouts of America, Mr Tillerson rose to the top of a business that thinks long-term, signing contracts intended to last decades with governments both benign and horrid, far from the public gaze. That made him enough of an establishment man to alienate Mr Trump, who thinks promises are for losers. Mr Tillerson was also too much the aloof, secretive CEO to earn the trust of his clever, thin-skinned department.

Yet the world should fear Trump unbound. Mr Trump's true agenda is less a collection of policies and ideological positions on right or left than it is a story about America, drawn from his own deepest beliefs. It is a populist story about betrayal. Talk to members of the president's inner circle and listen to Mr Trump's speeches, and a potent narrative of grievance unfolds. In this telling America emerged from the second world war as an unrivalled superpower, and magnanimously crafted, funded and defended a rules-based order that allowed other countries to rise. In time, though, those others took advantage of their generous patron, with the help of weak and foolish American elites. This humiliation has enraged Mr Trump since the 1980s. To this day his complaints have a retro feel. Witnesses report Oval Office tirades that return again and again to the threat from German cars or Japanese steel.

That is the story that Mr Trump yearns to rewrite, while there is still time and America retains the strength to punch back. Mr Trump likes trade tariffs, and wants to impose massive ones on China before long, dwarfing his recent imposition of tariffs on steel and aluminium. The resignation of Gary Cohn, his chief economic adviser and a conventional free-trader, removes a check on Mr Trump's instincts.

The State Department is unsure where this new era of monarchical government leaves them. Mr Tillerson achieved the unhappy feat of alienating the White House by heeding the policy advice written for him by career diplomats, taking conventional State Department lines on issues from climate change to the Iran deal, while alienating those same diplomats by seeming to disdain them. Disastrously for morale, he declined to defend his own department when the White House proposed cutting its budget by 25% or more—though as diplomats like to note, there are more troops employed in American military bands than there are Foreign Service Officers serving overseas. Mr Tillerson squandered goodwill with a corporate restructuring that felt to many staff like an invitation to resign. At one point, outside consultants sent round a questionnaire asking: "To optimally support the future mission of the Department, what one or two things should your work unit totally stop doing or providing?"

Experienced envoys have retired or resigned in droves. John Feeley resigned as ambassador to Panama on March 9th. He is no squishy hand-wringer. A former Marine helicopter pilot, he oversaw cartel-busting operations as deputy chief of mission in Mexico. He wishes Mr Pompeo well but fears: "The fundamental problem is that the president thinks he can frame and execute a one-man foreign policy." Mr Feeley resigned in protest at what he calls Mr Trump's warping of American values underpinning a rules-based order, such as democracy and free trade. America will struggle to replace such envoys. Mr Trump could not care less. Others should.

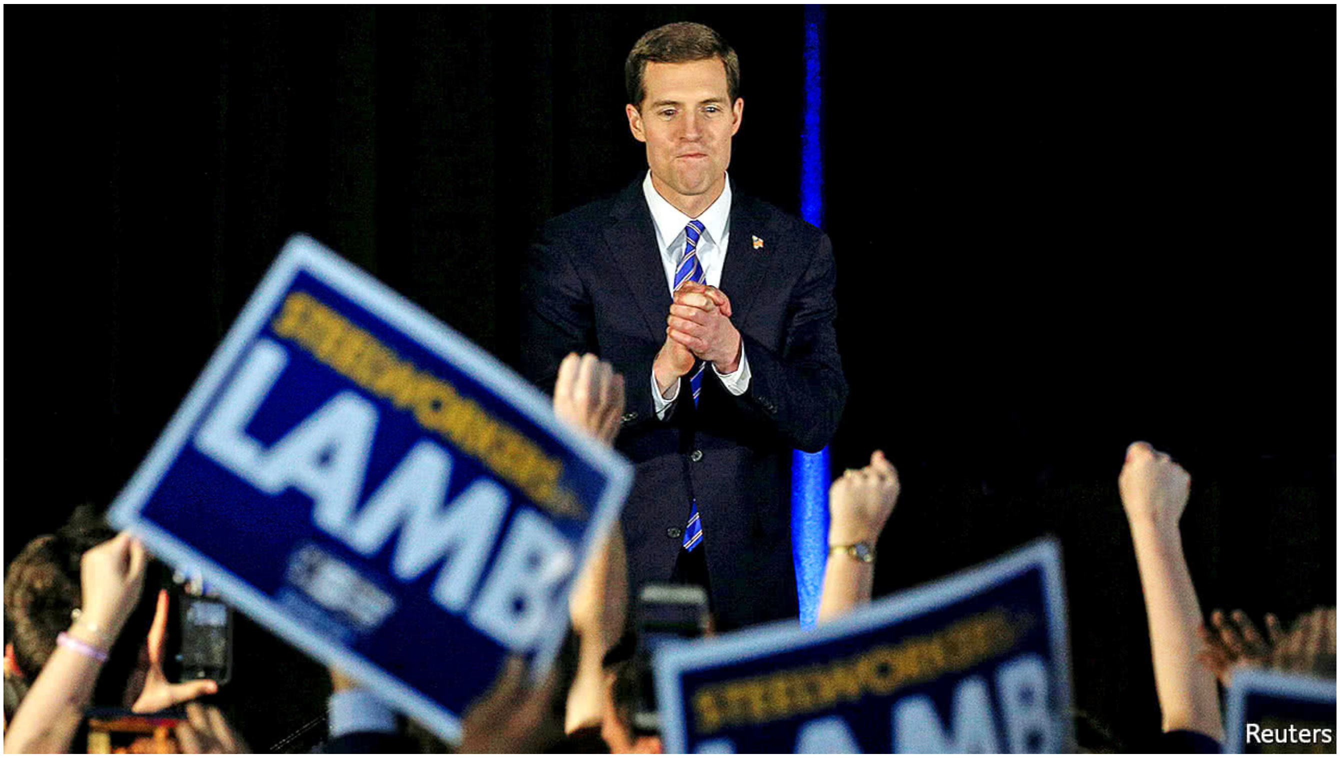
This article appeared in the United States section of the print edition under the headline "After Rexit"

Pennsylvania's special election

Wham, bam, thank you Lamb

Conor Lamb has shown Democrats how to win in places they usually lose

Print edition | United States Mar 15th 2018



IF DEMOCRATS could repeat Conor Lamb's extraordinary result in Pennsylvania when the mid-terms roll round, they would win enough seats in Congress to override a presidential veto. The former marine and federal prosecutor won a district that President Donald Trump took by almost 20 percentage points, the electoral equivalent of defying gravity. Democrats can now look forward to special elections in Arizona's 8th district (which Mr Trump won by 21 points) and Ohio's 12th district (which Mr Trump won by 11 points) with relish. Yet one thing that helped tip the vote in Mr Lamb's favour, albeit by a fraction of a percent, will be hard to repeat.

Rick Saccone was not as bad a candidate as Roy Moore, an alleged sex offender whose failed Senate run in Alabama dealt the Republican party its last electoral humiliation on this scale, but he was dire nonetheless. Republicans almost picked a better candidate, too. After Tim Murphy, a vocal opponent of abortion, was compelled to resign after revelations that he encouraged his mistress to have an abortion when she thought she was pregnant, both parties picked their candidates for the newly vacant House seat through a party committee. Guy Reschenthaler, a 34-year-old state senator and ex-serviceman, was expected to get the Republican nomination. But on the second ballot one of the three front-runners, Kim Ward, another state senator, threw her support behind Mr Saccone, who subsequently won handily. Mr Reschenthaler could have matched Mr Lamb in youth and energy, and outdone him on legislative experience.

As Mr Lamb's campaign gained momentum, out-of-state Republican groups came to Mr Saccone's aid, funnelling as much as $10m into his campaign. The Congressional Leadership Fund hired 50 knockers-on-doors through a private contractor. But Mr Saccone, a state legislator who claims to have been a diplomat in North Korea, has all the charisma of a phone directory. He showed up late for door-knocking and seemed ill at ease at public gatherings. His idea of a social-media campaign was to post a video on Facebook of himself at a Christmas party at a bar in Moon Township, rambling about the wings, pizza and zucchini on offer.

Mr Trump travelled to Pennsylvania twice to prop up Mr Saccone. During a 75-minute freewheeling speech on March 10th he talked about himself, insulted several adversaries and mentioned Mr Saccone only in passing. ("Personally, I like Rick Saccone. I think he's handsome.") As his polling lead disappeared Mr Saccone grew more strident. Appearing next to Donald Trump junior, the president's son, on the eve of the election, he claimed that "the other side" hated the president and the country. "And I tell you some more," he said. "They have a hatred for God."

Though every race looks unique if you stare at it for long enough, there are broad lessons for Democrats from Mr Lamb's success. Voters in rural and suburban areas like centrist candidates with military records who talk about pensions, health insurance and gun rights. With his clean-cut looks, Mr Lamb, a practising Catholic, was at times mistaken for a Jehovah's Witness. He was careful not to make the vote a referendum on Mr Trump, who is still fairly popular in the district. And he was a strong fund-raiser, outdoing his opponent by a margin of four to one with a haul of $4m.

Mr Lamb's other great strength was energetic support from the unions. Around 86,000 union members live in the 18th district. Labour leaders say one in five district votes comes from a union household. Many of them voted for Mr Trump, who did 13 points better in the district's union households than Mitt Romney, the Republican presidential candidate in 2012. They used to vote for Mr Murphy, who had moderate views on organised labour and was endorsed by several unions. Mr Saccone fell out with union leaders. He is a fervent backer of right-to-work legislation, which prevents unions from requiring workers, members or not, to pay union dues. This weakens them financially and politically.

Mr Lamb spent the final days of his campaign at rallies with unions. On March 9th he was with steelworkers in Pittsburgh (he embraces the proposed tariffs on imports of steel). On March 11th he joined coalminers at a United Mine Workers rally in Greene County, which Mr Trump won by a whopping 40%. Mr Lamb promised to protect pensions of union members as well as Social Security and Medicare benefits for all. "We are ready to step up and keep the promises that we made," he said. Union members responded with a fervour they never showed for Hillary Clinton. Mr Lamb was "a God-fearing, union-supporting, gun-owning, job-protecting, pension-defending, Social-Security-believing ...sending-drug-dealers-to-jail Democrat," enthused Cecil Roberts, the union boss. The Democrats need more like him.

A minor skirmish

The NRA's lawsuit against Florida is flimsy

In the case over banning gun sales to under-21s, victory may not be the measure of success

Print edition | United States Mar 17th 2018

ON February 28th, two weeks after a 19-year-old gunman killed 17 people in Parkland, Florida, President Donald Trump said "it doesn't make sense" for teenagers to be allowed to buy a semi-automatic weapon when federal law bans handgun sales to people under 21. Roughly 80% of Americans agree with that sentiment and, on March 14th, a nationwide student walkout urged broader action to combat gun violence. But after a talking-to in the Oval Office from a National Rifle Association (NRA) lobbyist, Mr Trump changed his tune. On March 12th he tweeted, in the face of evidence to the contrary, that there is "not much political support (to put it mildly)" for raising the age to buy rifles. Mr Trump says he prefers to wait and see how the courts handle challenges to age limits in the states.

He appears to be thinking of the conflict that is brewing in Florida, where the NRA filed a lawsuit on March 9th claiming that the Sunshine State's new age restrictions violate the constitutional rights of 18- to 20-year-olds wishing to buy semi-automatic weapons. "At 18 years of age," the complaint reads, "law-abiding citizens in this country are considered adults for almost all purposes and certainly for the purposes of the exercise of fundamental constitutional rights." Noting that 18-year-olds "are eligible to...fight and die by arms for the country", the NRA argues that Florida's ban on sales to people under 21 is invalid under the Second Amendment, which protects the right to bear arms, and the 14th Amendment, which guarantees the "equal protection of the laws".

According to Laurence Tribe, a law professor at Harvard, the NRA "should and probably will lose". No court has found people aged 18 to 20 to be a class worthy of special constitutional protection. In 1970, when Congress turned to the 14th Amendment to justify lowering the voting age from 21 to 18 in state and local elections, the Supreme Court balked. (Stephen Vladeck, a law professor at the University of Texas, says this ruling, in *Oregon v Mitchell*, spurred the adoption of the 26th Amendment, establishing a uniform voting age of 18, a year later.) Josh Blackman, a professor at South Texas College of Law, recalls that in 2014 the Supreme Court refused to take up a challenge to a Texas law barring 18-20-year-olds from buying guns. There is no constitutional problem with considering young people to be "generally immature", and therefore not qualified to buy guns, said the Fifth Circuit Court of Appeals. This ruling came from one of America's most conservative federal appeals courts.

The NRA suit takes a peculiar turn when it claims that the ban "particularly infringes" on the gun rights of young women. "Females between the ages of 18 and 21 pose a relatively slight risk of perpetrating a school shooting" like the massacre in Parkland, the NRA observes. In 2015 they were responsible for only 1.8% of violent-crime arrests, as compared with 8.7% for men aged between 18 and 21. Whether or not it is generally unconstitutional, then, "Florida's ban is…invalid as applied to women between the ages of 18 and 21".

That is a curious point (a "stupid" one, says Mr Tribe). The argument implies that a ban on young men buying guns may be less constitutionally problematic than the bill Governor Rick Scott signed on March 9th. But unlike laws that discriminate based on age, Mr Vladeck notes, laws that discriminate based on sex must have stronger justifications. In 1976, the Supreme Court ruled in *Craig v Boren* that barring men under 21 from buying low-alcohol beer, but permitting women to buy it on their 18th birthday (as women are less dangerous drivers), constituted discrimination in violation of the 14th Amendment.

With overblown rhetoric and scant legal merit, the NRA's suit seems unlikely to bring down Florida's law. But by picking this state-level fight, America's most effective lobbying group may have set its sights elsewhere. For Adam Winkler of UCLA law school, the lawsuit may be a loser in court but will "signal to donors and die-hard members" that the NRA is "fighting for your rights at every turn". The move may also provide cover for Mr Trump and avert a quick vote in Congress on higher age limits. The NRA seems to be wagering, as it has quite successfully in the past, that popular sentiment for tighter gun laws will wane as soon as the most recent massacre recedes from memory.

This article appeared in the United States section of the print edition under the headline "A minor skirmish"

From Gary to Larry

President Trump appoints a new economic adviser

Larry Kudlow is the quintessential member of the Republican Party's business wing

Print edition | United States Mar 17th 2018

GARY COHN resigned from office on March 6th after President Donald Trump unveiled tariffs on aluminium and steel imports. On March 14th his replacement as the president's top economic adviser was confirmed. Larry Kudlow, a 70-year-old television pundit, will soon assume the role, which does not require confirmation in the Senate.

Mr Kudlow, like Mr Cohn, advocates free trade. He has not hidden his opposition to Mr Trump's tariffs. On March 3rd he wrote an online column deriding them as tax rises in disguise that would, supposedly, put 5m jobs in harm's way. On his appointment, Mr Kudlow told the *Associated Press* that he is "in accord" with the president's policy, though still opposes the tariffs. For his part, Mr Trump says he has talked Mr Kudlow around to supporting tariffs as a "negotiating point".

Mr Kudlow, a history graduate, does not have a formal economics qualification. He studied for a master's degree in politics and economics at Princeton University, but dropped out. This did not stop him building a career in the field, first at the Federal Reserve Bank of New York, and later at Bear Stearns, an investment bank, where he became chief economist. A stint in the Reagan administration followed. Mr Kudlow returned to Bear Stearns in the late-1980s, before mostly swapping Wall Street for punditry.Trading on his experience in the Reagan White House, Mr Kudlow has built a reputation as a cheerful advocate of tax cuts and deregulation, whatever the economic weather. He has never been a deficit hawk. In 2016 he co-authored a book on the "secret history of American prosperity". It claimed that both John F. Kennedy and Ronald Reagan had unlocked sustained economic growth by cutting taxes.

Mr Kudlow's singular perspective on economic policy has not always served him well. In 1993 he predicted that tax rises under President Clinton would squelch economic growth. When the late-1990s boom ensued, he credited it to the Reagan tax cuts. In mid-2005, giddy from George W. Bush's tax cuts, he derided as "bubbleheads" those who foresaw problems in the housing market. In December 2007, now known to be the first month of the Great Recession, Mr Kudlow declared "there's no recession coming. The pessimistas were wrong." In 2009, he wrongly fretted about inflation and suggested that the Obama administration might have been exerting too much influence on the Federal Reserve.

Fluent and charming, Mr Kudlow appeared on television for more than an hour after his appointment to tell the story of how it came about. "Just let it rip, for heaven's sake," he said of economic policy, adding that he hopes the Fed does not "overdo" interest-rate rises. A willingness to comment on the central bank, if sustained in office, would contrast with Mr Cohn's reticence on the subject, and that of Steve Mnuchin, the treasury secretary.

Mr Kudlow is, in some ways, the quintessential representative of the business wing of the Republican Party. Yet his presence in the White House will not provide the same degree of reassurance to investors as that of Mr Cohn, who wielded far superior experience and never backtracked on his opposition to tariffs. But just like Mr Cohn, he will be a reliable cheerleader for tax cuts. Both Mr Trump and congressional Republicans have begun hinting that a second tax bill is in the works. There's a thought to worry fiscal hawks.

Correction (March 16th): *An earlier version of this article omitted that Mr Kudlow worked as chief economist for Bear Stearns before joining the Reagan administration (as well as after leaving it). Sorry.*

This article appeared in the United States section of the print edition under the headline "From Gary to Larry"

Hornswoggled

Pirates and #MeToo

A storied ride at Disneyland is being remodelled. Again

Print edition | United States Mar 15th 2018

SINCE 1967, the Pirates of the Caribbean attraction at Disneyland in Anaheim has immersed visitors in the world of swashbuckling buccaneers. After boarding small boats in a landing lit by the glow of fireflies, riders float past Dead Man's Cove, where the skeletons of unlucky marauders sit guarding their booty even in death. They watch as cannonballs whistle through the air and behold as rambunctious pirates loot villages and set things aflame.

After next month, one 50-year-old scene will be updated to reflect more sensitive times. Disney will temporarily close the Pirates of the Caribbean ride to tweak the "Wench Auction" scene, where a full-busted animatronic woman with flame-red hair, a red corset and a lacy petticoat stands on an auction block to be sold. "We wants the redhead," riders can hear the pirates shout as they glide by. Behind her stand other wenches, their eyes downcast and pleading, their waists tied to one another with a leather strap. Standing guard over them is a rotund pirate with a lewd grin and a pistol tucked in his waistband.

When unveiled later this year, the new scene will depict the same redheaded woman, but this time as a pirate herself. She will oversee the local townspeople as they begrudgingly surrender their chickens, goats, grandfather clocks and other valuables. Where before hung a sign that read "Auction, Take a Wench for a Bride" will now hang a banner that says "Auction, Surrender yer Loot".

This is not the first time Disney has revamped the ride to avoid offence. In 1997 the company altered a scene that showed lusty pirates chasing after frightened women. To lighten the mood, Disney gave the women trays of food and rum to create the perception that all the men were after was some grub and a tipple. In a letter to the editor of the *Los Angeles Times* that year one reader wrote: "I am distressed to hear that Disneyland is planning to change the Pirates of the Caribbean attraction to show the pirates lusting after food and drink rather than the damsels that have been the objects of their amours for the past 30 years. How politically incorrect! Can Disneyland officials be so insensitive to life in the US not to realise that obesity is a problem to over half the population over age 30?"

The reactions to Disney's choice, both in 1997 and today, reflect a larger debate sweeping America over the best balance between historical accuracy and political correctness. Supporters of the changes to Pirates of the Caribbean reason that Disneyland is oriented towards children and therefore rides should be as sanitised as possible without entirely losing their flavour. Detractors believe Disney's pirates should depict pirates as they actually behaved. Even the "happiest place on Earth" is not immune from such scuffles.

This article appeared in the United States section of the print edition under the headline "Hornswoggled"

Losing their religion

The number of ex-Muslims in America is rising

Yet even in the land of the free, apostasy isn't easy

Print edition | United States Mar 15th 2018

AS SOON as he stepped off the plane on a family holiday to Kenya, Mahad Olad knew something was wrong. His mother, a "very devout, very conservative, very Wahhabi" woman, was acting strangely—furtively taking phone calls when she thought he was out of earshot. His suspicions would soon be proved correct. Mr Olad's family, Somali immigrants to America and devout Muslims, had discovered that he had not only renounced Islam but was also gay. The holiday was a ruse, an intervention to save his soul.

Mr Olad was told he would leave college and be turned over the next day to the care of Muslim clerics who would restore his faith. "I was aware of the horrors of these camps," Mr Olad says. "They operate them in the middle of nowhere, where you cannot escape. They subject you to beatings, starvation and trampling." He tried to contact the American embassy, but it could not send help because of recent terrorist attacks nearby. Luckily, he also managed to reach a Kenyan atheist group. In the dead of night he sneaked into his mother's room, stole his passport and was whisked away by taxi to the embassy, which eventually returned him safely to America. He has not spoken to his family since.

Though few have such harrowing stories, hundreds of thousands of American Muslims might recognise something like their own experience in Mr Olad's tale. As the number of American Muslims has increased by almost 50% in the past decade, so too has the number of ex-Muslims. According to the Pew Research Centre, 23% of Americans raised as Muslims no longer identify with the faith. Most of them are young second-generation immigrants who have come to reject the religion of their parents. Some, however, are older when their crisis of faith arrives, already married to devout Muslim spouses and driving children to the mosque to study the Koran at weekends.

The vast majority, whether young or old, are silent about their faithlessness. One Muslim college student, who came home drunk one evening, was confronted by his father. Not thinking clearly, the son confessed to his father that he was an atheist, whereupon the father revealed that he too had lost his faith many years ago. Yet he still admonished his son for not hiding his secret well enough.

Publicly leaving Islam is difficult because many Muslims live in tight-knit communities. Many apostates are left closeted, afraid to put at risk their relationships with their parents, on whom they may still depend, or with their siblings and their friends. Non-believing Mormons, Hasidic Jews and evangelical Christians find themselves in a similar predicament. Within Somali enclaves in Minneapolis and Pakistani ones in Dallas, renunciation of Islam is tantamount to renunciation of an entire social circle. “The most frustrating part is living knowing that my life has to be guided by the rules I don’t agree with,” says one still deep in the closet.

Apostasy is different from apathy, but that is also growing among Muslims. Among believers aged 55 or older, 53% say they perform all five of the mandatory daily prayers—no easy feat, considering that the first must be done before dawn. Among Muslim millennials, that proportion falls to 33%. Few would be ostracised for missing a prayer, or not fasting during the month of Ramadan—so long as those misdeeds were not made public.

In broad terms, there are two types of ex-Muslims. Those who are from less religious families simply drift away and face fewer repercussions. “It was a progression,” says one such ex-Muslim, who stopped praying at the age of eight after noticing that nothing cataclysmic happened when she missed a prayer one day. Then she starting sneaking meals during Ramadan, before moving on to alcohol and premarital sex. At 18, she was an atheist.

Then there are those in more religious households. They tend to have cleaner breaks, sudden realisations while studying the Koran or the Hadith, the sayings of the Prophet Muhammad. Often the verses that trigger this are controversial ones about slavery or gender that family members and imams cannot explain satisfactorily. Coming across the writings of Ayaan Hirsi Ali, Richard Dawkins or Christopher Hitchens sometimes has the same effect. Some chafe at sexism or homophobia. “I remember one Halloween, I wasn’t allowed to go trick-or-treating because I had to clean up after dinner, but all my male cousins and brothers got to go,” says one female ex-Muslim who is not out to her family (nor will ever be, she fears).

To cope, some look online, seeking solace in anonymous forums. One, hosted on Reddit, has nearly 30,000 followers. Here ex-Muslims trade stories of families kicking their children out after they confess their disbelief. But they also traffic in lighter-hearted fare, like taking pictures of booze-and-pork meals during Ramadan—enjoyed in the daylight, of course.

Out and proud

Despite all the pressure of family and community, more ex-Muslims seem to be going public. Ex-Muslims of North America (EXMNA), an advocacy organisation, has pushed for those who safely can to publicly declare their renunciations. “The goal is to change things enough so that we no longer need to exist,” says Sarah Haider, EXMNA’s director. The group launched a university tour, entitled “Normalising Dissent”, which has attracted angry critics and required extensive security preparations. Though she must contend with death threats, and has to be quite vigilant about infiltrators to her organisation, Ms Haider persists. “Condemnation is still acknowledgment,” she notes.

While the penalties for apostasy can be high in the West, they are much more severe in the Muslim world. In Pakistan, blasphemy carries a death sentence. In Bangladesh, atheist writers have been hacked to death by machete-wielding vigilantes. An atheist who recently appeared on Egyptian television to debate a former deputy sheikh from Al-Azhar University was dismissed by the host and told that he needed to see a psychiatrist. Mr Olad, who was born in a refugee camp in Kenya, has seen both worlds—he knows ex-Muslims in Kenya and Somalia who were severely beaten when their secrets were discovered. “I feel very grateful to live in a country where I have at least some level of protection,” he says.

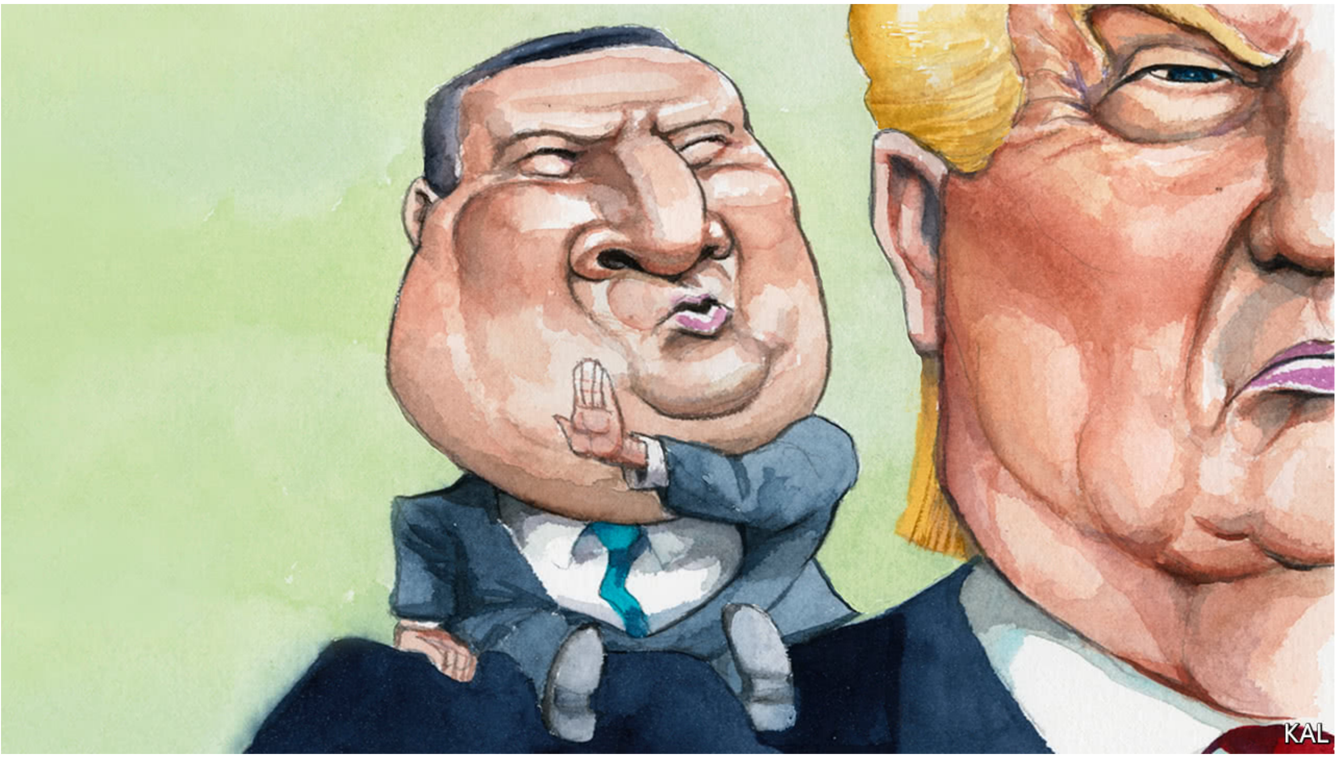
This article appeared in the United States section of the print edition under the headline ”Losing their religion”

Lexington

The Trump-whisperer

Mike Pompeo is where foreign-policy realism meets America First

Print edition | United States Mar 17th 2018



EIGHT years ago Mike Pompeo was a 47-year-old greenhorn congressional candidate in Wichita, Kansas, with a modest business career and unremarkable limited-government views. He was best known for being the biggest recipient of campaign donations from Wichita's largest private-sector employer, Koch Industries. No one, save possibly that company's conservative mega-donor owners, marked him out for greatness. Yet with the Senate's blessing, which is likely to be forthcoming, Mr Pompeo will shortly be the first person to have occupied the offices of both CIA director and secretary of state.

His rise is yet another illustration of how Donald Trump has turned the old order on its head. Because the president knew few Republican policy experts at the time of his election, and was despised by most of them, he turned to soldiers, businessmen and politicians to fill his senior positions. Gratifyingly for Mr Trump, who has a mixed view of politicians and admires real-world achievement, Mr Pompeo, one of four members of the House of Representatives thus favoured, was all of the above. Before his business career he graduated top of his class at West Point and served five years in a cavalry unit; he retains an air of the bullish straightforwardness military high-achievers exude. Mr Trump was allegedly sold the moment Mr Pompeo, a well-built man like the president, came barrelling into his office. Yet he left the army almost 30 years ago and his soldierly carriage is misleading.

Having suffered the defeat of many clever plans, experienced officers moderate their youthful swagger with caution, inscrutability even. James Mattis, the defence secretary, is more a cerebral student of history than the "Mad Dog" Mr Trump thought he had hired. Mr Pompeo's bullishness, by contrast, is amplified by a politician's ideological certainty and eagerness to score partisan points. Though accomplished for a House member, he was most notable for his nakedly partisan and, as it turned out, baseless effort to pin the blame for a terrorist attack six years ago in Benghazi, in Libya, on Hillary Clinton, then secretary of state. That was even more delightful to Mr Trump, who allegedly passed over another Republican congressman, Mike Rogers, for the CIA job because he had acknowledged that Mrs Clinton was not to blame.

Mr Pompeo's blend of establishment smarts and aggressive partisanship explains his success in Mr Trump's administration. The president has found its apolitical members, such as Rex Tillerson, the outgoing secretary of state, disappointingly unenthused by his ideas. (Of this group, only Mr Mattis has had sufficient heft to stave off the president's hunger for validation.) By contrast, ideologues such as Mick Mulvaney and Tom Price, the budget director and former health secretary, have been willing servants of the president's agenda, but too inflexible to be effective managers. Mr Pompeo grasped that his tasks were to please his department and the president, and he has succeeded at both.

Unlike Mr Tillerson, he arrived at his agency with a small entourage, appointed a careerist as his deputy, gained a reputation for listening to colleagues, and has talked up the CIA's operational effort relentlessly. The agency's business, he says with grim theatricality, is "to steal secrets to protect America". On occasion he has defied the administration in defence of his department. He opposed shifting America's embassy in Israel to Jerusalem, on the basis that the resulting upheaval would endanger its officers and agents. Yet he has at the same time set out—more than any recent spy chief—to curry favour with the president and trumpet his policies. He gives the presidential intelligence briefing most days, and often remains at the White House to discuss whatever Mr Trump has on his mind. Foreign-policy experts suspect this chumminess is a ploy. "No one is loyal to Trump—he is too indecent a human being," speculated Eliot Cohen, a conservative pundit and no fan of Mr Trump, on Mr Pompeo's feelings for his boss. Yet they underrate, as Mr Trump never has, the power of tribal allegiance to alter hearts and minds.

Mr Pompeo illustrates how partisanship has made the Republican establishment, in which he has a foot, rally to a rule-breaking president. On Benghazi and in his recent efforts to downplay the CIA's analysis of Russian electoral meddling, he has shown a serial willingness to substitute partisan myth for reality.

Pompeo and circumstance

His world view is similarly prone to the sorts of distortion that extreme partisanship has fuelled, on the right especially. Unlike the more mercurial president, to be sure, Mr Pompeo seems in many ways a reliable foreign-policy realist: pessimistic about alliances and supportive of free trade, albeit with a hawkish enthusiasm for using military power. He has advocated a tougher line against Russian expansionism, in Ukraine and Syria, than Mr Trump has. He sounds as admiring of China's strongman leader, Xi Jinping, as the president does. He appears deeply sceptical that North Korea's rogue regime is open to negotiation. Yet he also holds some of the irrational views that made his party so vulnerable to Mr Trump's confabulations and conspiracy theories.

His hostility to Iran's theocratic regime is understandable, but laced with exaggeration. He has claimed, without evidence, that Iran is in cahoots with Islamic State and al-Qaeda. He is openly Islamophobic. He once questioned American Muslims' loyalty and "commitment to peace". He dismisses climate science as a fraud. His establishment nous notwithstanding, Mr Pompeo is not playing Mr Trump so much as finding common cause with him. He is where traditional realism meets America First.

This explains his effectiveness, which America's diplomats, craving relevance after the ravages of Mr Tillerson's tenure, will be glad of. But they may not like his usage of them. Mr Tillerson, for all his failures, sought to provide a moderate counterweight to Mr Trump's impulsive and irrational views. There is a danger that Mr Pompeo will reinforce them.

Colombia
Adiós, Santos

Adiós, Santos

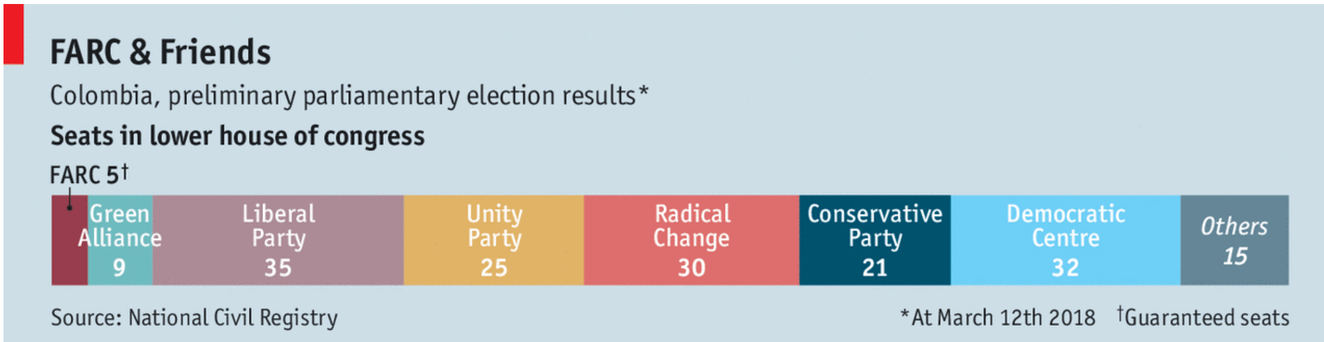
The contenders to succeed Colombia's peacemaking president

The front-runners are a critic of the peace deal with the FARC and a leftist former guerrilla

Print edition | The Americas Mar 15th 2018

THE mood was despondent as Carlos Antonio Lozada walked onto a makeshift stage in a plaza in Fusagasugá, a town 70km (43 miles) south-west of Bogotá, on March 3rd. He was the main speaker for the final campaign event of the FARC, once a guerrilla army, now competing in an election as a political party for the first time. The former commander gave a listless speech to a rain-spattered crowd of perhaps 400 people. They listened with indifference while FARC functionaries handed out lunch boxes, soft drinks and flags with the party's new rose-and-star symbol.

The FARC's participation gave historical significance to the congressional election held eight days later. But it also showed that Colombians have no intention of giving the ex-guerrillas the power they failed to gain in 52 years of war against the state. The FARC won just 53,000 votes in the election for the senate, 0.34% of the total. Under the peace agreement signed by Colombia's president, Juan Manuel Santos, it will nonetheless have five seats in the 108-seat senate and five of the 172 seats in the lower house of congress, which gives it some clout, but not a huge amount (see chart). The FARC's leader, Rodrigo Londoño, dropped out of the presidential election, whose first round is to be held on May 27th, for health reasons.



Economist.com

Other results from the vote will have bigger consequences. Pro-peace parties, including the Unity Party of Mr Santos (who cannot run for a third term), lost seats. Parties of the centre-right and right that are sceptical of the accord will be the strongest force in the new congress. More important are the results of two *consultas*, or primaries to nominate presidential candidates, held on the same day as the legislative vote. They conferred front-runner status on a critic of the peace deal and on a left-wing former mayor of Bogotá. Both would veer from the course set by the moderate Mr Santos, but in different directions.

The biggest vote-getter was Iván Duque, who will be the candidate of a coalition that opposed the peace agreement in a referendum in 2016. The alliance was put together by Álvaro Uribe, a conservative former president who is a ferocious critic of Mr Santos. Mr Duque, his protégé, is less strident and more technocratic. A lawyer with little political experience, he amassed 4m votes to defeat Alejandro Ordoñez, a fundamentalist Christian, and Marta Lucía Ramírez, a conservative senator. Mr Duque named Ms Ramírez, who got 1.5m votes, as his running-mate. The pair are well positioned for the presidential vote. Democratic Centre, Mr Uribe's party, will be the largest in the senate and the second-largest in the lower house.

The other big winner is Gustavo Petro, a former mayor of Bogotá and ex-member of the M-19 guerrilla group, who won a left-wing *consulta* against token opposition. Although his 2.9m votes do not match Mr Duque's haul, they are the most won by any left-wing presidential candidate in Colombia's history. Mr Petro's anti-establishment message resonates. He leads in the most recent opinion polls, with the support of nearly a quarter of voters.

The main threat to the two front-runners comes from Germán Vargas Lleras, a vice-president under Mr Santos who has become a critic of the peace agreement. Mr Vargas Lleras did not compete in a *consulta*, but the strong showing in the congressional election of his Radical Change party, which nearly doubled its number of seats, shows that he is master of Colombia's most effective political machine. The grandson of a former president, he has a network of allies among local power-brokers, especially on the densely populated Caribbean coast.

Although Mr Vargas Lleras has made fighting corruption a focus of his campaign, many of his allies have had links to paramilitary groups, says Juanita León, of La Silla Vacia, a political-news website. Some have been convicted of corruption and other crimes. Sergio Fajardo, a centre-left former governor of the north-western province of Antioquia, is a long shot to get into a second round of presidential voting.

Implementation of the peace accord, which has been disrupted by criminal gangs and slowed by the inefficiency of the state, is not among voters' main worries. In a recent survey by Celag, a pollster, just 16% of respondents said it would influence their choice. More than half named as pressing concerns jobs, health care and corruption, which is fresh in voters' minds after allegations that Odebrecht, a Brazilian construction firm, bribed Colombian officials (and paid for posters and polling in Mr Santos's re-election campaign).

"I care much more about all the corruption we see" than about the peace deal, says Dayana Rodríguez, a recent university graduate voting at Corferias, a convention centre in Bogotá. Another voter, struggling to find work, remarked that the FARC had never threatened her. If either Mr Duque or Mr Petro wins, it will be because voters are fed up with mediocre economic growth and with the smugness that Mr Santos seems to represent.

But the presidential election will matter for implementation of the peace accord, and for talks with the ELN, a guerrilla group that is smaller than the FARC but still active. Just how much is unclear. Mr Duque is more moderate than his mentor, Mr Uribe, but he wants to bar from politics FARC members who have committed crimes against humanity. That would contravene the agreement. Mr Vargas Lleras thinks FARC ex-guerrillas should not be allowed to participate in politics before they pass through the special "transitional-justice" courts set up by the accord.

Both are sceptics of negotiations with the ELN. Mr Santos broke them off in January, after accusing it of staging a series of attacks on the police (the ELN claimed responsibility for one). He resumed talks on March 12th. Mr Vargas Lleras has said he would not negotiate with the group; Mr Duque would set tougher conditions.

Mr Petro would cause rupture of another kind. His plans include taxing unproductive land and summoning an assembly to rewrite the constitution, both of which scare the rich. As mayor of Bogotá, he clashed with the city council and sometimes governed by decree. Parties on the centre-left, which could help him win the presidency and govern afterwards, consider him too dogmatic to be a reliable ally. If he becomes president he will face a hostile congress. He could put his radical proposals directly to the voters through referendums, says Eduardo Pizano, director of the school of government at the University of the Andes in Bogotá.

Conservatives brand Mr Petro a "*castrochavista*", intent on importing Fidel Castro's stultifying socialism and the chaos of next-door Venezuela, which follows the teachings of the late Hugo Chávez and is sending economic refugees into Colombia. The accusation will worry many voters. But Mr Petro appeals to a growing number of people angered by inequality and corruption.

That rage will probably propel him to a second round of the presidential election, scheduled for June 17th. It could even lift him to victory.

This article appeared in the The Americas section of the print edition under the headline ”Adiós, Santos”

A sunny place for a shady currency

Venezuela's crypto-currency: salvation or scam?

The Petro is probably a scam, but a better-designed crypto-currency could work

Print edition | The Americas Mar 17th 2018

IT "WILL be an instrument for Venezuela's economic stability and financial independence", promises a white paper published by the country's government last month. Venezuela, the issuer of the world's least stable currency, proposes to issue its most trustworthy in the form of the petro, a "sovereign crypto asset backed by oil". A private sale of this promising new asset started in February. The government plans to offer it to the public on March 20th.

In one sense, the idea is as ludicrous as it sounds. Only the most credulous investors will trust a currency issued by Venezuela's socialist regime, which has debased the bolívar, expropriated private enterprises, ridden roughshod over the country's constitution and faces sanctions from the United States and the European Union.

But there is a germ of sense in what Venezuela is proposing. The country is suffering from hyperinflation, with prices doubling every month. By the end of 2018 economic output will be 40% lower than it was in 2013, according to the IMF. Venezuela needs the "economic stability" promised by the white paper. In theory, adoption of a crypto-currency, impervious to political whims, could provide that.

Venezuela is not the only country seeking a cryptonic. Officials of Iran and Russia have said their governments might be interested in issuing crypto-currencies. On February 28th the Marshall Islands announced that it would issue one, called the sovereign, that it will accept as legal tender.

What would-be cryptocracies have in common is an uncomfortable relationship with the dollar. The Marshall Islands is a dollarised economy; a second currency would give it at least the illusion of greater control over its money. Iran and Russia are subject to American sanctions.

For Venezuela, whose crypto plans are more advanced, the petro might simply be a way to evade American sanctions and raise cash it desperately needs. The United States has frozen the dollar assets of the country's president, Nicolás Maduro, and 48 other Venezuelans. It has also barred companies with American operations from lending to some Venezuelan entities. Production of oil, almost the country's sole source of foreign exchange, is declining because of lack of investment by PDVSA, the state-owned oil company. Venezuela's foreign-exchange reserves are dwindling.

With the petro, Venezuela has something new to sell. It has "pre-mined" 100m petros, all that will ever be created, promises the white paper. State television showed outdated personal computers supposedly poised to mine the new currency. The "presale" brought $5bn, Mr Maduro claimed, without providing evidence. At the government's reference price for oil of $60 a barrel, the total value of the new currency is $6bn (so, if Mr Maduro is telling the truth, almost all the petros have been pre-sold). That is a useful sum, but less than half the amount the country must pay to service its foreign debt this year. The United States Treasury has warned that investors who buy petros with dollars may be violating its sanctions. That makes the currency less useful as a sanctions-buster.

A more intriguing possibility is that the government views the petro as a substitute for the value-leaking bolívar. Other countries with high inflation, like Zimbabwe and Ecuador, have escaped by adopting the dollar, which would be anathema to Mr Maduro's regime. In 1923 Germany defeated hyperinflation by issuing the Rentenmark, a currency backed by land. Brazil slew inflation in the early 1990s by replacing the cruzeiro with a new currency, the real, managed by a central bank that came to be seen as trustworthy. In theory, the petro could be Venezuela's real.

The government has announced that Venezuelans will be able to buy petros at authorised exchange houses and pay taxes with them, which could be the first step towards making the petro an everyday currency. Zimbabwe dollarised when citizens refused to accept payments in the local money. In Venezuela, which deprives people of access to dollars more effectively than did Zimbabwe, people could switch from the bolívar to the petro. That would increase demand for the new currency, and thus its price (and the government's eventual profits).

But the government has already undermined the trust that is supposedly built into the notion of an oil-backed crypto-currency. During the pre-sale it switched from the widely used Ethereum platform, which validates and keeps records of transactions in multiple crypto-currencies, to the New Economy Movement (NEM), a newcomer. The main crypto-currency on the NEM platform has a market capitalisation of just $4bn, compared with $61bn for Ethereum's main currency. Because the platform is smaller, the network of computers used to validate transactions and enforce the rules on which a crypto-currency is based is more centralised. That makes it easier for one user, say, Venezuela's government, to dominate the platform and undermine a crypto-currency.

The link to oil is no more convincing. The petro is not exchangeable for oil. It is merely backed by the government's promise that it is backed by oil. That promise may not be honoured by the country's repressed opposition, which may some day take power. Without decentralisation or a credible link to oil, the petro is just an unbacked currency issued by Venezuela's discredited government. That's what the bolívar is, too.

This article appeared in the The Americas section of the print edition under the headline "A sunny place for a shady currency"

Bello

The lives and deaths of transgender Latin Americans

A region torn between intolerance and acceptance

Print edition | The Americas Mar 15th 2018

A QUARTER of a century ago the town of Tuxtla Gutiérrez, the capital of Chiapas state in Mexico's deep south, was the setting of a spate of horrific killings of transgender prostitutes. Nine of them were murdered in two years, shot execution-style with up to a dozen bullets from high-calibre revolvers. Police claimed that in two cases they were murdered after having had sex with their killers.

The deaths caused a stir in Mexico, not least because of speculation that a police death squad was involved and because the authorities framed clearly innocent people. The Mexican interior minister at the time, Patrocinio González, when previously governor of Chiapas, had closed down discos frequented by the sex workers, forcing them onto the street. (Mr González is the nephew of the priest-baiting governor of a neighbouring state who was the model for a character in Graham Greene's novel "The Power and the Glory".) "We are all scared now, but it's what we live from," said one prostitute, called Jessica. Six months later the Zapatista rising elsewhere in Chiapas grabbed global headlines. The country stopped paying attention to dead transgender people.

Bello was reminded of his reporting trip to cover that long-ago outrage by "A Fantastic Woman", a Chilean film which has just won an Oscar. Its protagonist is Marina, a trans woman (someone who has transitioned from male to female) who has a conventional life as a waitress and aspiring classical singer. It tells the story of what happens when her lover, an older businessman with whom she lives, dies suddenly. The film is remarkable for Marina's dignity in the face of psychological violence. This derives from the fear her transgressive identity provokes. "What are you?" spits the dead man's son.

In interviews Daniela Vega, the film's star, who is herself a trans woman, says optimistically that attitudes are changing in Chile, until recently a socially conservative country. That applies more broadly. A survey last year by ILGA, a pressure group, found that some 70% of respondents in Latin America agreed that gays and trans people should enjoy the same legal rights as anyone else, the highest figure anywhere. "The region has seen huge change in terms of its willingness to talk about this," says Javier Corrales, a political scientist at Amherst College in Massachusetts.

Some countries have gone beyond talking. Argentina, Uruguay and Colombia are among only a handful in the world that have approved measures allowing citizens to change their gender on their identity documents without having to undergo surgery or obtain a doctor's authorisation. This is a priority for transgender activists. Having the "wrong" legal identity leads to harassment and also makes it harder to get jobs. The city government of Buenos Aires has opened the first support centre for transgender people in Latin America.

It is a paradox that, as Mr Corrales puts it, “groundbreaking innovations in public policy coexist with atavistic attitudes” in Latin America. Governments’ willingness to extend human rights into the field of gender has prompted a backlash led by religious groups, both evangelical Protestants and conservative Catholics. And that may cause continuing violence.

Even a quarter-century on, the Tuxtla Gutiérrez killings are probably more representative of the world of transgender Latin Americans than is Ms Vega. A report in 2015 by the Inter-American Commission on Human Rights claims that the average life expectancy for trans people in the region is just 35 years (compared with 75 for the population as a whole). Another study found that four-fifths of murders of trans people take place in Latin America.

What explains that? Many trans people face rejection by their families, and thus poverty. That may push them into sex work. Transgender prostitutes are visible on the streets of many Latin American cities. They are both used and abused by men, including police. In some cases, machismo may mask homosexual feelings of which the men are ashamed. And Latin America is a violent place.

Critics sometimes complain that the demands of the LGBT lobby are burdened by political correctness. A legislative proposal in Uruguay would establish a quota for trans people in public employment. Courts in the region have sometimes gone far ahead of public opinion in, for example, legitimising gay rights. Many people find it hard to cope with the questioning of sexual identity. That does not weaken the moral force of trans people’s fundamental demand for recognition of their humanity. “I am of flesh and blood,” Marina coolly answers one of her interrogators in the film. If “A Fantastic Woman” makes that more widely accepted, it will deserve a bigger prize than an Oscar.

This article appeared in the The Americas section of the print edition under the headline ”A fatal ambivalence”

Women in India
Stuck in the back

Stuck in the back

India’s gender gap is closing in some respects, but remains vast

At every stage of life, the statistics show that women are disadvantaged

Print edition | Asia Mar 15th 2018

POLICE in Haldwani, a small town where the Gangetic Plain bumps against the Himalayas, shrugged when Kamini Sen lodged charges against her husband last October. What could be more ordinary than wife-beating and dowry extortion? The case got hotter when the 29-year-old, who holds masters degrees in both English and psychology, added that her spouse had also secretly married a younger woman. But only the final twist, revealed later when police tracked and caught Krishna “Sweety” Sen, shocked India. The two-timing swindler, said to like cursing, smoking and motorbikes, confessed that he was not a man but a woman.

Growing numbers of Indian women are, like Ms Sen, breaking traditional gender barriers. India’s defence and foreign ministers are women. A woman recently stepped down as head of its biggest bank. There have been a female president and prime minister, as well as female chief ministers in various states. Women are becoming better educated, better paid and healthier than they were. Literacy among 21-year-old women leapt, for example, from 60% in 1990 to 85% in 2011.

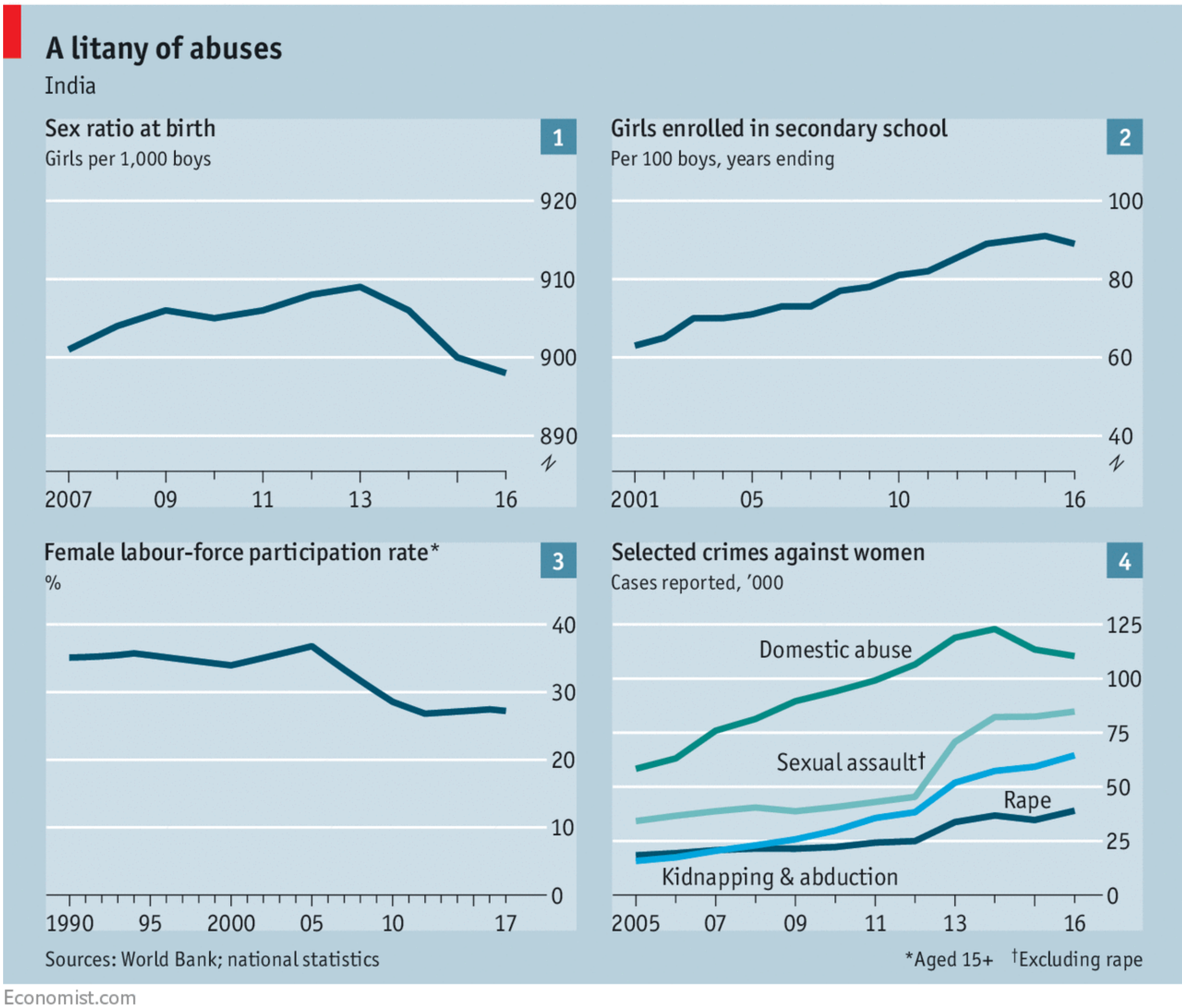
Yet traditional practices still hold Indian women back. The problem is not just specific customs, such as the payment of dowries or living with in-laws. Deepa Narayan, a development consultant, argues in a new book titled “Chup”—meaning “be quiet” in Hindi—that women across social classes are still conditioned from early childhood to be subservient.

Indian women suffer handicaps at every stage of life, starting with birth. Although determining the sex of a fetus has been banned since 1994, and in spite of an intensified campaign to stress the value of daughters under the current prime minister, Narendra Modi, parents wanting sons have continued to find ways to abort girls. The skewed sex ratio for newborns has not improved since Amartya Sen, an economist, calculated 28 years ago that India had some 40m “missing women.” In recent years it has got worse (see chart 1). In some districts the sex ratio at birth has fallen below 800 girls for every 1,000 boys. Disturbingly, too, widening gaps occur in some of India’s richer regions, suggesting that rising income enables more parents to act on their prejudices.

Girl glower

The Indian government's authoritative annual Economic Survey posits another alarming figure: the country may have an additional 21m "unwanted"—and often neglected—female children. This number was reached using research conducted by two economists, Seema Jayachandran of Northwestern University and Rohini Pande of Harvard, who examined the order of births. They found that the last child born to Indian families is far more likely to be male, since sex preference prompts parents to keep trying until they have a boy, and then to stop. In Indian states with a strong preference for boys, the Economic Survey calculates that, when a firstborn child is the last a couple has, the likelihood that it is male stands at nearly 2 to 1. The figure for "unwanted" girls was calculated using the gap between normal sex ratios at birth and the actual sex ratio for families that had more than the average number of children—very likely because they kept trying to have a boy.

Being "unwanted" can be measured in other ways, too. Recent reports from India's 700 SNCUs (Sick Newborn Care Units), which were set up in a successful government effort to bring down infant mortality, show that parents are far more likely to bring in boys for treatment. Nationwide, boys accounted for 59% of patients in 2017, but in the most populous state, Uttar Pradesh, no less than 63% of the cases treated in SNCUs were boys. Ms Jayachandran has shown in other research that Indian girls are more likely than boys to be shorter than global norms. She posits numerous reasons for this, one being that mothers wanting a boy may prematurely stop breastfeeding girls.



Indian officials are rightly proud of boosting female literacy and school attendance. Gender gaps do remain in education, though. Notably, girls are far more likely to drop out of secondary school than boys (see chart 2). Perhaps more tellingly, an annual survey of education results for 14- to 18-year-olds, published in January, found differences in educational attainment. Whereas 82% of boys could count money and 66% could tell time in a simple test, the corresponding proportions for girls were 70% and 53%.

Although impressive numbers of Indian women now go on to higher studies, with ever more venturing into fields that were long male preserves such as engineering, their efforts may not bring similar rewards. One survey of college students across northern India found that whereas a sadly low 26% of men said that they themselves, and not their parents or others, chose their careers, the proportion for women was lower still, at 11%. And while women with college degrees are more likely to work than those with just high-school certificates, the number of them with jobs is still under 30%. In fact, the proportion of women in the workforce has been steadily dropping for more than a decade, reflecting both a steep decline in farm jobs and a preference among newly urban families to show that their womenfolk do not need to work (see chart 3).

Of all the hurdles Indian women still face, sex and marriage may be the highest. The vast majority of marriages are still arranged by families, and some 94% of them among Hindus are within the same caste. Women are expected, by and large, to become part of the husband's family, and to bring along a sweetener. In-laws can press their demands in unsubtle ways. Aside from an annual average of around 8,000 "dowry deaths"—wives killed because they have not coughed up enough money—recent newspaper reports tell of such persuasive methods as beating with hockey sticks, stealing a kidney and blackmailing with sex tapes. More broadly, violence against women in various forms appears to be on the increase (see chart 4), although this may chiefly be the result of an increased tendency to report such crimes.

If so, the change is desperately needed. A research paper from 2014 that compared police records of sexual violence with survey results estimated that less than 6% of such crimes outside the home, and less than 1% of sexual assaults by husbands, are officially reported. Out of some 340,000 crimes against women reported in 2016, 110,000 were cases of cruelty by a husband or his relatives. And family health surveys reveal that 52% of women believe that husbands are entitled to beat their wives.

Part of the trouble lies with the caste system. The compartmentalisation of society into narrow layers negates what should be a supply-and-demand empowerment of women due to their shrinking proportion. In essence, women's families still compete to ensnare the best husbands within a relatively limited pool. The conservative Hinduism of the northern Hindi-speaking heartland does not help, either. In parts of the south, Hindus have a long tradition of matriarchy. By the same token, Muslim and Christian minorities have long given women rights to inheritance and property. But Hindu inheritance law was only substantially reformed in 2005, and in the patriarchal north it is still considered proper for sons alone to hold property and perform religious rites. The north also happens to be the heartland of the ruling Bharatiya Janata Party, which can make it awkward for the government to campaign too forcefully for women's rights.

In important respects, however, not just numbers but attitudes are definitely changing. Within Indian homes, women are winning more respect: between national health surveys in 2006 and 2016, a striking number reported stronger participation in family decision-making. Ever more Indian women are also voting. In the national election of 1991, 10% more men than women voted. At the most recent election, in 2014, this gap was down to 1.5%.

Canny politicians such as Mr Modi have not failed to notice, and increasingly tailor their policies accordingly. His project to equip households with cooking gas to replace solid fuel not only saves thousands of lives that would otherwise be lost to smoke inhalation, it also directly targets women voters. Mr Modi has also courted Muslim women by attacking "triple *talaq*", an arcane tradition long since abandoned in most Muslim-majority countries, which permits a man to divorce simply by saying the word three times.

Female voters have helped put issues such as public safety, underage marriage, alcohol abuse and sanitation at the centre of national politics. "We might be on the cusp of a real transition," says Yamini Aiyar of the Centre for Policy Research, a think-tank in Delhi. "From the way people dress—rural women have dropped their *dupattas* [gauzy scarves] and now wear *kurtas* [long shirts] over jeans—to changing marriage expectations, to forging a woman-centred political narrative, the pace is speeding up." The two-timing Ms Sen should have realised that men can't get away with what they used to.

This article appeared in the Asia section of the print edition under the headline "Stuck in the back"

School of hard knocks

A persistent scandal ensnares Japan's prime minister, again

The finance ministry admits it misled parliament as it investigated a previous claim of misconduct

Print edition | Asia Mar 15th 2018

SHINZO ABE, Japan's prime minister, has often appeared to have more lives than a cat. Last year he survived the revelation that a regional branch of the finance ministry had sold a plot of land at an extraordinarily cheap rate to Moritomo Gakuen, an ultra-nationalistic education company run by a friend of his wife, Akie. The allegation—denied by Mr Abe—is that the land, which was intended for a school, was discounted because of the connection. But the scandal has returned to plague Mr Abe again, in a more virulent form.

On March 12th Taro Aso, the finance minister, confirmed a report from *Asahi Shimbun*, a daily newspaper, that his ministry had deliberately misled the Diet, Japan's parliament. When the Diet was looking into the Moritomo Gakuen scandal last year, 14 of the related documents the ministry handed over as evidence turn out to have been doctored. The ministry removed Ms Abe's name from several of them, as well as comments she had made praising the new school (Ms Abe resigned as the school's honorary president after the scandal first broke last year). The altered documents also deleted references pointing out that Mr Abe, Mr Aso and Yasunori Kagoike, the head of Moritomo Gakuen, are all linked to Nippon Kaigi, an organisation that espouses the same sort of nationalism as the education company. (Moritomo Gakuen's curriculum includes daily bowing to pictures of the emperor, disdain for China and South Korea, and a reinstatement of the Imperial Rescript on Education, a patriotic tract recited by all schoolchildren until Japan's defeat in the second world war.)

The government is blaming the finance ministry, which in turn is suggesting that responsibility lies with a few of its bureaucrats. One of them has resigned. No evidence has emerged to prove that Mr Abe or Mr Aso ordered either the cut-price sale or the dissembling to parliament. (It is not uncommon in Japan for minions to try to predict what their boss might want and to do it without being asked.) But a different newspaper is now reporting that another finance ministry official who committed suicide earlier this month left a note claiming that he had been ordered to falsify documents—an allegation the police have neither confirmed nor denied.

Mr Aso, a former prime minister, has so far refused to resign, although 71% of Japanese think he should do so, according to polls. Some within the LDP are saying the prime minister should take responsibility for the fiasco. Such calls will multiply if the government's approval rating falls further. It is down six percentage points since last month, but remains a solid 45%. It does not help that Mr Abe himself pledged to resign last year as both prime minister and an MP if he or his wife were shown to have intervened on Moritomo Gakuen's behalf.

The timing is especially awkward for Mr Abe, who is running for re-election as leader of the Liberal Democratic Party this autumn. His victory had previously been considered a foregone conclusion (indeed, the party changed its rules to permit him to run for a third term). Party bigwigs who had decided against challenging him may now reconsider. And if Mr Aso, the leader of a powerful faction within the party, ends up having to resign to relieve pressure on the prime minister, he might choose to side against Mr Abe in the election.

Mr Abe has suffered other defeats of late. Earlier this month the government was forced to withdraw a portion of the labour reforms it had presented to the Diet after the data underpinning them were found to be flawed. The ruckus the opposition is making over the scandal is stalling the government's agenda.

Even if the saga does not strip Mr Abe of his cherished aim of becoming Japan's longest-serving post-war prime minister, it might hinder his controversial plans to amend the clause of the constitution that commits Japan to pacifism. Then again, Mr Abe has that catlike quality.

This article appeared in the Asia section of the print edition under the headline "School of hard knocks"

Roo barbs

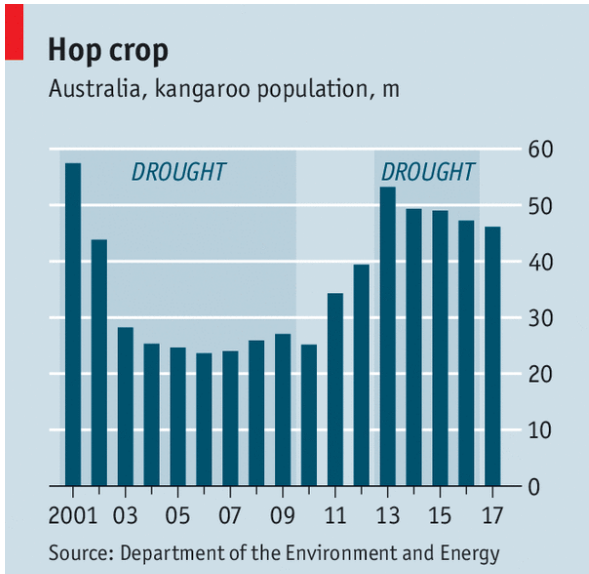
The culling of kangaroos divides Australia

Are they pests or paragons? And how many of them are there?

Print edition | Asia Mar 15th 2018

AUSTRALIANS are not, as they sometimes joke, the only people to eat their iconic national animal. Swedes munch on moose; in Spain, bull-tail stew is a delicacy. But the culling of kangaroos divides opinion Down Under. Many view the marsupials as pests which destroy pasture and cause crashes by hopping in front of cars. Animal-rights types counter that killing them is inhumane, and that kangaroo meat is rife with bacteria. Both sides are hopping mad about a new film, which shows botched slaughters and suggests that hunting is diminishing the population. "We've learned how polarising the subject is in Australia," Mick McIntyre, one of its makers, told a local paper.

Annual aerial surveys suggest that there are more than 47m kangaroos bounding through the outback, making them some of the most abundant large vertebrates on earth. Their natural predators, such as dingoes, are scarce, so when the vegetation they eat is abundant, their numbers jump. State governments have long set "harvesting" quotas to keep the four most populous species in check. But some ecologists suggest that the culls are damaging, and that the population estimates are over-optimistic.



Economist.com

Those in favour of culling point out that Australia earns $175m annually from the carcasses, which are butchered in struggling rural towns. Some scientists argue that kangaroos are a more sustainable source of protein than cows or sheep. Yet the industry is under pressure abroad. Cuddly campaigns have turned shoemakers such as Adidas against kangaroo leather and sapped foreign appetite for the meat. In 2016 California reinstated an embargo on kangaroo products. Russia, once the biggest consumer of kangaroo meat, has imposed an intermittent ban out of concern for food safety. In the eight years since it first did so, the value of Australia's kangaroo-meat exports has fallen by more than half.

As a result, professional hunters receive a lower price for every carcass they deliver. They killed 1.4m kangaroos in 2016, a fifth of the permitted maximum. But a higher kangaroo population simply means that more will die in the next drought, says George Wilson of the Australian National University. Worse, he says, if skilled hunters lay down their arms, rookies will take over. In Queensland, landholders have been accused of poisoning kangaroos and erecting fences to prevent them from reaching water. The back and forth is endless. As Mr McIntyre says, "A good way to destroy any dinner party is to bring it up."

This article appeared in the Asia section of the print edition under the headline "Roo barbs"

The summit of all fears

If Donald Trump does meet Kim Jong Un, a lot could go wrong

But things could be even worse if he doesn't

Print edition | Asia Mar 15th 2018

A BACKHANDED compliment to Donald Trump lurked in a recent editorial in the *Rodong Sinmun*, the official newspaper of the North Korean Workers' Party. A splenetic call to lock America's president in an asylum, the piece described Mr Trump as "dolt-like" and an "old lunatic". But it also called him "the boss of gangsters", hinting at a different view. As rulers of a literal gangster-state, three generations of the Kim dynasty have yearned to be treated as equals by America. If they must deal with the West, they want to talk to the boss.

That explains the mixed emotions of diplomats, spies and foreign officials who work on North Korea after Mr Trump accepted an invitation to meet the country's 36-year-old leader, Kim Jong Un. The offer was passed on by South Korean envoys and has yet to be publicly confirmed by the North. But Mr Kim is reportedly ready to discuss getting rid of his nuclear weapons in exchange for security guarantees. Anyone who has negotiated with North Korea "knows that at some point there has to be a leader-to-leader meeting, because on their side only one person can decide", says a former official from George W. Bush's administration, making a case for cautious optimism about a Trump-Kim summit. But Korea-hands also fear that, by agreeing to meet, Mr Trump has offered a big concession up front.

The president's supporters insist that North Korea has been brought to the table by harsh sanctions, imposed after Trumpian tough talk at last scared such laggards as China and Russia into curbing trade. More cautious voices, such as Evans Revere, a former Asia expert at the State Department, suggest that the North opened the door "in anticipation" of a further tightening of sanctions which, if done right, could take the Kim regime "up to the edge of its ability to survive, politically and economically". Either way, more pressure is being applied now than in 2005, the last time that North Korea promised to dismantle its nuclear-weapons programme under international supervision in exchange for aid and American pledges not to invade. The North, of course, broke that promise, as it has all undertakings about its weapons programme.

Nonetheless, James Clapper, a former Director of National Intelligence and no swooning Trump fan, sees value in a top-level summit, arguing: "We need to hear from Kim Jong Un himself what it would take for him to feel secure." The North believes in the power of great men, says Joseph DeTrani, a former CIA official and America's special envoy to multilateral disarmament talks with North Korea from 2003 to 2006. Even as they haggled and wrangled, he recalls, North Korean diplomats would push for meetings with President Bush, saying: "If your president could just meet our leader, they could cut through a lot of all this." Back then, Team America would reply that leaders meet at the end of talks.

The most optimistic see a Nixon-to-China-style opening for Mr Trump to forge a North Korea deal that American conservatives might spurn from another president. Trump voters are a chin-jutting bunch: 84% told a new *Economist*/YouGov poll that they support military action against North Korea, even if it leads to war with China. Yet at a rally on March 10th, supporters meekly stopped booing mentions of Kim Jong Un when Mr Trump told them that a summit could be "very positive".

What could go wrong

All the same, there are endless pitfalls. The Kim regime is full of officials who have negotiated with America, starting with the foreign minister, Ri Yong Ho. Mr Trump has not nominated an ambassador to South Korea and the top North Korean envoy at the State Department recently resigned. Mr Trump sacked his Secretary of State, Rex Tillerson, without consulting him about his decision to agree to a summit.

American experts on Korea and concerned foreign allies alike expect their advice to be shrugged off by the president, a man bored by briefings, suspicious of alliances and focused (his own advisers admit) on quick wins that make him look good. Mr Trump scorns all those involved in past dealings with North Korea as chumps whose weakness explains why the Kim regime is still around.

Daniel Russel, a career diplomat, ran North Korea policy under President Barack Obama. If briefing Mr Trump, he would stress that America is strengthened by its alliances with South Korea and Japan. When North Korea talks about America needing to abandon "hostile policies", that is a trap, he adds: code for removing American troops from Korean soil and ditching defence treaties with Asian allies.

Korea-hands worry that it is de-escalation that Kim Jong Un is selling, not denuclearisation. They fear he wants his country to be accepted as a nuclear-armed power, in keeping with his yearning to meet America's president as an equal. One possible ploy might be to forswear missiles that can hit American cities but to preserve a small nuclear arsenal, perhaps under international supervision. Such a deal could cause other Asian countries to seek nuclear arms and raise the spectre of nuclear smuggling. China, meanwhile, is jumpy about any Trump-Kim deal, for fear that Mr Trump, no longer constrained by his desire for China to enforce sanctions, might become pushier about trade.

Last year Lindsey Graham, a Republican senator from South Carolina, quoted the president as saying that any war to stop Mr Kim should be fought in Asia, so that, "If thousands die, they are going to die over there." Faced with such ruthlessness, America's allies in Asia may overcome their misgivings about the summit.

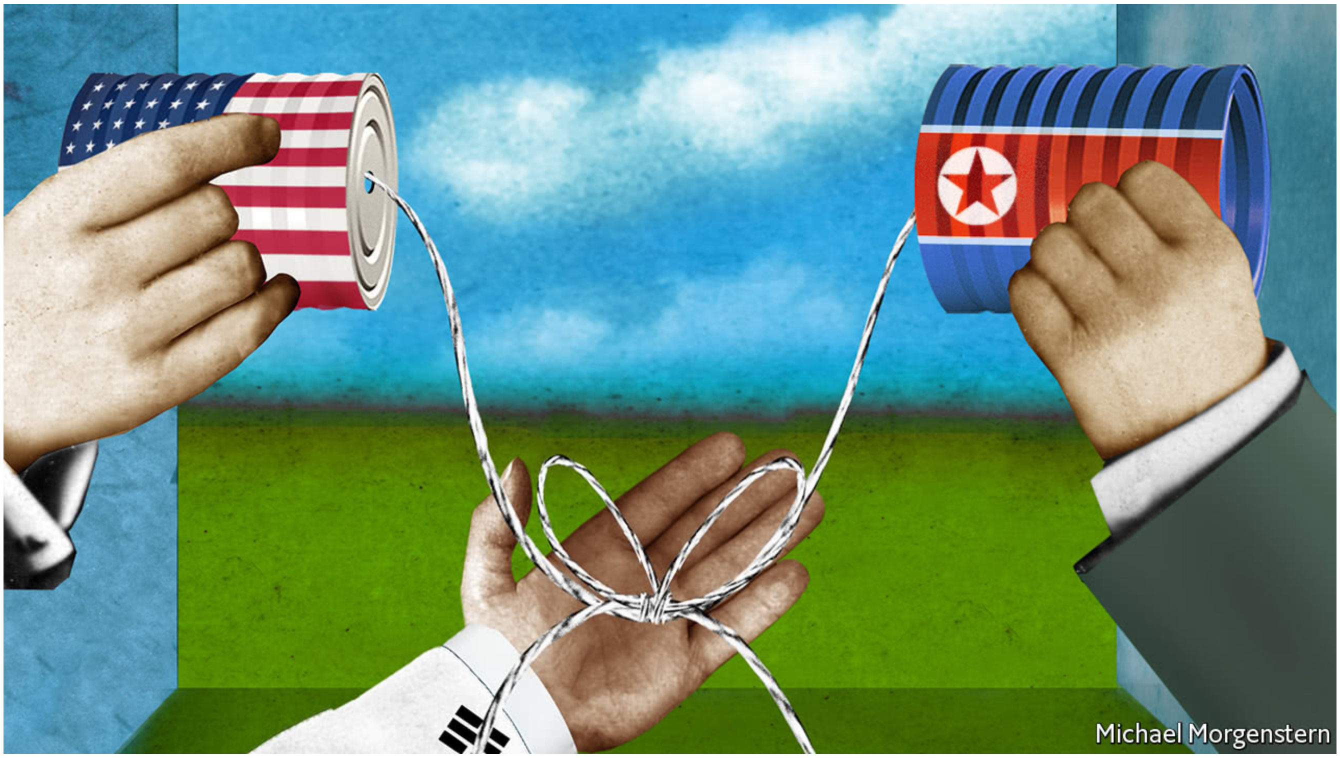
This article appeared in the Asia section of the print edition under the headline "The summit of all fears"

Banyan

South Korea's president brought the Trump-Kim summit about

Managing the tensions it will stir will be an even harder task

Print edition | Asia Mar 15th 2018



FOR good or ill, the fact that Donald Trump has agreed to meet Kim Jong Un, North Korea's dictator, is thanks in large part to the president of South Korea, Moon Jae-in. It was he who seized the hand proffered by Mr Kim early this year and used the Winter Olympics to cement goodwill. Mr Moon's announcement of a summit with Mr Kim next month—only the third top-level meeting between the two Koreas and the first since 2007—was news enough when it broke. A hotline will also be established between the leaders of two countries that have exchanged more munitions than words in recent years.

Mr Trump's bombshell put those accomplishments in the shade. But it would not have happened had Mr Moon's envoys not returned from Pyongyang, the North Korean capital, with an assurance from Mr Kim that he would put his nuclear weapons on the table. That is just what America has always demanded as a precondition for talks.

Not even Mr Moon's friends—and certainly not his detractors—predicted his agility. At home, to be sure, the wind appeared to be at his back following his election last May. He came to power on the crest of popular protests that had led to the impeachment for influence-peddling of his predecessor, Park Geun-hye. To many South Koreans he represented a fresh start. For the young especially, Mr Moon's optimism, his squeaky-clean reputation and his intention to heal economic divisions promised much. But his talk about reaching out to the North Koreans had appeared naive, even dangerously ideological.

South Korea's allies were wary. Mr Moon, who emerged from the pro-democracy student movement of the 1970s, cut his political teeth with the late president Roh Moo-hyun, an advocate of a "sunshine" policy towards North Korea. Some sunshiners were inclined to see the best in the North's brutal rulers. A few even saw the North's Stalinist state as more legitimate than South Korea's young democracy, tainted as it was by the original sin of American-backed dictatorship (Ms Park's late father was the longest-serving of the strongmen).

The sunshine policy sought to warm relations with the North in part by secretly transferring hundreds of millions of dollars to the Kims. It failed on its own terms, in that relations soon became chilly again. Worse, the money, in effect, helped pay for the North Korean nukes that are now at the heart of the peninsula's crisis.

In Tokyo those close to Shinzo Abe, the prime minister, spoke of Mr Moon with undisguised scorn. He was, they said, a nationalist of the worst sort, a weaselly leftie. Proof was his desire to reopen agreements reached between Ms Park and Mr Abe on the contentious issue of South Korean women forced into prostitution by imperial Japan. But the really serious issue, as seen from Tokyo, was the North Korean threat. It is over Japan, not South Korea, that North Korean missiles have flown. Mr

Abe has been the strongest backer of Mr Trump's policy of "maximum pressure" towards the North. The likeliest wrecker of such a policy—because he would cosy up to the North—was Mr Moon.

American hawks also mistrusted Mr Moon. He has struggled to find a personal chemistry with Mr Trump, too—unlike the golfing Mr Abe. Yet Mr Moon has defied expectations. As North Korea raised tensions with frequent missile tests last summer, he dropped his hug-the-North language. He firmly backed sanctions at the UN championed by America. He stood his ground in the face of bullying by China, which organised boycotts of South Korean firms in an effort to coerce Mr Moon into sending home American anti-missile batteries that it does not like. He revived an intelligence-sharing agreement with Japan and, though he complained of the sex-slave issue, appears not to want to reopen it. The reward for much of this was embodied in the extraordinary sight at the White House last week of a representative of another country—Mr Moon's national security adviser, Chung Eui-yong—announcing Mr Trump's agreement to a summit. Not bad for a pinko peacenik.

For now, Mr Moon will grow only more indispensable, not only because his summit with Mr Kim will lay the ground and set the tone for Mr Trump's, if it happens. Crucially, the Americans are handicapped in preparing for negotiations in that they have few channels of communication into Pyongyang. Like it or not, they must rely on South Korea to do much of the talking for them.

Sunshine and rain

Mr Moon's real challenges are still to come. The sceptics are surely right that Mr Kim, like his father and grandfather before him, aims to drive a wedge not only between South Korea and its American and Japanese allies, but also into South Korean politics, which is still riven between conservatives and progressives.

On the first, Mr Moon is trying his hardest to soothe. He dispatched his intelligence chief to Tokyo this week to persuade Mr Abe that South Korean and Japanese interests remain aligned. Reports from the Japanese side suggest that Mr Abe, deeply alarmed by all the summitry, came away reassured. He will nevertheless head to Washington next month to convince Mr Trump that Japan cannot accept letting North Korea keep its current arsenal, even if it promises to shelve its intercontinental missiles. He may also warn of the risk of sensitive military intelligence flowing from Mr Moon's camp to Pyongyang as ties warm.

As for South Korea's divisions regarding the North, perhaps passions are ebbing. The young who voted in numbers for Mr Moon have few of the uncritical hopes their parents held for the sunshine policy. In a recent poll over 80% of those in their 20s wanted engagement, but 74% said they mistrusted the North. When a professor asked his students during a recent lecture whether they thought North and South Korea would be reunified during their lifetime, only the foreigners put up their hands. South Korean scepticism may prove an antidote to Moonshine.

This article appeared in the Asia section of the print edition under the headline "Handmaiden Moon"

Religious freedom
New commandments

Unavailable Contents

Unavailable Contents

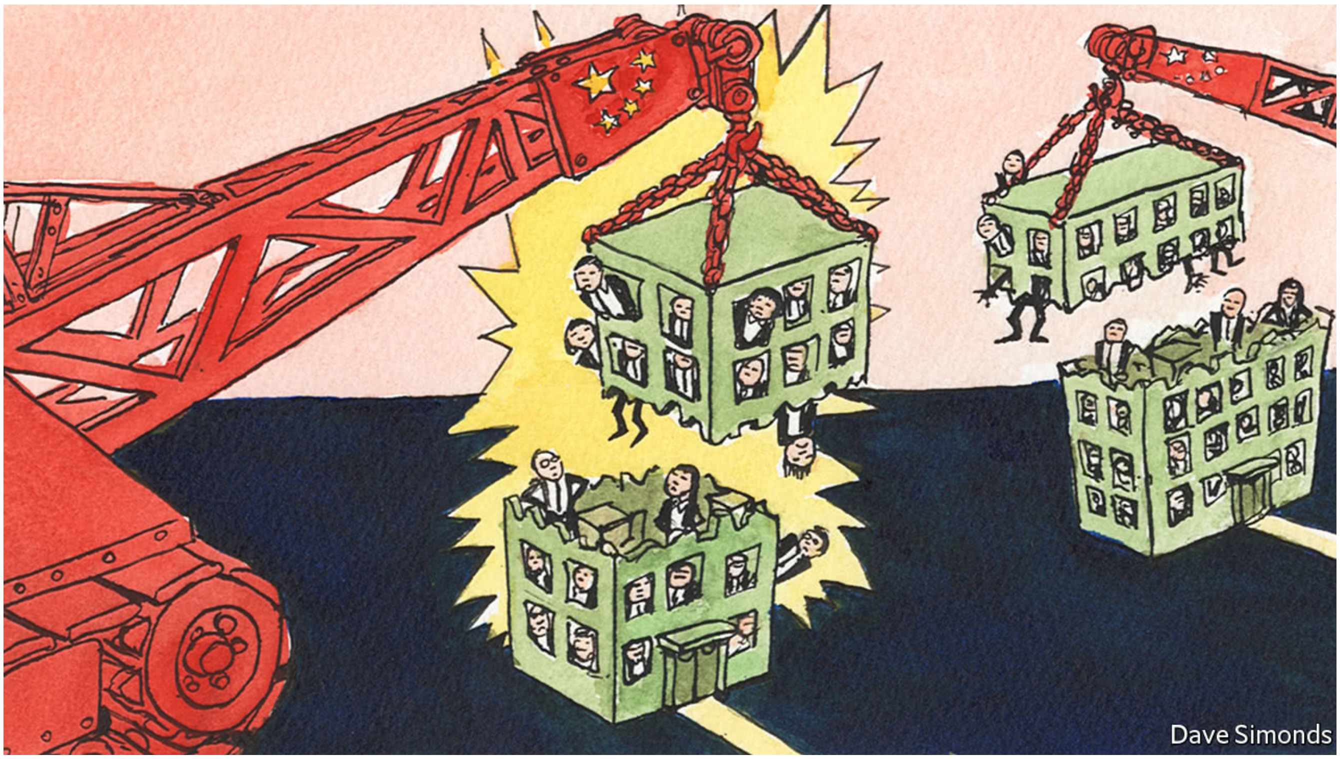
Print edition | Briefing Apr 5th 2018

Party time

An overhaul of China's bureaucracy enhances the party's authority

That, in turn, strengthens the president's hand

Print edition | China Mar 15th 2018



"WOW!" That was what China's state-owned flagship newspaper, *People's Daily*, claimed ordinary citizens thought about an elaborate government shake-up, announced on March 13th, which will axe, merge, reorganise or create 26 ministries and departments. In truth, the reaction of many young Beijingers was lighthearted. They started taking selfies outside ministries that are soon to vanish.

Still, the newspaper's enthusiasm was understandable. In the past 35 years the structure of the Chinese government has been reformed seven times, roughly every five years. The only change on anything like this scale happened in 1998 under a tough-as-nails prime minister, Zhu Rongji, who closed or merged 15 ministries. The changes unveiled by the current, less combative prime minister, Li Keqiang, are the biggest since then, and perhaps since the end of the Cultural Revolution in 1976.

The Chinese government has long been a behemoth. Even after the reshuffle it contains 47 ministries or departments with ministerial rank. Most rich countries have about 20. Not surprisingly, duelling bureaucracies are rife. The main point of the reorganisation, said Liu He, the chief economic adviser to Xi Jinping, the president, is that "only one department will be responsible for one task."

In practice that means scrapping or merging 15 ministries and departments and creating or expanding 11 others. The most important new ones are a powerful environment ministry, which will unite control of air, water and soil pollution, now divided among several ministries; and a financial commission which merges the banking and insurance regulators.

Curbing pollution and debt are two of Mr Xi's priorities. He is also trying to export China's soft power, which explains the creation of a new aid agency and a new culture ministry, both with expanded responsibilities. Otherwise the reshuffle is about streamlining. Different ministries used to be in charge of responding to natural disasters, depending on what sort of disaster it was (one for earthquakes, another for floods). Now there will be a single emergencies ministry. The reshuffle shows signs of mimicking the United States with a new ministry of veterans affairs and a cabinet-level immigration bureau (not that China has many immigrants). Happily, some powers of the coercive family-planning bureaucracy, which implements population-control policies, will either be scrapped or reassigned to an expanded health commission.

The biggest loser is a body called the National Development and Reform Commission. Once an economics super-ministry, it will see six of its main powers (including setting policy on climate change, competition and health-care pricing) shifted elsewhere, not only to other ministries but also to an institution which sits between the government and the Communist Party.

This is called the “leading small group for comprehensively deepening reform”. Mr Xi chairs it and Mr Liu is on it. Like other leading groups, it is an instrument of control for Mr Xi and the party.

That in turn suggests a broader trend behind the reshuffle: the supremacy of party over government. As Mr Liu wrote about the reshuffle in *People’s Daily*, “Strengthening the party’s overall leadership is the core issue.” Two days before it discussed the revamp, the National People’s Congress, China’s rubber-stamp parliament, whose latest, unusually eventful session began in Beijing on March 5th, approved Mr Xi’s plan to scrap term limits for the presidency by 2,964 votes to two.

But it may not necessarily follow that because politics is retreating into command-and-control mode, economic policy will too. Mr Xi is promising a new burst of “reform”, although admittedly he does not always use that term to mean more market liberalisation. Doubtless the party’s control will be tightened. But some of the governmental changes could also portend real improvements, for example better environmental and financial regulation. If so, that will be more a case of “Phew” rather than “Wow”.

This article appeared in the China section of the print edition under the headline ”Party time”

Tanzania
Falling into dictatorship

Democracy under assault

Tanzania’s rogue president

Strong constitutions matter

Print edition | Middle East and Africa Mar 15th 2018

A BIT like President Donald Trump, Tanzania’s president, John Magufuli, likes to fire employees on television. In November Mr Magafuli used a live broadcast from a small town in the north of the country summarily to dismiss two officials after they failed to remember instantly details in their budgets. When one protested that she couldn’t reasonably be expected to be able to recall every figure, Mr Magufuli told her, “You can’t talk to me like that.”

Sacking minor officials in front of an audience is only one part of Mr Magufuli’s authoritarian populism. Since coming to power in the country of 55m on the east coast of Africa in 2015, Mr Magufuli, nicknamed “the bulldozer” from his time as roads minister, has bashed foreign-owned businesses with impossible tax demands, ordered pregnant girls to be kicked out of school, shut down newspapers and locked up “immoral” musicians who criticise him. A journalist and opposition party members have disappeared, political rallies have been banned and mutilated bodies have washed up on the shores of Coco Beach in Dar es Salaam, the commercial capital. Mr Magufuli is fast transforming Tanzania from a flawed democracy into one of Africa’s more brutal dictatorships. It is a lesson in how easily weak institutions can be hijacked and how quickly democratic progress can be undone.

Mr Magufuli was an unlikely candidate to run Tanzania. Though it has had multiparty elections since 1994, the country has been run exclusively by one organisation, Chama Cha Mapinduzi (CCM), the “party of the revolution”, since its formation in 1977. But unlike his predecessors, Mr Magufuli is no party man. In the nomination process for the election of 2015 he was not the favourite of any faction. Facing the biggest challenge to its rule since 1994, however, the party seemed minded to pick somebody with the aura of being an “outsider” who was not tainted by the allegations of corruption dogging it. Mr Magufuli seems to have won by having few enemies rather than many allies.

Economist.com

Within weeks of taking office, he excited even sceptics. He turned up at offices to check if Tanzania's famously lackadaisical civil servants were at work. Businesspeople swooned after he sacked dozens of officials suspected of cronyism. In neighbouring Kenya, where president Uhuru Kenyatta's government has not prosecuted a single major corruption case in six years, fans demanded their own Magufuli.

But the honeymoon did not last long. When Mr Magufuli last year presented Acacia, a London-listed gold-mining company, with a bill for $190bn in supposedly unpaid taxes (a figure equivalent to roughly four times Tanzania's entire GDP), it was the latest confirmation that Mr Magufuli's anti-corruption strategy is about as precise as a blunderbuss. He distrusts not only Western investors but also the Chinese, who are building infrastructure across east Africa. He tells his ministers that they are "not the same Chinese" as the Maoists who built the Tazara railway line linking Tanzania to Zambia in the 1970s. Rather than being freed from corruption, the economy is grinding to a halt under the weight of arbitrary tax demands.

Mr Magufuli's approach to political opposition is no better. Though CCM has never lost an election, in recent years Tanzania's politics did seem to have been opening up. Under Mr Magufuli, that has all changed. Less than a year after coming to power, he had banned all political rallies (the president gets around the ban himself by having "non-political" public events with civil servants). MPs are allowed to campaign only in their own constituencies (and several have been arrested). Several newspapers have been temporarily closed by the government, and two, linked to Chadema, an opposition party, remain so.

Extrajudicial violence, which used to be almost unknown on the mainland, is escalating. In September Tundu Lissu, a prominent opposition MP, was shot and injured outside his house in Dodoma, the sleepy capital. Minor political figures have simply disappeared.

Not all of the violence is by the state. Over the past year about a dozen police officers have been killed in Kibiti, a mostly Muslim coastal town about 70km south of Dar es Salaam. The police have seemingly responded in kind. Yet little news leaks out from the region. Foreign journalists are turned back long before they reach Kibiti; a Tanzanian journalist investigating the killings has been missing for three months.

Tanzania's politics have never been truly open, but what is different now is that even CCM, which is by far the country's most stable institution, is cowed. Under Tanzania's constitution, little changed since it was written in 1977 by Julius Nyerere, the country's founding father, power is almost entirely concentrated in the presidency (Nyerere himself once joked to a BBC reporter: "I have sufficient powers under the constitution to be a dictator"). Mr Magufuli is both head of state and chairman of the party, with the power to hire and fire civil servants, including judges, as he pleases. On taking office, he quickly filled important posts in the government and the party with his own allies.

Few are willing to speak up against the presidency, says one CCM MP. There is little hope of change coming through the ballot box since the opposition is crushed and the next election, in 2020, will probably be rigged. Nor is there much hope that the party can restrain Mr Magufuli. Some hope that Jakaya Kikwete and Benjamin Mkapa, two former presidents, can persuade him to change course. Others dream, seemingly forlornly, that the party will revolt.

The main lesson of Tanzania is that constitutions which concentrate power in the presidency can quickly be subverted. Democracy flourished between 1994 and 2015 because the bigwigs in CCM saw the benefits of a more open, pluralistic economy. But they failed to do the tedious work of strengthening institutions and limiting the powers of their successors. Now they have lost their chance to embed the reforms and the country faces ruin. That should be a lesson to other African elites.

This article appeared in the Middle East and Africa section of the print edition under the headline "Falling into dictatorship"

Grow your rice and eat it

Nigeria hopes high tariffs will make it grow more rice

Farmers and millers are happy. So are smugglers

Print edition | Middle East and Africa Mar 15th 2018

Reuters

STANDING ankle-deep in water between neatly spaced rice plants, an instructor shows a group of about 100 farmers in Kebbi, a state in north-west Nigeria, how to apply herbicide. The training session, arranged by TGI Group, a Nigerian conglomerate that runs a large rice mill nearby, has an enthusiastic audience. Hussein Ahmed, a farmer, says the yield from his small field has increased by about 50% since he started using chemicals and carefully spacing the seedlings. Another farmer boasts of marrying a second wife thanks to the extra money he is earning from growing rice.

Across the region the grain is cooked with tomatoes and mounds of chili to make *jollof,* a dish that is almost always eye-wateringly spicy, no matter how mild the cook insists it is. *Jollof* is not just the cause of many arguments in the region—Ghanians and Nigerians each insist theirs tastes better. Its main ingredients have also become symbols of how Nigeria is trying to diversify an economy that exports crude oil and imports almost everything else.

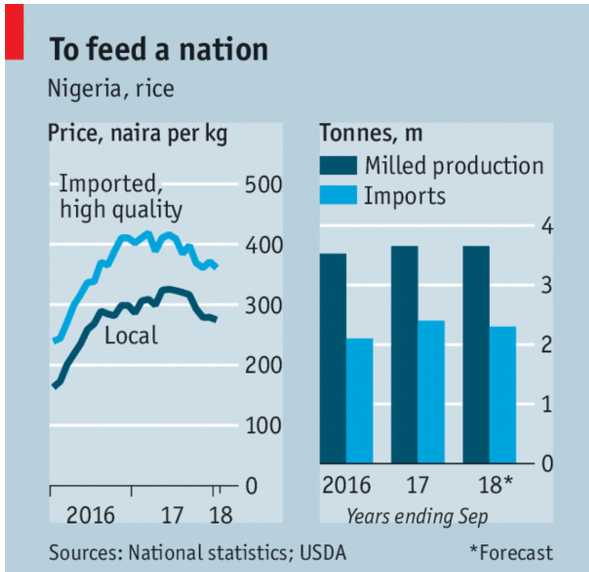
Muhammadu Buhari, who was inaugurated as president in May 2015 in the midst of an economic shock caused by low oil prices, turned to autarky. His central bank stopped providing foreign exchange to importers bringing in 41 categories of goods, including rice, toothpicks and incense. The government increased customs duties on rice from 10% to 60% in October 2016 to encourage farmers to plant more.

Such tariffs have certainly spurred investment in farms and in milling plants such as the one run by TGI in Kebbi. The mill can already produce 120,000 tonnes of rice a year, yet the company is planning to add another 100,000-tonne production line and open two more mills in other states in the next five years. Aliko Dangote, Africa's richest man, says he will invest in six new factories that will produce 1m tonnes of rice a year.

To feed these mills, Nigeria will have to increase its rice yield, which is among the lowest in the world. Farmers in Thailand harvest three crops a year, compared with one or sometimes two in Nigeria. Outgrower schemes, in which firms such as TGI provide training, fertiliser and other chemicals on credit that is repaid after harvest, can help. But extending them to all 1.4m rice farmers in the country would be a huge task.

The central bank has done its bit by doling out some 55bn naira ($153m) in loans to 250,000 farmers (most of whom grow rice). Architecture graduates and civil servants have cashed in on the boom and taken up farming. Central-bank officials are happy to talk about how much money it has lent, but they do not mention how much money is being paid back. Nigeria's anti-corruption body recently said that it had recovered 300m naira stolen from the farm-loan scheme in two states.

The bigger problem, however, is that local rice is still not competitive with Asian imports. Farouk Gumel of TGI says that in January he was selling 50kg bags at his factory gate for 14,000 naira each (traders then add on the cost of the long journey to cities in the south). Smuggled rice, on the other hand, was being sold in urban markets for 12,500 naira a bag. Thanks to increased production and perhaps smuggling, rice prices are lower now than they were a year ago, though they are still 68% higher than they were two years ago.



Economist.com

The government says its policies are working and that Nigeria will no longer need to import rice by the end of the year. But its numbers do not add up. It says that rice production has doubled since 2015 (and will increase by 50% again this year), but there are scant data to support such ambitious claims. Nigerians eat 5.3m-7m tonnes of rice a year. Imports account for 2m-3m tonnes, a figure that has barely budged in recent years (see chart). Nigeria's information minister, Lai Mohammed, points to statistics from Thailand showing that its exports to Nigeria have slumped by 97% in two years. But Thailand's exports to Benin, have doubled to 1.8m tons a year, the equivalent of 160kg per Beninese. The country's tariff of 12%, and its poorly policed border with Nigeria are probably the main reason for its booming demand.

Nigeria's import restrictions benefit farmers and millers and seem to be encouraging more planting. But until yields improve and the costs of producing Nigerian rice fall, the country's consumers will have more reason to thank smugglers for keeping their plates filled with *jollof*.

This article appeared in the Middle East and Africa section of the print edition under the headline "Grow your rice and eat it"

Tuaregs and tagliatelle

Spaghetti smugglers of the Sahara

Desert trafficking routes are studded with bunches of spaghetti

Print edition | Middle East and Africa Mar 17th 2018

THE shifting sands of the Sahara have long been crossed by trade and smuggling routes. Traffickers send people and drugs north over the desert. But they have a problem: what to put in the empty trucks going back? The answer—pasta.

Some informed sources reckon that, apart from people, by weight pasta is probably the most smuggled product to cross the desert. Drug trafficking and gunrunning may earn fatter margins. But many smugglers diversify their load by pushing penne.

In part the trade is fuelled by subsidies in places such as Algeria, which spends about $28bn a year keeping down the price of food and energy. In Libya, which still subsidises food prices, even if somewhat erratically because of the civil war, 500g of pasta can be bought for 15-25 American cents. The same bag of pasta might cost 250 CFA francs ($0.50) in Timbuktu and about 800 CFA francs ($1.50) in Senegal or some of the posher parts of Bamako, the capital of Mali.

Another incentive to smuggle is found in west Africa. Under the region's customs union, imports of pasta face a tariff of 20% and also value-added tax of 15%.

Smugglers rarely answer surveys, so the facts around them are slippery. But a study in 2015 by the Economic Research Forum, a think-tank based in Egypt, found that pasta was the main product going across the Sahara from Algeria to Mali, accounting for about a third of the trade. The researchers reckoned that smugglers earned profits of 20-30%.

Their impact is not just being felt in markets south of the Sahara, but also on the desert itself. Many poke sticks of spaghetti into the sand as waymarks.

Overpriced

Why Africa's poor pay high prices

Africa's economic paradox

Print edition | Middle East and Africa Mar 15th 2018

"WE FEEL so hungry," says Agatha Khasiala, a Kenyan housekeeper, grumbling about the price of meat and fish. She has recently moved in with her daughter because "the cost of everything is very high". The data back her up. The World Bank publishes rough estimates of price levels in different countries, showing how far a dollar would stretch if converted into local currency. On this measure, Kenya is more expensive than Poland.

This is surprising. The cost of living is generally higher in richer places, a phenomenon best explained by the economists Bela Balassa and Paul Samuelson. They distinguished between goods that can be traded internationally and many services, like hairdressing, that cannot. In rich countries, manufacturing is highly productive, allowing firms to pay high wages and still charge internationally competitive prices. Those high wages also drive up pay in services, which must compete for workers. Since productivity is low in services, high pay translates into high prices, pushing up the overall cost of living.

Among developing economies, however, the relationship between prices and prosperity is less clear-cut. Prices in Chad, for instance, are comparable to those in Malaysia, where incomes are 14 times higher. Fadi Hassan of Trinity College Dublin finds that in the poorest fifth of countries, most of them in Africa, the relationship goes into reverse: penniless places cost more than slightly richer ones. A paper in 2015 from the Centre for Global Development (CGD), an American think-tank, accounts for various factors which could explain differences in prices, including state subsidies, geography and the effects of foreign aid. Even then, African countries are puzzlingly expensive.

One explanation is dodgy statistics. African countries may be richer than they seem. When Nigeria revised its figures in 2014 to start counting industries such as mobile phones, GDP almost doubled. They may also be less pricey than economists reckon, because poor people buy second-hand clothes or grow their own food.

A more intriguing explanation comes from food prices. The relative cost of food, compared with other goods, is higher in poor countries. In Africa, the absolute cost is sometimes high, too. Nigerians would save 30% of their income if they bought their food at Indian prices, finds a recent study by the OECD, a think-tank. Meat costs more in Ghana than in America.

Mr Hassan thinks that low agricultural productivity explains the puzzle. In much of Africa farmers scratch away at thin soils, with little fertiliser and no irrigation. An Asian-style Green Revolution is only slowly taking root. Weak infrastructure also drives up prices, as can be seen in Wakulima, a wholesale food market in Nairobi. Moses Mungai has driven a maize lorry for four hours to get here, from a border town in the foothills of Kilimanjaro. But he says it took four days to collect the crop from local farms. When the rains come he has to hire a tractor to navigate soupy roads. Counties charge levies on commodities passing through. Middlemen take a cut.

Whereas Balassa and Samuelson divided economies into two (manufacturing and services), Mr Hassan divides economies into three, by also distinguishing agriculture. Like manufacturing, agricultural productivity can grow vigorously. But like services, this fresh farm output is sold locally, he assumes, which drives down prices. Thus when farm productivity rises, the poorest countries become both richer and cheaper.

The CGD researchers note an interesting corollary: manufacturing wages in Africa, though low, are higher than in Asian countries at similar levels of income. African workers need more dough to buy their daily bread.

If that is right, then cheaper food may boost manufacturing by making wages more competitive. From 18th-century Britain to 20th-century Asia, industrial revolutions are often preceded by agrarian ones. Poor countries must hope for a repeat.

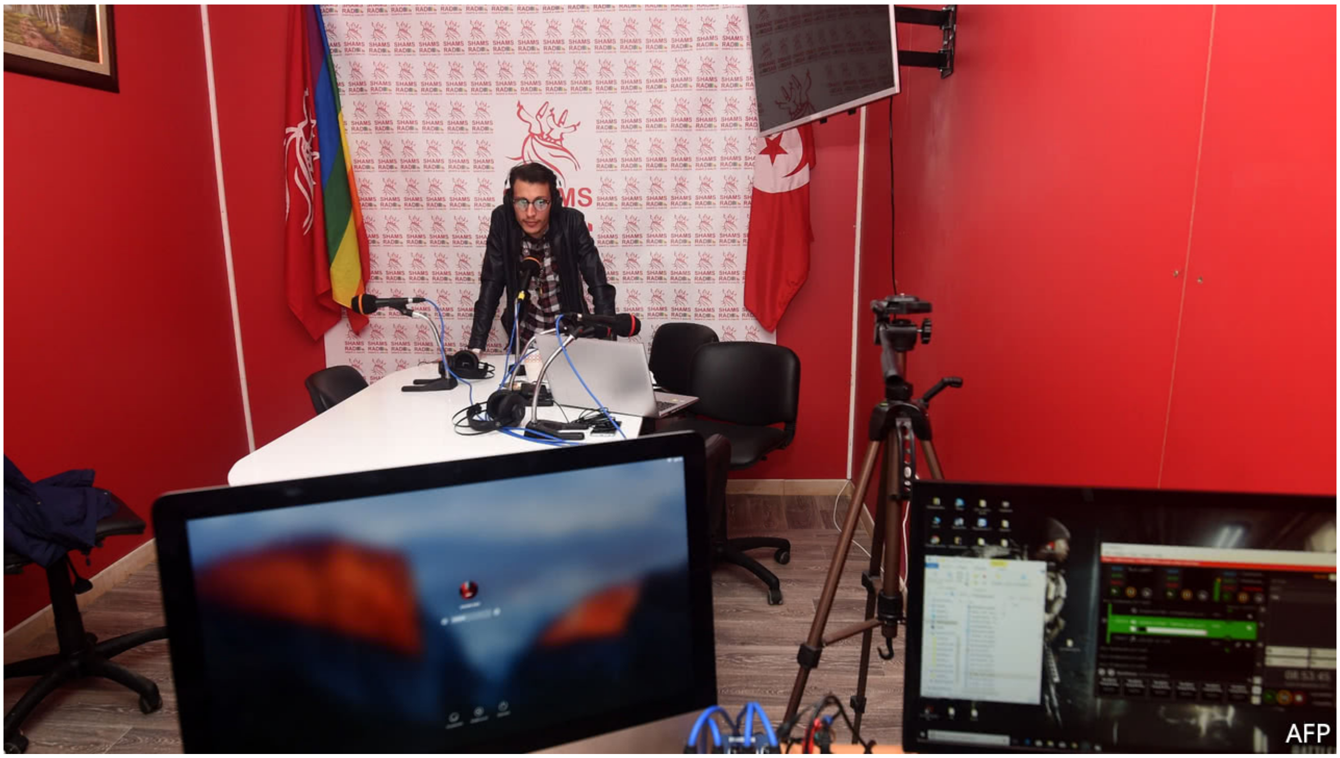
This article appeared in the Middle East and Africa section of the print edition under the headline "Overpriced"

Come out and listen

Gay-rights activists take to the air in Tunisia

A new online radio station is the first to cater to Arab LGBT people

Print edition | Middle East and Africa Mar 17th 2018



BOUHDID BELHEDI is not easily intimidated. The campaigner for LGBT rights has been assaulted by Islamic extremists outside his house in Tunis and beaten by a mob as a policeman watched. Since helping to launch Shams Rad, an online radio station catering to LGBT people, he has received thousands of online threats and insults.

The station, which began broadcasting out of Tunisia in December, is the first of its kind in the Arab world. It is on six days a week and reaches 10,000 people in 15 countries, according to Shams, the Tunisian group behind the effort. The Dutch embassy provides funding. The aim is to create a space to talk about LGBT issues that is not "dominated by imams", says Mounir Baatour of Shams.

The challenge is staying within the law. Anal sex is punishable by up to three years in jail in Tunisia. A court once suspended Shams' operating licence on dubious grounds. Hosts are careful with their language, so as not to be seen as promoting homosexual activity. Nobody comes out on air. Common topics include the science behind homosexuality and the treatment of gay people.

"We're in 2018 and the Arab street is still homophobic!" said a host recently. "They still use the word 'pervert'." Another decried the Arab world's rejection of "all international resolutions and declarations" dealing with homosexuality. Songs by Mashrou' Leila, a Lebanese rock band with an openly gay singer, are interspersed throughout the shows.

Since the Arab spring, as gay people have become more visible, homophobic attacks have increased in Tunisia, say human-rights groups. The police often look the other way, or arrest the victims. Men can be detained for "looking gay" or being effeminate, says Badr Baabou of Damj, a pressure group. No witnesses are required for a suspect to be found guilty. Often the only incriminating evidence comes from a rectal examination, which many other countries have outlawed.

In other ways Tunisia is at the forefront of LGBT rights in the Arab world. It is the only country in north Africa to have legalised groups that focus on LGBT issues. And the government has pledged to end forced rectal examinations. Still, the hosts of Shams Rad have plenty to talk about.

This article appeared in the Middle East and Africa section of the print edition under the headline "Come out and listen"

Ageing, ailing autocrats

Indisposed graybeards rule over much of the Arab world

No wonder so many Arabs feel their leaders are out of touch

Print edition | Middle East and Africa Mar 15th 2018

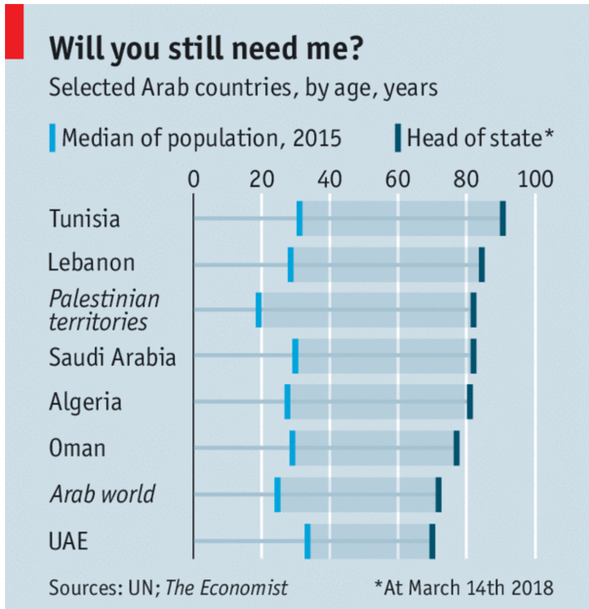
TO ALGERIANS, Abdelaziz Bouteflika is like Schrodinger's cat: simultaneously alive and dead until his actual state has been observed. Occasionally Mr Bouteflika, the 81-year-old president of Algeria, who has suffered at least one bad stroke, is rolled out in his wheelchair for an appearance. In October, for example, he met Dmitry Medvedev, the Russian prime minister. A short video of the encounter showed Mr Bouteflika staring blankly into the distance and mumbling a few words. Behind the scenes, a clique of military officers and economic officials actually runs the country.

Mr Bouteflika is indicative of the decrepit state of the region's politics. Of the 18 Arab countries and territories, nearly a third are ruled by old men in terminal decline. They are a stark contrast to the region's young population. Whereas the median age in the Arab world is 25, among Arab heads of state it is 72. Even when lucid, the old fogeys appear out of touch with their more progressive and increasingly frustrated young subjects. And their prolonged rule leaves deep uncertainty about who will one day replace them.

Take Mahmoud Abbas, who is in better shape than many Arab leaders, even at the age of 82. The Palestinian president is well enough for the occasional trip to Brussels or the United Nations. But his health is also in decline. Three years ago, to dispel rumours of a stroke, he trudged out to a gourmet supermarket in the middle of a snowstorm (with a camera crew in tow).

While his constituents are angry about rampant corruption and the never-ending occupation, Mr Abbas spends most of his time in Amman, insulated from such concerns. And he has no clear replacement. Many fear his death will touch off a period of instability in the Palestinian territories.

Oman may be in for an even rougher transition. Its leader, Sultan Qaboos, 77, at least appears before his subjects a few times each year. He has suffered from cancer for several years. A bachelor since the 1970s, he has no heirs. The name of his chosen successor is written on a sealed envelope in his palace.



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With a sprawling royal family, contenders abound. But rather than elevate potential rivals, the ailing sultan also serves as the prime minister, defence minister, finance minister and foreign minister. In his spare time, he runs the central bank. No one knows how much attention he actually devotes to this sprawling portfolio.

Other Gulf leaders are faring no better. Sheikh Sabah al-Ahmad al-Sabah, the Emir of Kuwait, is 88 and stumbles over his speeches. Khalifa bin Zayed, the nominal ruler of the United Arab Emirates (UAE), has been in seclusion since he suffered a stroke in 2014. King Salman of Saudi Arabia also appears to be fading. He keeps his speeches short and his public schedule limited. In February he presided over a humanitarian-aid summit in Riyadh organised by a charity that bears his name. But he did not say a word.

Old leaders are nothing new in the Arab world, where monarchies and dictatorships are the norm. In some countries, at least, doddering rulers have limited powers or they have transferred power to younger go-getters. Kuwait has an elected parliament and relatively liberal constitution. Real power in Saudi Arabia and the UAE rests with their crown princes, both relatively young and popular.

But seven years after a series of revolutions led by young people, elderly kings and presidents seem more common than ever. Even the Arab world's lone true democracy has elected a nonagenarian. Beji Caid Essebsi, Tunisia's president, is the oldest Arab leader, having turned 91 last year. "They have good genes," jokes a journalist in Lebanon, where the president is older than the country. Or perhaps just good doctors. Mr Abbas quietly checked into a Baltimore hospital for tests in February; Sultan Qaboos had his cancer treated in Germany. Those options, needless to say, are not available to many of their citizens.

This article appeared in the Middle East and Africa section of the print edition under the headline "Elderly statesmen"

Meet the Puteens

A generation that has known only Vladimir Putin

Those who have known only Vladimir Putin don't want revolution

Print edition | Europe Mar 17th 2018

MIKHAIL SOLOVYEV was born on December 31st, 1999. It was a bitter day, even by Siberian standards, with temperatures of -50°C. Trams and taxis in Novosibirsk stopped working, but his mother made it to hospital and entered the new millennium with a baby boy in her arms. That same day, some 3,400km away in Moscow, Boris Yeltsin sat before a New Year's tree in the Kremlin and slurred over a fateful speech: "I'm leaving," he told his countrymen. He deposited Russia in the arms of a new leader, Vladimir Putin.

In the ensuing 18 years, as Mr Putin consolidated his power in Moscow, Mikhail grew into a strapping young man. He is now a proud member of a local military-patriotic club, as well as an environmental activist with a soft spot for endangered birds. He dreams of becoming a signals operator in the Russian army. This weekend, on March 18th, he and his peers will be eligible to vote in a presidential election for the first time. He has yet to decide whom he will support. Regardless of whom he chooses, Mr Putin will win. But even a tsar cannot conquer time.

The potential of those who have known no ruler but Mr Putin came into view in March last year, when thousands of young people across the country answered the call of the opposition leader, Alexei Navalny, to protest against high-level corruption. The following week, Kremlin-connected political consultants held a discussion forum in a Moscow bar that captured the mood: "March 26 Protest," read the invitation, "WTF". Mr Putin began appearing at more events with fresh-faced supporters to counter Mr Navalny's appeal. *Molodezh*—the youth—attained a near-mythical status in Russian political discourse. Who are they? What do they want? How do they see the world?

Seeking answers to these questions, *The Economist* has interviewed dozens of 18-year-olds across Russia in the months leading up to the election. They are the first of a generation in Russia—call them the Puteens—that has no memory of life before Mr Putin. Some 28m children have been born in Russia since he took power. Their living conditions differ widely. Their views on politics, history, religion, rights, and national identity range across a broad spectrum. But certain trends do emerge.

The Puteens have come of age at a time of unprecedented prosperity for Russia, despite a recent slowdown. GDP per person has risen more than sixfold since Mikhail was born. The youth unemployment rate is relatively low by eastern European standards, at 15%. Today's young Russians drink less, smoke less, and live longer than those who came before them. Many see opportunities ahead: they have concrete dreams, and a sense that they can be achieved. "I want to become an architect," declares Alexei Malikov of Murmansk. "And I will become one."

Though they grew up in Russia, they live much of their life, like their peers elsewhere, online. More than 90% of 18- to 24-year-old Russians log on daily, compared with less than 50% of 40- to 54-year-olds and just 15% of those 55 and older. "From one point in the world, we can reach anywhere else, and that opens unlimited opportunities and unlimited horizons for us," says Abubakr Azaev of Makhachkala, the capital of the Muslim republic of Dagestan. "I basically know how people live in China, in Japan, in the USA." They share stories on Instagram and chat on WhatsApp; they dig both Russian rap and Scorpions. Abubakr cannot get enough of Tolkien's "The Hobbit" and Gorillaz, a British band.

The internet unites the human race

This heightened sense of the world beyond their borders seems to make the Puteens more receptive towards it. The dynamic of constant confrontation with the West holds less appeal for them. Russia's youngest adult cohort is more likely to have positive views of America and the European Union, and less likely to believe that Russia has enemies. (Their peers in the West also view Russia more favourably than older generations do.) They trust information from friends and relatives, and increasingly eschew the aggressive state-controlled news on television. Over 70% of 18- to 24-year-olds get their news online, compared with just 9% of those over 55; more than 90% of over-40s still rely on television. "They try to convince us that Americans all hate us; that Americans think Russia is a place full of evil people, bears on the streets and vodka," says Lera Zinchenko, an aspiring actress from the Moscow suburbs. "I don't think they hate us. I follow a few people on Instagram who travel all over the world, and there's one girl who was in America and said people were super nice to her."

The combination of relative opportunity and basic openness makes Russia's youngest voters, on the whole, sanguine about the future—though of course, few of them have yet had to contend with getting jobs or finding a home, let alone bringing up their own families. While the young people who filled Mr Navalny's protest form a visible and active bloc, they represent a small slice of their generation. Rather than raging for revolution, 18- to 24-year-olds are more likely than any other age cohort to approve of Mr Putin's performance; more likely to say that the country is heading in the right direction; and when presented with a choice between a Soviet-style political system, the current Russian system and Western-style democracy, are most likely to prefer the current system. A recent study by the Carnegie Moscow Centre found young people the least likely to support far-reaching change in Russia.

This does not make them Kremlin loyalists, so much as realists. For the Puteens, the president is akin to the sun, a constant feature of the environment. Some bask in his bombastic glow; those who find his presence oppressive slap on sunblock or stay inside. Though many would like to see a new star emerge, most see little point in fighting Russia's current one. "Sure, there are some shortcomings, but things are going pretty well—it could be much worse," says Mikhail, echoing a common sentiment. After he casts his vote, he will return to thinking about a more pressing predicament. "I have this dilemma," he offers, "Whether to stay here in Siberia, or move south, somewhere warm, somewhere closer to the sea."

Photographic project by Davide Monteleone specially commissioned by The Economist

To learn more about the Puteens, visit www.economist.com/Puteens

***Correction (March 22nd 2018)**: Last week we wrote that GDP per person in Russia has risen sixfold since 1999. That calculation reflects the change in current dollar terms, rather than in real rouble terms, which would be the more relevant measure. In those terms, it has nearly doubled. Sorry*

This article appeared in the Europe section of the print edition under the headline "Meet the Puteens"

The Democrats' dilemma

Problems forming a government in Italy

Who, if anyone, should they strike a deal with?

Print edition | Europe Mar 15th 2018

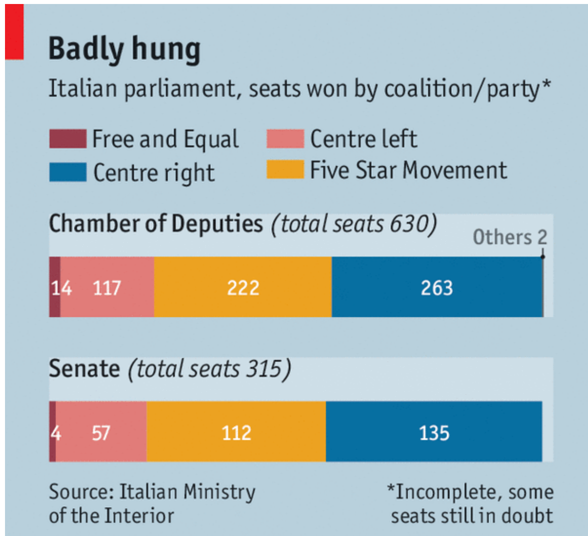
THE inconclusive result of Italy's election on March 4th has, paradoxically, foisted a decisive role on a party that emerged from the contest demoralised, defeated and divided. Though its share of the vote plunged to below 19%, its worst-ever result, the centre-left Democratic Party (PD) will occupy enough seats in the new parliament to be able to put either a right-wing alliance or the anti-establishment Five Star Movement (M5S) into government. Guessing which way they will jump, though, is no easy matter.

It is a measure of the disaster that befell the party that the centre-left alliance it led came first in only one of the four regions that formerly comprised central Italy's "red belt". The right was victorious in Umbria and Emilia-Romagna. The M5S headed the poll in the Marche. The exception was Tuscany, the native region of the PD's former leader, Matteo Renzi, whose resignation was accepted on March 12th at a meeting of his party's leadership.

Florence, Tuscany's regional capital, is a more working-class city than the tourists who come for its art and architecture might imagine. A thick belt of manufacturing industry stretches north-west from the city, which is ringed with suburbs like Coverciano, made up of low-rise apartment blocks dating from the days of Italy's economic miracle in the 1950s and 60s. The only museum in Coverciano is devoted to football. At its social centre, named after a Communist partisan shot by the Nazis, retired factory hands rub shoulders with young men sporting hipster fashions. Few say they voted for the PD that Mr Renzi shaped after he was elected to lead it five years ago.

"At the beginning, everyone here was with him," said Luigi Scarponi, the centre's president. "But the PD ought to be on the side of the workers and in government Renzi did what [the right] hadn't managed to do." His list of the errors of Mr Renzi's government in 2014-16 included an increase in the retirement age and a reform that abolished the right of unfairly dismissed workers to reinstatement. Both changes were explained by Italy's need to reduce its mountainous debt and create new jobs for its young people, but both were strongly disliked by those in work. Mr Scarponi also blamed successive, PD-dominated governments for failing, until recently, to stem illegal immigration—a view party officials say is widespread in ostensibly leftist Tuscany.

The PD is the child of a marriage between mostly working-class ex-communists and mostly middle-class, progressive ex-Christian Democrats. Though a minority, it is the latter who have led each of Italy's last three governments. Their businessfriendly reforms, Mr Renzi's autocratic ways and the objections to both from more traditional left-wingers have stretched the party's unity to breaking point. Members of its old guard formed a rival movement, Free and Equal (LeU), last year.



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Now the choice the PD faces risks dividing what is left of the party yet again. Mr Renzi, who is estimated still to command the loyalty of almost half his party's lawmakers, will remain influential. His view is that the PD should refuse negotiations with either the Five Star Movement or the right, and go into opposition. Maurizio Martina, who has taken his place until a new party leader is chosen next month, agrees; the responsibility for forming a government lies with Luigi Di Maio, the leader of the M5S, and Matteo Salvini, who heads the Northern League, which emerged from the election as the dominant force on the right, outgunning Silvio Berlusconi's Forza Italia with which it is in alliance.

Opposition also appears to be the favoured option of PD activists. The M5S has long reserved its most scornful barbs for the centre-left, creating a residue of loathing for the new party among the grass roots. Suggestions of a deal with M5s have met with furious protests from PD activists on Twitter.

Yet the voters may think differently. An exit poll for *Il Fatto Quotidiano*, a newspaper, found that 59% of those who voted for the centre-left this month favoured a coalition with the M5S and the LeU, That is logical since Five Star voters are closer in outlook to the PD's followers than to Italy's conservatives. The M5S claims left and right are outdated concepts. It advocates a mix of policies from across the political spectrum. But a political self-positioning survey by Demos & PI, a research institute, found the answers of Five Star voters put them, on balance, slightly to the left of centre. It is their very proximity to the PD's electorate, however, that causes many in the centre-left to see in the M5S a dangerous rival and fear that, if the PD were to collaborate with Five Star, it could be submitting to a deadly embrace.

The alternatives for Italy include an agreement between the PD and the right (rejected by Mr Salvini), an all-party government (rejected by Mr Di Maio) and a partnership between the M5S and the populist, hard-right League. It is the last that most scares Italy's EU partners, as it would bring to power, in a country with public debt of more than 130% of GDP, two parties pledged to cut taxes and increase spending. At the European Parliament on March 13th, Mr Salvini ruled out a unilateral exit from the euro zone in the short term, but said he was prepared to ignore its budget deficit limit of 3% of GDP. The M5S holds the same position. So far, Mr Salvini has appeared to rule out a deal with Five Star, but that could change. So the choices the PD faces are not just hard ones. They could have fateful effects far beyond Italy.

This article appeared in the Europe section of the print edition under the headline "The Democrats' dilemma"

Main attraction

Frankfurt woos London bankers

The Brexit dividend pitch

Print edition | Europe Mar 17th 2018

"THIS is our biggest asset!" gushes Eric Menges, the chief executive of the FrankfurtRheinMain promotional body, whirling his arm. The views from his panoramic office are impressive: Frankfurt's skyscrapers and cranes to the east, its sprawling international airport to the south, the thick forests of Hesse and the vineyards and villages of the Taunus mountains, where Mr Menges lives, to the north and west. "For a 9am flight I can get up at 7am," he boasts, as the shadow of an intercontinental airliner flickers over the tops of the pines. From this office he hopes to reinvent continental Europe's financial centre, already home of the European Central Bank.

Brexit helps. Of the banking jobs that have left London since June 2016, more have gone to Frankfurt than anywhere else. After a recent visit Lloyd Blankfein, the chief executive of Goldman Sachs, tweeted provocatively: "Great meetings, great weather, really enjoyed it. Good, because I'll be spending a lot more time there." In the last month alone Deutsche Bank announced the relocation of its client business to Frankfurt and Credit Suisse moved 250 jobs there. But Emmanuel Macron, France's president, is pushing for Paris and in November nabbed the London-based European Banking Authority. Frankfurt's early lead may not hold: "The Brexit process is not complete," cautions one top European banker. So Frankfurt's marketing men, like Mr Menges, are stepping up.

They have their work cut out. Martin Luther called the city, for centuries a trading centre at Europe's geographic crossroads, "a silver and gold hole". It almost became West Germany's capital after the second world war, but was deemed too big and money-focused, so Bonn won. Rebuilt in a rush and with lots of concrete after the wartime bombing raids, architecturally it ranges from the unremarkable to the hideous—though its skyline of skyscrapers is glamorous at night and gives the city the moniker "Mainhattan". In the 1980s drug users were prominent in the centre and many residents moved out to Taunus villages. Even today the city is pretty quiet after 9pm.

Successive reinventions have been failures. Frankfurt was long pitched as a twee German city like Munich, complete with Christmas market and Ebbelwoi (the rather acidic local apple wine). "Not everyone likes Ebbelwoi", jokes Hubertus Väth, the managing director of Frankfurt Main Finance, another promotional body. The city has also been called a new Berlin, but unlike Germany's capital can hardly claim it is "poor but sexy". If anything it is the opposite. Most recently, following the Brexit vote, it has been unfairly compared to London and Paris, banking cities four times its size. So its new image-makers are trying a new strategy: honesty about what the city is not.

Unlike traditional Munich, for example, Frankfurt is thoroughly modern. Over 40% of its residents are foreign. “I was born in Russia and lived in Algeria, France and Germany; we speak four languages at home; we are *typische Frankfurter* and kind of proud of it,” says Svetlana Kazantseva at the International School Frankfurt Rhein-Main. The city’s universities were the cradle of greenish German “new left” theorists, like Jürgen Habermas. Its clubs, like “Omen”, were the home of techno music. A bloom of hipster bars and restaurants is emerging in the old drug-scarred quarter around the main station, complete with avocado salads and flaxseed baguettes.

Unlike cash-strapped Berlin, Frankfurt is rich. The banks of the Main river boast walkways and skateparks; museums have been renovated; public transport now runs 24 hours a day at weekends. The city spends more per person on culture than any other in Germany. It is a “Berlin for adults”, Mr Väth quips. Frankfurt is investing in its musical heritage, pitching for festivals, building a Museum of Modern Electronic Music and last summer creating the “world’s largest club” in a sports stadium. A high-speed “club train” to Paris (“320km per hour, 130 beats per minute”) has become a fixture of the cultural calendar.

And unlike giant London or Paris, life in Frankfurt is convenient. Daily commutes are measured in minutes, not hours. Housing is fairly cheap. The airport—the third busiest in continental Europe—is 15 minutes from the city centre and a new terminal will open soon. Office space is plentiful and growing. Nineteen new skyscrapers are under construction and 26 more are planned. The number of international schools has risen from seven in 2000 to 28 today (though more will doubtless be needed). Young London bankers should not see Frankfurt as a place to live but a base for travel, says Mr Menges: “Here you are at the centre of the continent: Barcelona, Paris, Prague are all an hour away.”

All of which speaks to a broader truth. A new, continental London is not likely to materialise imminently. Instead bankers predict that Brexit will produce a network of specialised European financial centres. Back-office functions might gravitate to Warsaw or Bucharest, for example, and high-tech services to Berlin and Dublin. Frankfurt, like Paris and Amsterdam, should take euro-clearing and more traditional branches of investment banking. It is less clear whether Europe’s banks will eventually settle on a new hub. But if they do, Frankfurt will be a contender.

This article appeared in the Europe section of the print edition under the headline ”Main attraction”

The earth cries out

Can Slovakia's government survive?

The murder of an investigative reporter threatens the prime minister

Print edition | Europe Mar 15th 2018

THE fallout from the murder on February 25th of an investigative journalist, Jan Kuciak, and his fiancée this week brought down Robert Fico, who served as Slovakia's prime minister for ten of the past 12 years. Mr Fico had put up a fight. Drawing on Viktor Orban's playbook from neighbouring Hungary, he had hoped to defuse the crisis by blaming a conspiracy of foreigners including George Soros, a billionaire financier, for the political upheaval. But after 50,000 demonstrators (one in nine residents) took to the streets in Bratislava calling for his resignation on March 9th, it was clear that he had failed.

Slovaks have mobilised in numbers unseen since the 1989 Velvet Revolution, and on March 9th there were parallel protests in more than 30 other towns and cities, many considered the heartland of Mr Fico's nationalist Smer party. In the eastern city of Presov, Zlatica Kusnirova, mother of Martina Kusnirova, who was shot alongside Mr Kuciak, addressed a crowd of 7,000. "Nobody is dictating anything to me, nobody is paying me," she said in a rebuke of Mr Fico's conspiracy theories. Two senior cabinet members quit after that, including Mr Fico's second-in-command, Robert Kalinak, the interior minister. The three-party governing coalition started to splinter; one of the parties called for a new election, as did Andrej Kiska, the country's president. On March 14th Mr Fico bowed to the inevitable, agreeing to step down.

Though the crisis was triggered by the killing of Mr Kuciak and Ms Kusnirova, both 27, it exposed deep-seated frustration with Mr Fico's governing style, and cronyism in his party. The murdered couple appear to have been professionally executed, and police contend that their killing was related to Mr Kuciak's investigative work. Just before his death Mr Kuciak was looking into Antonino Vadala, a man Italian police believe to be a cocaine broker for the 'Ndrangheta mafia group. Mr Vadala had relocated to Slovakia and, with a group of associates, made land deals giving them access to millions of euros in agricultural subsidies. One of Mr Fico's aides, a former topless model named Maria Troskova, who is also widely believed to be the prime minister's mistress, was once Mr Vadala's business partner. Mr Vadala was arrested on an Italian warrant this week.

Along with the deaths, Mr Fico's tone-deaf response further angered the public and brought frustrations over Smer's politics to the surface. Some 85% of Slovaks believe corruption to be a widespread problem. Just six of the more than 800 people convicted and sentenced for corruption since 2012 were public officials, and the highest-ranking of those was mayor of a town with fewer than 2,000 residents. Those numbers translate into declining political fortunes for Smer, which was battered in the 2016 election, getting just 28% of the vote. Mr Fico's departure, though, will leave a void. The plan is for another Smer member to replace him as prime minister, avoiding elections for now. But the turmoil looks set to continue.

This article appeared in the Europe section of the print edition under the headline "The earth cries out"

One Hamburger, hold the relish

Olaf Scholz sworn in as Germany's new finance minister

A hard-headed Hanseat takes over Germany's mighty finance ministry

Print edition | Europe Mar 17th 2018

WOLFGANG SCHÄUBLE may have left the German finance ministry in September, but the austere legacy of the centre-right Christian Democrats (CDU) lives on; for example in the national debt clock in central Berlin, ticking downwards at about €100 ($123) a second, and in Germany's reputation, burnished during the euro-zone crisis, for fiercely guarding its economic stability and taxpayers' money. Such is his bequest to Olaf Scholz, the incoming centre-left Social Democrat (SPD) finance minister and previously the mayor of the northern port of Hamburg.

Mr Scholz's traits are those typically associated with its burghers: pragmatic, plain-spoken ("I'm liberal, but not stupid" he once said on law and order) and Protestant (no alcohol was served at his leaving party at Hamburg's city hall, it being a work day). In the early 2000s he was dubbed "Scholz-o-mat" for his robotic loyalty, as the SPD's general secretary, to the then-chancellor, Gerhard Schröder. He was subsequently well respected as Angela Merkel's second labour minister and, from 2011, as leader of Hamburg's state government—at least until last July, when he faced calls to resign over poorly policed riots during the G20 summit of world leaders.

Following his party's rout at last September's election, Mr Scholz was instrumental in reversing an initial decision to go into opposition and steering the party back into government with Mrs Merkel, a deal he admits "does not begin as a marriage of love". On March 14th, hours after the Bundestag elected her chancellor for her fourth and probably final term, he was sworn in as her new finance minister and vice-chancellor. That appointment makes him one of the two leading figures in the SPD along with Andrea Nahles, its more left-leaning leader in the Bundestag, who is expected to be elected leader next month.

Mr Scholz is unlikely to transform Mr Schäuble's domestic legacy. Though the coalition deal splurges much of Germany's budget surplus (€37bn last year), it also pledges balanced books and no new debt. In any case, his instincts are fiscally conservative by SPD standards.

The real question is how these instincts combine with his, and his party's, professed pro-Europeanism. It is hard to imagine Mr Scholz advocating Greece's expulsion from the euro, for example, as his predecessor once did. Emmanuel Macron, who had feared that the finance ministry would go to the somewhat Eurosceptic Free Democrats, called Germany's new government "good news for Europe". But in Berlin scepticism about his proposals for euro-zone integration is widespread, and the coalition deal is vague on the matter. Like Mrs Merkel, Mr Scholz seems to favour incremental progress. With plans for an initial agreement with France due by June, precisely how incremental will soon become clear.

This article appeared in the Europe section of the print edition under the headline "One Hamburger, hold the relish"

Charlemagne

Why Brussels is so obsessed with Martin Selmayr

A Berlaymonster under fire

Print edition | Europe Mar 17th 2018

"WHAT'S the difference between Martin Selmayr and God?" runs the joke. "God does not think he's Selmayr." As political gags go, it is not exactly a side-splitter (its origins are said to be German). But it simultaneously captures the strange blend of fear and scorn with which Mr Selmayr is regarded in Brussels, and the obsessions of a sometimes-parochial town with a Eurocrat who is barely known outside it.

Until recently Mr Selmayr, a quick-witted, baby-faced 47-year-old German, served as chief of staff to Jean-Claude Juncker, president of the European Commission. The Rasputin of the Berlaymont (the commission's Brussels headquarters) fulfilled his duties with aplomb, serving as policy brain, enforcer-in-chief and micromanager of the EU's machinery. The countless enemies he made along the way were always likely to cause trouble, though few expected it to come so early.

Indeed, that was part of the problem. Last month, out of the blue, Mr Selmayr was appointed secretary-general of the commission, a shift to a bureaucratic role that entrenched his power and decoupled his professional fate from that of Mr Juncker, whose term expires in October next year. After some digging by the press the full story emerged. Mr Selmayr had earned his promotion via an eyebrow-raising two-step: first securing the newly vacant job of deputy secretary-general over one "rival" (his deputy, who promptly withdrew her application), and then, hours later, the top job itself when the incumbent unexpectedly quit. The news was delivered to the college of 27 commissioners on February 21st; perhaps surprisingly, none objected. One hour later Mr Juncker himself made a rare appearance in the commission's press room, lauding the qualities of the man who had engineered his ascent to the presidency in 2014. The coup was complete.

There is no evidence of rule-breaking. Yet thanks in part to the commission's condescending response to journalists' inquiries, the story has gathered pace. This week it boiled over in the European Parliament, as MEPs lined up to give Mr Selmayr an hour-long pummelling. One decried the commission's "total lack of political judgment"; another compared the affair to a "mystification worthy of the Chinese Communist Party". If there are few spectacles so ridiculous as the European Parliament in one of its periodic fits of moralising, its members are not alone in their dismay. The story has ruffled feathers in the Netherlands, which holds local elections next week, and among the Eurosceptic British press, always ready to pounce on signs that the EU is a den of undemocratic crooks. Even Mr Selmayr's many supporters acknowledge that the affair has something whiffy about it.

His allies point out that previous secretaries-general were also political animals. The difference is that most of them cultivated anonymity. Mr Selmayr abides by Oscar Wilde's dictum that the only thing worse than being talked about is the opposite. His profile is unusually public, bolstered by on-the-record interviews and a lively presence on Twitter, where he spars with politicians and journalists. He is suspected of having leaked the details of a key meeting between his boss and Theresa May. But the depth of the row seems to have taken him by surprise. In part it is about his nationality; Germans already run the European Parliament, the EU's diplomatic service and several of its other bodies. Mr Selmayr's views are not always shared in Berlin, however, especially on economic matters. In a meeting last year Angela Merkel asked him if he even had a German passport.

But it is also about the adviser overshadowing the master. Mr Juncker often seems semi-detached from his role, leaving space that Mr Selmayr has skilfully exploited. A dedicated, hard-working official with a framed copy of the Schuman declaration above his desk, Mr Selmayr offers, and expects, the highest degree of loyalty. He is comfortable with both legislative detail and high politics, negotiating directly with Greek officials during the debt crisis of 2015. His fingerprints are on almost every signature policy of the Juncker commission, and not always for the good. He continues, for instance, aggressively to push a refugee-quota scheme that has set the EU's governments against one another.

But Mr Selmayr is also happy to deploy the dark arts in pursuit of grander goals. Lurid accusations sit at his door, from bullying commissioners to threatening miscreant journalists with violence. He carefully controls the flow of information, excluding officials he considers unhelpful or incapable, and is a master of the strategic leak. Many distrust his federalist vision for Europe's future; he is in constant battle with officials who serve the EU Council, where members of national governments sit. Now his foes sniff vulnerability. "You cannot machine-gun people into line and then expect them to applaud you when they have the opportunity to pay you back," says an (otherwise supportive) official.

Never become the story

Some compare Selmayrgate to a scandal in 1999 that brought down an earlier commission. But without a bombshell revelation the story will surely fizzle. Mr Selmayr is bedding into his new job, flattering the commission's directors-general (department heads), over whom he now rules, that he will bring them closer to the heart of political decision-making in the Berlaymont.

That will please some. But it also draws attention to Mr Selmayr's Achilles heel. The commission is a unique blend of bureaucrats, monitors and rule-makers unlike any national administration. Mr Selmayr defends the notion of a "political commission", alive to sensitivities. That worries some governments, who expect it to act as a neutral arbiter on matters like competition and national budgets. It also leaves Mr Selmayr exposed to the sorts of political attack he has received this week. His own future could well become the subject of public debate during the electoral campaign to succeed Mr Juncker next spring. If so, Mr Selmayr will not be in a position to complain.

This article appeared in the Europe section of the print edition under the headline "A Berlaymonster under fire"

Holding Russia to account
What's your poison?

What's your poison?

Britain holds Russia to account over the Skripal affair

The poisoning of an ex-spy sends Anglo-Russian relations to their lowest point since the end of the cold war

Print edition | Britain Mar 15th 2018

THERESA MAY kicked off a dramatic week on March 12th with her Commons statement on the poisoning of Sergei Skripal and his daughter Yulia by a powerful nerve agent in Salisbury, a quiet cathedral city. The prime minister pointed her finger directly at Russia's president, Vladimir Putin, saying that either the Russian state had sanctioned the attack or it had lost control of a deadly poison. She gave the Russians until the end of the following day to produce an explanation before she concluded that Britain had been the victim of "an unlawful use of force".

This marked the return of the feisty politician who all but disappeared after June's election disaster. Jeremy Corbyn, Labour's leader, was feeble in his response. He called for dialogue with Russia and then veered into an attack on the Tories for taking money from Russian billionaires. Labour backbenchers were embarrassed at his misjudgment of this national moment. The exchanges also set in motion a process that put Salisbury at the centre of an escalating diplomatic row. It is as if a bunch of John le Carré characters had invaded a Trollope novel and put Barchester at the heart of an espionage thriller.

Mrs May won early support from the leaders of France, Germany and the European Union. Angela Merkel, Germany's chancellor, expressed Germany's "full solidarity". Emmanuel Macron, the French president, promised to stand behind Britain as it prepared "to take concrete measures against Russia's breach of international solidarity" (though later France said that it needed definitive evidence before taking any action itself).

America's response was also strong. After some hesitation that prompted Russian state television to claim that "Trump is ours", the president said he would support Mrs May "all the way". On March 14th his ambassador to the United Nations, Nikki Haley, declared that America stood in absolute solidarity with Britain.

Mr Putin made no attempt to meet Mrs May's deadline. Sergei Lavrov, his foreign minister, dismissed Mrs May's allegations out of hand, accused her of behaving like a Soviet-era prosecutor, and refused to co-operate unless he was given access to the nerve agent. Russia combined defiance with self-pity. How dare Britain insult a great nation? The Russian embassy mocked Mrs

May's assertion that it was "highly likely" that Moscow was responsible for the attack by creating a hashtag, #HighlyLikelyRussia, and suggesting that it was "highly likely" that Russia was responsible for the recent snow.

On March 14th Mrs May set out Britain's response in a second statement. Britain will expel 23 Russian diplomats identified as intelligence operatives, the biggest expulsion for 30 years. It will freeze Russian state assets known to be supporting dubious activities. It will strengthen its border defences against suspicious characters. It will not send dignitaries to the football World Cup in Russia this summer. Mrs May's speech was forceful. She was careful not to offer something she could not deliver and she laid the foundations for increased pressure through co-ordinated action with allies. Her biggest omission was any plan to target the wealth of London-based Russians linked to the Kremlin.

Mr Corbyn's reply did nothing to allay his own moderate MPs' fears that foreign policy could be his Achilles heel. He refused to condemn the Russian state directly for the Salisbury attack. He focused obsessively on the management and control of chemical weapons as if the problem were the device used to commit the crime, not the crime itself. He echoed Russia's demand for access to the nerve agent. He even criticised the government for cutting the Foreign Office budget, as if more money would have prevented the attack.

Labour pains

A Corbyn spokesman then further muddied the waters. He refused to say whether Mr Corbyn accepted Russian responsibility for the attack, questioned the security services' competence ("there is a history between WMDs and intelligence which is problematic, to put it mildly") and suggested that a former Soviet Union country other than Russia might have been behind the attack. "The break-up of the Soviet state led to all sorts of material ending up in random hands", he said.

This failure to put Labour firmly behind the prime minister underscored a huge concern about a possible Corbyn premiership. This is that Mr Corbyn's long history of making excuses for anti-Western regimes, particularly Russia, make him an unreliable custodian of British national security. It may also have reignited the civil war within the parliamentary party that was halted by Mr Corbyn's election success. A string of Labour MPs stood up to support Mrs May rather than their leader.

Even before Mrs May spoke, the government said it would reopen inquiries into the deaths of other Russian émigrés who have died in Britain in mysterious circumstances. Some newspapers reported that there had been as many as 14 suspicious deaths. On March 12th another was added to the list: Nikolai Glushkov, a former head of Aeroflot, Russia's national airline, and a close associate of Boris Berezovsky, an oligarch who fell foul of Mr Putin and was later found dead in his home west of London.

Why has Britain responded more assertively to the Salisbury incident when it has turned a blind eye to similar ones in the past? Part of the answer is that it fits into a menacing pattern of an out-of-control state acting abroad without sufficient push-back. Partly it is because this atrocity was so egregious. Three people, including a police officer, are in critical condition, 40 more are being monitored for health problems, and parts of Salisbury have been sealed off. And some in the British establishment also feel guilty about the weak response to the murder of Alexander Litvinenko in 2006, when Britain dragged its feet and then expelled just four diplomats.

Keeping up momentum after this week will be hard. The West, including Britain, has a sorry recent history of behaving like a paper tiger when confronted with Russian aggression, as Crimea and Ukraine show. Mr Putin is good at playing on divisions and using oil and gas as a weapon.

Russia also has two other things on its side. One is that, since it is impossible to prove the Russian state's complicity, it is easy to drop two questions into the conversation. Why would Mr Putin go after such a low-level operative? And why would he do so just before an election and not long before Russia hosts the World Cup? The second is Brexit, which means that Britain is engaging in tense negotiations over its departure from the EU just when it needs its European allies' support.

There are plenty of ways in which Mrs May could trip up in the coming months. Critics say she should have been tougher still, especially over money. Yet this week at least marked a start of efforts to hold a rogue actor to account for attempted murder. It has also reopened divisions inside the Labour Party. It is a long time since Mrs May has looked so strong at home—and Mr Corbyn so weak.

This article appeared in the Britain section of the print edition under the headline "What's your poison?"

The British economy

The chancellor boasts of good news, but the Brexit effect is plain to see

This year Britain may have the slowest-growing economy in the G20

Print edition | Britain Mar 14th 2018

PHILIP HAMMOND, the chancellor, is doing what he can to shake his dull-as-ditchwater reputation. As is his wont at fiscal events, he peppered his Spring Statement, an update on the economy delivered to Parliament on March 13th, with wisecracks. "Mr Speaker," he said, waving his finger at the Labour front bench, "if there are any Eeyores in the chamber, they are over there. I, meanwhile, am at my most positively Tigger-like today." Labour's numbers, he said, were the product of a "briefing from Russia Today."

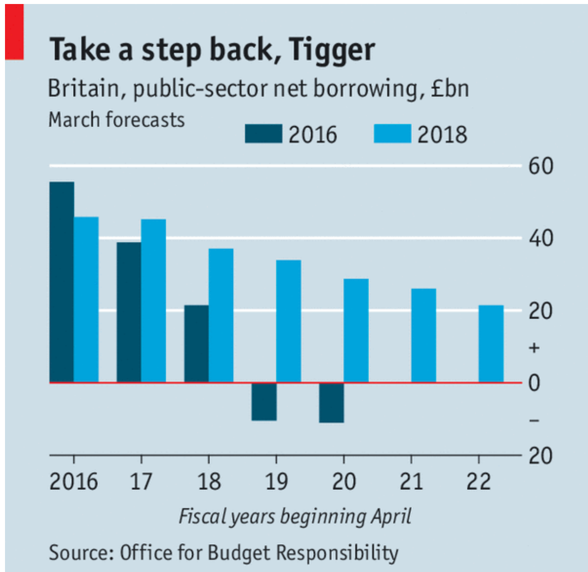
It is easy to see why Mr Hammond was in a good mood. The Office for Budget Responsibility (OBR), the government's fiscal watchdog, gave him improved economic forecasts. The OBR expects public borrowing over the next four years to be £145bn ($200bn), £12bn less than was predicted last November. Britain's ratio of public debt to GDP is now expected to be lower next year than it was in 2016. Falling public debt represents "a turning-point in the nation's recovery from the financial crisis of a decade ago," Mr Hammond boasted.

Britain's public finances are indeed looking better, for a number of reasons. Since becoming chancellor in July 2016 Mr Hammond has resisted growing calls, including from within his own Tory party, to ramp up spending on things like local government and welfare. Tax revenues are also healthier.

Since the Brexit referendum in June 2016 the economy has performed better than most forecasters expected. The OBR once predicted GDP growth of 1.4% in 2017, but it now sees growth of 1.7%. Britain's four biggest taxes—income tax, national insurance, value-added tax and corporation tax—make up two-thirds of total receipts. All are returning revenues bigger than expected after the referendum. Corporation-tax receipts are expected to have risen by 4% over the past year. The weakness of sterling has meant that firms' foreign earnings are worth more. And revenues from income tax and national insurance have been boosted by a strong labour market.

Unemployment is close to a four-decade low. Nominal wage growth seems to be inching up as firms are forced to compete more for workers. Employees in the finance and insurance sector, on whom the government relies heavily for income tax, saw their pay increase by 7% in nominal terms last year. Low unemployment, as well as Britons' willingness to take on more debt, has also increased consumer spending, which explains why VAT revenues have also been strong.

But is Mr Hammond's boasting justified? The economy has outperformed the gloomy forecasts made just after the referendum. But it is by no means a star. On the same day that Mr Hammond delivered his statement, the OECD club of rich countries forecast that this year Britain will have one of the slowest-growing economies in the G20. Some businesses are delaying investment as they wait for greater clarity over Britain's future trading arrangements with the European Union. Brexiteers had hoped that a strong global economy and weak currency would produce an export boom. Britain's exports have risen, but less so than the G7 group overall.



Economist.com

The upshot is that the public finances are less healthy than they would be without Brexit. Shortly after the referendum, the OBR forecast that borrowing would rise by more than £100bn; the £12bn reduction in forecast borrowing is relative to that higher level. In other words, the extra borrowing expected as a result of Brexit is still vast—just not quite as much as originally predicted. Before the referendum Britain expected to eliminate its budget deficit by 2019 (see chart). The government now hopes to do this by the mid-2020s. Even that looks optimistic, however, since a rapidly ageing population will weigh ever more heavily on public spending.

In any case, progress on the public finances has come at a cost. Public services of all sorts are in trouble. Prisons are out of control. Rough sleeping has tripled since 2010. Cuts to the working-age welfare bill are expected to trim the real incomes of some of the country's poorest by over 5% in the next few years. Local government is in a tight spot: in 2016-17 two-thirds of councils that provide social care drew on their reserves to meet spending commitments. What is needed in the long term are higher taxes to combine high-quality public services with sustainable public finances. Even some Tories are coming around to this. Unless Mr Hammond does the same, few Britons will smile with him.

This article appeared in the Britain section of the print edition under the headline "Dead cat bounce"

The changing high street

Can't stand the heat

First it was department stores, then supermarkets. Now it is restaurants that struggle

Print edition | Britain Mar 15th 2018

IT HAS been a dismal year for Britain's beleaguered high streets, and it is only March. After a barely festive Christmas, the intervening months have seen the collapse of Maplin, an electronics retailer, and Toys "R" Us in Britain. New Look, a fashion retailer, is struggling to survive after announcing the closure of 60 stores with the loss of 1,000 staff. Debenhams is axing a quarter of its management positions. Marks & Spencer, Tesco and other supermarkets are also shedding jobs. On March 8th the John Lewis Partnership, owner of John Lewis and Waitrose, announced that its profits last year had dropped by 77%.

The big stores and supermarkets have been struggling for a while, but it was once thought that restaurants and pubs might escape the carnage. One theory had it that consumers were spending more on going out and less on TVs and bed linen. Not so. Restaurant chains, in particular, are feeling the pain as much as anyone. In recent weeks Byron Burgers, Prezzo and Jamie's Italian have all started closing outlets (Prezzo 94 of them) as part of restructuring plans. Some may not survive. Posh Carluccio's has called in accountants to "assess its options." On March 12th Casual Dining Group, owner of the Café Rouge and Bella Italia chains, unveiled an increased loss of £60m ($85m) for the year to May 2017.

A rise in costs has aggravated the problem. Like retailers, restaurants have had to absorb new government-imposed burdens, including the national living wage, the apprenticeship levy for employers with a wage bill of over £3m and higher pension contributions. Restaurants have also been hit by the devaluation of the pound since the Brexit referendum, which has driven up the price of imported ingredients such as tomatoes and olive oil.

However, it is also clear that some of the chains have brought troubles on themselves by expanding too fast. The number of restaurants with over ten employees rose by 13% in 2014 and 10% in 2015. Last year growth was still a robust 7%. The market has become saturated, especially for mid-market Italian eateries.

Restaurants have also been slow to respond to the rapid rise in delivery services offered by firms like Deliveroo, Just Eat and Uber Eats. Cyril Lavenant, director of NPD Group, a market-research firm, has found that, whereas the restaurant market was flat in 2017, the home-delivery market grew by 11%. Deliveroo, which now has 15,000 delivery riders, claims that restaurants that have partnered with it have seen revenues grow by 30%. Yet while delivery firms are good for small restaurants, Mr Lavenant says that they create a dilemma for chains. Most profits in a restaurant come from alcohol and accessories like bottled water, so simply selling their food online risks cannibalising the business.

Restaurants have also lagged behind retailers in offering “experiences”, as the trade jargon has it, rather than the usual broccoli. This is how the more innovative retailers now try to differentiate themselves in a crowded market. It also lets them do something with their underused floor space.

John Lewis, for instance, opened its 49th store in October with 20% of the space dedicated to eye tests, children’s car-seat fittings and free styling services for men. Selfridges, another big department store, marked the 400th anniversary of Shakespeare’s death in 2016 by performing “Much Ado about Nothing” in store, and last year it staged concerts. Waitrose hosts yoga classes, and Marks & Spencer mental-health drop-ins called Frazzled Cafés.

Restaurants, argues Mr Lavenant, will have to offer more than just food. A few are already doing so. Pizza Express is converting more of its premises to live music and comedy venues. Some pubs now have “escape rooms”, an idea imported from America. Whatever it takes.

The economics of Brexit

How bad could it get?

The government's own economic analysis finds that Brexit will damage the economy

Print edition | Britain Mar 15th 2018

DURING the Brexit referendum campaign in 2016, gloomy economic forecasts by the Treasury were dismissed by Leavers as "Project Fear". Many now gleefully note that, at least in the short run, they proved spectacularly wrong. Ministers like Boris Johnson, the foreign secretary, insist there are no downsides from Brexit.

It is thus odd that, unlike then, the government refuses to produce any official forecasts for Brexit. In December David Davis, the Brexit secretary, who had boasted of his department's rigorous impact assessments, told the Commons Brexit committee that they did not in fact exist. Yet early this year he had to share a leaked confidential draft of the government's own EU exit analysis with the committee, which has now published it on its website.

The analysis is comprehensive, looking at tariffs and non-tariff barriers as well as migration effects. It is based on three models for post-Brexit trade relations. These are the European Economic Area (EEA), which means staying in the EU's single market like Norway; a free-trade agreement (FTA) similar to the EU's with Canada; and trading only on World Trade Organisation (WTO) terms. Cumulative GDP growth in 15 years' time is trimmed in all three cases, by an average of 1.6 percentage points for the EEA option, 4.8 points under an FTA and 7.7 points on WTO terms (see chart). These numbers are similar to most outside forecasts.

The sectoral and regional effects of the models are striking. The industries that suffer most include chemicals, food and drink, cars and retailing. The areas of the country hit hardest include the north-east, the north-west and the West Midlands, all of which voted heavily for Brexit. London escapes relatively lightly. The public finances suffer too. The FTA option will add £55bn ($75bn) to annual public borrowing in 15 years' time.

The analysis also finds that offsetting gains from putative trade deals with third countries are relatively small. It concludes that an FTA with America would increase GDP by 0.2%. Free-trade deals with China, India, other Asian countries and Australia and New Zealand add only a little more. The model also finds that unilateral British trade liberalisation, a policy favoured by many Brexiteers, may mitigate losses under the WTO option by only 0.2% of GDP.

Ministers offer two responses to these gloomy figures. One is that the work is incomplete and forecasts 15 years out are unlikely to be accurate. This is a fair point. Yet revisions are just as likely to make the results worse as better. In addition, the analysis does not include knock-on effects from lower productivity growth. It also assumes that Britain replicates all the EU's free-trade agreements, which may not be easy.

The second response is that the analysis does not model the government's preferred Brexit outcome, set out in Theresa May's Mansion House speech, for a more comprehensive free-trade deal than Canada's, including services as well as goods, with extra benefits from managed regulatory divergence. This too is a fair point. Yet in its draft negotiating guidelines for the future relationship, the EU rejects Mrs May's proposal. Instead, it suggests an FTA like Canada's, although it does propose to avoid any tariffs on goods.

The damage from Brexit is also highlighted in a new joint study from Oliver Wyman, a consultancy, and Clifford Chance, a law firm, that looks at business costs from tariffs and non-tariff barriers under a WTO-only option. The annual extra cost to British exporters is put at £27bn, or 1.5% of gross value-added. The burden falls mainly on chemicals, cars, food and drink, consumer goods and financial services. The hit to the EU is significant but lower, at 0.4% of gross value-added.

Sir John Major, a former Tory prime minister, has said he knows of no precedent for a government enacting a policy that makes the country poorer. Those talking up Project Fear would be more honest if they conceded that Brexit will do this, but argued it is a price worth paying.

The left and anti-Semitism

Labour's problem with anti-Semitism

The Labour Party needs to root out all traces of anti-Semitism—and be seen to be doing so

Print edition | Britain Mar 15th 2018

"JEWS have no better friends in this country than the Labour Party." So said the *Jewish Chronicle* in 1920. Almost a century on the newspaper's tone has changed. When it emerged that Labour's leader, Jeremy Corbyn, was a member of a private Facebook group littered with anti-Semitic abuse, the *Jewish Chronicle*'s editor penned a note of despair. "We run far, far less about [Mr Corbyn] and Labour's anti-Semitism issue than the story probably deserves, precisely to avoid it dominating the paper."

There has certainly been plenty that could fill its pages. Mr Corbyn's "unwitting" membership of the Facebook group was the latest anti-Semitism row to embroil the party since he became leader in 2015. Earlier this month, the race to become general secretary was marred by anti-Semitic abuse of Jon Lansman, founder of the left-wing pressure group Momentum. A row over dealing with party members suspended for alleged anti-Semitism has rumbled for months. In 2016 Ken Livingstone, a former mayor of London, was kicked out of the party for suggesting that Adolf Hitler supported Zionism "before he went mad and ended up killing 6m Jews".

Not everyone is willing to accept that Labour has a problem. Len McCluskey, the boss of Unite, Britain's biggest union and a strong supporter of Mr Corbyn, dismissed allegations of anti-Semitism as "mood music" and an attempt to undermine the leader. Even when senior figures admit the party's troubles, caveats soon follow. Andrew Murray, one of Mr Corbyn's advisers, told an audience of activists and left-wing hangers-on that "there is anti-Semitism in the Labour Party". But he added that such allegations, while justified, were also meant to "destabilise the party and this needs to be challenged as well". Instead, he went on, what was needed was a lesson in the differences between anti-Semitism and anti-Zionism.

Israel and Palestine loom large in the party's tortuous relationship with Britain's Jews. Mr Corbyn has dedicated much of his career to fighting for the rights of Palestinians. This has sometimes brought him into proximity with people who hold unsavoury views of Jews. While Mr Corbyn has never himself been accused of anti-Semitism, he has shared platforms—and Facebook groups—with those who have.

The struggle to disentangle anti-Semitism from fraught discussions over the Middle East is not unique to Labour, points out David Feldman, a historian of anti-Semitism at Birkbeck, University of London. Where parts of the left sometimes fail "is in recognising anti-Semitism when it is in front of them", he adds. "The commonplace idea that racism is power can leave people poorly equipped to identify racism when it is directed at Jews in Britain." This blind spot is particularly egregious in a party that prides itself on its anti-racism, says Richard Angell, who runs Progress, a centrist Labour caucus. “We would not tolerate it for any other group,” he says.

Internal rows about anti-Semitism have already hit the party electorally. While Labour made gains across London in last June’s general election, Labour struggled in the “bagel belt”—a group of constituencies in the north-west of the city with large Jewish populations. Data are sketchy, but a poll taken just before the election suggested that only 13% of Jews intended to vote Labour. Some 77% backed the Conservatives.

Labour’s attempts to solve its problem have been patchy. A report into anti-Semitism in the party by Shami Chakrabarti, a human-rights lawyer turned Labour peer, suggested such reforms as banning the term “Zio” and clearer disciplinary proceedings. Although it was derided as a whitewash by some, John Mann, a Labour MP who leads the all-party parliamentary group against anti-Semitism, welcomed the report. His only demand was that the party hurry up and implement it. Efforts to root out those accused of anti-Semitic slurs online have been slow and attracted unhelpful cries of witch hunts from a minority. A party should not be judged by its cranks, but by how it handles them. On this, Labour still falls short.

This article appeared in the Britain section of the print edition under the headline ”Labour’s concern”

Shooting up

Britain is slowly acquiring a pro-vax movement

Chickenpox parties could soon be a thing of the past

Print edition | Britain Mar 15th 2018

MANY parents may have fond-and-itchy memories of chickenpox parties. At these events infected children played with healthy ones, helping to strengthen immune systems. Now such shindigs face dwindling guest lists as more people pay to be vaccinated against chickenpox and other diseases.

Children are entitled to free vaccinations on the National Health Service for some diseases, like polio. For high-risk groups, such as those with long-term conditions, the list is extended. But where jabs are not covered, parents must pay.

No organisation tracks data for private immunisation, but the industry reports that demand is rising, on the back of more awareness. Emma Caudwell of MASTA, a vaccination provider that operates in over 170 private clinics, says that annual sales of chickenpox jabs have grown by about 10% in each of the past two years. Superdrug and Boots, two pharmacists, and MSD, a pharmaceutical firm, also note growing demand. So do doctors in private clinics.

One reason is that chickenpox can be quite severe, says Claire Friel, a mother from Glasgow whose daughter was vaccinated last year by a private doctor. Parents are keen to shield children from this. Convenience also plays a part. The share of children growing up in households where all adults work has risen from 49% in 1996 to 59% in 2017. Fewer parents can stay home to nurse a child. They may prefer to stump up £130 ($181) for a chickenpox vaccine. Ms Caudwell notes that the market is growing fastest in affluent areas.

Adults are also receiving more shots privately. That is partly because more Britons are travelling abroad, often to exotic places, says Katy Peters, head of the London Vaccination Clinic. The number of foreign trips by British residents has risen 70% since 1996. That boosts sales for travel vaccines unavailable on the NHS, such as yellow fever. And, with the average wait to see a family doctor now around two weeks, some happily pay to avoid delay.

Another increasingly popular vaccination is for Meningitis B, a rare but potentially deadly disease. The NHS offers the vaccine to children born after May 2015. But for older children, the jab costs about £220. In February 2016 two high-profile cases of children contracting the disease triggered a surge in interest. James Moore, head of a private clinic in Exeter, says that in the week after the stories broke the phones were jammed. The next week, it had a waiting list of over 800.

The unexpected uptake led to a national shortage of Meningitis B jabs, with some clinics sourcing pricier vaccinations from abroad. Such setbacks are common. Only a handful of companies make vaccines, which can take a few years to cook up. Firms struggle to meet sudden surges in demand. Problems with batch production, such as failing safety tests, can also interrupt supplies.

Pharmaceutical firms influence demand, too. This was highlighted in a chickenpox campaign by GlaxoSmithKline, a drug firm. Posters showed a pox-ridden and forlorn-looking child with a caption reading “Mummy, you said spots wouldn’t hurt me”. For a growing number of parents, the image strikes a chord.

This article appeared in the Britain section of the print edition under the headline ”Shooting up”

Chronic problems

Britain's stringent rules on medical cannabis harm patients

But the country is still a big (legal) producer of the green stuff

Print edition | Britain Mar 17th 2018

SATIVEX comes in a small brown glass vial. Each spray, delivered under the tongue or to the cheek, emits 100 microlitres of a solution including alcohol, peppermint oil and a mixture of THC and CBD, the active ingredients in cannabis. GW Pharmaceuticals, its manufacturer, insists it is a "cannabis-based medicine", not "medical marijuana", since it is made to exacting pharmaceutical standards. It nevertheless contains extracts from *Cannabis sativa,* the cannabis flower and plant, and some users report a mild high. It can be prescribed by doctors, most often to sufferers from multiple sclerosis (MS).

Partly as a result, fuzzy fronds are flourishing in British greenhouses. In 2016 Britain harvested 95 tonnes of legally grown cannabis, twice as much as a year earlier, and more than any other country. The International Narcotics Control Board, an independent monitor linked to the UN, reckons that Britain is the world's largest exporter of legal cannabis (in the form of medical products). And GW has another product, for treatment of drug-resistant epilepsy, under consideration by regulators in America and Europe.

But, unlike in some American states, those who use cannabis in its most basic leaf form to treat other illnesses run the risk of prosecution. Jon Liebling of the United Patients Alliance, a campaign group, recalls being busted a few years ago for growing a plant for him and his friends to treat illnesses, including anxiety and MS. "The government had taken my medicine," he complains. Last October MPs joined activists smoking joints at a "cannabis tea party" outside Parliament to call for the legalisation of cannabis for medical use, which some define as having the right to grow their own.

Others hope for regulatory change, arguing that the road to market is too costly and unwieldy for a cheap herbal product. It requires approval by both the medicine authority and the Home Office. One policy adviser notes that GW Pharmaceuticals has an enormous first-mover advantage, having emerged from the process with a number of patents. Gavin Sathianathan of Forma Holdings, a firm that invests in medical-cannabis companies, says that Britain's restrictive laws are hindering the growth of the next big biotech industry.

The lack of competition not only denies patients access to medicine, it also pushes up prices. Although Sativex is licensed for the treatment of MS, in 2014 the National Institute for Health and Care Excellence, which advises the National Health Service, decided its benefits were not worth the cost (a different decision was reached in Wales, where the drug is still available on the NHS).

Cutting red tape may thus be a sensible move by the government. “If we’re going to fight the war on drugs,” says Mr Sathianathan, “we should at least get the sick off the battlefield first.”

***Correction (March 22nd 2018)**: Last week we said that a cannabis-based medicine, Sativex, delivered a dose of 100 millilitres per spray. We hope no one followed our prescription; the actual dose is 100 microlitres.*

This article appeared in the Britain section of the print edition under the headline ”Chronic problems”

Bagehot

Global Britain or globaloney

The government's post-Brexit foreign policy of "global Britain" is incoherent

Print edition | Britain Mar 15th 2018

THE idea of a global Britain has become the foundation stone of Britain's post-Brexit foreign policy. Theresa May says Brexit "should make us think of global Britain, a country with the self-confidence and the freedom to look beyond the continent of Europe and to the economic and diplomatic opportunities of the wider world". Boris Johnson, Britain's foreign secretary, declares that "whether we like it or not we are not some bit part or spear carrier on the world stage. We are a protagonist—a global Britain running a truly global foreign policy".

But what does the phrase mean? The Commons foreign affairs committee, newly energised under Tom Tugendhat, summoned the great and the good of the foreign-policy establishment to answer this question. The results were disappointing. Some confessed that they hadn't a clue. The Foreign Office submitted a memorandum consisting of little more than a set of aspirations with no details about how to put them into practice. Mr Tugendhat's committee worries that "global Britain" cannot be the basis of foreign policy because it is little more than an "advertising slogan". This columnist thinks the problem goes deeper. Global Britain is three badly thought out ideas rolled into one.

The first is that, thanks to its long history as a trading nation and imperial power, Britain is an irreducibly global country. Britain has a first-class army and a Rolls-Royce diplomatic service, with 154 embassies around the world. It is one of five permanent members of the UN Security Council. Britons play an outsized role in the most global markets—not just finance but consulting, art and pop music. Britain is home to 91 Forbes 2000 companies, 52% more than France and 78% more than Germany. Even Britain's national sport, football, is thoroughly globalised, with foreign owners and foreign players.

All this is true up to a point. But Britain's diplomatic and military establishment is a bit like an aristocratic family that has inherited a crumbling pile in the country and insists on keeping up appearances. The defence budget has fallen by 20% in real terms since 2007. The Foreign Office's budget has fallen by even more. Many embassies in Africa consist of one man (or woman) and a dog. Look beneath the surface of Britain's global companies and you find a long tail of ill-managed firms that know nothing of global markets. Talk of "global Britain" fosters dangerous illusions. It encourages grandiloquent promises about intervening here and providing aid there. It also distracts attention from serious economic problems. A sensible government would try to do something about dismal companies that trap people in unproductive work, rather than dream of freeing Britain's successful multinationals from the (often imaginary) shackles of Brussels.

The second idea is that being global means embracing emerging markets. Since 2000 these have accounted for more than 60% of the world's economic growth. The European Union is the economic equivalent of a "legacy system": locked in the past, overburdened by entitlements and regulations, terrified of the creative destruction at the heart of capitalism. The emerging world, by contrast, is a bubbling cauldron of new opportunities and new consumers. The world's economic centre of gravity has moved from the Azores in 1980 to Iran today and is likely to reach Tibet by 2050. Britain needs to move with it.

Yet this idea rests on a false antithesis. There is nothing about EU membership that prevents Britain from taking advantage of these booming markets, as Germany does rather more successfully. Emerging countries can also be difficult places to do business with, sometimes because they are run by problematic regimes, sometimes because they are riddled with corruption. In recent years Britain has swallowed its principles to attract Russian business. Now it has little choice but to engage in a costly diplomatic row at a time when, thanks to Brexit, the false choice between Europe and the world is in danger of becoming real.

The Anglosphere delusion

The third idea is that "global Britain" means the Anglosphere. This embraces countries around the world that share a common culture because they were once part of the British empire. "Outside the EU, the world is our oyster", a Brexiteer once put it poetically. "And the Commonwealth remains that precious pearl within." Supporters of this idea argue that the Anglosphere has deep roots in British history: in "The History of the English-Speaking Peoples", Winston Churchill argues that England is a global island, scattering its people around the world. But they also point out that it is attractively modern. It is global where the EU is regional, networked where the EU is bureaucratic, bottom-up where the EU is top-down. In short, it is a ready-made alliance linked by a common belief in free trade and by technologies that increasingly render distance obsolete.

Pankaj Ghemawat, of New York University, says there is some truth in this. All else equal, a common language boosts trade to 2.2 times what it would be without a common language, and colonial links can boost it to 2.5 times. But then the qualifications start. Excluding Britain, the Commonwealth's GDP is only 55% as big as the EU's. The effect of distance trumps the effect of culture by a significant margin. And colonial links cannot be relied on. Narendra Modi, India's prime minister, is less sentimental about British rule than his predecessor, Manmohan Singh, for example, and the American elite is less Anglophile than it was.

The phrase "global Britain" is well intentioned, designed to send a message that Britain is not withdrawing from the world by leaving the EU. It remains open for business, active on the world stage, bouncily cosmopolitan. But Britain needs to do more than remain open for business. It needs to work out ways of engaging without overstretching its abilities and of embracing globalisation without forgetting that it has downsides as well as upsides. Talking globaloney isn't going to help.

This article appeared in the Britain section of the print edition under the headline "Globaloney"

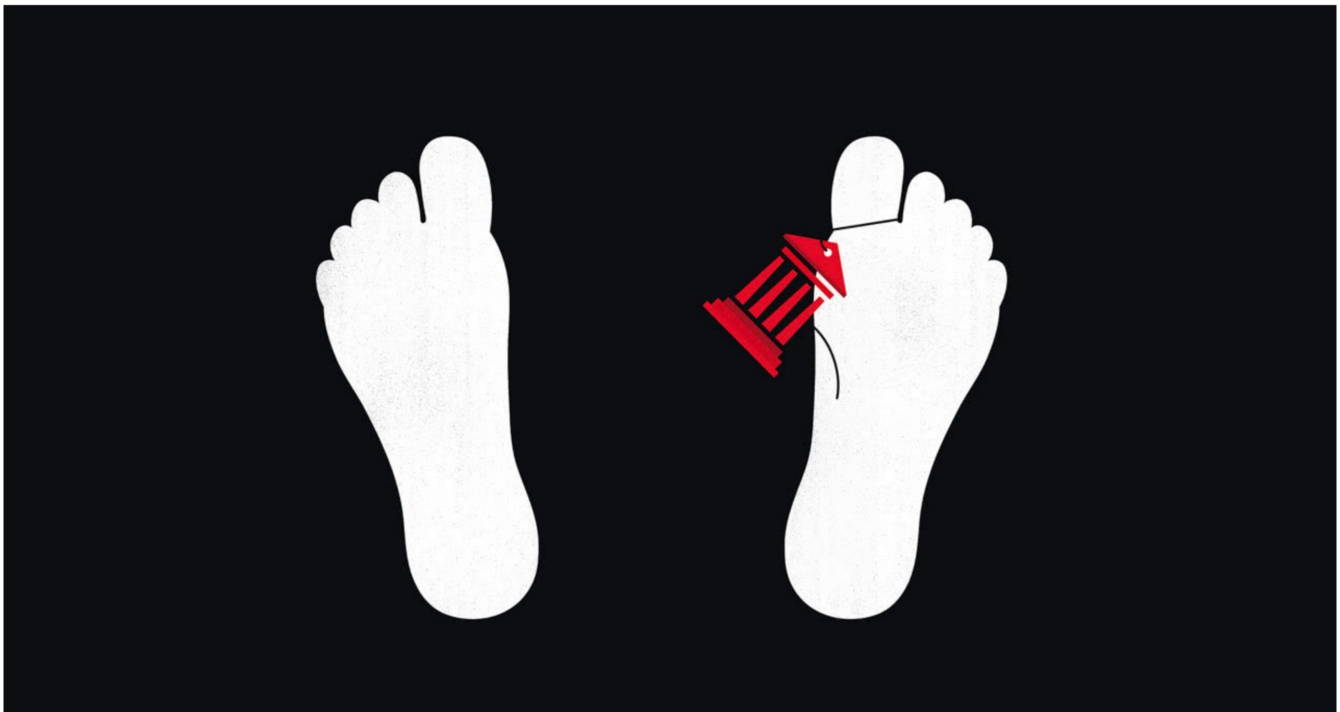
Assassinations
Dealing in death

Assassinations

States are finding new ways of killing enemies abroad

They have produced new legal justifications as well

Print edition | International Mar 15th 2018


Giulio Bonasera

AS EUROPEANS know to their lamentable cost, assassinations can start wars, even world wars. A bullet fired by a Serbian nationalist, killing Austria's archduke in June 1914, sparked the calamitous first world war which arguably paved the way to the second. Earlier assassinations may have drastically altered the course of history, too. The bomb thrown in 1881 at Tsar Alexander II, who had emancipated the serfs, woefully stymied reform in Russia.

More recently, the murder in 1961 of Patrice Lumumba, the Congolese prime minister, often blamed on the CIA, helped set that country on its path to mayhem. The killing in 1994 of Rwanda's president, Juvénal Habyarimana, set off Africa's worst genocide. The murder of Israel's prime minister, Yitzhak Rabin, by a Jewish fanatic the following year dimmed the prospect of peace between Israelis and Palestinians. The assassination in 2007 of Benazir Bhutto, when she was bidding to become Pakistan's prime minister, stalled her country's efforts to build democracy.

These and other cases suggest that Benjamin Disraeli was wrong when, after Abraham Lincoln's killing, he remarked, "Assassination has never changed the history of the world." And given its frequency, it would be stranger if it did not. From 1875-2004, 298 assassination attempts on national leaders were reported, according to a paper by Benjamin Jones and Benjamin Olken published by Northwestern University in America in 2007. They count 59 resulting in a leader's death. Since 1950 a national leader has been assassinated in nearly two out of every three years.

Yet an attack does not have to be on a head of state to prove a political shock. The phenomenon of state-sanctioned attacks on perceived enemies at home, but especially abroad, has recently concentrated the minds of lawyers and policymakers. The neurochemical attack this month on Sergei Skripal, a retired Russian double agent, in Salisbury, a sleepy British cathedral city, is just the latest in a line of brazen incidents. On March 12th Britain's prime minister, Theresa May, told Parliament that the Russian state was "highly likely" to have been the perpetrator. Two days later she announced the expulsion of 23 Russian diplomats (see article).

If Mrs May is right, the attack in Salisbury would join the list of attempts by the Russian state under Vladimir Putin to kill its enemies. On his own turf journalists, politicians and businessmen have been murdered. But the assassination of enemies on the soil of other countries is more audacious. Russia's successor to the KGB, the Federal Security Service (FSB), sometimes in cahoots with criminal business networks that have thrived under Mr Putin, has not hesitated to kill perceived enemies of the state abroad, such as Alexander Litvinenko in London in 2006. The targeting of Mr Skripal—presuming he was a victim of the FSB—is not all that unusual.

And Russia is far from the first country to seek out and kill supposed enemies abroad. During the Cold War, military regimes in South America co-operated to kidnap and murder leftists who had sought exile in countries outside their own. Under apartheid, the South African government assassinated members of the now ruling African National Congress in neighbouring countries.

Licences to kill

The state that over the past half-century has most actively pursued a policy of hunting down and killing enemies abroad is surely Israel. According to Ronen Bergman, a prominent Israeli journalist, whose history of the subject, "Rise and Kill First", was published this year, Israel's security services have carried out some 2,700 assassinations. After Palestinians began to target Israelis across Europe, notoriously killing 11 members of the Israeli Olympic team in Munich in 1972, Mossad, the Israeli security service, was given a free rein to hunt down such enemies (though Mr Bergman questions whether the Munich attackers were ever killed). From then on, a string of attacks on Palestinian operatives in such places as Jordan, Lebanon, Malta, Tunisia and the United Arab Emirates was carried out.

Assassinations of Palestinians suspected of planning or perpetrating violence against Israelis have been relentlessly conducted also in the West Bank and Gaza, territories controlled by Israel that seek to become an independent Palestinian state. Khaled Meshal, who went on to become leader of Hamas, a Palestinian Islamist group that has carried out myriad suicide attacks, narrowly survived after being poisoned in the ear in Amman, Jordan's capital, in 1997. Sheikh Ahmed Yassin and Abdel Aziz al-Rantisi, successive leaders of Hamas, were both assassinated by Israel in 2004. According to Mr Bergman, the Israelis assassinated more than 300 Palestinians (and 150-odd bystanders) during the *intifada* (uprising) of 2000-2005.

What the Israelis have termed "targeted preventions" by snipers, booby-traps, helicopters, F-16 fighter jets and increasingly by armed drones were at first often criticised by Western governments for violating international and humanitarian law. But after Osama bin Laden's attack on the Twin Towers on September 11th 2001, the American administrations of George W. Bush and then Barack Obama, and more recently the British and French governments, have in some respects followed the example of the Israelis in tracking down and killing enemies abroad, sometimes including their own citizens, by using drones.

A year ago President Donald Trump approved a Pentagon request to designate parts of three unnamed Yemeni provinces as "areas of active hostilities" where suspected enemy fighters could be targeted. The term has no clear legal definition, says Peter Bergen of New America, a think-tank. But it lets armed forces operate as they do in conventional war zones and hit terrorist targets at will. The Trump administration has expanded the area where American forces conduct drone strikes from Pakistan, Yemen and Somalia to include Niger.

Whereas attacks such as the one on Mr Skripal have been almost universally condemned, the use of drones to kill targeted individuals has been more contentious. Many human-rights lawyers see them as unlawful. Agnes Callamard, the UN's special rapporteur on extrajudicial, summary or arbitrary executions, says that "outside the context of active hostilities, the use of drones for targeted killing is almost never likely to be legal," adding that lethal force can only be legally used when there is evidence that it would protect against an imminent threat. She also deplores the "kill lists" of what the Americans call "specially designated global terrorists" who, she says, have no way of proving that they are not, for example, helping al-Qaeda, yet in effect face a sentence of death without due process of law.

The Israeli and American authorities dislike the word "assassination" being applied to what they prefer to call "targeted attacks" because it implies a flouting of international law. At the end of 2016, just before he left office, Barack Obama issued a report on the legal framework guiding the United States' use of force. It says, "Using targeted lethal force against an enemy consistent with the law of armed conflict does not constitute an 'assassination'." Assassinations, it notes, are unlawful under an executive order signed by Ronald Reagan in 1981 (which updated those by Gerald Ford and Jimmy Carter). But today there is "a new and different kind of conflict against enemies who do not wear uniforms or respect geographic boundaries and who disregard the legal principles of warfare."

Broadening the battlefield

By implication this requires more elastic rules to be followed by governments facing such challenges, while broadly invoking the principle of self-defence to apply to enemies in the territory of another state. Due process, it is argued, cannot be applied when responding to an imminent attack or when the capture or extradition of a suspected enemy is not feasible. The report by the Obama administration also notes that it is permissible to "impinge on another state's sovereignty" if it is unable or unwilling to "mitigate the threat emanating" from its own territory. Witness the case of Pakistan and bin Laden, subjected to a "targeted killing" in 2011.

Those on either side of the debate continue to argue over definitions of "self-defence", "active hostilities" and "imminent". For their part the Israelis also posit a "ticking bomb" argument: even if an attack is not imminent, a would-be perpetrator is still a legitimate target, they argue, because he is bent on an eventual attack. Amnesty International, by contrast, has denounced a "policy of assassinating those who do not pose an imminent threat to lives". It is, says the human-rights organisation, "unlawful and should be stopped." The Israelis have also been criticised for disproportionality, particularly regarding the deaths of bystanders. When in 2002 another Hamas leader, Salah Shehadeh, was killed by a one-tonne bomb dropped on his house, 16 civilians, including nine children, were also killed, according to a report by Amnesty International.

Philippe Sands, a lawyer who has charged both the American and British governments with violations of the laws of war, writes: “It’s a series of binaries. The first is whether a situation of armed conflict (war) exists. If it doesn’t, extrajudicial executions are a total no-no in all circumstances. If armed conflict exists, then every case turns on the facts.” The snag here, in the Israelis’ view, is that they are locked in what they call “an armed conflict short of war”, and that their survival as a nation cannot depend on the niceties of the law.

Other scholars note that the norms around state-sanctioned killings have long shifted. Writing in 1516, Thomas More, the theologian-cum-politician, argued that assassination was a way of keeping ordinary citizens off the battlefield. But by 1789 Thomas Jefferson could write to James Madison that “assassination, poison, perjury” were “held in just horror in the 18th century”. In 1806, Britain’s foreign secretary not only blocked a plot to kill Napoleon but informed the French. Yet as the litany of assassinations in the 20th century suggests, its use as a weapon of war returned to popularity soon enough.

But whether you call it assassination or targeted killing, is it effective? In the Russian case, the motive is mainly to instil fear into prominent people who dare to contest the current establishment and to punish traitors, whether they are no longer Russian citizens or reside abroad. Mr Putin, already widely considered a pariah in terms of international law, may think he has nothing to lose by arousing Western hostility still more. In Israel’s case it is to keep its enemies militarily on the back foot and force them into concessions, though it may conversely make them less minded to seek a lasting peace.

No end in sight

What is certain is that the practice of states killing prominent or particular individuals without recourse to the law will persist. Indeed, advances in toxicology and in the technology of drones may make it even more attractive as a weapon in the hands of governments who want to wage war without actually declaring it—and without sending armies across borders.

This article appeared in the International section of the print edition under the headline ”Dealing in death”

Foreign internship

Print edition | International Mar 17th 2018

We are seeking a summer intern to write about foreign affairs for The Economist. The internship will be London-based, will last for three months or more, and will pay £2,000 per month. Anyone is welcome to apply. Applicants should send an original unpublished article of up to 600 words on any issue in international politics or foreign affairs, a CV and a cover letter to foreignintern@economist.com . We are looking for originality, wit, crisp writing and clarity of thought. The deadline is April 3rd.

The geopolitics of energy
The new power superpowers

The new power superpowers

Clean power is shaking up the global geopolitics of energy

Energy transitions change the world, writes Henry Tricks. So who will be the winners and losers of the green revolution?

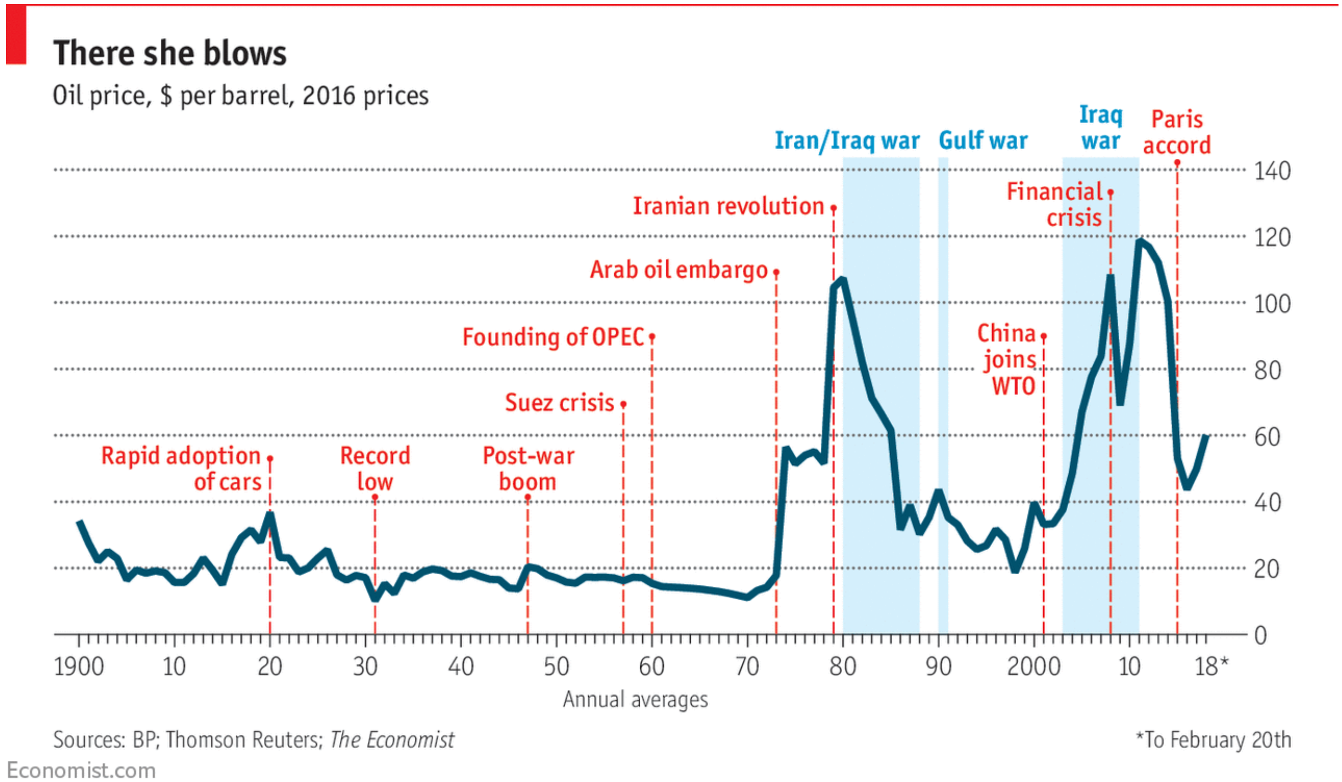
Print edition | Special report Mar 15th 2018

TO ENTER TAFT, two hours north of Los Angeles, you drive along the "Petroleum Highway", past miles of billboards advertising Jesus. God's country is also oil country. Spread over the sagebrush hills surrounding the town are thousands of steel pumpjacks (pictured), contraptions that suck oil out of the ground. They look like a herd of dinosaurs. Some Californians would describe the oil industry in the same way.

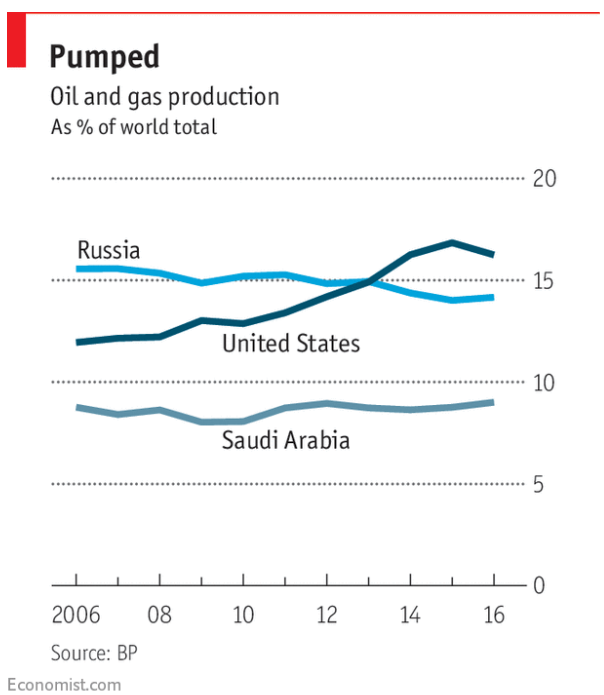
The oil produced at Taft is not produced by hydraulic fracturing, or fracking, as much of it is in Texas and North Dakota. It is so heavy it needs to be steamed out of the ground, in a process known locally as "huff and puff". Yet Kern County, with Taft on its western edge, produces 144m barrels of oil a year, the second highest output of any county in America. Fred Holmes, a third-generation oilman and patron of the West Kern Oil Museum, says he is proud of the heritage, however much it irks local drivers of electric Tesla cars that the Golden State has such a carbon-heavy underbelly. "Oil is renewable energy. It just takes longer to renew," he quips. He has built a giant wooden derrick at the museum to celebrate it.

In its heyday, oil was prized in southern California. The Lakeview Gusher, which blew on the edge of Taft in 1910, became as emblematic of a boom era as the gold rush farther north. Taft also played a starring role early on in the geopolitics of energy. In 1910 the American navy, worried about its dependence on insecure coal supplies, commissioned its first oil-fired destroyer. Two years later President William Taft created the first naval petroleum reserve in Taft's Elk Hills to guarantee supplies of oil in the event of an international crisis. It came into its own in the second world war, when production soared. The president gave the town, formerly called Moron, a better name.

Since then the geopolitics of energy—usually defined as the impact of energy flows on the power and influence of nations—has been mostly about the world's thirst for oil. The efforts to secure it, safeguard its shipment, stop enemies from getting or keeping hold of it, and monopolise it if possible, loomed large in 20th-century history (see chart).



Since oil and gas are exhaustible and not available everywhere, they have often been rationed, to the benefit of an oligopolistic group of producers. Consuming nations have long felt that the scarcity of oil makes them more vulnerable. That is why, since the Arab oil embargo of 1973, every American president has seen the country's dependence on imported oil as a weakness. Policies like the "Carter Doctrine" proclaimed by the then president in 1980, which asserted the United States' right to use military force to protect its strategic interests in the Middle East, were aimed at ensuring a stable supply of oil.



This notion of scarcity is coming to an end, thanks to three big developments. The first is America's shale revolution, which has turned the country into the world's biggest combined producer of oil and gas (see chart). After decades of declining output since the 1970s, America is now producing as much oil as it has ever done: 10m barrels a day in November last year. It is making the country less reliant on imported oil, which has helped it shed a long-standing paranoia about such dependence. This could reduce the country's need to expend blood and treasure to protect supply routes from the Middle East. And it has added an abundance of oil and gas to world markets that has benefited energy consumers everywhere.

The second major change is taking place in China as it attempts to move from an energy-intensive economy to a more service-led one. Without choking off economic growth, in the past few years it has made staggering progress in moderating its demand for coal and oil, slowing the rise in electricity consumption, deploying gas and renewable energies and arresting the growth of carbon-dioxide emissions. It remains the world's biggest importer of fossil fuels, but its experience with filthy air and its concerns about over-dependence on imported oil have made it keener to harvest more of its own wind and sunlight. It also has by far the world's most ambitious plans for electric vehicles. Subsidies and a streak of energy authoritarianism have played a big role. But in its own way, China's energy transition has been as remarkable as America's.

These two developments play into the third, longer-term trend: the need to create a low-carbon energy system to fight climate change. The Paris agreement of 2015, though a milestone, still leaves a huge distance to travel before global warming can be stopped. To achieve that, trillions of dollars will have to be invested in wind and solar energy, batteries, electricity grids and a range of more experimental clean-energy sources.

This so-called energy transition has set off a global race for the best technologies and raised concerns about access to the rare earths and critical minerals needed to make the necessary hardware. As Francis O'Sullivan of MIT Energy Initiative, part of the Massachusetts Institute of Technology, puts it: "We are moving from a world where the value of the energy is embedded in the resource to where technology is the resource."

The democratisation of energy

This special report will look at the energy transition from the perspective of America, the EU and China as well as petrostates such as Russia and Saudi Arabia. It will pinpoint winners and losers. It will argue that America is at risk of squandering an early lead, obtained by using natural gas and renewables to slash emissions, promoting clean technology and helping pioneer the Paris agreement. China is catching up fast. Saudi Arabia and Russia are in most obvious peril.

The past few years of growing American self-reliance and Chinese self-restraint have offered a glimpse of the foreign-policy implications of a new energy order. For America, some see it as a windfall, the title of a recent book by Meghan O'Sullivan of Harvard University. She says the shale revolution has helped temper predictions of American decline, made it easier to impose sanctions on adversaries, helped create a global gas market to ease Russia's stranglehold over Ukraine, and reduced tensions over China's pursuit of energy resources. She describes it as "a boon to American power—and a bane to Russian brawn".

That may be over-optimistic. Russia and the OPEC oil cartel have been surprisingly successful at cutting production to counter the shale glut. They have also turned towards China, which is pouring money into their energy infrastructure. Most important, American shale risks entrenching reliance on oil even more deeply in the global economy, with potentially perilous consequences for the climate. If America focuses too much on producing fossil fuels, it may lose sight of the need to develop cleaner energy for the future.

The geopolitical implications of the broader energy transition will be even more complex. When in January a global commission to study the geopolitics of clean energy was launched under the auspices of the Abu Dhabi-based International Renewable Energy Agency, the underlying hope was that such a development would make the world "more peaceful, stable—and boring". Champions of clean energy believe that boring is good. Unlike hydrocarbons, renewable energy is potentially available almost anywhere. Collaborative efforts to halt global warming could lead to open-source development and the sharing of technology. As power generation becomes more dispersed (examples include Germany, China and California), regions may become more self-sufficient in energy, a process labelled "energy democratisation". In Africa and elsewhere, enhanced access to energy, via mini-grids and rooftop solar panels, could reduce energy poverty even as the global population is soaring.

The beauty of the energy transition, enthusiasts believe, will be to give communities "super powers" over their energy, not turn countries into energy superpowers

David Criekemans of the University of Antwerp points out that from the Industrial Revolution onwards, energy transitions such as that to coal and then to oil have changed the world. This latest one could have equally far-reaching effects. "The [nation] state and central power supply go hand in hand. They need one another," he writes. He expects decentralisation of the energy supply to boost the power of regions in relation to central authorities. The beauty of the energy transition, enthusiasts believe, will be to give communities "super powers" over their energy, rather than turn countries into energy superpowers.

Yet the transition has plenty of potential to cause geopolitical friction, too. The most obvious example is the challenge it will pose to economies that depend on petroleum. A new book, "The Geopolitics of Renewables", edited by Daniel Scholten of Delft University of Technology in the Netherlands, argues that the clearest losers will be those blessed with ample fossil-fuel reserves and those who bet on oil for too long without reforming their economies. The book also notes that,whereas in the traditional energy system the main constraint is scarcity, with abundant renewables it is variability. This could be mitigated by cross-border energy trade, but that, too, could cause arguments.

As economies become more electrified, with "supergrids" to handle the additional power demand from urbanisation, electric vehicles and unimaginable quantities of data, the risks could multiply. Grid politics could replace pipeline politics. Ukrainian saboteurs, for instance, reacted to Russia's annexation of Crimea by cutting off electricity supplies to the peninsula in 2015. Chinese investment in grids in Europe and Australia is also under scrutiny, on national-security grounds. And ever more electrified economies are at ever higher risk from cyber-attacks.

The new power tool

It seems inevitable that the geopolitics of energy will develop into a contest to see which country can produce the most energy of its own, and which has the best technology. Miguel Arias Cañete, the EU's commissioner for climate and energy, explains that, "We are on an irreversible pathway to renewable energy...those who don't embrace the clean-energy transition will be losers in the future."

The EU has set itself a clear goal to decarbonise all energy by 2050, and has appropriate market structures in place. That puts it in a strong position. China, too, is firmly committed to clean energy and boasts some impressive clean-tech entrepreneurs. America, for its part, has invented much of the world's clean-energy technology; and the shale revolution has opened up vast potential supplies of natural gas that can generate electricity far more cleanly than coal, serving as a bridge to a lower-carbon future. But the country risks losing its focus. It is divided between fossil-fuel fundamentalists, mostly Republicans, and clean-energy enthusiasts, mostly Democrats, who cannot agree on the best way forward for the economy and for the climate.

This article appeared in the Special report section of the print edition under the headline "The new power superpowers"

Seeking "energy dominance"

The shale boom could prove a double-edged sword for America

Extracting more oil and gas from shale has increased America's influence abroad, but not all for the good

Print edition | Special report Mar 15th 2018

WHEN RYAN ZINKE, America's secretary of the interior, turned up for his first day in office a year ago, the ex-Navy Seal arrived on a horse called Tonto, wearing a cowboy hat. Since then, the man leading the Trump administration's charge to unlock vast tracts of federal land for oil and gas drilling has brandished American oil like a gunslinger. Using a slogan favoured by President Donald Trump, he talks of "energy dominance". Explaining the concept to the Heritage Foundation, a conservative think-tank, last year, he said: "Our goal is an America that is the strongest energy superpower that the world has ever known...America's strength relies on American energy. And I don't want to see us ever held hostage to a foreign country to heat our homes or to power our nation." He made it clear that by energy he meant chiefly oil, natural gas and coal.

As with many of the Trump administration's favourite terms, the meaning of energy dominance is hazy and depends on the audience. At the World Economic Forum in Davos in January the president struck a more conciliatory note than Mr Zinke, promising to use American oil and gas to provide energy security to its allies. "No country should be held hostage to a single provider of energy," he said. But the point of energy dominance is that Mr Trump wants America to produce and export more oil, gas and coal and will try to undo years of environmental safeguards and regulations to achieve it.

He has picked a good moment. Not only has America's oil and gas production soared; the shale revolution has greatly reduced the country's dependence on imported crude oil and petroleum products, from 57% a decade ago to about 20%. The effect on the trade balance, the focus of Mr Trump's "America First" policy, was already dramatic even before he took office. The energy-trade deficit has come down from $416bn at its peak in 2008, when it accounted for half the total trade deficit, to $53bn in the first ten months of 2017, less than a tenth of the total.

The decline in import dependence has already had geopolitical effects. In her book, "Windfall", Meghan O'Sullivan shows that between 2011 and 2014 American oil replaced supplies disrupted by political developments in Sudan, Syria, Iran and Libya, "nearly one barrel for one barrel". That helped keep oil markets stable. Plentiful oil at home has also made it easier for America to impose sanctions on oil producers it views as dangerous. It helped persuade other countries to pressure Iran to sign a deal putting its nuclear ambitions on hold in 2015, because they did not fear a resulting spike in global oil prices. As Amos Hochstein, the State Department's energy envoy at the time, muses, "It was lucky timing that America became an energy superpower."

Foot on the gas

Natural gas may have strengthened America's hand abroad even more than oil. In 2017 the country became a net gas exporter for the first time in 60 years. This has helped establish a global market in natural gas, giving the world easier access to a fuel that produces only a quarter as much carbon dioxide as coal and half as much as oil.

For now, America's biggest gas export market is via pipelines to Mexico, creating what is fast becoming an integrated North American energy powerhouse (as long as Mr Trump does not kill off the North American Free-Trade Agreement). But globally the change is being driven by exports of liquefied natural gas (LNG). The dome-like LNG tankers heading out from Louisiana and Texas are creating a market that can flexibly and cheaply deliver gas where it is needed. LNG exports took off only in 2016. By 2022 America is expected to vie with Australia and Qatar as one of the world's biggest LNG exporters.

More LNG helps the transition towards cleaner energy, potentially slowing (though not stopping) the pace of global warming. A global LNG market also eases one of the thorniest problems in energy geopolitics: Russia's use of gas pipelines to bully neighbours such as Ukraine. American LNG is still more expensive than Russian gas, so not much of it is sold to Europe. But its mere presence helps reassure the Europeans about their energy security. Partly in response, Gazprom, a Russian gas giant, has turned eastward, offering piped gas and LNG to China, where demand is also rising.

Mr Trump is pursuing China, too, offering LNG as a way to narrow the bilateral trade imbalance. Daniel Yergin, vice-chairman of IHS Markit, a consultancy, points to this as an example of how trade in energy might actually soothe global tensions. He says that China now sees America as part of the solution to its energy needs, rather than a competitor for scarce resources. Mr Trump has also discussed LNG exports with leaders from India and South Korea, Mr Yergin notes. "He has become the world's number one LNG salesman."

Unintended consequences

This windfall is likely to continue. America's oil and gas output is still rising. According to the International Energy Agency, by 2025 the shale revolution will have unlocked more oil and gas in America more quickly than in any other country, including Saudi Arabia in its heyday from 1966 to 1981.

Ryan Zinke, America's secretary of the interior, has brandished American oil like a gunslinger

The Trump administration wants to build on this success by making life easier for fossil-fuel producers. In his first year Mr Zinke has sought to smash what he calls a "fortress of red tape", open up offshore reserves to drilling (except in Florida, where it risked jeopardising the political ambitions of Rick Scott, the Republican governor), and ease restrictions on coal mining and natural-gas production imposed under President Barack Obama.

Whether all this deregulation will make much difference to domestic energy production is questionable. Jason Bordoff of Columbia University writes that markets play a much bigger role. Cheap natural gas, for example, hurts coal far more than the clean-power regulations that the Trump administration is now promising to remove. And Congress, state governments and the courts can block policies to stimulate fossil-fuel production and roll back environmental regulation, whatever the wishes of the federal government.

The geopolitical effects of the shale boom have been complex and have been compounded by other policy shifts such as sanctions and protectionist trade policies. Some experts feel that the idea of "energy dominance" sounds imperialistic. The mere idea of "weaponising" oil undermines years of American efforts to persuade countries like Russia not to use energy for political ends.

Some of America's trade policies may also be counterproductive. The country's withdrawal from the Trans-Pacific Partnership, a trade agreement which includes some of America's biggest potential LNG customers, such as Japan, was self-defeating, because it makes it harder for America's allies to import its LNG.

Stephen Cheney and Andrew Holland of the American Security Project, a think-tank, argue that America's greatest contribution to global energy security since the oil shocks of the 1970s has been to keep global energy markets fluid. Some analysts worry that this fluidity would be jeopardised if the Trump administration were to use oil and gas as a bargaining chip in bilateral relations, as China has done.

Although the shale revolution has been good for global consumers, it has not been a clearcut benefit to American influence abroad. The collapse of oil prices in 2014 nudged OPEC, Russia and other producers into an "OPEC-plus" alliance, raising Russia's profile in the Middle East at a time when an inward-looking America was less engaged. Moreover, the use of sanctions against Iran, Russia and Venezuela has created a perception among some countries, including China, that America is playing a "dirty economic game". This has brought its opponents closer together, says Sarah Ladislaw of the Centre for Strategic and International Studies in Washington. China has offered financial support to all three of those countries. Rosneft, Russia's biggest oil company, is tapping Venezuelan oil in exchange for cash.

Matthew Bey of Stratfor, a risk consultancy, talks of a "mosaic of forces" threatening American energy diplomacy as China overtakes America as the world's biggest energy consumer. He notes the alarm caused in Washington, DC, by the recent news that China might take a preferential stake in the planned initial public offering of Saudi Aramco, the world's biggest oil company. "It's not just Russia against the West," he says. "It's Russia, China, Iran and others looking at pragmatic opportunities to chip away at Western hegemony."

Above all, Mr Trump's tub-thumping for coal, oil and gas appears to run counter to a worldwide push to lessen dependence on fossil fuels, improve energy efficiency and combat global warming. So although, for now, Americans may feel relief at the shale boom, it could prove a double-edged sword. If their country continues to promote fossil fuels at the expense of cleaner energy sources, its dominance is unlikely to last.

This article appeared in the Special report section of the print edition under the headline "All hail the shale"

Power struggle

Europe tries to lead the way on clean energy

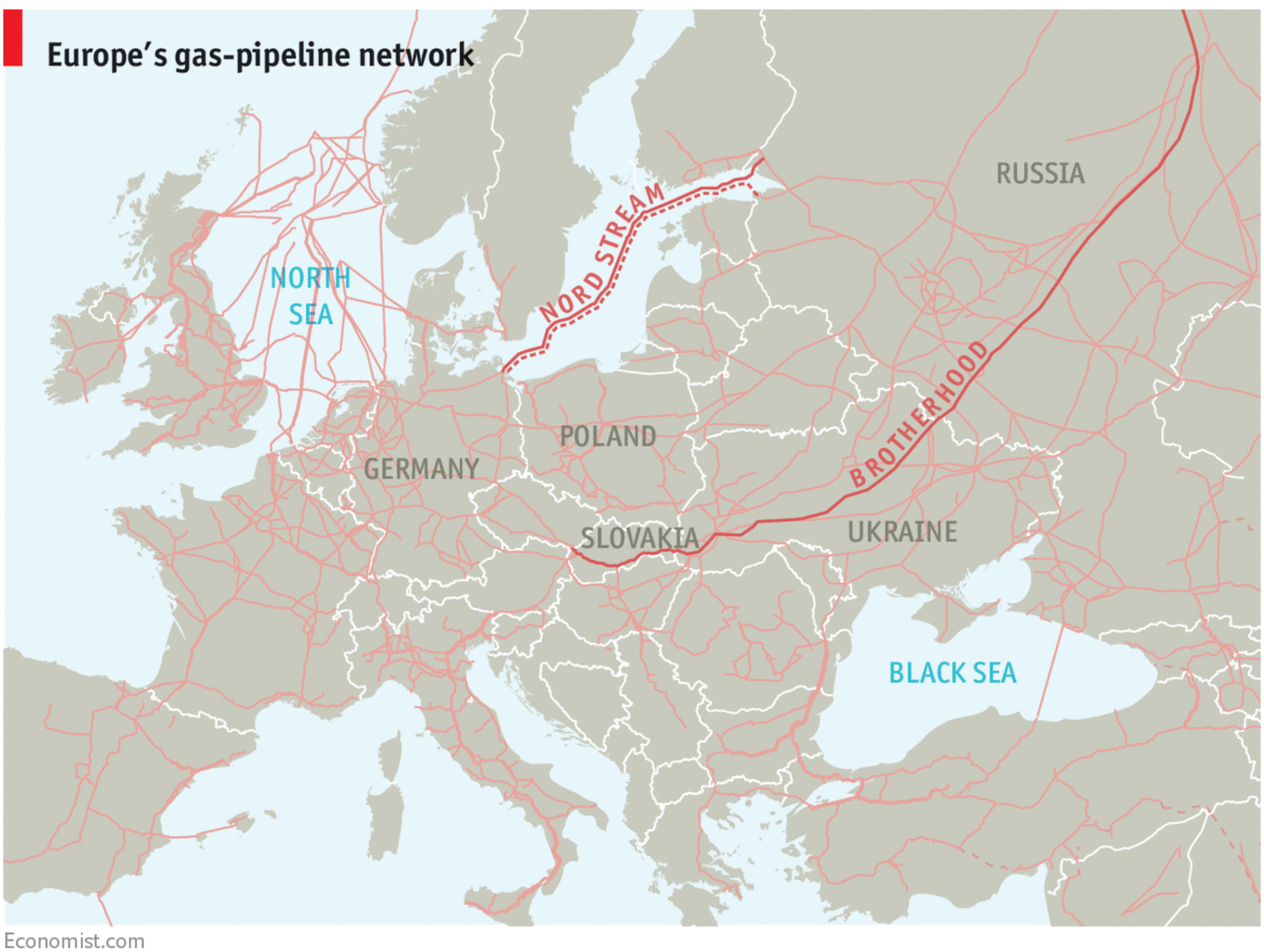
Germany has led Europe's transition, but at a high cost to its neighbours

Print edition | Special report Mar 15th 2018

AT THE UN climate summit in Bonn last November some Americans came up with their own riposte to President Donald Trump's decision to withdraw from the Paris agreement. Outside the main conference building they put up a tent housing a rowdy coalition of people from 20 states and 110 cities under the banner "We are still in". Some non-American delegates at the conference found this fringe event more reassuring than the climate talks themselves. It showed that, even without Mr Trump and the federal government, local activists in America are committed to the spirit of the agreement.

The EU and China, each in its own way, are taking up America's mantle of climate leadership. The task remains daunting (see article). At present the EU has the boldest plans. It wants to lead the clean-energy transition, aiming to reduce its greenhouse-gas emissions in 2050 by 80-95% from 1990 levels, which means almost entirely decarbonising its energy system. Germany reckons that its experience of launching an *Energiewende* (energy transition) in 2000 qualifies it to help lead the world away from fossil fuels. But not all its neighbours like the model it offers.

Start with gas. For the next few decades Germany is likely to rely on imported natural gas as it phases out its nuclear and coal-fired power plants and brings in more electricity generated by wind and solar. Gas reserves elsewhere in Europe, such as the Netherlands, are declining. So Gazprom, the Russian energy giant, backed by five energy multinationals, has launched a project to lay a new pipeline to Germany, Nord Stream 2, under the Baltic Sea. This would double the capacity for Russian gas piped to Europe by 2019. It would also replace most of the gas flowing to Europe along the Brotherhood pipeline via Ukraine and Slovakia, reducing their transit revenues (see map).



Nord Stream 2 is highly divisive. The European Parliament says it increases Europe's dependence on a single route for gas imports, which is bad for energy security. American diplomats say it exposes Europe to manipulation of supply by Russia, as happened with Ukraine. (It also undermines America's export strategy for shipping more LNG to Europe, though they keep quiet about this.) Foreign-policy hawks believe it strengthens Russia's economic influence over Europe and weakens Ukraine.

Russia and Germany retort that it is purely a commercial venture. Its supporters do not see it as a potential Russian chokehold but as a way to bind Russia more closely to Europe, because trade makes each more dependent on the other. Yet the plan has created a rift between Germany and its eastern neighbours.

That is also true of the *Energiewende*, underlining how divisive even clean energy can be when its effects spill across borders. Germany initially saw its dash for solar and wind as a purely domestic issue. The decision to phase out nuclear power after Japan's Fukushima disaster in 2011 was a response to a deep-rooted domestic environmental lobby. Germany did not consult its neighbours on ramping up renewables, even though its grid is linked to many other countries' energy systems.

The foreign-policy ramifications have become wider since. Notwithstanding Nord Stream 2, renewables are part of a strategy to reduce the country's dependence on fossil-fuel imports (most of its coal and oil also come from Russia). Moreover, Germany hopes the *Energiewende* will give it a global edge in clean-energy technology. Siemens, for instance, has become a global leader in wind-turbine manufacturing.

But the rapid spread of wind power in northern Germany, and the lack of transmission lines to the industrial centres farther south, has caused headaches. Thomas Sattich of the University of Stavanger in Norway writes that when the wind blows hard, surplus renewable energy is pushed to neighbours such as Poland, the Czech Republic and the Netherlands, clogging up their electricity systems. Excess renewable energy also brings down wholesale power prices, which is bad for investment. .

On the grid

The best way of dealing with such problems is more cross-border co-ordination, as well as more high-voltage power lines. The European Commission is finalising packages to redesign the block's electricity markets. In January European lawmakers proposed increasing the EU's goals for the share of renewables in the energy mix to 35% by 2030.

Norway, with its abundance of round-the-clock hydroelectricity, wants to play a role as Europe's "green battery". It is also among ten countries by the North Sea that subscribe to the North Sea Countries' Offshore Grid Initiative, which aims to create a regional supergrid. Miguel Arias Cañete of the European Commission says that such interconnections are essential if the goal of 35% renewables is to be achieved. But he also notes resistance from local communities to large, unsightly power lines, and from national-grid operators to surrendering autonomy. Sometimes the commission must wish for the sort of control over energy policy that China's mandarins enjoy.

This article appeared in the Special report section of the print edition under the headline "Power struggle"

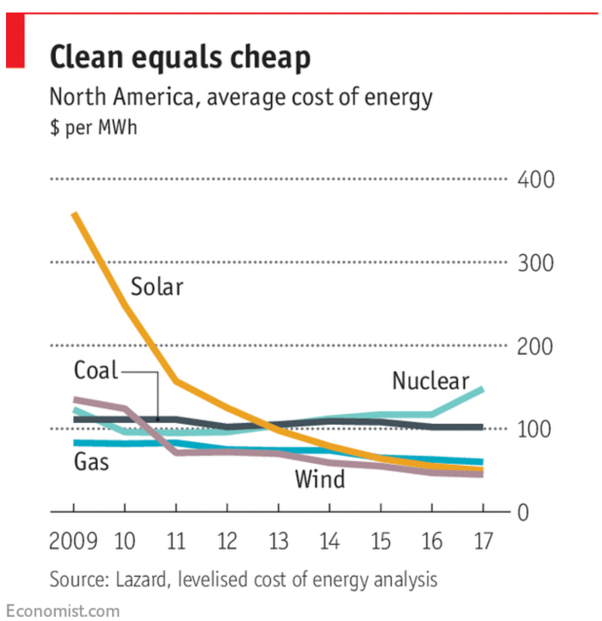
Word of warming

Switching to renewables will not be as rapid as many hope

Clean energy may not yet have reached a tipping-point

Print edition | Special report Mar 15th 2018

HE CALLS IT "the geopolitics of the gap". Carlos Pascual of IHS Markit, a consultancy, says that one of the biggest challenges for the world's policymakers in coming years will be to strengthen pledges made in the Paris agreement. They still amount to barely one-third of what is necessary to keep global temperatures from rising more than 2°C above pre-industrial levels.



Renewable-energy advocates talk of a "tipping-point" at which renewables become cheap enough to drive fossil fuels out of the electricity mix. To hear them talk about falling costs, you would think the world was almost there (see chart). Yet excluding hydropower, renewables still produce only 8% of the world's electricity, and far less of the energy needed for heating, cooling and transport, which are harder to decarbonise.

A few statistics in a new book, "Taming the Sun", by Varun Sivaram, of the Council on Foreign Relations in Washington, DC, highlight the obstacles to be overcome before solar photovoltaics become a mainstream energy source. However fast the price of a kilowatt-hour of electricity generated by solar panels has fallen, he writes, the price of a gigabyte of data storage in a microchip has fallen a million times faster. The recent drop in solar prices has been due to economies of scale, not improvements in performance.

Moreover, Mr Sivaram argues that although solar panels are cost-competitive as a niche energy source, their economics become less attractive the more they are deployed. That is because they cannot be turned on and off, so they flood the electricity market when the sun is high, driving down wholesale prices. The more solar power is added to the grid, the lower its value.

Batteries could help solve that problem by storing the power for times of strong demand. But no one has yet invented a lithium-ion battery capable of storing solar energy for long periods of time to even out seasonal variations in sunlight. Electric vehicles (EVs) could speed up the energy transition, by cleaning up the transport component of energy and offering a way to store electricity, too. But mass electrification brings its own problems.

In order to incorporate large quantities of renewables, interconnected power systems will be needed so that those with an abundance of clean energy can share it with those who lack it. The risk is that these will recreate the vulnerabilities of cross-border pipelines. Karen Smith Stegen of Jacobs University in Germany argues in "The Geopolitics of Renewables" that interconnected grids are relatively safe because all the countries involved want to keep the electricity flowing smoothly. But high-voltage, direct-current transmission lines, such as those now being proposed between north Africa and Europe, may be more at risk of meddling.

None of these problems is insurmountable. New, more efficient solar technologies are being developed. Financial innovation is creating new ways of investing in renewable energy. Elon Musk, of Tesla and SpaceX fame, may yet produce lithium-ion batteries cheap enough to revolutionise transport. In the West he gets most of the attention, but China is also doing much pioneering work, from EVs to supergrids.

This article appeared in the Special report section of the print edition under the headline "Word of warming"

The East is green

China is rapidly developing its clean-energy technology

There is plenty of room for international co-operation on the environment

Print edition | Special report Mar 15th 2018

WHEN IT COMES to energy, no country generates such bittersweet superlatives as China. It is the world's largest consumer of coal and the second-largest of oil, after America. It has the largest power-generation capacity, by a wide margin. It also produces more carbon dioxide than any other country.

China is hoping to deal with this over-dependence on fossil fuels partly by rebalancing the economy away from energy-intensive industries. But it also leads the world in clean energy. In recent years, through a combination of subsidies, policy targets and manufacturing incentives, it has spent more on cleaning up its energy system than America and the EU combined. Last year alone it shelled out $132bn, according to Bloomberg New Energy Finance (BNEF), a consultancy.

The International Energy Agency (IEA) says China has one-third of the world's wind power, a quarter of its solar capacity, six of the top ten solar-panel manufacturers and four of the top ten wind-turbine makers. It sells more electric vehicles than the rest of the world combined. It also leads the world in construction of nuclear power plants. In December it gave the go-ahead for what is expected to be the world's largest carbon-trading scheme.

Given China's thirst for energy, the combined impact of these advances in renewables is still relatively small. Non-fossil-fuel energy, chiefly hydro and nuclear, accounts for only 12% of its total energy mix. And China is far from self-sufficient. That is why, for the next decade at least, China's main energy-related geopolitical concern will be the need to secure fossil fuels.

This is already evident in the plethora of deals that its state-owned companies are doing with oil and gas producers in the Middle East and Russia, both to finance new projects and to help develop them. But China is also reaching out to America.

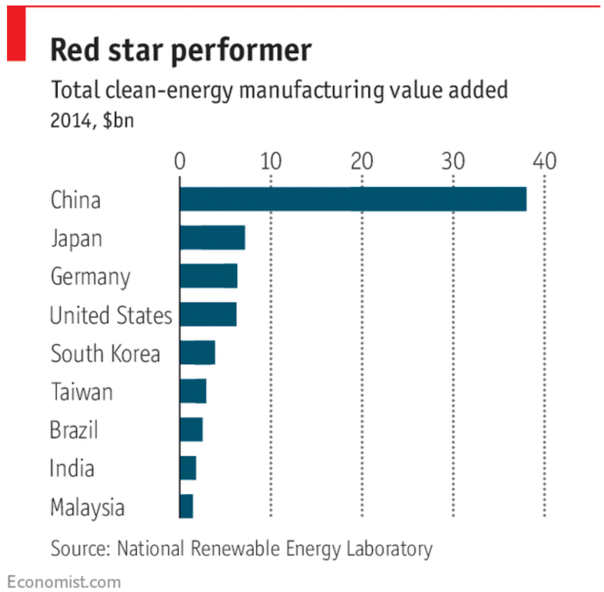
Zou Ji of the Energy Foundation, a think-tank, says the immediate priority for China's energy policymakers is to curb the dirtiest uses of coal, especially heating urban homes with it. For this, America's shale revolution may be a blessing, he says. By adding large quantities of liquefied natural gas (LNG) to global markets, it has made it cheaper and easier for China's coastal areas to switch from coal to gas. Last year the country's LNG imports grew by 50%.

Increasingly China is looking to America to help it diversify its sources of supply. In February China National Petroleum Corporation, a state behemoth, signed the first ever long-term contract to buy LNG from an American supplier, Texas-based Cheniere Energy. Mr Zou says that more energy interdependence between China and America, particularly in the LNG market, could be good for relations between the two superpowers, especially if it helps reduce America's trade deficit with China.

Eventually, China's increasing production and use of renewables, batteries and electric vehicles (EVs) are also likely to have geopolitical consequences, even if that is not the government's primary aim. China could benefit in three ways.

All power to the yellow emperor

First, by being able to produce more of its own energy, it will reduce its reliance on fuel imports that may be vulnerable to global instability. Second, its "soft power" will be strengthened. This is already evident in its leadership role in the Paris climate agreement. Third, and perhaps most important, the development of clean-energy technologies—especially batteries and EVs—could put it firmly in the vanguard of the energy transition, ahead of America and Europe, and provide a new impetus for economic growth.



Currently the race is wide open. No country has an unassailable lead. Whether clean-energy technology becomes a source of healthy competition or geopolitical friction will depend largely on global trade. If it becomes bogged down in protectionism, trade wars and cyber-crime, everyone will lose. But that need not happen.

So far, many in the West have been sceptical about China's role in renewable-energy technology. The country's solar industry is thought to have piggybacked on Germany's generous renewable-energy subsidies and has benefited from massive government support. In 2012 the European Commission launched anti-dumping and anti-subsidy investigations of Chinese solar-panel imports. The following year the two sides reached a settlement, followed by the imposition of minimum prices. In 2014 America slapped import duties on Chinese solar-panel imports. In January the Trump administration imposed more tariffs on imported solar panels, most of which come from China.

The Chinese have bungled some of their own renewable-energy policies, building large-scale projects in remote locations without the transmission lines to support them. Some Western experts argue that China lacks adequate regulatory structures for a smooth transition to clean energy. And in 2010 the Chinese authorities halted most exports of rare earths, raising fears about their stranglehold on the supply of minerals critical to green-energy technology (see article).

However, such criticisms risk underplaying the sheer entrepreneurial zeal that the Chinese put into clean energy, and their growing ambition to decentralise as well as decarbonise the energy supply. Both may give China a dominant position in developing the energy technologies of the future.

For instance, the world's biggest solar-panel manufacturer, Shanghai-based Jinko Solar, is a relative newcomer that started only 11 years ago. Since 2013 it has quintupled global production to a mighty 10 gigawatts (GW) a year and doubled its global market share to 10%. Gener Miao, its head of sales, explains that the firm has succeeded by internationalising its marketing efforts and relentlessly investing in technology. Support from the Chinese government now mostly goes on early-stage research projects, he claims.

Another case in point is one of China's biggest wind-turbine developers, Envision, also from Shanghai. It has invented turbines that operate at low wind speeds so they can be placed close to urban centres, rather than in the country's remote northwest. But the company views the turbines merely as a cash cow for a bigger ambition: to create a global "energy internet", or operating system, that helps companies manage locally produced, or "distributed", energy assets such as turbines and solar panels, electric vehicles, battery storage and commercial electrical appliances. Launched in 2016, Envision says the system already manages more than 100GW of renewable assets globally (more than America's entire wind capacity).

China is also upgrading its regulatory structure. Sophie Lu of BNEF says that distributed solar energy accounted for almost one-third of the 53GW of new solar capacity installed in China last year. This surprised everyone because until recently all renewable energy had been installed in remote areas on a utility scale. The aim is to spur reform of China's gargantuan power company, State Grid. "The government is using technology, innovation and power-market reform to break the monopoly of the grid," says Ms Lu.

In future the main bone of contention may be the new technologies developed to make renewable energy and storage ever more cost-competitive. Some American experts fret that by giving a low priority to renewable energy, the Trump administration may put America's industry at a disadvantage in relation to China's. Since President Trump decided to pull out of the Paris agreement, he appears to have jettisoned America's pledge to double the $6.4bn the government is due to spend on energy innovation by 2020. China pledged $7.6bn, so it may soon take the lead. Equally telling, research by Devashree Saha and Mark Muro of the Brookings Institution, a think-tank, shows that patents and venture-capital investment in clean-energy technologies in America recently peaked. Patenting, they said, was increasingly done by foreign firms, especially Chinese ones.

If China's growth in clean-energy technology leads to more protectionism, along the lines of the Trump administration's move in January against imports of solar panels, clean tech could become a trade battleground. The same could happen if China denies Western energy technology a meaningful place in its markets (as it has done with American internet firms) or restricts access to its rare earths. But technology also provides scope for collaboration. If America, the EU and China can build that into the transition to renewables, energy geopolitics will start to look a lot more promising.

This article appeared in the Special report section of the print edition under the headline "The East is green"

Clean could get dirty

A scramble for the minerals used in renewable energy is under way

America produces few of the commodities it needs

Print edition | Special report Mar 15th 2018

TO GLIMPSE A potentially troubling side of the clean-energy business, look at the giant Anglo-Swiss oil-trading firms. They are betting on a scramble for battery materials to power electric vehicles.

Glencore, one of the world's biggest commodities companies, plans to double its production of cobalt by 2020, which it reckons will give it 40% of the market. Cobalt is an important raw material for lithium-ion batteries, found mostly in the Democratic Republic of Congo (DRC). But Saad Rahim, chief economist of Trafigura, a rival, says battery producers will use more nickel and less cobalt in nickel-manganese-cobalt cathodes to avoid dealing with the DRC, which has a tainted reputation. Last year Trafigura agreed to spend $200m funding a nickel mine in pristine Finland.

America produces few of the minerals it needs for renewables. In December President Donald Trump issued an executive order to speed the search for new sources of minerals at home. America relies on imports for 70% of its lithium, and on imports and releases from the National Defence Stockpile for 75-80% of its cobalt.

In an accompanying report, the United States Geological Survey (USGS) said that America's dependence on imported minerals had soared since the 1970s and that China produces 85% of the world's rare earths, used extensively in renewable-energy applications such as wind turbines. The USGS also identified China as the main producer of minerals such as germanium and indium, used for solar power, and graphite, used in fuel cells and batteries; and as the world's largest refiner of cobalt, using material mostly from the DRC.

There is no risk that these resources will run out. Deposits of lithium, for example, are thought to be 3,000 times current annual output. But their supply could be manipulated for political ends. In 2010 China drastically cut its export quotas for rare earths, leaving the world scrambling for alternatives. The curbs were lifted in 2015.

These minerals are scarce only because deposits in other parts of the world have so far been uneconomic to extract, but that may change as demand for transparently sourced minerals increases. In Australia investment in battery minerals such as lithium and cobalt is already booming.

In America domestic supplies will depend largely on investors' appetite for putting their money into materials with extraordinarily volatile prices. The country's only functioning rare-earths mine, Mountain Pass in California, went bankrupt in 2015 as prices plunged. It has since been bought out by a consortium led by, of all things, a Chinese rare-earth producer.

This article appeared in the Special report section of the print edition under the headline "Clean could get dirty"

When the sun sets on oil

The Middle East and Russia are ill-prepared for a low-carbon future

Traditional oil producers suggest clean energy is not a threat

Print edition | Special report Mar 15th 2018

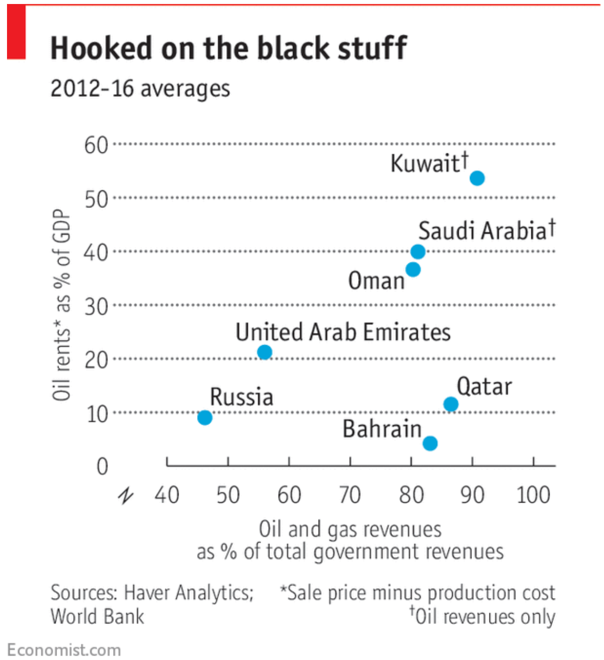
THE HIGHLIGHT OF a trip to the vast Shaybah oil field in Saudi Arabia's "empty quarter" is a stroll at dusk to the top of a range of silky sand dunes. There you can watch the sun set over the pride of the Saudi petroleum industry as a muezzin in the mosque below strikes up a call to prayer. Unfortunately, executives from Saudi Aramco, the state oil company, challenged your correspondent to a running race. By the time he reached the top, he was coughing so badly that he missed the sunset; and the banter drowned out the muezzin. "If only we could turn this sand into silicon for solar panels," one joked. "We'd be rich."

Like many petrostates, Saudi Arabia, the world's biggest oil exporter, is aware that demand for petroleum may one day fall victim to solar panels, electric vehicles, more frugal consumption and so on. But how seriously do the big oil producers take the threat? The answer comes in two parts. The first concerns their response to the recent onslaught of American shale production. The second is about their reaction to the prospect of "peak oil" (the beginning of the end of the world's addiction to oil) over the next few decades. For now, the former appears to carry far more weight than the latter, even though peak oil may eventually cause what some call "the mother of all oil crises".

Start with the impact of shale. The galloping rise in American oil production up to 2014 caught many traditional oil producers off guard and contributed to a rapid increase in global oil stocks to unsustainably high levels. The subsequent oil-price crash clobbered oil-producing countries that had been spending lavishly on social programmes. They acted swiftly.

A reeling Saudi Arabia unveiled a plan to sell off 5% of the world's biggest oil company, Saudi Aramco, to raise $2trn for the country's public-investment fund. This is part of the kingdom's so-called Vision 2030 strategy, designed by Mohammad bin Salman, the crown prince, to reduce the country��s dependence on oil and diversify the economy to provide new sorts of jobs for a young population. But in the absence of high oil prices it is unlikely to raise anything like the sums he wants.

In late 2016 OPEC and non-OPEC producers, led by Saudi Arabia and Russia, agreed to curtail production by a combined 1.8m barrels a day (or about 2% of global output) to push up prices. So far the plan has not only worked, it has set the stage for an "axis of love" between Russia's president, Vladimir Putin, and Prince Mohammad. Despite their support for opposite sides in the Syrian civil war, and despite Russia's long-standing friendship with Iran, they now talk of developing long-term joint projects, especially involving Russian natural gas.



Whether they are seriously preparing for the longer-term threat—of falling oil demand as the world switches to electric vehicles—is harder to answer. Publicly, leaders of Saudi Arabia and Russia dismiss the risk that demand will collapse. They predict that cars, trucks and planes will still consume growing amounts of fuel into the middle of this century, and that plastics and petrochemicals will still use a lot of oil. But some observers think that concern about peak oil is leading them to hedge their bets and may be one reason the Saudis are selling off part of Aramco.

Drill, habibi, drill

What should petrostates do about output if oil demand ebbs? In theory they should pump as hard as possible now so they can bank the money while they can. But that would set off a battle for market share among producers which would drive down oil prices further. Those with the lowest costs, such as Saudi Arabia, which can produce oil for as little as $6 a barrel, might feel that this is a fight they are bound to win.

However, a paper published in January by Spencer Dale of BP and Bassam Fattouh of the Oxford Institute for Energy Studies casts doubt on this idea. It argues that Middle Eastern oil producers should focus not on the cost of extraction but on the "social cost" of oil: their spending on social commitments such as health care, education and public-sector employment. The authors use the oil price needed to achieve balanced budgets as a rough proxy. This is close to $60 a barrel. Mssrs Dale and Fattouh argue that until such countries can shift their economies away from oil, they will need to cover these social costs. So instead of fighting each other for market share, they will seek to maintain long-term alliances, such as the current OPEC-plus arrangement. Yet in the past such pacts have always unravelled because of cheating on quotas. And investors in Aramco might balk at sacrificing short-term revenues for long-term strategic objectives. So perhaps the Aramco IPO will be the high-water mark of Saudi Arabia's co-operation efforts.

If the producers are not able to control the market, reform will become more urgent. But it will be tough. Saudi Arabia's Vision 2030 depends almost exclusively on the will of the young crown prince, who has ripped up a long-established model of rule by consensus, with unpredictable consequences. His sense of urgency is not matched by experience, and progress is patchy. Saudi Aramco is taking longer to list than planned.

Other Middle Eastern producers, such as the United Arab Emirates, are also hedging their bets, talking up clean energy but also reaffirming their commitment to using fossil fuels for half their energy needs until at least 2050. Like Saudi Arabia, they are blessed not just with oil but with sun and space, which offer ideal conditions both for large solar-photovoltaic parks, which harvest the sun during daylight hours, and concentrated solar plants, which store the heat generated by the sun in molten salt and release it as electricity at any hour of day or night. But at present Middle Eastern oil producers see renewable energy mainly as a way to use less oil and gas at home so they have more of it available for export. They do not consider clean energy to be an existential threat.

As for Russia, it appears to be even blinder to the prospect of the energy transition. It has given short shrift to renewables. Beyond oil and gas, most of its attention is on nuclear energy. And it is still betting heavily on oil. Partly thanks to global warming, last year it started drilling in the Laptev Sea, in the Arctic Circle, despite low prices and semi-frozen terrain that would put off most Western oil companies.

The wild card for petro-producers is what happens to demand for oil and gas in the developing world, particularly in China. Last year China overtook America to become the world's largest oil importer, and those imports are forecast to continue growing rapidly for at least a decade. At least for now, China's energy relationship with the Middle East and Russia is likely to become closer. State companies from all three regions are investing in each other's assets. Chinese funding has helped Russia finance drilling projects, despite Western sanctions. The same may happen with Iranian gas. Saudi Aramco has invested in a refinery in China's Fujian province. Russia has offered to sell Arctic gas to Saudi Arabia.

The end of oil will not be linear. If oil prices slump, electric vehicles may look less attractive. Concerns about over-investment in oil may produce unexpected price spikes. But if the producers do not embrace economic reform, they could find themselves in deep trouble very quickly. They need only look at Venezuela to see how rapidly falling oil revenues can force an autocratic state to break its bargain with the people, leading to economic turmoil, social instability and regional tension.

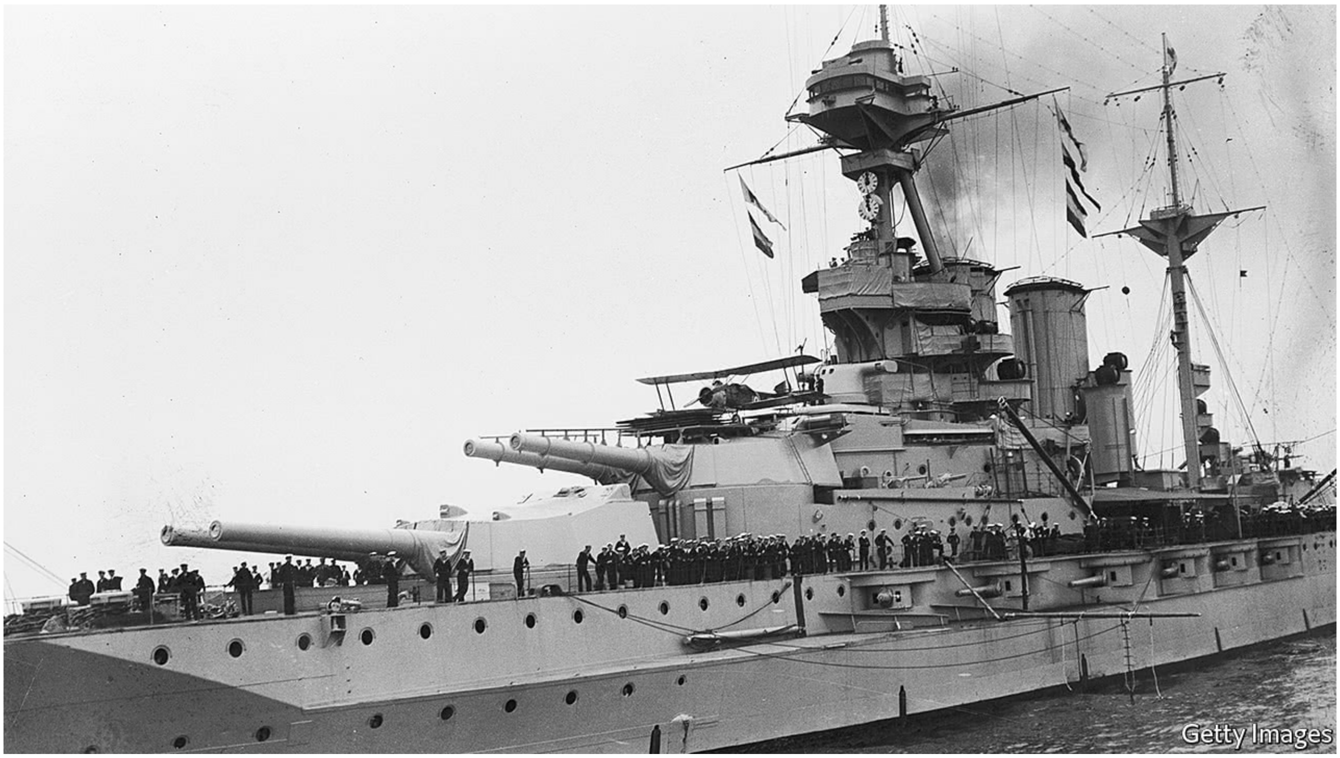
This article appeared in the Special report section of the print edition under the headline "When the sun sets on oil"

A good, clean fight

Global powers need to take the geopolitics out of energy

Collaboration and localisation will help

Print edition | Special report Mar 15th 2018



ON THE EVE of the first world war a young Winston Churchill switched the Royal Navy from coal to oil. As Daniel Yergin put it in his book "The Prize", the reliance on doubtful supplies of oil from Persia rather than Welsh coal turned energy security into a question of national strategy. Churchill responded that "safety and certainty in oil lie in variety, and variety alone."

The same is true of energy today, but the variety of available sources now extends far beyond oil. Military planners are taking note. Since 2003, when America's current defence secretary, James Mattis, drew attention to the vulnerabilities in warfare caused by the "tether of fuel", America's armed forces have invested in a variety of clean-energy technologies: wind turbines, solar panels and mini-grids are common on military bases. So are experiments. A year-long naval exercise in 2016 involved a strike group powered by a mixture of conventional fuels, nuclear power and biofuels made from beef fat.

Access to abundant energy helps a country fight wars. It also supports peaceful projections of power. This special report has argued that those with the most readily available and reliable sources of energy, and the ability to produce and export new technologies, will be winners as the world reduces its dependence on oil. The losers will be those whose vested interests and lack of alternatives keep them wedded to fossil fuels. But the transition need not be a geopolitical battleground. Two factors could help: better collaboration and greater localisation.

In the energy field, collaboration has deep roots. According to Stephen Cheney, a retired Marine brigadier-general who heads the American Security Project, a think-tank, it emerged after the oil shocks of the 1970s as consuming countries sought a way of jointly ensuring energy security in the face of soaring prices. One result was the creation of the Paris-based International Energy Agency (IEA) in 1974, with a broad mandate to work for energy security and co-operation on energy policy among its members, chiefly large energy consumers. In 2001, 28 of the IEA's members each agreed to establish strategic petroleum reserves, equal to 90 days' worth of net imports, as a buffer against supply shortages.

Another result was the global oil market, generating price signals that alert consumers to oil shortages and gluts. America and its allies have supported it since the 1970s by helping underwrite the secure flow of oil, keeping sea lanes open and supporting stable regimes (however odious) in the Middle East. This market has now been extended from oil to gas. Trade in liquefied natural gas is growing, and pricing has become more flexible.

The transition to clean energy is partly driven by the need for ever bigger efforts to tackle global warming. Among other things, that means clean energy needs to expand from electricity, which gets most of the attention now, to heating, transport and industrial processes. It involves building a spider's web of cross-border grids to help offset the variability of sun and wind power. As the transition gathers pace, it may even require support for petro-economies made vulnerable by the switch.

Countries and regions that lack the right climate may need high-voltage transmission lines to feed them clean energy from thousands of miles away. New IEA-type organisations may be required to ensure that such supplies are not "weaponised". And if the worst happened and climate change proved catastrophic, the world would need to come together to deal with the consequences, such as mass migration and water wars.

Technology is another area of potential collaboration. The best guarantee of this would be free markets. Trade wars and other forms of protectionism stymie innovation. Putting quotas on critical minerals, as China did in 2010, would resemble the worst cartel-like tactics of the oil markets.

International agreements on technology also help. On the sidelines of the Paris accord in 2015, 22 countries and the EU as a block pledged to double their research-and-development funding for clean energy. (Some very rich people, led by Bill Gates, also pledged to spend billions on breakthrough technologies.)

The need for more of this is compelling. In solar energy, for example, 60 years of silicon-cell technology has probably gone as far as it can. Perovskite solar cells, a more recent discovery, already come close to silicon's performance and may be more efficient. They can be made cheaply and, unlike rigid silicon cells, can be applied to flexible films of plastic. They are close to commercial launch, though durability is still a problem.

Decentralised power

On the eve of the first world war a young Winston Churchill switched the Royal Navy from coal to oil

Localisation is a second way of depoliticising energy. The fossil fuels that powered the 20th century were produced by oligopolies, fed into centralised networks and sold on the premise of scarcity. Supplies were seen as finite. Renewable energy such as solar and wind is abundant but intermittent. Supergrids are one way of overcoming this. Minigrids involving locally produced wind and solar power, electric-vehicle batteries, small-scale hydropower and small modular nuclear reactors may be another. Some of the companies mentioned in this report are working towards such localised solutions, including Envision, a Chinese firm that hopes to create an "operating system" for small-scale producers and users of energy, to help keep supplies stable. It has also invested in Germany's Sonnen, which sells batteries that become virtual power plants when connected to other households.

If they succeed, local communities, districts and regions may get more say in the energy system, weakening the influence of national utilities, as has happened in Germany's *Energiewende,* albeit at wasteful expense. Some of the more energy-secure regions may compete with countries to influence global policies. Leaders from California, New York and other renewable-friendly states in America are trying to help shape global climate talks even as the Trump administration turns away.

Such "energy democratisation" could provide better access to electricity for the 2bn people likely to be added to the global population in the next few decades. It could help decentralise economies and counter the perception that the market works just for the rich and powerful. It could also open up a whole new realm of innovation, just as oil did with motor cars, suburbanisation, air travel, plastics and mass food production in the 20th century. The great game of green energy need not be winner takes all.

This article appeared in the Special report section of the print edition under the headline "A good, clean fight"

Renault-Nissan-Mitsubishi
Sharing components

Sharing components

Renault-Nissan-Mitsubishi has become the world's biggest carmaker

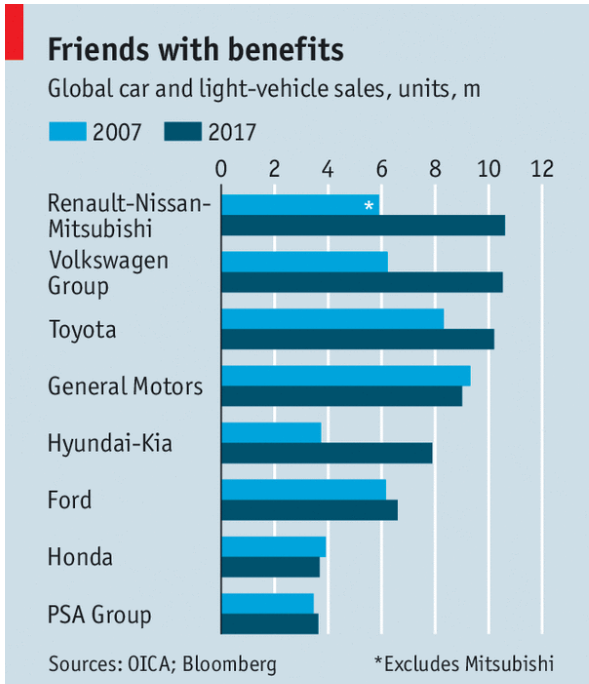
The job of drawing it even closer together will be tricky

Print edition | Business Mar 17th 2018

RENAULT unveiled the EZ-GO, a concept for a robotaxi, at the Geneva motor show, which opened on March 5th. Nissan, in conjunction with DeNA, a Japanese software firm, recently began trials of driverless taxis in Japan. The two companies are pursuing their own paths towards the future of mobility. Yet both are bound together in a close alliance, which celebrates its 20th anniversary next year. In 2016 they were joined by Mitsubishi. Last year the trio sold 10.6m cars between them, one in every nine worldwide.

It is a unique carmaking liaison, neither a full merger nor as loose as the many tie-ups forged to spread the cost of developing pricey pieces of technology. Each firm remains autonomous but shares a growing number of links in the supply chain with the other two. It all looks hugely successful. In 2017 Renault-Nissan-Mitsubishi overtook Volkswagen (VW) as the world's biggest car company (if lorries are included, the German firm is narrowly ahead).

Yet enthusiasm for the alliance among petrolheads and analysts is muted. Despite making some sporty models—Renault even runs a Formula 1 team—the group lacks a brand such as VW's Porsche to set car-buyers' pulses racing. Those who pore over its financial performance use words like "decent" and "reasonable". The mass market is competitive and margins are low. Investors cringe at a complex structure. Renault owns a controlling 43.4% of Nissan; Nissan has a non-voting 15% stake in Renault. Mitsubishi is controlled by Nissan through a 34% stake. Carlos Ghosn (pictured) is chairman of all three firms. Last year he stepped down as boss of Nissan but still runs Renault, plus the alliance itself, with its own board and executives.



Economist.com

Hence the calls for a simpler structure, which could cut costs and shore up profits. The current one gives Renault, itself 15% owned by the French state, the upper hand. Yet Nissan, rescued from near-bankruptcy by Mr Ghosn in 1999, now makes more cars and money. When rumours surfaced recently that France may sell its stake to Nissan as a prelude to a full merger, Renault's shares soared by 9%, revealing what investors think of the structure—and the government's involvement. (The alliance has denied the reports.)

French intentions are hard to fathom. Mr Ghosn and Emmanuel Macron, France's president, have a history. As finance minister in 2015, Mr Macron briefly increased France's stake in Renault to 20%, apparently to block Mr Ghosn from pushing through a change to company bylaws that would have inoculated it against a new law granting double voting rights to long-term shareholders. He also reportedly wanted a merger that would keep France as the main shareholder, the better to preserve French interests and jobs.

Mr Macron now insists he wants to get the French state out of business. But he still sees Renault as a symbol of French manufacturing might. He may be reluctant to allow closer integration along the lines Mr Ghosn, who opposes state involvement, has in mind. But the appointment in February of Thierry Bolloré, a Frenchman (and likely successor to Mr Ghosn), to a new role of chief operating officer of Renault may persuade Mr Macron that a merger would safeguard Renault's position at home.

Whatever happens, the logic of the tie-up, which fills gaps in partners' businesses and cuts costs, is clear. Renault's strength in Europe complements Nissan's in China and America. Nissan brings a premium brand, Infiniti. Mitsubishi offers expertise in plug-in hybrids. By 2016 the alliance claimed annual savings of €5bn ($6.2bn), despite making just 2m cars on two common "platforms", the basic underpinnings of a vehicle. In September a new five-year plan promised deeper integration. By 2022, 9m vehicles will be built using four platforms. Savings are promised to double. In order to "turbocharge" performance and growth, at the start of the month Mr Ghosn announced more convergence of purchasing, engineering and manufacturing. On March 14th new managers were named.

Tying members together more tightly would advance Mr Ghosn's wish to make the alliance "irreversible". Yet that brings problems of its own. It has survived where full mergers have failed because the firms did not have to work too closely together. One former executive recounts how Renault and Nissan engineers could not agree on anything. "There is tension in the system" admits Trevor Mann, another former Nissan executive who is now Mitsubishi's chief operating officer, "but positive tension."

Managing internal friction may distract Mr Ghosn from keeping the alliance growing. So far it has, despite challenges facing the mass market. Scale is vital to be able to invest in electric and autonomous vehicles, Mr Ghosn believes. He aims to sell 14m cars a year by 2022. Max Warburton of Bernstein, an equity-research firm, likens the group to a "hustler" for its skills in sniffing out opportunities. With German carmakers dominating the most profitable bits of the European market, Renault pushed Dacia, its successful low-cost brand. Early investments in electric cars will ensure the alliance is the first to turn a profit from them, according to UBS. A big bet on emerging markets looks inspired.

But Mr Ghosn's acumen has a drawback: it has made him seem indispensable. Succession planning has been overlooked. Impatient contenders such as Carlos Tavares, now boss of PSA, have quit. It will be hard to re-engineer an unusual structure and replace an unusual boss while keeping the hustle going.

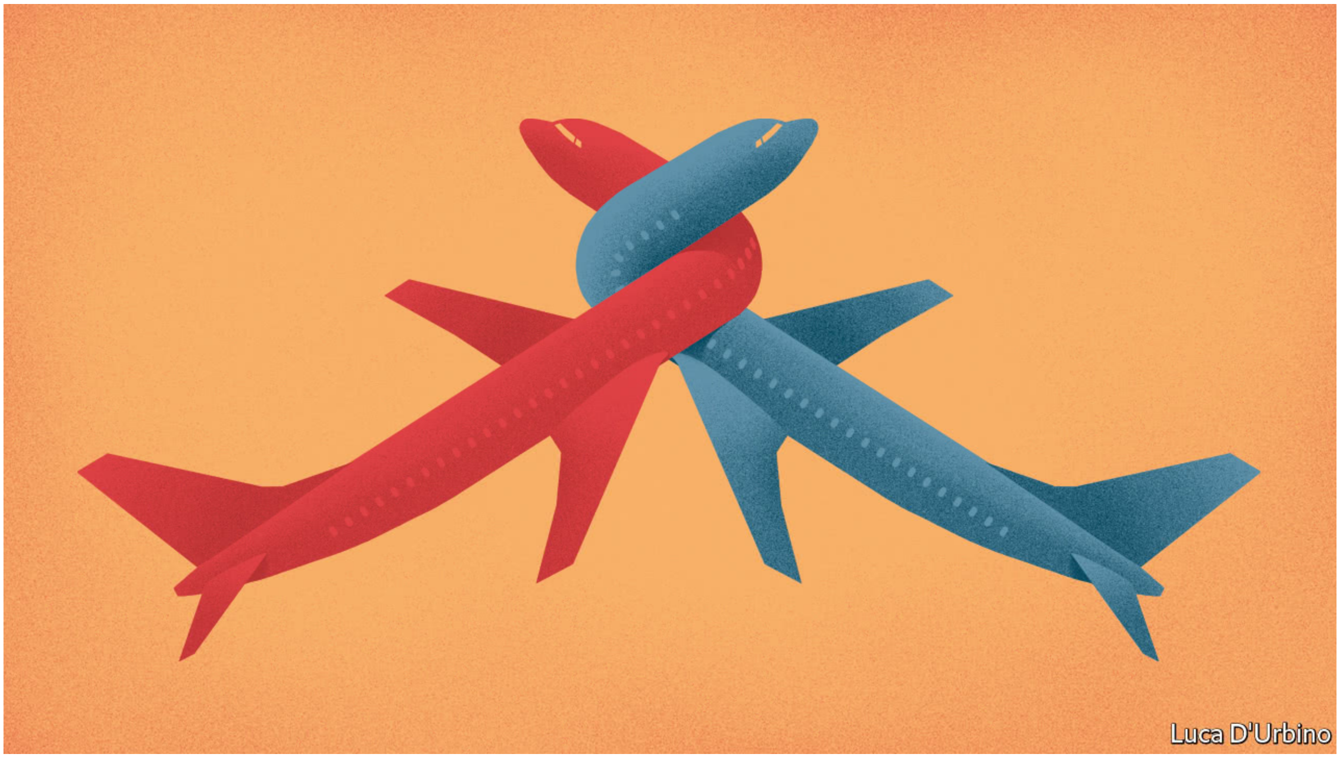
This article appeared in the Business section of the print edition under the headline "Sharing components"

Come fly with me

Protectionism may impede Delta's expansion plans

Airline joint ventures are facing more scrutiny from regulators

Print edition | Business Mar 15th 2018



AS AMERICA'S oldest airline still aloft, Delta makes much of its southern roots. At its biggest hub, Atlanta airport, the company museum recounts how it became the world's second-biggest carrier. The answer: by buying up domestic rivals. With few takeover targets left at home, Delta's chief executive, Ed Bastian, is looking abroad. But his plans for more foreign joint ventures (JVs) face regulatory headwinds.

Last year Mr Bastian announced a flurry of JVs. In May Delta launched one with Aeromexico and in June another with Korean Air. In July Delta formed one of the world's biggest JVs with Virgin Atlantic of Britain and Air France-KLM, a European group. In December it sealed one with WestJet, Canada's biggest low-cost carrier. It wants closer relations with China Eastern and GOL of Brazil, two airlines in which it owns shares. And on March 12th it emerged that Delta and Air France-KLM plan to bid for Air India, an ailing flag carrier. If all these deals come off, one passenger in eight worldwide will fly on carriers linked to Delta by JVs or equity stakes.

America's domestic market is "relatively mature", says Mr Bastian. Flying visitors in and out of the country is where the growth opportunities lie. Airline JVs, which are granted exemptions from antitrust law, allow Delta to sidestep national ownership rules that block cross-border mergers. Foreigners cannot own over 25% of airlines in America or over 49% in the EU, for example. In JVs carriers combine operations and share revenues and profits but preserve national ownership. They produce 90% of the cost savings of a full merger, says Alan Lewis of LEK Consulting. Shallower forms of co-operation—such as the oneworld alliance, Skyteam or Star Alliance—produce as little as 25% of the benefits because they fall under antitrust rules.

Other airlines are thus also keen on JVs. Three of these, including Delta's, now control nearly 80% of the market for transatlantic flights, according to OAG, a data firm. And the tie-ups, which tend to be anonymous, are expanding. Between 2006 and 2016 the share of long-haul passenger traffic controlled by JVs grew from 5% to 25%. It is set to rise to 35% by 2021.

In the past, regulators waved through such deals. Although JVs reduce competition by letting rival carriers act as a single entity, it was thought that some cost savings would be passed on to passengers so long as new airlines could compete with incumbents. That is why JVs are generally allowed only in places with open-skies agreements, where such competition is possible, explains Dave Emerson of Bain & Company, a consultancy.

IATA, a trade group for legacy carriers, claims that JVs do indeed lower fares. Recent studies suggest they do not—at least where room for new entrants is limited. Several have found that fares in markets dominated by JVs have risen significantly relative to routes with none. The JV between American Airlines and British Airways (BA) in 2010 resulted in higher transatlantic economy fares at BA, whose home hub, Heathrow, is Europe's most congested airport. Barriers to entry are rising; 19 European airports will be as full as Heathrow by 2035, reckons ACI Europe, a trade group.

Regulatory hostility is growing. In 2016 America rejected a JV between American and Qantas, arguing it would raise fares. Watchdogs are also being tougher on Delta. Its JV with Aeromexico was approved only after it added a sunset clause and gave up airport slots at Mexico City and New York. In January the EU forced KLM, Delta's oldest JV partner, to surrender slots on its flagship Amsterdam-New York route.

Expansion plans like Mr Bastian's may also run up against rising protectionism. After Britain leaves the EU, it will have to negotiate a new open-skies agreement with America. On March 6th the *Financial Times* revealed that the Trump administration wants stricter terms for Britain. Under America's proposed ownership rules, if a planned purchase by Air France of 31% of Virgin goes ahead, it may no longer be British enough to qualify for the open-skies agreement and thus for its JV with Delta.

Although JVs are falling out of favour with authorities, airlines are still keen on consolidation. With scale, "I don't think we're ever going to lose money again", American's boss recently proclaimed. The carrier has duly resubmitted its JV with Qantas to regulators. At the Atlanta museum, displays of crew uniforms and other items from the 40 defunct carriers Delta has swallowed hold a lesson for airlines. In one curator's words, it's "get big or die."

This article appeared in the Business section of the print edition under the headline "Come fly with me"

E.ONwards and upwards

Germany's two biggest utilities strike a deal

The former rivals aim to benefit from two megatrends: cheaper renewables and more electric cars

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WHEN Johannes Teyssen took control of E.ON in 2010, it was Germany's second-biggest company after Siemens, an industrial giant. From its headquarters in chic Düsseldorf, the utility looked down on RWE, its longtime rival, based in Essen, a down-at-heel former coal-and-steel town 40 minutes' drive away.

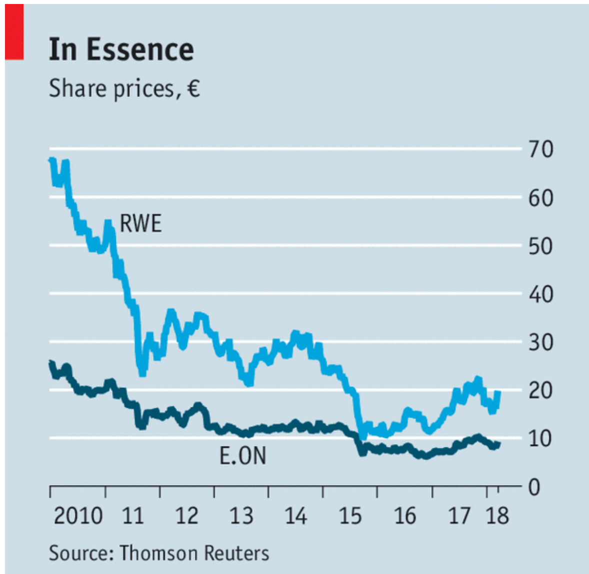
The illusion of superiority did not last. The following year Angela Merkel, Germany's chancellor, reacted to the meltdown at Fukushima in Japan by starting a process to shut down Germany's nuclear-power plants, on which both companies relied. Other aspects of the *Energiewende*, or energy transition, added to their woes, as lavish support for renewables clobbered the country's wholesale electricity prices. The companies' profits slumped, as did their share prices (see chart).

In 2016 E.ON recorded its biggest-ever loss, moved its headquarters from Düsseldorf to Essen, and reinvented itself as a renewable-energy business and a household gas-and-electricity supplier. It spun off its fossil-fuel-burning power plants into a related company, Uniper. RWE flipped the process, floating its renewables and network businesses as Innogy, in which it kept a 77% stake, while keeping the dirtier power-producing assets in-house.

These corporate chimeras are soon for the chop, as RWE moves upstream and E.ON downstream. On March 12th the companies revealed elaborate plans to shuffle about €20bn ($25bn) of assets. E.ON will become Europe's largest operator of power grids by assets and of consumer-energy supply by customers (of which it will have 50m). RWE will be its third-largest producer of renewable energy, behind Iberdrola of Spain and Italy's Enel.

Sam Arie of UBS, a bank, says that will enable them to embrace two "megatrends" reshaping the global energy industry: the falling cost of wind and solar power; and the rise of electric vehicles (EVs). RWE will gain sufficient scale to become a big producer of renewables. E.ON will take the lead in power distribution in a rich country, Germany, that could come to love EVs.

Their infant progeny will cease to exist. In a mostly cashless deal, E.ON will acquire RWE's stake in Innogy and absorb it, cutting 5,000 jobs in the process. It has already announced the sale of its stake in Uniper to Fortum, a Finnish utility. RWE will acquire a restricted 16.7% stake in E.ON, as well as all E.ON's and Innogy's renewable assets. It will pay E.ON an additional €1.5bn.



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The main criticism of the plan is that it should have happened two years ago. Uniper soared in value once spun off, but Innogy struggled. After a profit warning in December, it jettisoned its chief executive (and architect of the spin-off). Earlier this month it was rocked by an unexplained acid attack on Bernhard Günther, its chief financial officer. Yet without the initial spin-offs, it hard to see how the deal could have happened. Markets have reacted well, suggesting regulators and activist investors are not expected to put up a fight.

E.ON's focus on pylons, poles and wires means that 80% of its operating earnings will come from regulated businesses, up from 65%. That will ensure stable earnings and chunkier dividends. The company expects €600m-800m a year of savings from the deal by 2022, offsetting the decline in its nuclear earnings. Mr Teysson describes it as E.ON's "first real growth step for more than a decade"—in other words, the best news of his whole tenure.

RWE, a carbon-dioxide belcher whose lignite power plants tarnish the credibility of the *Energiewende,* becomes greener and more focused. Analysts said it gains more immediately from the deal, though E.ON will make up for that later with its expected future savings. Already RWE's profits are recovering fast. Like E.ON, on March 13th it announced a bumper payout to shareholders. Consumers, who pay a high price for electricity in Germany, are unlikely to be squeezed any harder as a result of the transaction. For once this is a deal that looks good for everyone involved, including the planet.

This article appeared in the Business section of the print edition under the headline "E.ONwards and upwards"

Going Dutch

Unilever picks Rotterdam

Britain's largest consumer-goods firm moves its headquarters to the Netherlands

Print edition | Business Mar 15th 2018

PROUDLY overlooking the River Thames, Unilever House looks more royal palace than office building. Built on the site of a Tudor estate, for nine decades it has been the London home to Unilever, one of the world's largest consumer-goods firms. Since a merger of British soapmakers and Dutch margarine merchants in 1929, Unilever has been a dual-nationality company. It is legally domiciled in Britain and the Netherlands, with headquarters in both the London building and in Rotterdam.

The appeal of dual citizenship has faded. After a year-long review, on March 15th Unilever's board announced plans to move its legal base to Rotterdam. (The firm will continue to have a listing in London, and claims no British jobs will be lost.) Many in the City of London finger Britain's decision to leave the European Union for the move. But Graeme Pitkethly, the firm's chief financial officer, insisted Brexit was "absolutely not a factor" in the decision. Over the past decade Unilever has been shifting its production facilities nearer to its customers in other parts of the world. Even Britain's possible exit from the EU's customs union would not affect its operations as much as it once would.

Instead the company claims that the new structure will make it "simpler, more agile and more focused". Under its current structure, the shares of Unilever NV cannot be exchanged for those in Unilever PLC, its British sibling. This makes it much harder to buy or spin off its businesses. Unilever's chief executive, Paul Polman, wants to boost profits by selling low-margin foods divisions and moving into more profitable areas such as personal-care products. That makes a single entity alluring.

There may be another reason. Unilever makes money by selling well-known brands in over 190 countries. But consumers are switching to local alternatives, especially in China. Activist investors are circling. In 2017 Kraft Heinz, an American food giant, made a hostile bid for Unilever worth $143bn. The company had to fight it off. Mr Polman has argued in the past that British takeover rules favour the predators, and that the Netherlands offers a more level playing field. Although this week he denied that was a factor, the liberal takeover rules which used to attract firms to Britain may be scaring some away.

This article appeared in the Business section of the print edition under the headline "Going Dutch"

Vertically challenged

AT&T's merger with Time Warner goes on trial

If AT&T wins, other vertical acquisitions will follow

Print edition | Business Mar 17th 2018

AN ANTITRUST trial over AT&T's $109bn acquisition of Time Warner, which begins on March 19th, will have more keen observers than one courtroom can handle. Disney, Comcast, 21st Century Fox, Verizon, Charter Communications, CBS and Viacom will be watching. So will Netflix, Amazon and Google.

The reason is simple. If AT&T wins the case against the Justice Department, and the "vertical merger" of the distribution and content businesses goes through, a wave of consolidation deals will follow. Companies that rely on large numbers of people to watch video will want to bulk up to compete with each other and Silicon Valley's mightiest.

Comcast may make a hostile bid for Fox's assets, setting off a bidding war with Disney, which has already agreed a $66bn deal with Fox. (Comcast already wants to buy Sky, a European satellite provider that is part of the Disney-Fox transaction.) Other pay-TV and mobile firms, like Charter and Verizon, will feel emboldened to go after content companies such as CBS or Lionsgate. All are watching the case with "bated breath", says Craig Moffett of MoffettNathanson, a research firm.

Historically, antitrust actions have targeted horizontal mergers between firms operating in the same area. But in November the Justice Department sued to block the Time Warner purchase on the ground that it would give AT&T, which has 25m pay-TV customers and national reach with DirecTV, too much leverage over competitors. AT&T could extract higher fees from other cable operators for Time Warner's popular Turner channels, or simply offer them exclusively on its own cable services in order to poach customers from rivals. The government adds that AT&T could employ this anti-competitive tactic in cahoots with Comcast, a competing operator which already owns valuable programming via NBCUniversal.

AT&T retorts that it makes a lot of money selling content; withholding it from other operators would be commercially self-defeating. Calculations by independent analysts, such as Ben Thompson of Stratechery, a tech newsletter, suggest that AT&T would have to lure more than 15% of its competitors' customers for such a strategy to be profitable. The government's own witness on the issue reckons that 12% would switch. In its pre-trial brief the company claims that its pay-TV business is in structural decline, losing millions of high-paying customers to the likes of Netflix.

Vertical integration, AT&T will try to persuade the court, would enable it to target advertising more effectively, levelling the playing field against the tech titans. In reality, most analysts think the merger only makes sense if the Justice Department's worries are founded. AT&T now has the awkward task of talking this sound business case down.

This article appeared in the Business section of the print edition under the headline "Vertically challenged"

Bloodbath

The reckoning at Theranos

A Silicon Valley darling is accused of misleading investors

Print edition | Business Mar 17th 2018


Reuters

"THE Next Steve Jobs" is how *Inc.*, an American business magazine, described Elizabeth Holmes when her photograph appeared on its cover in 2015. They may share an affinity for black turtlenecks but the reputations of Ms Holmes and Apple's celebrated late boss could not be more different. On March 14th Ms Holmes was accused of fraud by America's Securities and Exchange Commission (SEC). She has agreed to pay a $500,000 fine, not serve as an officer of a public company for ten years and turn over much of her stake in Theranos, the startup she founded (she has neither admitted nor denied wrongdoing).

Only a few years ago Ms Holmes, who is 34 years old, was touted as the world's youngest self-made female billionaire, a shatterer of Silicon Valley's reinforced-glass ceiling. She graced magazine covers and speechified about Theranos, which was trying to upend diagnostic testing by using pinprick amounts of blood rather than vials. At its height Theranos claimed a private-market valuation of around $9bn and raised more than $700m from investors—until a critical article by the *Wall Street Journal* in 2015 prompted media and regulatory scrutiny.

It now turns out that Ms Holmes's claims were deceptive, according to the SEC. She allegedly exaggerated her startup's capabilities. Theranos only reliably performed a dozen of the 200 tests it offered with its own technology. It also lied about its portfolio of clients. For example, investors were told that its technology had been used by the American military on the battlefield, when it had only been used in studies; and that it was poised to be rolled out by a grocery chain even when the deal had collapsed. The financial figures were apparently concocted, too. Ms Holmes told one investor that Theranos had $108m in revenue in 2014; the real figure was $100,000.

The Theranos saga is not over. Ms Holmes's business partner, Ramesh "Sunny" Balwani, whom the SEC has also charged with fraud, is contesting the charges. A criminal investigation into Theranos is believed to be ongoing.

Ms Holmes wooed investors while sharing few details about how exactly her technology worked. Today they are being more inquisitive and cautious, especially in health care. The SEC is eyeing Silicon Valley's firms more closely for foul play, too, for example by asking to see how venture-capital firms mark their investments and how startups value their private shares. The time when plucky wannabe tech titans could do no wrong is gone. Ms Holmes has certainly left a mark on Silicon Valley—and not a mere pinprick.

This article appeared in the Business section of the print edition under the headline "Bloodbath"

Red hot on the web

Online starlets are refashioning Chinese e-commerce

Social-media personalities are successfully monetising their popularity

Print edition | Business Mar 15th 2018

Getty Images

LIANG TAO shifted 80 pink Givenchy bags in 12 minutes. Becky Fang offloaded 100 turquoise Mini Cooper cars in just five. Both are *wanghong*, literally "red-hot on the web". Every day millions of Chinese trawl social media for *wanghong* posts or tune in to live-streams for opinions on everything from a French fashionista's essentials to rampant sexism in China. The fans are helping this new breed of Chinese internet star to monetise their popularity—and to shake up the country's e-commerce industry in the process.

Unlike conventional luxury-and-beauty brand ambassadors, many *wanghong* have built their fan bases through compelling online content rather than a famous name. Some of the most successful are not especially glamorous. "Pudgy Luo" is a middle-aged man who discusses everything from Chinese emperors to 3D printing on his talk-show. MC Tianyou raps about the hardships faced by other young, working-class men. Papi Jiang, a comedian, pokes fun at stardom and Chinese society in salty tirades.

A few have been recruited by luxury brands. After the Communist Party's anti-corruption campaign crimped sales of Jaeger-LeCoultre's snazzy timepieces among its traditional older clientele, the Swiss watchmaker hired Ms Jiang for a video ad targeting young urbanites, including her 27m fans on Sina Weibo, a Twitter-like microblog. Zhang Yi of iiMedia Research, a consultancy, reckons that up to 15% of sales on shopping sites like Taobao or social-media apps such as WeChat are influenced by *wanghong* endorsements. The length of a dress might be decided by a survey of a *wanghong*'s fans; its launch date might be based on the number of hits, shares or comments it garners, some of which can prompt last-minute design tweaks.

This poses a new challenge for retailers, whose supply chains must respond ever more quickly to *wanghong* verdicts. Whereas previously a company would look for a celebrity to match its image, *wanghong* and their admirers are shaping merchandise.

Another challenge comes directly from *wanghong* themselves. They increasingly make money not merely from online endorsements or advice but by launching their own e-commerce stores. Sales of goods accounted for just under half of *wanghong* earnings of 53bn yuan ($8bn) in 2016, estimates Analysys, a Chinese market-research firm (the rest came mostly from live-show tips and adverts).

Some *wanghong* are going a step further. In November Ms Fang launched her own clothing line. Part of her motivation, she says, was that the brands she endorsed did not always match the trends she was sharing with her followers. By creating her own marque, Becky's Fantasy, she retains full control of the quality. She also gains a new revenue stream. For the time being only 3-5% of *wanghong* follow Ms Fang's entrepreneurial example, iiMedia Research reckons. But it expects the model to become an industry in its own right, straddling entertainment and e-commerce, and driven by online data.

Agents of change

An industry is indeed springing up to assist the internet starlets. Dedicated *wanghong* incubators, of which China now has around 50, seek out promising candidates, help them hone online business models and act as supply-chain managers, as well as agents. They help with hiring designers, sourcing fabrics and finding factories. In 2016 Alibaba, China's biggest e-commerce group and owner of the Taobao emporium, invested 300m yuan in Ruhnn, an incubator which was valued at 3.1bn yuan at the time and has since inked contracts with a few dozen influencers.

The *wanghong* economy looks poised to grow. In 2016 it was already 15% bigger than the Chinese film industry's gross box-office sales, Analysys reckons. This year it could surpass 100bn yuan.

Its success illustrates how intertwined online retail and social media are becoming in China. Alibaba has stakes in video-streaming sites such as Nonolive and Youku Tudou. A year ago Weibo launched a venture to support e-commerce *wanghong* and their incubators with consumer analytics and customer surveys; it owns a live-streaming platform, as does Taobao. Alibaba hopes such integration will keep shoppers on its marketplace for longer (an average one opens the Taobao app almost eight times a day). Other apps like Xiao Hong Shu ("Little Red Book"), a Pinterest-like e-commerce site, blur the distinction altogether.

Like all branding, however, the influencer business is a delicate one. Many consumers seemed put off when Christian Dior, a French fashion house, hired Zhao Liying, an actress who had previously endorsed mass consumer brands like Dove. Given the influence of *wanghong*, some of the more risqué can run into trouble with the authorities. The profane Ms Jiang has been reprimanded by censors. MC Tianyou was recently barred from his platforms for promoting drug use. Many starlets expect to quit after a couple of years, straining incubators' business model. In the first half of 2017 Ruhnn was 15m yuan in the red. Some brands have started to look for lesser-known influencers, who command smaller fees and retain a more authentic image among devotees. It is hard to stay red-hot for long.

This article appeared in the Business section of the print edition under the headline "Not just a pretty face"

Schumpeter

Which firms profit most from America's health-care system

It is not pharmaceutical companies

Print edition | Business Mar 15th 2018

Brett Ryder

EVERY year America spends about $5,000 more per person on health care than other rich countries do. Yet its people are not any healthier. Where does all the money go? One explanation is waste, with patients wolfing down too many pills and administrators churning out red tape. There is also the cost of services that may be popular and legitimate but do nothing to improve medical outcomes. Manhattan's hospitals, with their swish reception desks and menus, can seem like hotels compared with London's bleached Victorian structures.

The most controversial source of excess spending, though, is rent-seeking by health-care firms. This is when companies extract outsize profits relative to the capital they deploy and risks they take. Schumpeter has estimated the scale of gouging across the health-care system. Although it does not explain the vast bulk of America's overspending, the sums are big by any other standard, with health-care firms making excess profits of $65bn a year. Surprisingly, the worst offenders are not pharmaceutical firms but an army of corporate health-care middlemen.

In crude terms, the health-care labyrinth comprises six layers, each involving the state, mutual organisations and private firms. People and employers pay insurance companies, which pay opaque aggregators known as pharmacy-benefit managers and preferred provider organisers. They in turn pay doctors, hospitals and pharmacies, which in turn pay wholesalers, who pay the manufacturers of equipment and drugs. Some conglomerates span several layers. For example on March 8th Cigna, an insurance firm, bid $67bn for Express Scripts, a benefit manager. A system of rebates means money flows in both directions so that the real price of products and services (net of rebates) is obscured.

To work out who is stiffing whom, Schumpeter has examined the top 200 American listed health-care firms. Excess profits are calculated as those earned above a 10% return on capital (excluding goodwill), a yardstick of the maximum that should be possible in any perfectly competitive industry. For drugmakers the figures treat research and development (R&D) as an asset that is depreciated over 15 years, roughly the period they have to exploit patents on discoveries. The data are from Bloomberg.

Total excess profits amount to only about 4% of America's health-care overspending. But this still makes health care the second biggest of the giant rent-seeking industries that have come to dominate parts of the economy. The excess profits of the health-care firms are equivalent to $200 per American per year, compared with $69 for the telecoms and cable TV industry and $25 captured by the airline oligopoly. Only the five big tech "platform" firms, with a figure of $250, are more brazen gougers.

Everyone hates pharmaceutical firms, but their share of health-care rent-seeking is relatively trivial, especially once you include the many midsized and small firms that are investing heavily. Across the economy, average prices received by drug manufacturers have risen by about 5% per year, net of the rebates. But their costs have risen, too. As a result, even for the 15 biggest global drugs firms, returns on capital have halved since the glory days of the late 1990s, and are now barely above the cost of capital. As employer schemes get stingier, employees are being forced to pay more of their drug costs; they are price-conscious.

Meanwhile the effectiveness of R&D seems to have fallen. Richard Evans of SSR, a research firm, tracks the number of high-quality patents (defined as those cited in other patent applications) that drug firms generate per dollar of R&D. This metric has dropped sharply over the past decade. Shareholders may groan, but for the economy overall the system seems to be working. Big pharma is still splurging on R&D but not making out like a bandit.

As the drug industry has come back down to earth, the returns of the 46 middlemen on the list have soared. Fifteen years ago they accounted for a fifth of industry profits; now their share is 41%. Health-insurance companies generate abnormally high returns, but so do the wholesalers, the benefit managers and the pharmacies. In total middlemen capture $126 of excess profits a year per American, or about two-thirds of the whole industry's excess profits. Express Scripts earns billions while having less than $1bn of physical plants and no disclosed investment in R&D. This year the combined profits of three wholesalers that few outsiders have heard of are expected to exceed those of Starbucks.

The dark view is that pockets of rent-seeking have become endemic in America's economy. Wherever products are too complex for customers to understand, and where subsidies and complex regulation add to the muddle, huge profits can opaquely be made. Remember mortgage-backed securities?

In the case of health care, consolidation has probably made things worse by muting competition. There are now five big insurance companies, three big wholesalers, three large pharmacy chains and three big benefit managers. The current vogue is for "vertical mergers" in which firms expand into different layers. As well as Cigna and Express Scripts, Aetna, another insurer, and CVS, a pharmacy and benefits manager, are merging. All these firms insist competition will be boosted. But they are also projecting the deals will boost their combined profits by $1.4bn.

Amazon and the health-care jungle

Yet perhaps capitalism is not broken and new contenders will eventually be tempted in. Amazon has acquired wholesale pharmacy licences in multiple states. It is also teaming up with JPMorgan Chase and Berkshire Hathaway to create a new health system for their staff. These initiatives are at an early stage, but investors are sufficiently worried that they value the intermediaries on abnormally low multiples of profits, suggesting earnings may fall. People often get upset when conventional industries are hit by digital competition. Few would lament it in the case of health-care middlemen.

This article appeared in the Business section of the print edition under the headline "Health-care profits"

Initial public offerings
Proof of life

Proof of life

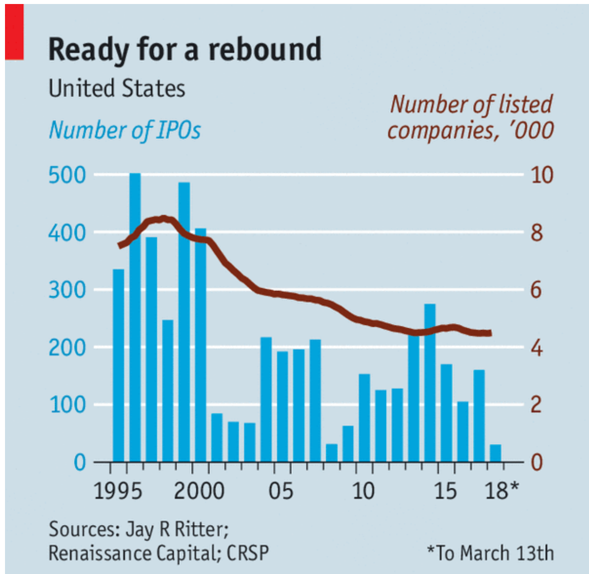
America's public markets are perking up. Can it last?

The burden of going public will need to be lightened if a flurry of initial public offerings is to turn into a flood

Print edition | Finance and economics Mar 17th 2018

Getty Images

FOR years, discussions of America's public markets have usually featured a lament for their dwindling appeal. According to Jay Ritter of the University of Florida, the number of publicly listed companies peaked in 1997 at 8,491 (see chart). By 2017 it had slumped to 4,496. True, many of the companies that went public in the internet's early days should never have done so. But the decline worries anyone who sees public markets as the best way for ordinary investors to benefit from the successes of corporate America.



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The mood right now is more buoyant. Bankers and lawyers who usually chat with journalists in their offices are on the road hunting for business, offering only snatched interviews from airports in cities that they are unwilling to disclose. "There are plenty of signs that IPO activity is about to surge," says Kathleen Smith of Renaissance Capital, a research firm.

The line-up of listings spans countries and industries. The biggest offering in America so far this year has been that of PagSeguro Digital, a Brazilian e-commerce platform. Among those imminent is Dropbox, a file-sharing service. If rumour is right, Lyft, a ride-sharing app, may soon follow. Next month Spotify, a Swedish music-streaming service, is due to make its debut on the New York Stock Exchange in an unusual "direct listing". It will issue no new shares and raise no money, but simply begin trading its current shares. It will thereby avoid underwriting fees and its owners will be free of the "lockup" period that restricts disposals after conventional IPOs.

A wave of Chinese IPOs is also on the way. iQiyi, often called China's Netflix, said in February that it would list on NASDAQ, whose headquarters is the neon-clad centre of Times Square. Optimism abounds that Tencent Music (China's Spotify), Meituan-Dianping (China's Yelp) and Ant Financial (China's PayPal/Visa/MasterCard) will follow. The biggest prize would be the IPO of Xiaomi, a Chinese smartphone manufacturer that is being courted by stock exchanges in Hong Kong as well as New York.

Not long ago tumbling oil prices turned investors off energy companies. That has changed now that prices are off their lows and firms have become more efficient. Five energy companies have floated so far this year, putting the sector behind only health care, which had ten, most of them in biotechnology. Elsewhere Zscaler, an internet-security firm founded just a decade ago, is expected to list soon with a value in excess of $1bn.

A partial spin-off by AT&T of Vrio, its Latin American direct-television operation, may be the first of a series. Siemens has announced a similar plan for its large health-care unit in Frankfurt. Even banks, not long ago a dead zone, are getting in on the act; two recently filed to go public.

The main reason for all this activity is fizzy prices. Shares have been hitting record highs, and investors have done even better from IPOs than from the market as a whole. An index compiled by Renaissance of companies that have gone public within the past two years, with various adjustments to take account of size, has risen by a third over the past year, half as much again as the S&P 500. Despite concerns about inflated valuations, that fuels enthusiasm for more listings. Some think that recent changes to the tax code, which lowered the top rates and reduced the benefits of debt, may be another factor.

The question is whether one quarter a revival makes. It is easy to see how the effervescent mood in New York could quickly go flat. Stockmarkets could tumble, scaring IPO candidates off. Two hotly anticipated IPOs—of Aramco, a huge Saudi oil company, and Airbnb, a short-term accommodation site—have been delayed until at least next year. The climate for Chinese firms in America is becoming less welcoming. Competition from other exchanges is hotting up. Hong Kong is abandoning its long-standing opposition to dual-class shares in order to grab a bigger share of Asia's tech listings. Singapore is on track to do the same.

Underlying these concerns is an older one—that the vast and varied costs of first bringing shares to market, and then remaining public, are just too high. These costs include bankers' and lawyers' fees, the risk of class-action litigation, the need to reveal commercially sensitive information that could benefit rivals, and the prospect of fights with corporate raiders who want juicier returns for shareholders and social activists who want executives to pay heed to their values. Added to all these are public reporting and tax requirements that private companies can often avoid.

Mr Ritter attributes much of the decline in the number of companies that are listed to the difficulty of being a small public company. This, he thinks, is reflected in the actions of venture capitalists, who once sought public listings when they wanted to exit their investments and now overwhelmingly choose private sales. He remains a diligent collector of evidence supporting the notion that listing requirements have become more burdensome over time.

For example, he notes that the prospectus for Apple Computer's public offering in 1980 ran to a mere 47 pages and listed no risk factors, despite its novel product, inexperienced leaders and formidable competitors. The prospectus for Blue Apron, a meal-delivery company that listed last year, weighed in at 219 pages, with 33 devoted to risks, presumably intended to pre-empt litigation. One of those risks was the possibility that Blue Apron would not “cost-effectively acquire new customers”.

The difficulties of becoming public and the decline in overall listings was cited as a crucial issue by Jay Clayton in his confirmation hearing last year to be chair of the Securities and Exchange Commission (SEC). In office Mr Clayton has not been especially forceful. Still, lawyers and bankers say the SEC’s act has improved. Its internal mechanisms clank along a bit more smoothly. All companies are now allowed to file their initial applications confidentially, thus delaying any exposure of financial and strategic information to competitors until just before an IPO (investors are less happy because they do not have as much time in which to carry out research).

Even so, firms are staying private for longer. In 2000 the median age of companies at listing was five years; in 2016 it was ten years and six months. That suggests more needs to be done to lighten the burden of going public, if the current flurry of listings is to last.

This article appeared in the Finance and economics section of the print edition under the headline ”Proof of life”

Central-bank digital currencies

A primer on blockchain-based versions of central-bank money

A BIS report advises: proceed with caution

Print edition | Finance and economics Mar 15th 2018

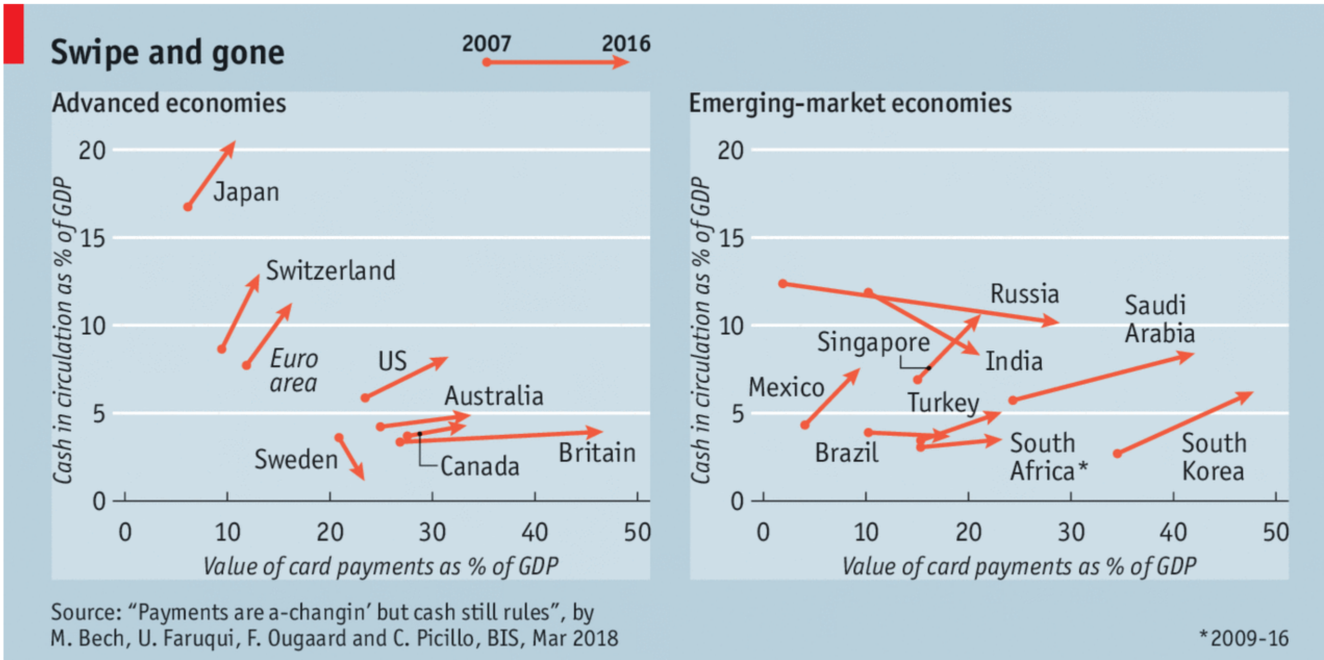
Bloomberg

BITCOIN, Ethereum, XRP, Stellar, Cardano: the infant world of cryptocurrencies is already mind-bogglingly crowded. Amid the cacophony of blockchain-based would-be substitutes for official currencies, central banks from Singapore to Sweden have been pondering whether they should issue digital versions of their own money, too. None is about to do so, but a report prepared by central-bank officials from around the world, published by the Bank for International Settlements on March 12th—a week before finance ministers and central-bank heads from G20 countries meet in Buenos Aires—offers a guide to how to approach the task.

The answer? With care. For a start, it matters who will be using these central-bank digital currencies (CBDCs). Existing central-bank money comes in two flavours: notes and coins available to anyone; and reserve and settlement accounts open only to commercial banks, already in electronic form (though not based on blockchain) and used for interbank payments. Similarly, CBDCs could be either widely available or tightly restricted. A CBDC open to all would in effect allow anyone to have an account at the central bank.

CBDCs could be transferred either "peer to peer", like cash, or through the banking system. They could be held anonymously, preserving the privacy of cash, or tagged, making it easier to trace suspicious transactions. Should they bear interest, that would affect demand not only for CBDCs but also for cash, bank deposits and government bonds.

The report weighs up CBDCs' possible effects on payment systems, monetary policy and financial stability. A steep decline in the use of cash could strengthen the case for a widely available CBDC. In Sweden the Riksbank is contemplating an "e-krona" for small payments. But in most countries, despite the growing use of cards, accelerated by the advent of contactless payments, cash remains popular (see chart). Experiments with a CBDC just for interbank payments, says the report, have "not shown significant benefits".



Economist.com

A widely available, interest-bearing CBDC could, in principle, tighten the link between monetary policy and the economy. An interest rate tied to the policy rate may put a floor under money-market rates. Banks may have little choice but to pass changes in the CBDC rate on to depositors. Negative rates would be easier to implement, especially if high-denomination banknotes were abolished. But all this is uncertain. Retail depositors are less sensitive than institutional investors to changes in rates. Central banks already have plenty of tools. The authors are not sure that the putative gains yet warrant creating CBDCs.

On financial stability, they are more cautious still. In times of stress, depositors flee wobbly banks for safer homes—and a CBDC would allow "digital runs" to the central bank. Even in normal conditions, banks would face higher funding costs if they had to compete with the central bank for deposits. Digital versions of currencies used internationally (eg, the dollar) could worsen these complications, if foreigners were free to use them.

Central bankers focus more on the rise of private crypto-currencies, warning that they are speculative gambles. Expect more such admonitions in Buenos Aires—and no rush to mint CBDCs.

This article appeared in the Finance and economics section of the print edition under the headline "Proceed with caution"

The largest blip

Do credit booms foretell emerging-market crises?

A commonly watched indicator of financial stability may produce too many false alarms

Print edition | Finance and economics Mar 17th 2018

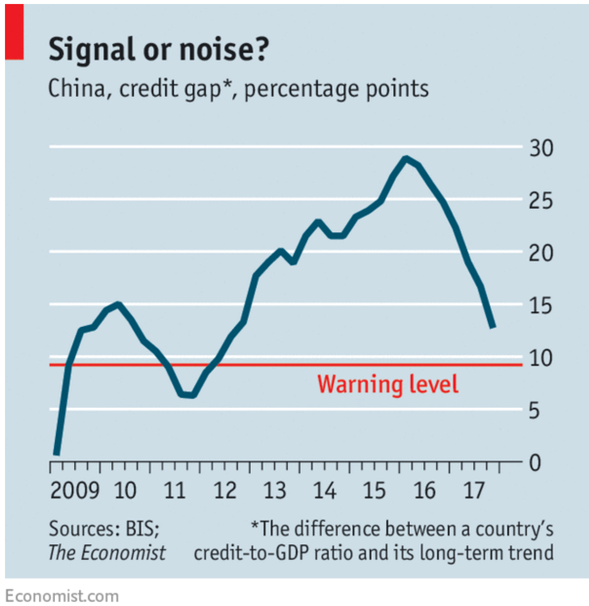
ON THE morning of December 7th 1941, George Elliott Junior noticed "the largest blip" he had ever seen on a radar near America's naval base at Pearl Harbour. His discovery was dismissed by his superiors, who were thus unprepared for the Japanese bombers that arrived shortly after. The mistake prompted urgent research into "receiver operating characteristics", the ability of radar operators to distinguish between true and false alarms.

A similar concern motivates research at the Bank for International Settlements (BIS) in Basel, Switzerland. Its equivalent to the radar is a set of economic indicators that can potentially detect the approach of financial crises. A prominent example is the "credit gap", which measures the divergence between the level of credit to households and non-financial firms, expressed as a percentage of GDP, and its long-term trend. A big gap may reflect the kind of unsustainable credit boom that often precedes a crisis. Anything above 9% of GDP is reason to worry, according to Iñaki Aldasoro, Claudio Borio and Mathias Drehmann of the BIS.

The biggest blips on the oscilloscope include Canada (9.6%), Singapore (11.1%) and Switzerland (16.3%), according to the latest readings, released on March 11th. But the one that has kept everyone's eyes peeled is China, with a gap of 16.7% in the third quarter of 2017 (the latest BIS figure available).

As a crisis-detector, the credit gap has some appealing operating characteristics. It can stand alone. It can be estimated quarterly across many economies. And, according to Mr Aldasoro and his co-authors, it would have predicted 80% of the crises since 1980 in the countries and periods for which data are available.

The problem is that it has also predicted many crises that never arrived. When such early-warning indicators flash red, the chance of a crisis in the next three years is "around 50%", says Mr Drehmann. The BIS provides over 5,200 credit-gap readings for the period since 1980. In over 850 instances, the gap exceeded 9% but skies remained clear.



The problems seem worse in emerging markets. Their data are patchier, covering just 13 crises. Of this unfortunate number, only eight were preceded by a big credit gap. (Another three struck within three years of the start of the data, which may be too early to provide a fair test of the indicator.) There have been many false alarms. The credit gap flashed red almost continuously in Chile in 1993-2002, reaching over 24%, but no crisis followed. It was also persistently large in the Czech Republic in 2007-14 and in Hungary in 2000-10 without any great trauma ensuing. The indicator successfully predicted the "Asian flu" in Indonesia, Malaysia and South Korea in the late 1990s, but only after sounding a false alarm in all three countries in the 1980s.

What about China? Paul Samuelson, a Nobel-prize winning economist, once joked that the stockmarket had predicted nine out of America's last five recessions. Similarly, the credit gap predicted at least three out of China's last zero crises. It rose above 9% in mid-2003, mid-2009 and mid-2012, where it has stayed since. China's comeuppance may still arrive. But the gap is now closing rapidly. It has decreased from almost 29% in the first quarter of 2016 to less than 13% at the end of last year, according to *The Economist's* calculations.

One obvious explanation for China's resilience is that its credit is mostly home-grown, extended by domestic banks and other Chinese lenders. By contrast the crisis-struck emerging economies mostly relied on inflows of foreign capital to finance their current-account deficits with the rest of the world. Looking at both current-account gaps and credit gaps may provide better predictions, says Michael Spencer of Deutsche Bank. He calculates that China's risk of a financial crisis this year is less than 8% (assuming a credit gap of under 13%) partly because it runs a current-account surplus of about 1.4% of GDP. If China's government keeps credit stable as a share of GDP this year, this crisis-risk could fall to about 5%.

On that day of infamy in 1941, Mr Elliott took the radar blip far more seriously than his fellow operator did, despite being less experienced. Perhaps this should not be surprising. After less than three months of radar-watching, Mr Elliott was not yet jaded by routine. If a financial crisis eventually strikes China, many people will be caught out—not because of a lack of warnings, but because of too many.

This article appeared in the Finance and economics section of the print edition under the headline "The largest blip"

Global trade

A lose-lose trade war looms between America and China

If China cannot placate Donald Trump, it will fight him instead

Print edition | Finance and economics Mar 15th 2018

PRESIDENT DONALD TRUMP has not yet started a global trade war. But he has started a frenzy of special pleading and spluttered threats. In the week since he announced tariffs on steel and aluminium imports, countries have scrambled to win reprieves. Australia, the European Union and Japan, among others, have argued that, since they are America's allies, their products pose no risk to America's security. If these appeals fail, the EU has been most vocal in vowing to retaliate, in turn prompting Mr Trump to threaten levies on European cars.

In China, ostensibly the focus of Mr Trump's actions, the public response has been more restrained. Officials have said the two countries should strive for a "win-win outcome", a favourite bromide in their lexicon. As a rival to America, China knows that an exemption from the tariffs is not on offer. It also knows that it needs to conserve firepower. If this is the first shot in a trade war, it is, for China, small bore. Its steel and aluminium exports to America amount to roughly 0.03% of its GDP, not even a rounding error.

It is two shots to come that have China more worried. Mr Trump has asked China to slash its $375bn bilateral trade surplus by as much as $100bn, a nigh-impossible task. And an investigation into China's intellectual-property practices is almost over. Mr Trump wants to punish China for the alleged theft of American corporate secrets. Reportedly he will seek to place tariffs on up to $60bn of Chinese imports, focused on technology and telecommunications (see Briefing).

Until recently, Chinese officials thought they had the measure of Mr Trump. During a state visit to China in November, he was treated to a lavish banquet and signing ceremonies for $250bn in cross-border deals. He still speaks fondly of the dinner, but the glow faded quickly on the deals, many of which were restatements of previous commitments. The tariffs on steel and aluminium, though negligible in their impact on China, signalled that hawkish advisers to Mr Trump were in the ascendancy. So behind their mask of calm, Chinese officials are searching for ways to fight back.

The demand that China cut its trade surplus by $100bn is, in a technical sense, risible. As Mei Xinyu, a researcher in a Chinese commerce-ministry think-tank, observes, America complains that China is not a market economy, but asks for a hard target that only a planned economy could hit. The true bilateral trade gap is smaller than reported, since Chinese exports contain many inputs from elsewhere. Add in services, including Chinese students in America, and it is smaller still.

Politically, the demand has helped focus China's thinking. "There is a sense that they need to give Mr Trump a win, and that the win must be in the form of a big round number that he can tout," says Eswar Prasad, an economist at Cornell University, who has spoken with Chinese trade officials. One possibility is that China might buy more of its oil and gas from America, and perhaps even make a hefty down payment on future purchases.

But if America imposes stiff penalties in the intellectual-property case—along with stinging tariffs, it might also place new restrictions on Chinese investment and travel visas—China will take a much harder line. A government adviser in Beijing says that regardless of the economic consequences, Xi Jinping, China's president, will want to show that he is no pushover. Countermeasures will be varied, says David Dollar, America's former treasury representative in Beijing. China will buy more soyabeans from Brazil instead of from America. It will buy more Airbus planes instead of Boeings. It will tell its students and tourists to go to other countries. It will drag its feet on approvals for American companies in China.

Worryingly, each side thinks that in a trade war of attrition, it would have the advantage. America calculates that China has the bigger surplus, and thus more to lose. But China's exports to America are less than 3% of its GDP—large but not critically so. China, for its part, thinks Americans would object to paying higher prices for manufactured goods from toys to televisions. But much low-end production is migrating from China to other developing countries and, in a pinch, American consumers might rally round the flag. To invert China's much-loved win-win motto, this has all the makings of a lose-lose battle.

This article appeared in the Finance and economics section of the print edition under the headline "A lose-lose deal"

Situation: vacant

A startling amount of land in Japan has no official owner

The countryside is littered with vacant plots and abandoned houses

Print edition | Finance and economics Mar 17th 2018

THE tsunami of 2011 left gaping holes reminiscent of war zones in the landscape along the coast of Tohuku, in the north-east of Honshu, Japan's main island. Car navigation systems gave directions to landmarks that had vanished into the sea. The subsequent reconstruction effort hit an unexpected roadblock: missing landowners. Officials were stunned to find that hundreds of plots were held in the names of people who were dead or unknown.

The deluge threw the problem into particularly sharp relief in Tohuku, but it is widespread elsewhere too. A report last year for the government by a panel of experts estimated that about 41,000 sq km of land, or 11% of Japan's surface, was unclaimed, most of it in rural regions. By 2040, it warned, the area could more than double. The cumulative cost in lost productivity could be as high as ¥6trn ($56bn).

The countryside is littered with vacant plots and empty houses. Some date from Japan's great post-war migration to coastal cities; others were abandoned more recently, as urbanisation continued and as the population has shrunk and aged. Ownership has often passed through several generations and the thread may have been lost. Some titles in Tohoku had not changed since the 1860s.

One reason is that, unlike most other developed countries, Japan does not require changes of land ownership to be registered. The tax for changing title deeds is 0.4% of the assessed value, and the change must be done by notaries, who charge steep fees. If there is more than one heir, the cost is higher. Those who inherit land often do not bother to update the records.

As she grieved for her mother four years ago, Rie Nakaya discovered that she had inherited the family's ancestral home in rural Shikoku, the smallest of Japan's four main islands. But the seeming windfall has become a burden. Demolishing the tottering house on the 300-square-metre plot would be expensive—and pointless, since she cannot dispose of the land at any price. Living hundreds of miles away in Tokyo, her only remaining tie to it is the annual property-tax bill that plops through her letterbox.

Ms Nakaya's inheritance points to a bigger issue: that many plots are simply valueless. The price of land in Japan peaked in the early 1990s, along with that of houses and shares. Then all these bubbles burst. Valuations in prime parts of Tokyo eventually recovered, but in the depopulated countryside much land is worth next to nothing. Absent an implausible wave of immigration, that is unlikely to change.

When bureaucrats take the time to track down owners, says Uichirou Masumoto of the land ministry, they almost always find them. But that detective work takes time and trouble. Officials spend thousands of hours a year searching through yellowing property records to find owners when they want to build a road, say. In one case, they travelled the country trying to contact over 600 descendants of a single landowner, without success. According to Yasushi Asami of the University of Tokyo, who advises the government on the problem of vacant land, some Japanese people even fear that "hostile" foreign governments (read: China) could buy up swathes of empty countryside.

The government is considering a few moves that might help. One is to make the registration of inherited land compulsory. That, at least, would force new owners to pay taxes. Faced with vast, complicated public-works projects such as rebuilding Tohoku, it has lowered the legal barriers to seizing vacant land, and become more aggressive in doing so. This is simply an acknowledgment that the legal system is creaking, says Mr Masumoto.

Yet more action will be needed. Overgrown lots, many hosting decrepit houses, are popping up in towns and even some big cities across Japan, says Hiroya Masuda, a former minister of internal affairs who helped draw up the report. As more people die and pass on titles to unwitting or unwilling relatives—the number of deaths in Japan is expected to peak at 1.67m in 2040—the growing swathes of unclaimed land could overwhelm the state, he fears.

The best way forward, says Peter Matanle of Britain's University of Sheffield, may be for Japan to re-wild much of its vacant countryside with forests and parks. Having shown Asia how to develop in the 20th century, he thinks, Japan could lead the way in dealing with an ageing, shrinking society in this one.

This article appeared in the Finance and economics section of the print edition under the headline "Situation: vacant"

Nobody's home

Why Japanese houses have such limited lifespans

The value of the average house depreciates to zero in just 22 years

Print edition | Finance and economics Mar 15th 2018

Alamy

EVERY 20 years in the eastern coastal Japanese city of Ise, the shrine, one of the country's most venerated, is knocked down and rebuilt. The ritual is believed to refresh spiritual bonds between the people and the gods. Demolishing houses has no such lofty objective. Yet in Japan they have a similarly short life expectancy.

According to Nomura, a brokerage, the value of the average Japanese house depreciates to zero in 22 years. (It is calculated separately from the land, which is more likely to hold its value.) Most are knocked down and rebuilt. Sales of new homes far outstrip those of used ones, which usually change hands in the expectation that they will be demolished and replaced. In America and Europe second-hand houses accounted for 90% of sales and new-builds for 10% in 2017. In Japan the proportions are the other way around.

The reasons for Japanese houses' rapid loss of value lie partly in tradition. In many countries people buy when they pair off, when they move to a bigger place after they have children or when they downsize on retirement. Japanese people have tended to see out all life's stages in the same dwelling, a custom they attribute to their history as a farming nation, when they had to stay put. As a result, they never got used to second-hand homes.

The frequency of earthquakes also plays a part. Large tremors tend to be followed by tougher building regulations. Many people want to live in a home built to the most recent standards. History also helped to form habits. During the second world war dozens of cities, including Tokyo, had been flattened by American bombs. The population then was growing fast. Quantity was valued over quality. Big prefab manufacturers, such as Daiwa House, survive to this day, bringing out new models every year that, as with cars, people aspire to upgrade to.

One careless owner

In a vicious cycle, houses are expected to depreciate and are therefore not maintained, so second-hand homes are often dingy and depressing. Japanese people also shun *wake-ari bukken*, buildings "stigmatised" because, say, a former resident committed suicide there or a cult resides nearby. "In Japan, the words old and charming do not go together," says Noriko Kagami, an estate agent (who tore down a house she bought herself).

Unsurprisingly, given the speed at which the value of houses falls to nothing, banks are more willing to offer loans for new places. Government policy, long aimed at resolving a housing shortage, further skews housebuyers' incentives. It is not tax-efficient to improve a house, says Daisuke Fukushima of Nomura, since property taxes are based on value. Someone who buys a new-build must pay 0.4% of its value to register ownership. Registering a change of ownership costs 2%.

Construction and home-fitting companies benefit from this speedy housing cycle. But in the longer term is it wasteful. Chie Nozawa of Toyo University compares it to slash-and-burn farming. "We are not building wealth," says Yasuhiko Nakajo, who leads the property department at Meikai University.

When the number of mouths to feed is growing, slash-and-burn at least makes short-term sense. But Japan's throwaway housing culture, shaped by a once-urgent need to house growing numbers, makes no sense now that the population is shrinking. The country currently has an estimated 10m abandoned homes, a number that is expected to rise above 20m by 2033.

That is a problem for entire neighbourhoods: a derelict lot drags down the value of nearby houses. It also complicates the transfer of wealth from the big post-war generation. A house that is worth nothing cannot be sold to pay for an assisted-living apartment or a place in a nursing home, or handed on as an inheritance.

The government has, belatedly, started to rethink its policies. It set itself the target of doubling the number of used-housing sales in 2020 compared with ten years earlier, and is strengthening a home-surveying system introduced in 2013. From next month estate agents will have to give prospective buyers more information, including disclosing the results of any inspection. Much still remains unclear, though, including how long the results of a survey will remain valid, and whether the seller will be liable for defects that were not disclosed during the sale.

The government is also considering reducing the taxes associated with buying a home if it is currently vacant. Some regions are offering incentives to buyers of abandoned homes, including financial aid and lower taxes.

Banks are becoming a little more forthcoming with loans for second-hand housing. Some housing companies are starting to offer renovation and refurbishment services. When Motoazabu Hills, a posh building of rented apartments in central Tokyo, recently changed hands, the new owner decided to gut and redo the interiors rather than knock the whole thing down. *AERA*, a magazine, recently published a guide to buying property that will retain its value. Among its tips was to buy in an area that is home to lots of women in their 20s and 30s (ie, of childbearing age).

All this is having some success. In the cities a larger share of people now rent than own places, and move more often. "We are entering a stage where people are starting to see a used home as an option," says Mr Nakajo. In 2017 a record 37,329 second-hand flats were sold in Tokyo, a 31% increase on ten years earlier. Yet until what Mr Nakajo dubs the "20-year-mentality" changes, the preference for shiny and new will remain.

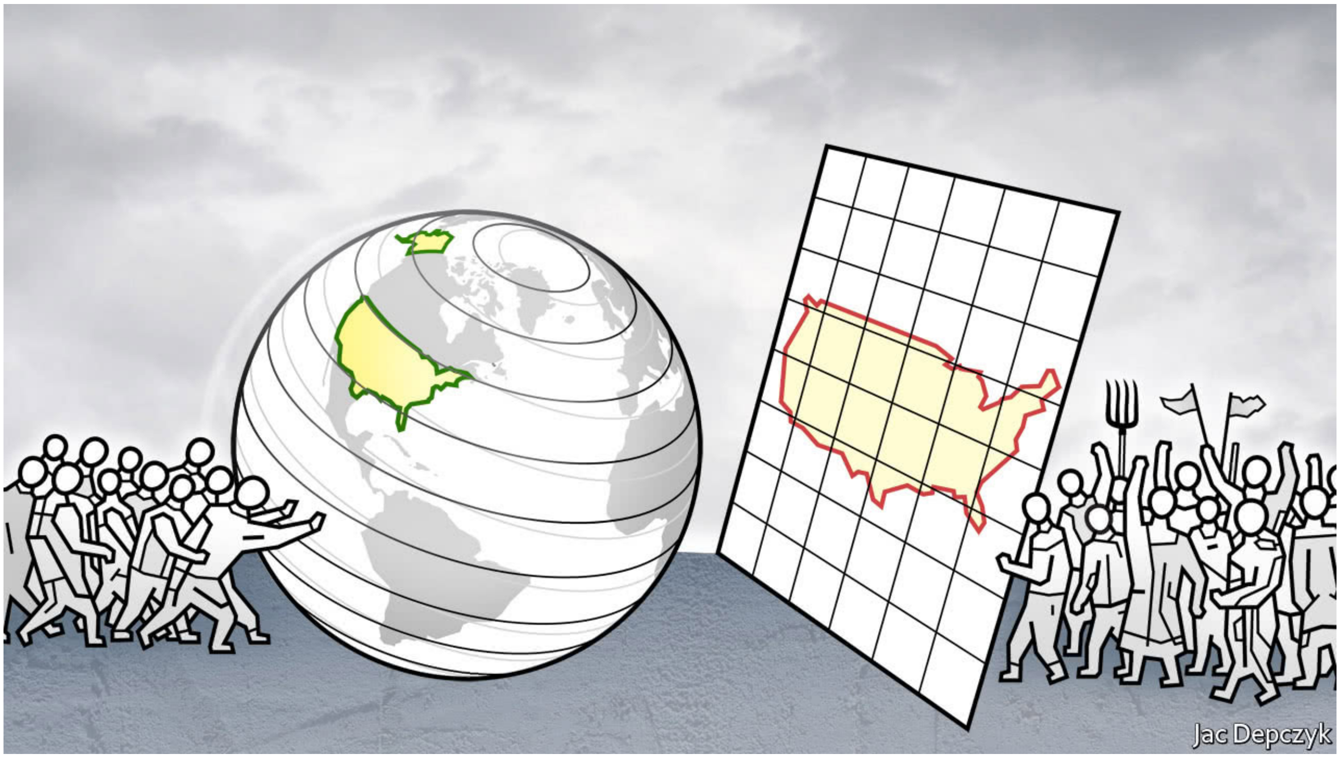
This article appeared in the Finance and economics section of the print edition under the headline "Nobody's home"

Free exchange: faction and friction

In America, a political coalition in favour of protectionism may be emerging

China's size and behaviour are prompting a rethink on trade

Print edition | Finance and economics Mar 15th 2018



THE post-war system of global trade has been close to expiring, seemingly, for most of the post-war period. It tottered in the 1980s, when Ronald Reagan muscled trading partners into curbing their exports to America. It wobbled with the end of the fruitless Doha round of trade talks. The system now faces the antediluvian economics of President Donald Trump, who seems bent on its destruction.

Mr Trump's mercantilism is gaining steam. Straight after saying he would slap hefty tariffs on aluminium and steel imports, he is setting his sights on China, a favourite stump-speech bogeyman. This week he blocked the takeover of an American chipmaker by a Singaporean rival, because of fears of Chinese technological leadership. He is poised to act against China over its theft of intellectual property and its trade surplus.

And yet global trade has proven itself to be remarkably resilient. An optimist could argue that, historically, it is big political realignments that overturn trade-policy regimes, rather than the rogue actions of consensus-bucking presidents. Recent polling suggests many Americans are unenthusiastic about Mr Trump's steel and aluminium tariffs. The levies have also generated howls of complaint from the business community, which seems likely to persuade Mr Trump to carve out exceptions. The damage he causes could be undone in future. Unfortunately, there is reason to fear the emergence of a new, less liberal consensus.

When discussing trade-policy trade-offs, economists typically focus on conflicts between producers and consumers. They see consumers benefiting from liberal trade rules, enjoying foreign wines and cheap Chinese electronics. But households, they reckon, are rarely animated enough about trade fights to mount serious opposition to producers, who are assumed to favour protection and who are highly motivated and organised in their lobbying for tariffs and other barriers.

Yet in practice, interests diverge across industries and regions. In America, as Douglas Irwin describes in his magisterial history of trade policy, "Clashing over Commerce", battles between blocs determined trade strategy. Before the civil war Democratic, export-oriented southern states held the political upper hand over the pro-tariff, industrialising states of the north, which tended to vote for the Republican Party and its precursors. The war altered the political balance of power and ushered in an era of industry-supporting protectionism, and Republican dominance, that persisted into the 1930s.

Today's established policy paradigm has its origin in the early post-war period, when politics strongly favoured liberalisation. Both parties backed expanded trade, for geopolitical reasons and because America's world-beating export industries faced few competitive threats. The General Agreement on Tariffs and Trade, in operation since 1948, created the environment in which tariffs have tumbled to their present low rates. A scaffolding of treaties, institutions and laws now supports a global economy as interconnected as it has ever been.

That has had two contradictory effects. In some ways globalisation has neutered its potential political opponents. Liberalisation has undercut producers in those sectors most vulnerable to foreign competition, who are also the constituency most in favour of protectionism. Many more jobs, dollars and votes now depend on industries that use steel in production and therefore suffer when it becomes more expensive, than on steelmaking itself. Similarly, liberalisation nurtured the growth of international supply chains, which increased cross-border interdependence and reduced political support for tariffs among firms that are both importers and exporters. NAFTA-bashing elicits cheers at Mr Trump's speeches, but also causes American firms to leap to the defence of their Canadian and Mexican partners.

In other ways, however, globalisation created the conditions for a significant backlash. In the 1950s and 1960s Americans associated liberalisation with rapid, broad-based economic growth. No longer. Though cosmopolitan Democrats embrace global co-operation and live in cities built on exports of high-value services, concerns about harm to workers and the environment have nudged the party toward a more trade-sceptical position. Elizabeth Warren, a prominent Democrat and senator from Massachusetts, has spoken in favour of tariffs.

More striking is the Republican evolution. Since 2015 Republican voters' view of trade agreements has flipped from positive to sharply negative. Recent research finds that in congressional districts in which firms had to compete with a larger influx of rival Chinese goods, political support shifted toward more radical candidates overall and, in presidential contests, toward the Republican candidate. Republican policy is shifting in response.

Building blocs

Just as important, the number of industries fed up with China's overzealous use of its economic power keeps rising. American firms have been forced to sign up to joint ventures with Chinese ones in order to gain access to China's market. They have lost intellectual property to theft. They face competition from Chinese firms bolstered by state support. Security concerns over new technologies and artificial intelligence further fuel Sino-scepticism in advanced economies.

Political support for an old-fashioned, Trump-style trade war is thin on the ground. Yet a coalition in favour of a showdown with China, made up of both Republicans and Democrats and with the backing of business interests, is all too easy to imagine. The result—a world increasingly divided into rival economic blocs—might well have emerged even without Mr Trump. It will certainly outlast him, too.

This article appeared in the Finance and economics section of the print edition under the headline "Faction and friction"

Accelerating evolution
Refreshing reefs

Accelerating evolution

Mass die-offs are driving efforts to create hardier corals

Selective breeding and genetic engineering are both possibilities

Print edition | Science and technology Mar 15th 2018

BY SOME estimates, half of the world's coral has been lost since the 1980s. Corals are delicate animals, and are succumbing to pollution and sediment from coastal construction. Also to blame are sewage, farmland run-off and fishing, all of which favour the growth of the big, fleshy algae that are corals' main competitors for space. (The first two encourage algal growth and the third removes animals that eat those algae.) But the biggest killer is warming seawater. Ocean heatwaves in 2015, 2016 and 2017 finished off an astonishing 20% of the coral on Earth. This is troubling, for countless critters depend on coral reefs for their survival. Indeed, such reefs, which take up just a thousandth of the ocean floor, are home, for at least part of their life cycles, to a quarter of marine species. Losing those reefs would cause huge disruption to the ocean's ecosystem. So researchers are looking for ways to stop this happening.

One approach is to lower reef temperatures directly. In December Australia's environment ministry said it would try doing just that. It has given a charity A$2.2m ($1.7m) to install large, solar-powered rotating blades on parts of the Great Barrier Reef, with the intention of drawing cooler water into that reef.

Schemes to cool reefs in this way have, however, been criticised as hopeless at best and possibly even harmful. Colder water can absorb more carbon dioxide, and is therefore likely to be more acidic. That would damage reefs. A growing number of scientists therefore reckon that an entirely different approach to saving coral is needed. If oceans are changing faster than coral can adapt via the normal processes of evolution, why not, these researchers argue, work out ways to speed up such evolution?

Little breeders

One way to do this would be selective breeding. Most species of coral spawn on just one or two nights a year, a process regulated by the lunar cycle, the time of sunset and the temperature of the water. The sperm and eggs released during spawning meet and unite, and the results grow into larvae that search for places where they can settle down and metamorphose into the stone-encased sea-anemone-like polyps that are the adult form. In the wild, the meeting of sperm and egg is random. Some researchers, however, are trying to load the dice. By starting with wild specimens that have survived a period of heat which killed their neighbours, they hope to breed heat resistance into the offspring.

This is the tack taken, for example, by Christian Voolstra of the Red Sea Research Centre in Thuwal, Saudi Arabia. He describes it as "making sure super papa and super mama meet and reproduce". Corals bred in this way at the Hawaii Institute of Marine Biology, on Oahu, survive in water that is warm enough to kill offspring resulting from normal, random reproduction.

The reason corals die when the surrounding water gets too hot is that the microscopic algae and bacteria which live on and in their tissue, and are their main food sources, are sensitive to small changes in temperature. When stressed by heat these symbionts start producing dangerous oxidants. This causes the polyps to eject them, to ensure short-term survival. The reef thus turns ghostly white—a process called bleaching. Bleached coral is not dead. But unless the temperature then drops, the polyps will not readmit the algae and bacteria, and so, eventually, they do die.

Polyps that survive one such ordeal will, however, fare better if temperatures rise again. The second time around they have acclimatised to the change. Some species, indeed, can pass this resilience on to their offspring by a process called intergenerational epigenesis. The Hawaii Institute's efforts to develop hardier corals thus include administering a near-death experience to them. Ruth Gates, the institute's director, says the goal is to create reefs "designed to withstand the future". The institute's first such reef will probably be grown inside Biosphere 2, an enclosed ecosystem run by the University of Arizona.

Another approach, taken by the Australian Institute of Marine Science (AIMS) in Queensland, is to crossbreed corals from different places, to create hybrid vigour. The results of such crosses are unpredictable, but some survive heat greater than either of their parents could cope with.

The artificial breeding of corals is, though, constrained by their cyclical breeding habits, so researchers at the Florida Aquarium, on Tampa Bay, are trying to speed the process up. The operators of the aquarium's "coral ark" nursery stagger lighting and temperature patterns to fool the animals into releasing their gametes on a day of the researchers' choosing. This also permits the co-mingling of sperm and eggs that would not normally meet, thus allowing new varieties to be created. According to Scott Graves, the aquarium's boss, half a dozen such varieties show most promise of heat resistance, but the team is generating thousands more, "just like a seed bank", as a backup.

A polyp's fate is tied so closely to the algae and bacteria which live in its tissues that, as Dr Gates puts it, it is best to think of the whole thing as "a consortium of organisms". This is why scientists at AIMS are keen also to produce algae that withstand higher temperatures without releasing the oxidants that lead coral to kick them out. They are doing so using a process which Madeleine van Oppen, a researcher at the institute, calls "directed laboratory evolution". In the past few years her team have grown more than 80 generations of algae, repeatedly culling those organisms most susceptible to heat stress and also to acidification, another curse of a world with more carbon dioxide around than previously. The resulting algae release fewer toxins and photosynthesise better in warm water than do their wild brethren.

Curiously—and unfortunately—Dr van Oppen's super-algae seem to lose their newfound prowess once they colonise a coral. Andrew Baker of the University of Miami also noticed this, and is trying to do something about it. After studying the genetic codes of algae that did well in warm waters, his team began injecting those types of algae into the tiny and tentacle-encircled mouths of polyps. As Dr van Oppen's results would predict, the polyps seemed to benefit little from this artificial inoculation. In follow-up work, however, Dr Baker has found that after the trauma of bleaching, polyps do extend a preferential welcome to algae that have greater levels of heat tolerance. His team are thus now using special lights to bleach corals. Polyps "stress hardened" in this way will be planted on wild reefs in coming months.

Coral larvae swim around a lot before choosing a spot to live. Only when they encounter a suitable place (the local bacteria seem to be the deciding factor) will they settle down and grow into polyps. Kristen Marhaver of CARMABI Research Station in Curaçao, a Dutch Caribbean island, is studying this. She is classifying corals' reactions to myriad types of bacteria, so that "probiotic" bacterial mixtures which increase larvae settlement and survival can be prepared. Next year her attention will turn to how these probiotics can be applied to coral in the wild—perhaps as a gel.

The shock of the new

A decade ago, sequencing 1m DNA base pairs cost a few thousand dollars. Today the same money buys 100bn base pairs. The consequent flood of data is helping researchers determine which genes are behind a coral's, an alga's or a bacterium's fragility or resilience. Stephen Palumbi of Stanford University, for example, is identifying coral genes that produce the "heat-shock" proteins which repair damage caused by too much warmth.

This raises the question of whether the genomes of coral, algae and bacteria might be edited for greater robustness. According to Dr Voolstra, more than ten laboratories around the world are trying to do so. His own team has successfully inserted genetic material into about 30 larvae of a coral called *Acropora millepora*. Editing corals' heat thresholds in this way is, he reckons, about five years away.

Whether they are created by selective breeding or genetic engineering, supercorals, the thinking goes, would not need to be placed on reefs in astronomical numbers. If they are truly fit for purpose they will necessarily multiply more rapidly than wild varieties do in the warmer, more acidic seas of the future. That thought, however, does not please everybody. Some object in principle to the idea of releasing human-modified creatures into the wild, or feel that amelioration of this sort is a distraction from the business of reducing carbon-dioxide emissions. Others have pragmatic concerns—that corals bred to survive warming seas might suffer handicapping trade-offs. So regulators have been cautious. The Great Barrier Reef Marine Park Authority, for example, will probably require that the hybrid organisms AIMS hopes to test in the open reef are removed before they begin spawning.

According to Dr Voolstra, however, the recent big losses of coral are tipping attitudes towards action—including genetic engineering—if the collapse continues. As to the best course of that action, America's National Oceanic and Atmospheric Administration (NOAA) is paying for a study, begun last month by the country's National Academy of Sciences, to look into the risks and benefits of the various possible approaches. In the view of Jennifer Koss, who runs NOAA's reef programme, the alternative, of doing nothing, is the equivalent of " just throwing our hands up in the air and saying, 'OK, we're prepared now not to have coral'." For the world's oceans, that loss would be catastrophic.

This article appeared in the Science and technology section of the print edition under the headline "Refreshing reefs"

How experience affects judgment

Judges and examiners get laxer with practice

So, for better grades, go on a long-taught course

Print edition | Science and technology Mar 15th 2018

STUDENTS are widely judged on their abilities before being allowed to enter top universities. Athletes are assessed on their physical prowess before being awarded medals. And academic papers, like those reported in this section, must run the gauntlet of peer review before being published. In making their determinations, evaluators study that which they are judging in a sequence, one student, athlete or paper after another, and apply standardised criteria. This approach is supposed to afford equal treatment to all. But research just published in *Psychological Science* by Kieran O'Connor and Amar Cheema of the University of Virginia suggests that it is actually biased in favour of those who are judged late in the process.

Dr O'Connor and Dr Cheema wondered whether making repeated evaluations led judges to feel that their decisions became easier, and if so, whether this increased fluency ultimately led them, unknowingly, to view the evaluation process and evaluations encountered late in a sequence more favourably. To test their idea they looked at judges' ratings of professional dance competitors across 20 seasons of a television series called "Dancing With The Stars". They also studied the grades awarded in 1,358 university courses that had been offered by the same lecturer for at least three semesters.

They found that the dancing scores increased significantly over the years. Looking at the 5,511 scores provided by the three permanent judges on the show, Dr O'Connor and Dr Cheema discovered that these averaged 7.87 out of ten during the first ten seasons, and 8.18 out of ten during the second ten. To check this was not a result of more skilled dancers appearing on the show during later seasons they tried restricting their attention to the 13 professional dancers who appeared in at least one of the first ten seasons and at least one of the second ten. The effect remained.

When they looked at the grades given by the lecturers, the same thing happened. Assigning an "A" grade a value of 4.0, a "B" grade a value of 3.0 and a "C" grade a value of 2.0, Drs O'Connor and Cheema found that the average grade granted climbed from 3.37 to 3.53 during the first seven times that a course was taught. Grades climbed further still after that, ultimately reaching an average of 3.70 for those courses taught 20 times. Average course grades, in other words, rose from B+ to A-.

To test an obvious alternative hypothesis to that of self-deluded grade inflation—namely that the lecturers' abilities were improving with practice, and that this was increasing their students' grades—the two researchers then looked at grade improvements during the first three years that lecturers taught their courses. This is the period during which most improvements might be expected to happen, and so might be expected to show the largest uptick in grades. It didn't.

Finally, Dr O'Connor and Dr Cheema tried an experiment. They asked 518 people to evaluate ten short stories over the course of ten days. Participants rated the stories on a scale that ranged from one (very unfavourable) to seven (very favourable). All were also asked to report, after each evaluation, how easy, quick and enjoyable it had been to rate the story on a scale from one (strongly yes) to seven (strongly no), and to write briefly about the experience of conducting the evaluation.

As expected, the ratings for the stories became more positive towards the end of the ten days. However, unlike the cases of the dancing scores and the university grades, Drs O'Connor and Cheema could on this occasion see why the scores were rising. They found that participants did indeed feel that the story-rating experience became easier, quicker and more enjoyable over the ten-day period. They denied, though, that their evaluations became any more positive as a result—even though the data showed this was, indeed the case.

It seems, therefore, that Dr O'Connor and Dr Cheema were right. If you want a good grade, go on a long-taught course. Whether making judges aware of the effect will reduce or even reverse it is next on the team's agenda. With luck, their judgment on the matter will not have been compromised by their current experience.

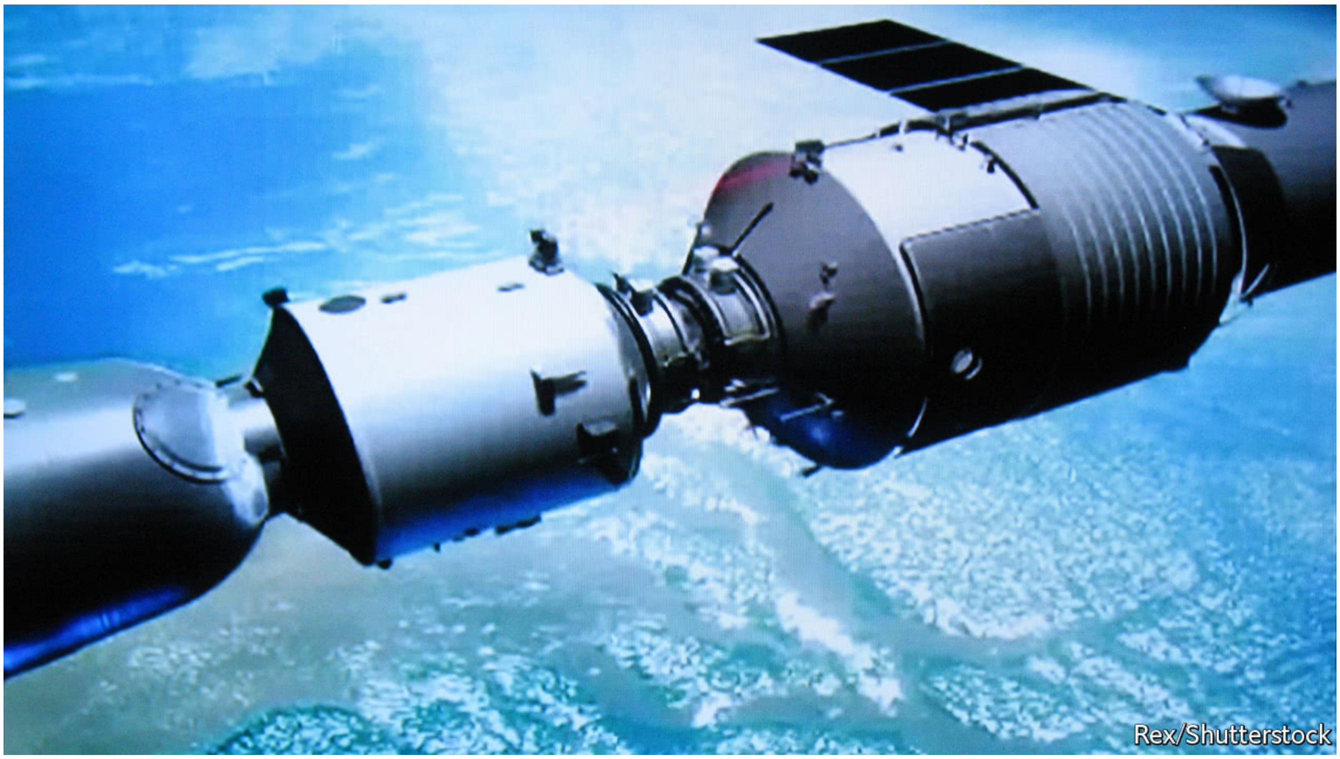
This article appeared in the Science and technology section of the print edition under the headline "The last shall be first"

Space travel

An out-of-control Chinese space station will soon fall to Earth

No one will be hurt. Probably

Print edition | Science and technology Mar 15th 2018



ITS name means “heavenly palace”. But *Tiangong-1*, an eight-tonne Chinese space station launched in 2011, will not remain in the heavens much longer. After visits from crews in 2012 and 2013, *Tiangong-1*’s mission officially ended in March 2016. A few months later China’s space agency appeared to confirm what amateur skywatchers had already suspected, that it had lost control of the station. It said it expected *Tiangong-1* to fall from the sky sometime late in 2017.

In fact, the station is still up there, orbiting at an average height of 250km. But the inaccuracy of the agency’s prediction is understandable. At low altitudes (anything under about 2,000km), orbital mechanics is a surprisingly imprecise science. Earth’s thin outer atmosphere exerts a measurable drag on anything in such an orbit, and this drag means that, without regular boosts, that object will fall out of orbit eventually. The drag itself, however, is not constant. So exactly when this fiery fall will happen is hard to say in advance.

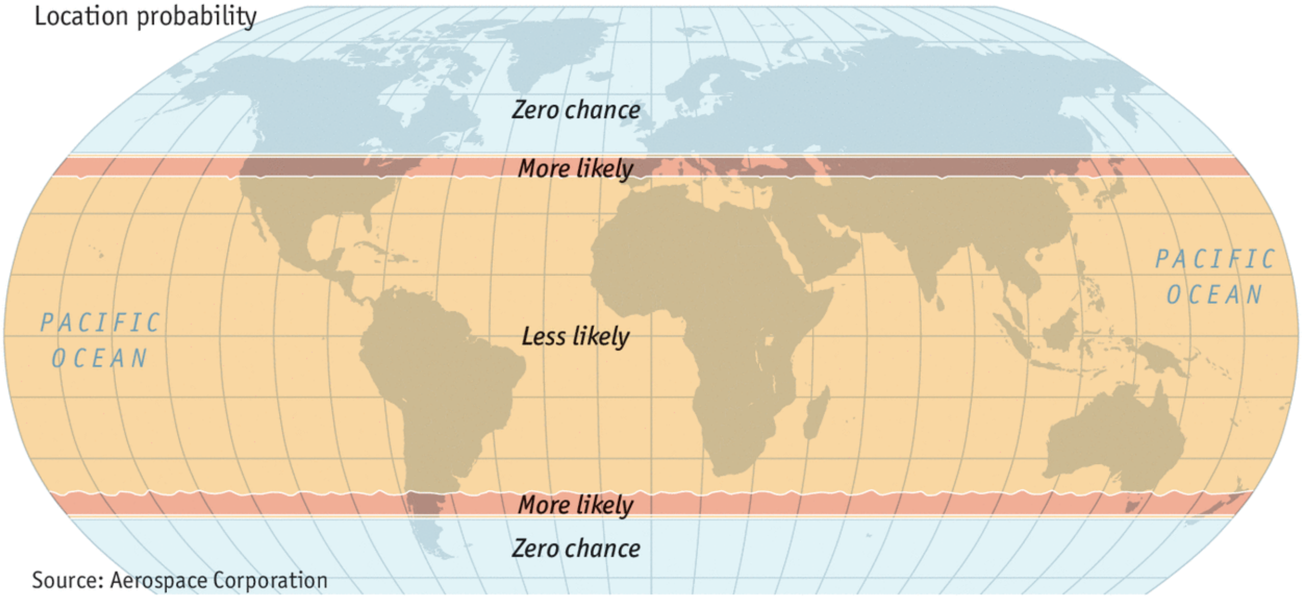
Changes in the sun’s activity, for example, affect the density of the outer atmosphere, speeding up or slowing down the speed of an orbit’s decay. The interplay between Earth’s magnetic field and the solar wind has similar effects. In the case of *Tiangong-1*, though, the end is close enough for educated guesses to be made. The Aerospace Corporation, an American consultancy, reckons that April 3rd is the most likely day. The European Space Agency expects it to happen sometime between March 29th and April 9th.

As space junk goes, *Tiangong-1* is big, but not especially so (the spent second stage of a Russian Zenit rocket, which is roughly the same size, re-entered the atmosphere over Peru in January). There is, nevertheless, a good chance that some parts of it will survive their descent.

Without knowing when the station will fall, it is impossible to say where those pieces might land, though the characteristics of the station’s orbit mean it will be between latitudes 43° north (that of northern Spain) and 43° south (which passes by Tasmania; see map). Wherever they land, the pieces will come down in a long, narrow line, with the densest parts of the station travelling farthest.

Tiangong-1 debris re-entry

Location probability



Source: Aerospace Corporation

Economist.com

On the face of it, the chance of any of that debris hitting someone is low. For one thing, the world is mostly ocean. For another, even on land people are small and scarce compared with the available area. Nor, indeed, is anyone known to have been injured by re-entering debris since the space age began (though someone has been hit but not hurt). The risk of such injury cannot, however, be ruled out—and the chance of damage to property, which occupies a larger fraction of Earth's surface than people do, is proportionately higher.

The way to eliminate such risks is controlled re-entry. As Jonathan McDowell, an astrophysicist at Harvard University, observes, that is becoming more common. Around 40% of rocket stages that end up in space, he says, can now restart their own engines and alter their orbits. Most satellites bigger than about five tonnes likewise come fitted with motors of their own. That allows their controllers to aim them more precisely when the time comes to dispose of them.

Tiangong-1 itself was probably supposed to have been guided into the remote southern Pacific Ocean, the dumping site of choice for superannuated space hardware, in 2013. But, says Dr McDowell, the station was kept on as an insurance plan, in case the launch of its successor, *Tiangong-2*, failed. In the event, *Tiangong-2* reached orbit in 2016 without incident. *Tiangong-1*, meanwhile, stopped working—leaving its fate in the hands of the space-weather gods rather than its controllers on the ground.

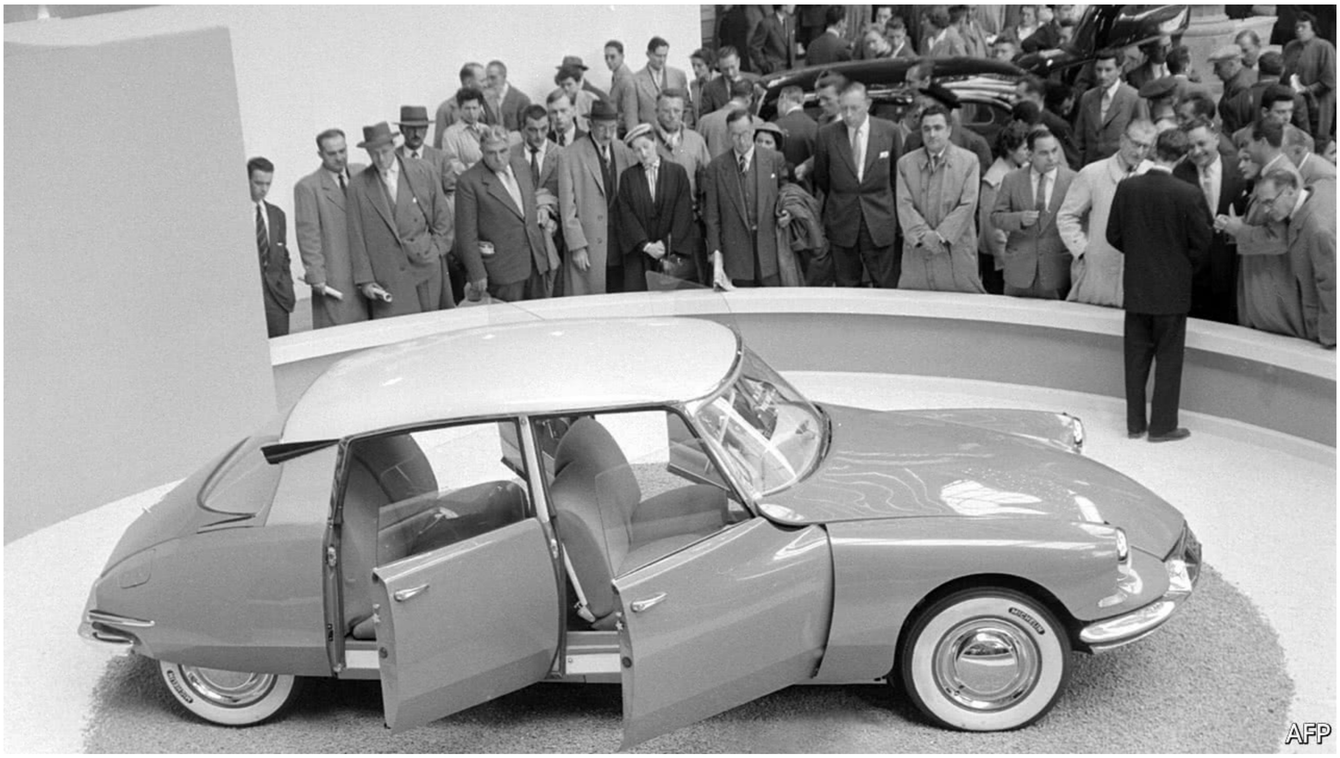
This article appeared in the Science and technology section of the print edition under the headline "What goes up..."

Magic carpet ride

A new type of smooth car suspension

Taking care of bumps and potholes

Print edition | Science and technology Mar 15th 2018



WHEN unveiled at the Paris Motor Show in 1955, the Citroën DS caused a sensation. It was not just the car's elegant lines that encouraged 12,000 customers to place immediate orders, but also its mechanical innovations. Chief among these was that instead of steel springs, the DS rode on a self-levelling hydropneumatic suspension. This used spheres, filled with nitrogen, connected to each wheel. When started, the car's engine pumped hydraulic fluid into the spheres, lifting the vehicle's body. Bumps in the road were dampened by the incompressible fluid squeezing the compressible gas in the spheres. It made the DS appear to glide over France's then badly damaged post-war roads.

French roads are now in good shape. Instead, it is to Britain that test drivers look to find some of the most "demanding" roads in Europe. Being plagued with pot holes, humps and choppy surfaces makes them an ideal proving ground for vehicle engineers. Which is why Shakeel Avadhany has opened a development base at the MIRA Technology Park, an automotive-research centre in the English Midlands. Mr Avadhany is the boss of ClearMotion, an American firm that has come up with a novel means of suspension designed to give cars a magic-carpet ride.

Despite hydropneumatics' famous smoothness, Citroën dropped the technology in 2015. Other, better systems had superseded it. Mr Avadhany now hopes to do to them what they did to Citroën, and run them off the road.

When he and his colleagues spun ClearMotion out of the Massachusetts Institute of Technology in 2008, their intention was to use bumps in the road to generate electricity. They had developed a device designed to be attached to the side of a standard shock absorber. As the suspension moved up and down, hydraulic fluid from the absorber would be forced through their device, turning a rotor that generated electricity. But, just as a generator and an electric motor are essentially the same, except that they run in opposite directions, so ClearMotion's engineers realised that running their bump-powered generator backwards would turn it into an ideal form of suspension. And that seemed a much better line of business. They therefore designed a version in which the rotor is electrically powered and pumps hydraulic fluid rapidly into and out of the shock absorber. The effect is to level out a rough road by pushing the wheels down into dips and pulling them up over bumps.

This is helped by knowing when the dips and bumps are coming. The system is able to do that by tapping into the increasingly sophisticated network of sensors employed in modern vehicles. Its algorithms use these sensors to learn within millimetres the profile of the road being travelled. They then share the results, via a computing cloud, with other vehicles using the same process. This means that the next time any vehicle in the fleet travels the same route, the system's software is able to anticipate the road's topography and control the car's suspension appropriately.

According to Mr Avadhany, ClearMotion is working with a number of parts suppliers and is close to bringing the system to market. He expects it will be particularly useful for autonomous vehicles, in which passengers are likely to want to use their journey time to work or read. Or, if it is really comfy, to take a quick nap.

This article appeared in the Science and technology section of the print edition under the headline "Riding a magic carpet"

Scientific publishing

Are research papers less accurate and truthful than in the past?

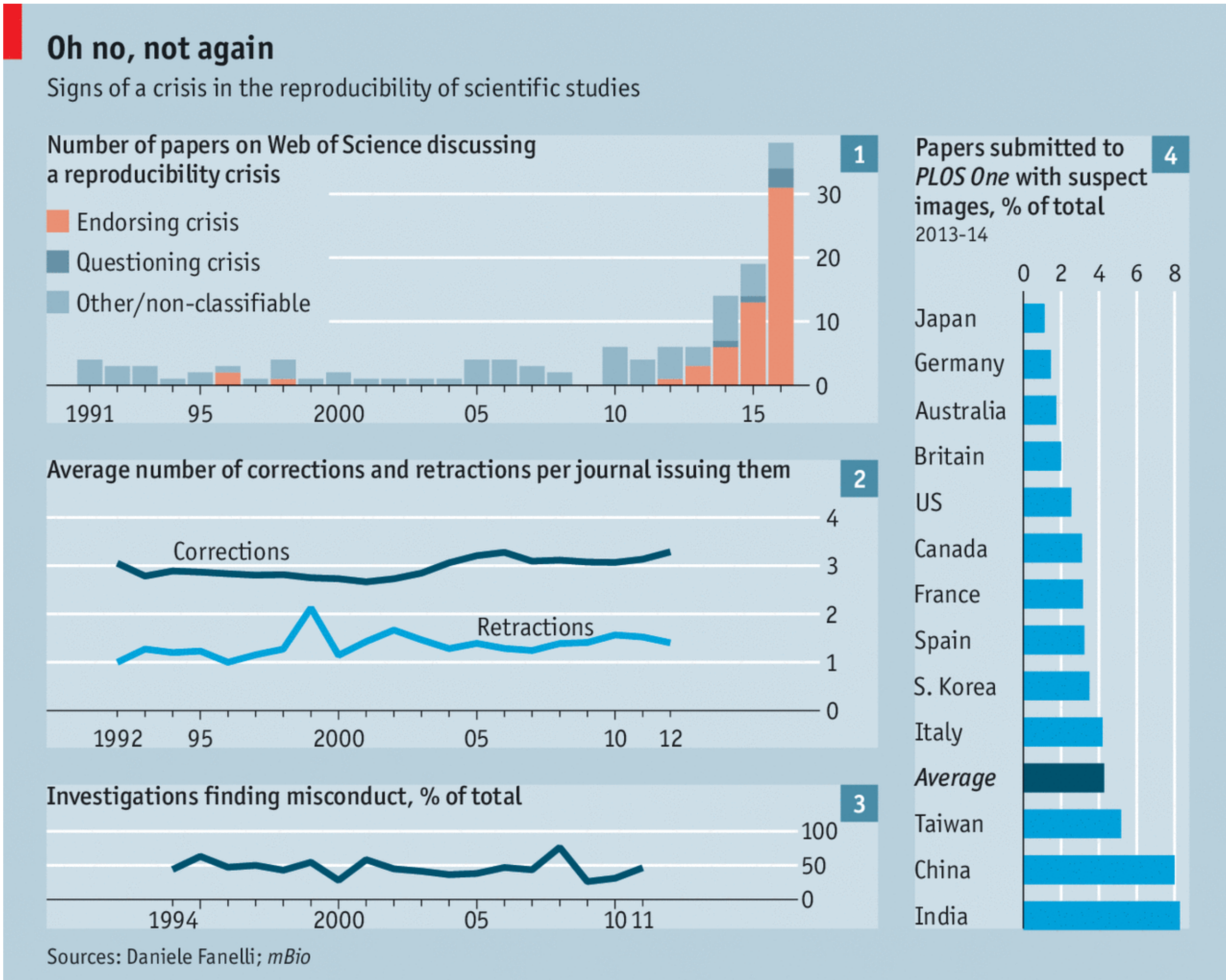
That is a myth, according to the latest investigation

Print edition | Science and technology Mar 17th 2018

AN ESSENTIAL of science is that experiments should yield similar results if repeated. In recent years, however, some people have raised concerns that too many irreproducible results are being published (see chart 1). This phenomenon, it is suggested, may be a result of more studies having poor methodology, of more actual misconduct, or of both.

Or it may not exist at all, as Daniele Fanelli of the London School of Economics suggests in this week's *Proceedings of the National Academy of Sciences*. First, although the number of erroneous papers retracted by journals has increased, so has the number of journals carrying retractions. Allowing for this, the number of retractions per journal has not gone up (chart 2). Second, as chart 3 shows, scientific-misconduct investigations by the Office of Research Integrity (ORI) in America are no more frequent than 20 years ago, nor are they more likely to find wrongdoing. Dr Fanelli's point is not quite proved. The peak in reproducibility worries occurs after his retraction and ORI data run out. But it seems unlikely there would have been a sudden, recent shift in either.

As might be expected, countries with weaker misconduct policies than America's—China and India, for example—are sources of more misdemeanours, such as the inappropriate copying or reuse of images like the gel patterns that result from DNA-sequencing experiments (chart 4). But, though the share of publications coming from these countries, and thus their contribution to the overall misdemeanour count, is increasing, there is, again, no evidence that the rate of bad behaviour there is rising.



Economist.com

This article appeared in the Science and technology section of the print edition under the headline "Crisis? What crisis?"

Shakespeare on stage
All that may become a man

All that may become a man

The making of a Shakespearean actor

Rory Kinnear's career offers an insight into a storied, highly specialised craft

Print edition | Books and arts Mar 15th 2018


Brinkhoff-Moegenburg/National Theatre

ON A Saturday afternoon in February, a month before "Macbeth" was to open at the National Theatre in London, its artistic director, Rufus Norris, rehearsed alone with Rory Kinnear. Dressed in jeans and trainers, Mr Kinnear heaved a battlement across the studio. On Mr Norris's cue, he became the thane, hand clutched to his pate in anguish, eyes aglow.

The session's aim, said Mr Norris, was to find an approach to Shakespeare's soliloquys that fitted the Olivier Theatre, the National's biggest. For all the brawling and sorcery, at the play's heart are the lulls in which Macbeth mulls the witches' prophecies and the crimes they incite; in which he decides what kind of man he will be. These are intimate scenes, and finessing their gestures and tempo was intimate work, like a clinch between prizefighter and trainer. "It's less literal," Mr Norris said of the dagger that Macbeth hallucinates before killing Duncan, the old king. Grab higher, he told his star.

It helped that Mr Kinnear was well-acquainted with the Olivier's stage. As Hamlet in 2010 he smoked a cigarette on it during "To be or not to be". In 2013 his Iago filled the theatre with his resentments. The finest Shakespearean actors are more than entertainers: they are standard-bearers of a national identity and culture, and indeed of culture in general. Mr Kinnear's preparations and career offer an insight into the demands of that specialised, storied craft.

"Macbeth does murder sleep," a line delivered soon after the regicide, turns out to be true in more than the obvious, conscience-stricken sense. With every play, said Mr Kinnear a few days later, "you try to delay the point when your entire life is consumed by it." Now, he conceded, "it's time to give in." Anne-Marie Duff, his Lady Macbeth, describes him as "fantastically playful" and "dangerously funny". He is also single-minded, driven by an inkling that "there's still more to discover, there's something I'm missing" in the part.

The future in the instant

If dedication is one requirement, Mr Kinnear's performance in "Othello" showcased another talent expected by modern audiences: the ability to make plausible human beings of 400-year-old characters. Often Iago is a cartoon of evil; his was propelled by a class grudge and as recognisable as a neighbour. “That version of Iago was Rory’s from top to bottom,” says Adrian Lester, who played the Moor. In “Measure for Measure” at the Almeida Theatre, also in 2010, Mr Kinnear’s Angelo—sometimes a monstrous prig—was a man tragically outmatched by his own feelings. Gimmickry and special effects are the obvious way to make Shakespeare feel contemporary. This kind of psychology is harder and more effective.

“What is it about these people who are drawn to the top of the pyramid?” Mr Kinnear asked of the Macbeths in a break between rehearsals. In his reading, post-traumatic stress contributes to their cruelty. “The things he must have seen,” he said of all the bloodletting; “the things he’s been required to do.” Macbeth, he noted, always has somebody to blame, fate or the witches or his wife. And yet, Mr Kinnear said, breaking into a soliloquy, atrocity “brings out something utterly gorgeous in him”. Shakespeare is “always seducing the audience to the dark side”; in Macbeth’s case, “it’s the blackest desire within him that summons up the greatest poetry.”

The poetry is Shakespeare’s biggest challenge, both to actors and to audiences. Hammy magniloquence risks alienating viewers, not just for an evening but for life, as does obscurity. As Tiffany Stern, of the Shakespeare Institute at the University of Birmingham, says, great verse-speaking—honouring both the sense and the music—is a skill that other kinds of acting do not involve. One venerable shortcut, dating at least to David Garrick in the 18th century, has been to ditch tricky passages.

Mr Kinnear’s goal is to make the iambic pentameter seem as vernacular as artificial. “He can speak Shakespeare as if it’s his first language,” says Nick Hytner, who directed “Hamlet” and “Othello”. Usefully, Mr Kinnear saw lots of Shakespeare as a child. His mother is an actor, as was his well-known father Roy, who died after a film-set accident when his son was ten—too early to see Rory’s schoolboy appearance in “Cyrano de Bergerac”, the moment he thought “maybe this is my thing.”

With these cerebral abilities, says Ms Stern, Shakespearean actors need a “physical litheness and grace”, as Laurence Olivier epitomised. The plays, after all, were “written for whole-body acting,” not “a twitching eyebrow and bobbing Adam’s apple”. Mr Kinnear (now 40) has some of that mime-artist’s ranginess. His slouch said as much about his Iago as his lines.

This physicality is a bigger asset in the theatre than on camera, with its capacity for close-ups. Tellingly, perhaps, though Mr Kinnear has featured in television dramas and as a spy chief in recent James Bond films, he is most recognised for his stage acting, and is fervent about it. Theatre is an expensive and risky art-form; it can seem clunky, even moribund, in a world of digital entertainment. But, he said, nothing else elicits “the exchange of energy that you get at live performance”, a connection even more valuable in an automated age. Screens can never match the electric sense that “no one else gets to see what you see.”

Citing some of the practitioners he reveres—Anthony Hopkins, Albert Finney, Michael Gambon—he added an abstract quality to the job description, a mysterious amalgam of ethics and charisma. A role “is just a prism” that “reveals who you are as a person”, he argued. “You become drawn to actors’ souls.”

The last syllable

“Macbeth” opened this month, one of several current productions of the play in Britain. Its timeliness is glaring. In the story, the wrong people are in charge. The same attributes that propel them to power leave them wholly unsuited to wielding it. Macbeth’s misdeeds make him paranoid. “To be thus is nothing,” he says bitterly of the status he once coveted. “But to be safely thus…” Yet he misses the real threats against him, blundering to his doom as accusations of treason proliferate. “There’s not a second where he shows any enjoyment in being king,” Mr Kinnear observed.

A new stiffness in his gait projects this tension on stage. Between the combat and decapitations, Macbeth’s horrified shaking, his cowering in the face of Banquo’s ghost and cradling of his wife’s corpse, Mr Kinnear’s is an all-action turn. But its strength lies in quieter gestures—a rub of the head, an anxious stroke of the ear. His body relaxes again only when he arms for his last fight, like an embattled politician rediscovering his mojo at a rally.

Just as his Hamlet was a familiar (if hyper-intelligent) depressive, his Iago an improvising punk, his Macbeth is a simple soldier in a brutish world, carried away by the logic of ambition. His tone is as demotic as his verse is precise. “It was a rough night,” he says after stabbing Duncan, like a man recovering from an all-night party.

In the scene that precedes the murder he reaches high for the spectral weapon, as Mr Norris had urged. His hand thrashes the air, but as he asks the famous question—“Is this a dagger which I see before me?”—he smiles as if greeting an old friend.

This article appeared in the Books and arts section of the print edition under the headline "All that may become a man"

The moon on their wings

The great second act of Rodgers and Hammerstein

A skilful double biography of the leading duo of musicals

Print edition | Books and arts Mar 15th 2018

Something Wonderful: Rodgers and Hammerstein's Broadway Revolution. By Todd Purdum. *Henry Holt; 400 pages; $32. To be published in Britain in May; £25.*

AT THE age of 46 Oscar Hammerstein was living as a country squire on his Pennsylvania farm, apparently washed up. It was 14 years since he had written his last hit, "Show Boat", a landmark musical in its embrace of a gritty subject, race. Meanwhile Richard Rodgers remained, at 39, one of Broadway's marquee composers; but he was contemplating a future without Lorenz Hart, a lyricist and his long-standing collaborator, who had become a shiftless alcoholic. The stage was set for one of the grandest second acts in entertainment history. From 1941 until Hammerstein's death in 1960 his partnership with Rodgers yielded an anthology of musical theatre's greatest hits: "Oklahoma!", "Carousel", "South Pacific", "The King and I" and "The Sound of Music".

These days the duo's popularity is sometimes held against them, as if they were merely purveyors of mawkish schlock. "Something Wonderful", Todd Purdum's skilful dual biography, strips away the accretions of time and reputation to retrieve the craft and dynamism with which his subjects created a new kind of musical. He contends that their early work, in particular, should be considered an antecedent of today's edgier, more subversive Broadway fare, as fresh in its time as "Hamilton" seems now.

Rodgers and Hammerstein were unlikely revolutionaries. They resembled a "couple of chiropractors", according to Groucho Marx. Far from being agitprop provocateurs, their ingenuity was driven strictly by the artistic need to resolve dramatic problems. In the play from which "Oklahoma!" was sourced, for example, "nothing much happens," writes Mr Purdum. From this predicament they conjured a mould-breaking musical, the first to combine dance and drama, while ditching the prefatory all-cast chorus that was customary, and grappling with naturalistic issues and characters.

Their previous, separate output had introduced these elements individually, but they had never been integrated. The effect was to impart a new, all-singing, all-dancing dramatic coherence to the form. Mr Purdum captures the flexibility of Rodgers and Hammerstein's most beloved numbers. Songs such as "You'll Never Walk Alone" soared over Broadway's footlights, taking on a life of their own as free-floating anthems. Yet, in context, they accomplished the more earthbound dramaturgical task of nimbly developing character or advancing plot without turgid exposition.

For all the unabashed sentimentality of their lyrics, they were hard-nosed about their work behind the scenes. The most thrilling sections of “Something Wonderful” pull back the curtain on the “surgery” Rodgers and Hammerstein performed on their musicals during pre-Broadway “try-outs” in New Haven and Boston. Mr Purdum recounts the clinical dispassion with which the pair picked apart their scripts on the basis of audience reception, ruthlessly culling scenes and songs. “Now I see why these people have hits,” remarked John Fearnley, a stage manager, after watching one of these sessions. “I never witnessed anything so brisk and brave in my life.”

They emerge as eminently practical innovators, professional artists toiling in a commercial medium to serve what Hammerstein described as “A big black giant/Who looks and listens/With thousands of eyes and ears/A big black mass/Of love and pity/And troubles and hopes and fears”: in other words, the punters. In one telling anecdote, Richard Halliday, husband of Mary Martin—the original leading lady in “The Sound of Music”—suggested she snag “her bloomers on the tree in her opening number”. “All you care about is the show!” he groused when his idea was dismissed. True, Mr Purdum concludes.

This article appeared in the Books and arts section of the print edition under the headline ”The moon on their wings”

Lords of the lie

A beguiling tale of khans, commissars, spies and poet-queens

They feature in a rare English translation of modern Uzbek fiction

Print edition | Books and arts Mar 15th 2018

The Devils' Dance. By Hamid Ismailov. Translated by Donald Rayfield. *Tilted Axis Press; 200 pages; £9.99.*

FROM Siberian banishment to the Soviet gulag, the cruelty of punishments under Russia's tyrants has yielded a commensurately rich literature. It is unlikely, though, that any previous story has likened interrogation by Stalin's secret police to a game of cricket, as a character does in "The Devils' Dance", a beguiling novel of sinister enchantments and mind-stretching affinities.

"One man in, another man out," thinks the imprisoned Uzbek writer Abdulla Qodiriy—a real historical figure—as his cellmates in Tashkent in 1938 are dragged away to face trumped-up charges. Just like cricket, he reflects, a sport his companion Muborak, a well-travelled Uzbek Jew, has told him about.

As he sits in jail ahead of his betrayal, torture and probable execution, Qodiriy recomposes in his mind the historical novel he was writing at the time of his arrest. It deals with the bloody rivalries of the early 19th century between the Emirs of Bukhara and the Khans of Kokand. He shares these tall but largely true tales with fellow inmates. He also reimagines the lives of the Uzbek women poets—trophy wives who transformed their harem confinement into mystical art. He depicts, sometimes comically, the intrusion of British and Russian spies, engaged in their own "Great Game", into this courtly but cruel society.

Like his hero's fables, Hamid Ismailov, an exiled Uzbek dissident and journalist with the BBC World Service, turns this double plot into "a fairy story, adapted for ordinary men's minds". Both strands—the purge of the 1930s, the imperial manoeuvres of a century before—draw on actual events and characters, such as the now-revered Qodiriy and the English adventurers Stoddart and Conolly. The two eras converge in the muse-like figure of Oyxon, a shackled royal consort and poet of genius. Her "endless misfortunes" become "a reflection of the nation".

Uzbek fiction is unknown to most English-language readers. Translating Mr Ismailov's tapestry of history and legend, Donald Rayfield captures the "joy of life" as sung by Uzbek women in their "gilded cage", as well as the terror spread down the generations by khans and commissars, those "lords of the lie".

This article appeared in the Books and arts section of the print edition under the headline "Lords of the lie"

Apple against pie

How liberal democracy fell apart

Yascha Mounk's diagnosis is more convincing than his cure

Print edition | Books and arts Mar 15th 2018

The People vs Democracy: Why Our Freedom is in Danger and How to Save It. By Yascha Mounk. *Harvard University Press; 393 pages; $29.95 and £17.99.*

DEMOCRACY is going through its worst crisis since the 1930s. The number of countries that can plausibly be described as democracies is shrinking. Strongmen are in power in several countries that once looked as if they were democratising, notably Russia, Turkey and Egypt. The United States—the engine room of democratisation for most of the post-war period—has a president who taunted his opponent with chants of "lock her up" and refused to say if he would accept the result of the election if it went against him.

But what exactly is the nature of this crisis? And what is driving it? Yascha Mounk's "The People vs Democracy" stands out in a crowded field for the quality of its answers to these questions. Mr Mounk provides an admirable mixture of academic expertise and political sense. He teaches at Harvard University, where he has busied himself collecting opinion-poll data, but he grew up in pre-1989 West Germany, where the distinction between real and pretend democracy was more than just academic. He also takes the trouble to unpick terms that too many commentators on this subject take for granted.

Mr Mounk argues that there are two sides to liberal democracy. One focuses on the first half of the equation: protecting individuals from the tyranny of the majority through checks and balances and enumerated rights. The second focuses on the other half: handing power to the people. For most of the post-war period these two versions of liberal democracy went together like apple and pie.

Today, though, the popular will is increasingly coming into conflict with individual rights. Liberal elites are willing to exclude the people from important decisions, most notably about immigration in the case of the European Union, in the name of "rights"; meanwhile populists are willing to dispense with constitutional niceties in the name of "the people". Politics is defined by a growing battle between illiberal democracy, or democracy without rights, on the one hand, and undemocratic liberalism, or rights without democracy, on the other.

The most obvious reason why liberal democracy is splitting into its component parts lies in slow economic growth. From 1960 to 1985 the income of the typical American household doubled. From 1985 it remained flat while a tiny minority of Americans saw their incomes surge. Liberal elites tend to explain this divergence in terms of the laws of globalisation. Populists have a darker interpretation: that those elites are using a mix of lobbying power, personal connections and technocratic expertise to rig the system to their own advantage—most notoriously by bailing out the banks with taxpayers' money.

Mr Mounk points to several other developments that help explain the divide. The social-media revolution is transferring power from traditional media gatekeepers to laptop warriors. As well as enabling malign people to spread fake news, as many have pointed out, this revolution is also making it easier for outsiders to draw attention to self-dealing. The increasing diversity of Western societies, driven partly by immigration and partly by the idea that different groups should celebrate their differences rather than adopting dominant mores, is politicising the question of racial identities, with potentially explosive consequences. Political entrepreneurs are upending politics by taking over old parties, like Donald Trump, or creating new parties, like Italy's Beppe Grillo, exploiting pent-up resentment of the old elites and using the new media to get their message across, raw and unfiltered.

Mr Mounk is far less convincing on the question of what to do about this dismal situation. He makes some valiant suggestions. He argues that technocratic elites need to moderate their ambitions. The more they try to protect important areas of decision-making, not least immigration, from the will of the people, the more they will create festering resentment. He urges policymakers to focus on domesticating nationalism rather than attempting to sideline it as an anachronistic relic. He makes a good case for devoting more effort to turning children into citizens through civic education. Here he is admirably sharp with his fellow academics who are so bent on presenting Western civilisation as a history of oppression that they risk undermining any residual faith that their students might have in democracy.

Yet he spends too little time grappling with the nuances of these ideas—for example how you persuade a technocratic European elite to listen to the voices of the people when all the bureaucratic incentives are to ignore them. And he throws in too many banal bromides about "fixing the economy", as if there were no difficult trade-offs between, say, raising productivity levels and destroying stable jobs. It is as if Mr Mounk's publishers asked him to provide a Hollywood-style happy ending, after all the blood and gore, and he has simply gone through the motions without any real conviction.

"The People vs Democracy" is a chastening read for all sorts of reasons. It provides lots of evidence to suggest that the battle between illiberal democracy and liberal elitism will only become more intense. It demonstrates that those harbingers of openness, young people, are in fact much more sceptical about democracy than are their seniors. But the biggest reason for its chilling effect is unwitting: the prescriptions for saving democracy are so much feebler than the explanation of why it is in danger.

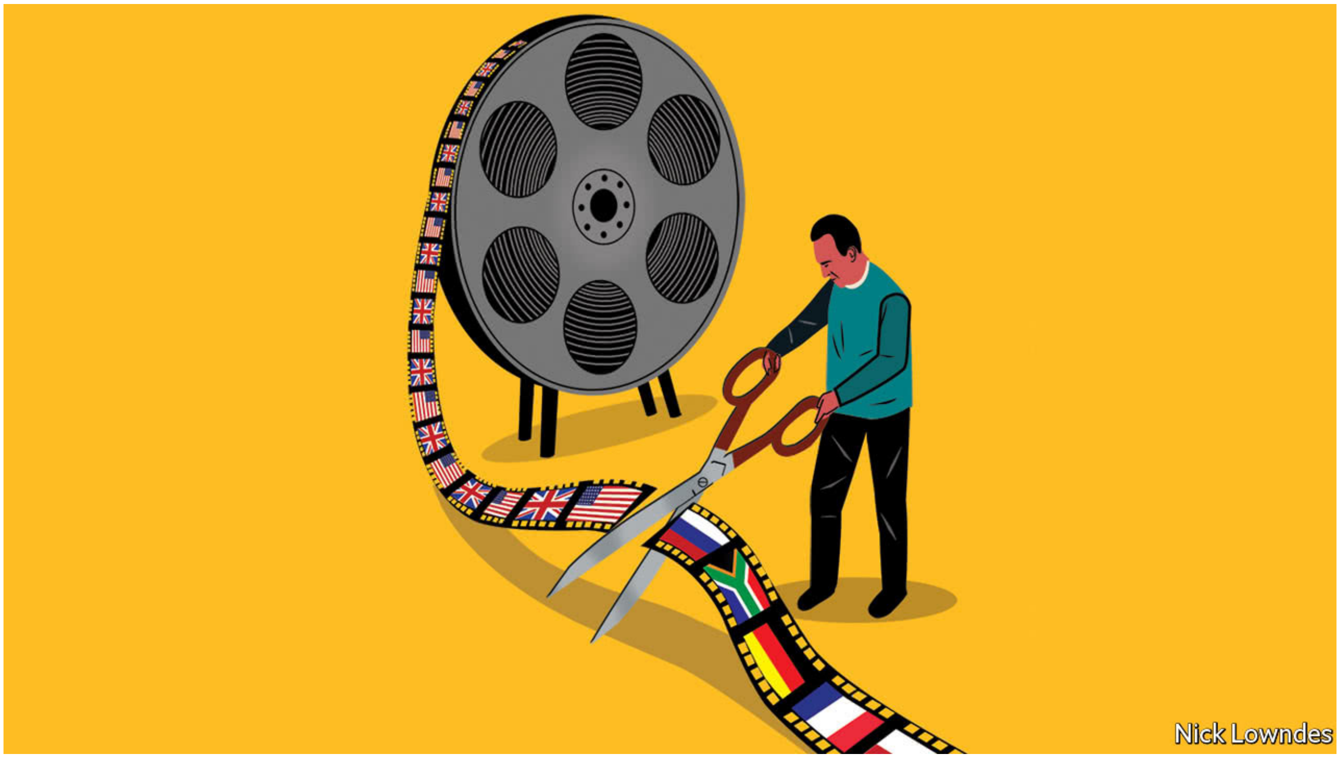
This article appeared in the Books and arts section of the print edition under the headline "Apple against pie"

Johnson

Language is the last frontier for Hollywood film-makers

The use of Xhosa in "Black Panther" gave it a foreign flair. But directors can be bolder

Print edition | Books and arts Mar 15th 2018



"RED SPARROW", a new thriller featuring Jennifer Lawrence as a Russian spy, is not entirely a paint-by-numbers film. Its hero is a woman. A few of its twists are genuinely surprising. But in one way, it is Hollywood to the core. Its Russian characters display their Russianness by speaking accented English to each other. Ms Lawrence hardly bothers with anything much beyond a general eastern European; only the occasional throaty *l* sounds at all Russian. And just one line of real dialogue is in Russian: another spy complains about a drunken American woman he and Ms Lawrence's character are cultivating, saying that if he has to spend another minute with her he will shoot her in the face. The accents might give the viewer the same feeling.

Hollywood's attention to the detail of foreign settings, from clothing to sets, has advanced beyond the old lazy stereotypes of years past. But in things linguistic, the situation is patchy. "Red Sparrow" hardly improves on "The Hunt for Red October", released in 1990, in which Sean Connery mumbles a few lines in Russian, then speaks with a modest, generically foreign twinge to his Scottish burr.

The other classic option seems to be to give a British accent to every character in a foreign clime—especially the villains—whether the locale is ancient Rome or the Seven Kingdoms of Westeros in "Game of Thrones". It is a rare movie in which an actor successfully masters not only a foreign accent, but foreign-language dialogue. The impressively multilingual Viggo Mortensen puts Ms Lawrence and Mr Connery to shame with his fluid Russian in "Eastern Promises" (2007).

A few recent films have tried to make the creative difficulty of a foreign-language setting a feature rather than a bug. One example is "Black Panther". For most of the movie, African-American actors speak English with a kind of pan-African accent, which does not, in fact, exist; Africa is home to around 2,000 languages. But the film-makers also took the unusual step of making a real language—Xhosa, which was Nelson Mandela's mother tongue—stand in for the fictional "Wakandan". Ignoring the potential charge of cultural appropriation—borrowing a real-world culture for an American popcorn film—the use of Xhosa did at least give a suitably foreign flair to the setting. Sadly, it did little more than that; its scattered use and the random switches to English did nothing to advance the plot or flesh out the characters.

The award for most audacious use of language in a recent film has to go to "Arrival", in which aliens land on Earth and stay put in their ships without explanation. A linguist is sent to discern their intentions; she deciphers their visual language in scenes that rely on the expertise of actual working linguists, many of whom were pleased to see some of their ideas make it to the big screen. The film's crux draws on a theory of language and the mind—that learning a new language "rewires" the brain and its processes—taking that premise to such an extreme that the viewer is in no doubt about being in a land of science fiction. Still, the story took the question of language seriously.

Why can't more film-makers simply work language into their plot in a realistic way that will let viewers recognise the world they live in? "Inglourious Basterds" (2009) is set in second-world-war Germany and France. Several multilingual characters, including the marvellous Christoph Waltz, alternate languages in the service of crucial plot points. Michael Fassbender speaks fluent German (his real-life father is German). His character, an English spy in Germany, makes a fatal mistake not with his spoken German but with a hand gesture that crucially differs between the two countries. All through the film, the viewer has to ask why the characters are choosing the language they employ at any given time. It is as though language is a character itself.

Many non-American films integrate language-switching much more naturally, as the process is a routine part of many people's daily lives. It seems that Hollywood has simply not developed the confidence that its viewers are willing to tolerate such disjunctures. The assumption is that they want foreign climes, but familiar faces and sounds. Yet successes such as "Inglourious Basterds" and "Arrival" prove that Anglophone viewers aren't necessarily turned off by subtitles if there is a reason for them. Hollywood is leading more films with non-white actors and women. Why not put the world's languages in the spotlight too?

This article appeared in the Books and arts section of the print edition under the headline "Beyond Wakandan"

Output, prices and jobs

Print edition | Economic and financial indicators Mar 15th 2018

Output, prices and jobs

% change on year ago

	Gross domestic product				Industrial production	Consumer prices			Unemployment rate, %
	latest	qtr*	2018†	2019†	latest	latest	year ago	2018†	
United States	+2.5 Q4	+2.5	+2.8	+2.4	+3.7 Jan	+2.2 Feb	+2.7	+2.3	4.1 Feb
China	+6.8 Q4	+6.6	+6.6	+6.4	+7.2 Feb	+2.9 Feb	+0.8	+2.3	3.9 Q4§
Japan	+2.0 Q4	+1.6	+1.4	+1.1	+2.7 Jan	+1.3 Jan	+0.5	+1.0	2.4 Jan
Britain	+1.4 Q4	+1.6	+1.5	+1.5	+1.6 Jan	+3.0 Jan	+1.8	+2.6	4.4 Nov††
Canada	+2.9 Q4	+1.7	+2.2	+1.9	+4.0 Dec	+1.7 Jan	+2.1	+1.9	5.8 Feb
Euro area	+2.7 Q4	+2.4	+2.5	+2.0	+2.7 Jan	+1.2 Feb	+2.0	+1.5	8.6 Jan
Austria	+2.9 Q4	+1.6	+2.2	+1.9	+3.5 Dec	+1.8 Jan	+2.0	+1.8	5.5 Jan
Belgium	+1.9 Q4	+2.1	+1.9	+1.8	-2.8 Dec	+1.5 Feb	+3.0	+1.8	6.6 Jan
France	+2.5 Q4	+2.6	+2.2	+1.9	+1.2 Jan	+1.2 Feb	+1.2	+1.5	9.0 Jan
Germany	+2.9 Q4	+2.4	+2.5	+2.1	+5.5 Jan	+1.4 Feb	+2.2	+1.7	3.6 Jan‡
Greece	+1.8 Q4	+0.4	+1.6	+1.9	-1.7 Jan	+0.1 Feb	+1.3	+1.2	20.9 Nov
Italy	+1.6 Q4	+1.3	+1.5	+1.3	+4.9 Dec	+0.6 Feb	+1.6	+1.1	11.1 Jan
Netherlands	+2.9 Q4	+3.2	+2.8	+2.5	+7.1 Jan	+1.2 Feb	+1.8	+1.5	5.2 Jan
Spain	+3.1 Q4	+2.7	+2.8	+2.2	+4.0 Jan	+1.1 Feb	+3.0	+1.5	16.3 Jan
Czech Republic	+5.1 Q4	+2.1	+3.3	+2.8	+2.7 Dec	+1.8 Feb	+2.5	+2.3	2.4 Jan‡
Denmark	+1.2 Q4	+3.9	+1.9	+2.0	+4.7 Jan	+0.6 Feb	+1.0	+1.3	4.1 Jan
Hungary	+4.4 Q4	+5.2	+3.6	+2.7	+6.6 Jan	+1.9 Feb	+2.8	+2.8	3.8 Jan§††
Norway	+1.4 Q4	-1.1	+1.8	+1.9	-0.7 Jan	+2.2 Feb	+2.5	+2.0	4.1 Dec‡‡
Poland	+4.3 Q4	+4.1	+3.8	+3.2	+8.6 Jan	+1.9 Jan	+1.7	+2.4	6.9 Jan§
Russia	+1.8 Q3	na	+1.8	+1.8	+2.8 Jan	+2.2 Feb	+4.6	+3.3	5.2 Jan§
Sweden	+3.3 Q4	+3.5	+2.7	+2.4	+9.2 Jan	+1.6 Feb	+1.8	+1.9	7.0 Jan§
Switzerland	+1.9 Q4	+2.4	+2.0	+1.9	+8.7 Q4	+0.6 Feb	+0.6	+0.6	2.9 Feb
Turkey	+11.1 Q3	na	+3.9	+4.2	+6.5 Dec	+10.3 Feb	+10.1	+9.9	10.3 Nov§
Australia	+2.4 Q4	+1.5	+2.8	+2.8	+1.6 Q4	+1.9 Q4	+1.5	+2.2	5.5 Jan
Hong Kong	+3.4 Q4	+3.3	+2.6	+2.6	+0.6 Q4	+1.6 Jan	+1.3	+1.9	2.9 Jan‡‡
India	+7.2 Q4	+6.6	+7.2	+7.6	+7.5 Jan	+4.4 Feb	+3.7	+4.8	6.1 Feb
Indonesia	+5.2 Q4	na	+5.4	+5.5	-0.4 Jan	+3.2 Feb	+3.8	+3.5	5.5 Q3§
Malaysia	+5.9 Q4	na	+5.5	+5.4	+3.0 Jan	+2.7 Jan	+3.1	+3.1	3.3 Dec§
Pakistan	+5.7 2017**	na	+5.4	+5.2	-1.2 Dec	+3.8 Feb	+4.2	+5.7	5.9 2015
Singapore	+3.6 Q4	+2.1	+3.0	+2.9	+17.9 Jan	nil Jan	+0.6	+0.9	2.1 Q4
South Korea	+3.0 Q4	-0.9	+2.9	+2.9	+4.6 Jan	+1.4 Feb	+1.9	+1.9	4.6 Feb§
Taiwan	+3.3 Q4	+4.3	+2.4	+2.0	+10.9 Jan	+2.2 Feb	-0.1	+1.3	3.7 Jan
Thailand	+4.0 Q4	+1.8	+3.8	+3.5	+3.4 Jan	+0.4 Feb	+1.4	+1.6	1.3 Jan§
Argentina	+4.2 Q3	+3.6	+3.1	+3.1	+1.1 Jan	+25.4 Jan	na	+20.3	8.3 Q3§
Brazil	+2.1 Q4	+0.2	+2.6	+2.8	+5.7 Jan	+2.8 Feb	+4.8	+3.5	12.2 Jan§
Chile	+2.2 Q3	+6.0	+3.0	+3.1	+5.3 Jan	+2.0 Feb	+2.7	+2.6	6.5 Jan§‡‡
Colombia	+1.6 Q4	+1.1	+2.5	+3.1	-0.8 Dec	+3.4 Feb	+5.2	+3.3	11.8 Jan§
Mexico	+1.5 Q4	+3.2	+2.1	+2.5	+0.9 Jan	+5.3 Feb	+4.9	+4.2	3.4 Jan
Venezuela	-8.8 Q4~	-6.2	-14.9	-4.1	na	na	na	12,615.2	7.3 Apr§
Egypt	na	na	+5.0	+5.3	+27.1 Nov	+14.4 Feb	+30.2	+20.1	11.3 Q4§
Israel	+2.9 Q4	+3.6	+3.9	+3.5	+1.5 Dec	+0.1 Jan	+0.1	+1.0	3.7 Jan
Saudi Arabia	-0.7 2017	na	+1.0	+2.0	na	+3.0 Jan	-0.6	+4.4	5.8 Q3
South Africa	+1.5 Q4	+3.1	+1.5	+1.8	+1.5 Jan	+4.4 Jan	+6.6	+5.0	26.7 Q4§
Estonia	+5.0 Q4	+9.2	+3.4	+3.6	+7.7 Jan	+3.1 Feb	+3.4	+2.9	5.3 Q4§
Finland	+2.6 Q4	+2.8	+2.3	+2.0	+4.9 Jan	+0.6 Feb	+1.2	+1.2	8.8 Jan§
Iceland	+1.5 Q4	+2.6	+4.1		na	+2.2 Feb	+1.9		2.4 Feb§
Ireland	+10.5 Q3	+18.1	+4.0	+3.1	+3.4 Dec	+0.2 Jan	+0.3	+0.6	6.0 Feb
Latvia	+4.2 Q4	+2.0	+3.1	+3.9	+4.2 Jan	+1.9 Feb	+3.2	+2.8	8.1 Q4§
Lithuania	+3.9 Q4	+5.5	+3.7	+3.5	+7.5 Jan	+3.5 Feb	+3.0	+3.2	9.1 Feb§
Luxembourg	+3.2 Q3	+6.8	+3.4		-2.0 Dec	+1.0 Feb	+1.8		6.0 Jan§
New Zealand	+3.0 Q3	+3.8	+3.0	+1.8	+1.6 Q3	+1.6 Q4	+1.3	+1.7	4.5 Q4
Peru	+2.2 Q4	-1.3	+3.7	+3.8	-12.5 Dec	+1.2 Feb	+3.2	+1.4	8.5 Jan§

Trade, exchange rates, budget balances and interest rates

Print edition | Economic and financial indicators Mar 15th 2018

Trade, exchange rates, budget balances and interest rates

	Trade balance latest 12 months, $bn	Current-account balance latest 12 months, $bn	Current-account balance % of GDP 2018†	Currency units, per $ Mar 14th	Currency units, per $ year ago	Budget balance % of GDP 2018†	Interest rates 3-month latest	Interest rates 10-year gov't bonds, latest
United States	-818.7 Jan	-452.5 Q3	-2.7	-	-	-4.5	2.12	2.88
China	+437.9 Feb	+172.0 Q4	+1.3	6.32	6.91	-4.0	4.71	3.71§§
Japan	+47.0 Jan	+200.1 Jan	+3.7	106	115	-4.9	-0.06	0.03
Britain	-177.9 Jan	-118.1 Q3	-4.4	0.72	0.82	-2.8	0.60	1.55
Canada	-19.8 Jan	-49.4 Q4	-2.6	1.29	1.35	-1.8	1.66	2.16
Euro area	+270.7 Dec	+448.0 Dec	+3.1	0.81	0.94	-1.0	-0.33	0.59
Austria	-6.4 Dec	+8.5 Q3	+2.0	0.81	0.94	-0.8	-0.33	0.74
Belgium	+23.8 Dec	-3.9 Sep	-0.3	0.81	0.94	-1.5	-0.33	0.88
France	-69.6 Jan	-25.6 Jan	-0.9	0.81	0.94	-2.7	-0.33	0.87
Germany	+282.4 Jan	+304.7 Jan	+7.8	0.81	0.94	+0.8	-0.33	0.59
Greece	-22.0 Dec	-1.4 Dec	-1.6	0.81	0.94	-0.5	-0.33	4.16
Italy	+54.1 Dec	+57.3 Dec	+2.6	0.81	0.94	-2.1	-0.33	2.03
Netherlands	+65.4 Jan	+80.7 Q3	+9.8	0.81	0.94	+0.6	-0.33	0.67
Spain	-28.0 Dec	+23.0 Dec	+1.6	0.81	0.94	-2.6	-0.33	1.33
Czech Republic	+17.9 Jan	+0.9 Q3	+0.9	20.6	25.4	+0.5	0.90	1.92
Denmark	+8.8 Jan	+24.5 Jan	+7.8	6.03	6.98	-0.9	-0.30	0.64
Hungary	+9.1 Dec	+5.2 Q3	+3.7	252	292	-2.6	0.03	2.66
Norway	+19.9 Jan	+20.2 Q4	+5.5	7.74	8.60	+4.9	1.06	2.01
Poland	-0.6 Jan	+0.2 Dec	nil	3.40	4.06	-2.7	1.51	3.31
Russia	+120.5 Jan	+40.2 Q4	+2.7	57.3	59.3	-1.1	4.96	8.13
Sweden	-1.1 Jan	+17.1 Q4	+4.2	8.20	8.95	+0.5	-0.44	0.80
Switzerland	+32.8 Jan	+66.4 Q3	+9.7	0.95	1.01	+0.8	-0.74	0.13
Turkey	-83.5 Feb	-51.6 Jan	-5.2	3.88	3.74	-2.1	13.9	12.6
Australia	+7.9 Jan	-32.3 Q4	-1.8	1.27	1.32	-1.2	2.11	2.74
Hong Kong	-64.4 Jan	+14.8 Q3	+4.8	7.84	7.77	+0.4	1.06	1.98
India	-155.1 Jan	-33.6 Q3	-2.0	64.8	65.9	-3.5	6.25	7.68
Indonesia	+8.3 Feb	-17.3 Q4	-1.9	13,736	13,372	-2.3	5.31	6.62
Malaysia	+24.1 Jan	+9.4 Q4	+2.8	3.90	4.45	-2.8	3.65	3.96
Pakistan	-36.8 Feb	-15.3 Q4	-5.0	111	105	-5.6	6.42	8.80†††
Singapore	+47.3 Jan	+61.0 Q4	+19.5	1.31	1.41	-0.7	na	2.41
South Korea	+92.4 Feb	+75.8 Jan	+5.1	1,065	1,149	+0.7	1.64	2.71
Taiwan	+17.0 Feb	+84.1 Q4	+13.6	29.3	31.0	-0.8	0.66	1.01
Thailand	+13.0 Jan	+49.3 Q4	+9.7	31.1	35.3	-2.3	0.90	2.42
Argentina	-9.4 Jan	-26.6 Q3	-4.8	20.2	15.5	-5.6	21.9	4.19
Brazil	+67.4 Feb	-9.0 Jan	-1.3	3.26	3.16	-7.0	6.45	8.15
Chile	+8.5 Feb	-4.6 Q3	-0.2	601	669	-2.2	0.34	4.51
Colombia	-8.3 Dec	-10.4 Q4	-3.0	2,844	2,994	-2.0	4.99	6.51
Mexico	-11.8 Jan	-18.8 Q4	-2.0	18.6	19.6	-2.3	7.83	7.57
Venezuela	-36.2 Oct~	-17.8 Q3~	+0.6	36,600	10.0	-15.5	14.5	8.24
Egypt	-32.2 Dec	-12.2 Q3	-3.8	17.6	18.1	-10.3	18.9	na
Israel	-17.1 Feb	+10.5 Q4	+3.4	3.43	3.67	-2.5	0.13	1.75
Saudi Arabia	+43.4 2016	+12.4 Q3	+4.0	3.75	3.75	-7.2	2.00	na
South Africa	+4.6 Jan	-7.3 Q3	-2.7	11.8	13.1	-3.6	7.13	8.09
Estonia	-1.9 Jan	+0.9 Dec	+2.0	0.81	0.94	-0.4	-0.33	na
Finland	-2.5 Jan	+1.9 Jan	+1.2	0.81	0.94	-1.4	-0.33	0.74
Iceland	-1.6 Feb	+0.9 Q4	+5.6	99.6	110	+1.3	4.65	na
Ireland	+51.0 Dec	+27.7 Q3	+5.1	0.81	0.94	-0.3	-0.33	1.05
Latvia	-2.9 Jan	-0.1 Jan	-0.2	0.81	0.94	-1.2	-0.33	na
Lithuania	-2.7 Jan	nil Q3	+0.8	0.81	0.94	+0.6	-0.33	1.20
Luxembourg	-7.1 Dec	+2.4 Q3	+4.7	0.81	0.94	+0.9	-0.33	na
New Zealand	-2.3 Jan	-5.5 Q4	-2.6	1.36	1.44	+1.1	1.91	2.95
Peru	+6.5 Jan	-2.7 Q4	-1.3	3.26	3.28	-3.5	2.00	na

The Economist commodity-price index

Print edition | Economic and financial indicators Mar 15th 2018

The Economist commodity-price index

2005=100

	Mar 6th	Mar 13th*	% change on one month	% change on one year
Dollar Index				
All Items	156.3	154.3	+1.5	+7.5
Food	161.1	159.1	+3.0	+3.8
Industrials				
All	151.3	149.2	-0.1	+11.8
Nfa†	143.8	142.1	+2.9	-0.2
Metals	154.6	152.3	-1.3	+17.4
Sterling Index				
All items	204.8	200.6	+0.7	-6.5
Euro Index				
All items	156.7	154.7	+1.2	-7.7
Gold				
$ per oz	1,338.2	1,326.0	-0.3	+9.9
West Texas Intermediate				
$ per barrel	62.6	60.7	+2.6	+27.2

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.

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World GDP

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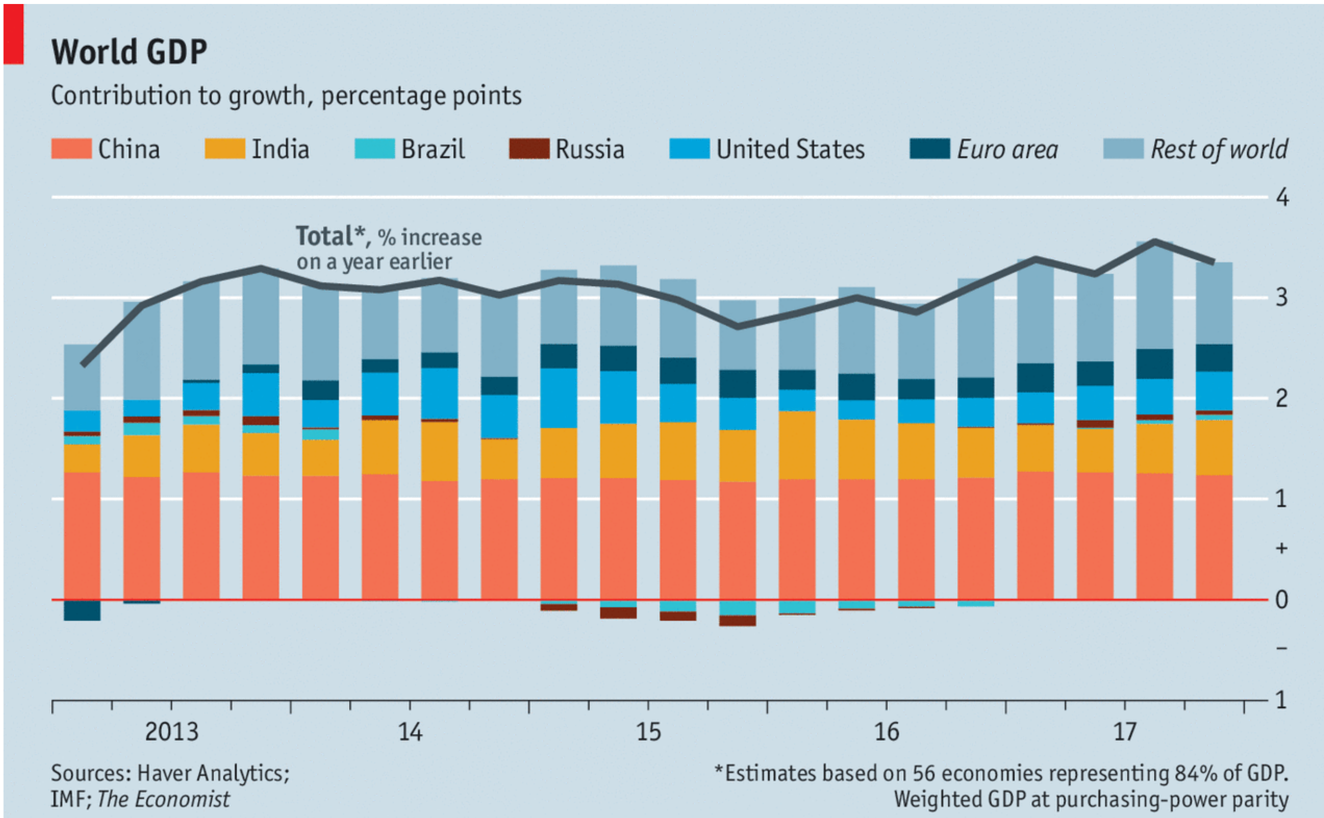

Economist.com

The world economy grew by 3.3% in the last quarter of 2017 compared with a year earlier, according to our estimates. That was slightly less than in the third quarter, but higher than the average of the past five years. The euro area's economy kept recovering, helped by strengthening export markets and the central bank's easy monetary policy. Growth in America increased to 2.5% year on year: its economy has now been expanding for eight consecutive years. Russia and Brazil strengthened as well, after a period of political ructions and low commodity prices. The OECD, a think-tank, reckons that global growth will rise to 3.9% this year thanks to investment growth, stronger trade and higher employment.

Markets

Print edition | Economic and financial indicators Mar 15th 2018

Markets

	Index	% change on		
			Dec 29th 2017	
	Index Mar 14th	one week	in local currency	in $ terms
United States (DJIA)	24,758.1	-0.2	+0.2	+0.2
United States (S&P 500)	2,749.5	+0.8	+2.8	+2.8
United States (NAScomp)	7,496.8	+1.4	+8.6	+8.6
China (SSEA)	3,447.1	+0.6	-0.5	+2.6
China (SSEB, $ terms)	334.4	+2.0	-2.2	-2.2
Japan (Nikkei 225)	21,777.3	+2.5	-4.3	+1.5
Japan (Topix)	1,743.2	+2.3	-4.1	+1.7
Britain (FTSE 100)	7,132.7	-0.4	-7.2	-4.4
Canada (S&P TSX)	15,653.6	+1.2	-3.4	-6.5
Euro area (FTSE Euro 100)	1,183.7	+0.4	-2.2	+0.7
Euro area (EURO STOXX 50)	3,391.0	+0.4	-3.2	-0.4
Austria (ATX)	3,426.2	-0.3	+0.2	+3.1
Belgium (Bel 20)	3,929.3	nil	-1.2	+1.7
France (CAC 40)	5,233.4	+0.9	-1.5	+1.4
Germany (DAX)*	12,237.7	-0.1	-5.3	-2.5
Greece (Athex Comp)	823.8	+3.2	+2.7	+5.7
Italy (FTSE/MIB)	22,452.3	-0.1	+2.7	+5.7
Netherlands (AEX)	531.0	nil	-2.5	+0.4
Spain (IBEX 35)	9,688.5	+0.9	-3.5	-0.7
Czech Republic (PX)	1,116.7	+0.3	+3.6	+7.0
Denmark (OMXCB)	900.2	+0.1	-2.9	-0.1
Hungary (BUX)	38,891.2	+1.8	-1.2	+1.3
Norway (OSEAX)	908.9	-0.1	+0.2	+5.9
Poland (WIG)	61,399.9	-0.4	-3.7	-1.5
Russia (RTS, $ terms)	1,251.2	-1.5	+8.4	+8.4
Sweden (OMXS30)	1,585.3	+1.3	+0.5	+0.4
Switzerland (SMI)	8,869.3	+1.0	-5.5	-2.7
Turkey (BIST)	117,592.6	+0.6	+2.0	-0.4
Australia (All Ord.)	6,042.6	+0.6	-2.0	-1.1
Hong Kong (Hang Seng)	31,435.0	+4.1	+5.1	+4.8
India (BSE)	33,835.7	+2.4	-0.6	-2.2
Indonesia (JSX)	6,382.6	+0.2	+0.4	-0.8
Malaysia (KLSE)	1,857.1	+1.0	+3.4	+7.1
Pakistan (KSE)	43,407.7	-0.1	+7.3	+7.1
Singapore (STI)	3,539.4	+2.6	+4.0	+6.2
South Korea (KOSPI)	2,486.1	+3.5	+0.8	+1.3
Taiwan (TWI)	11,038.8	+2.7	+3.7	+5.5
Thailand (SET)	1,813.4	+1.8	+3.4	+8.3
Argentina (MERV)	32,824.5	+0.2	+9.2	+1.8
Brazil (BVSP)	86,050.9	+0.7	+12.6	+14.5
Chile (IGPA)	28,109.3	+1.1	+0.5	+2.7
Colombia (IGBC)	11,363.2	-0.3	-1.0	+3.9
Mexico (IPC)	48,156.4	+1.0	-2.4	+2.6
Peru (S&P/BVL)*	20,683.8	-0.9	+3.6	+2.9
Egypt (EGX 30)	16,881.7	+3.0	+12.4	+13.5
Israel (TA-125)	1,359.1	+1.3	-0.4	+0.7
Saudi Arabia (Tadawul)	7,775.4	+4.3	+7.6	+7.6
South Africa (JSE AS)	58,423.2	-0.9	-1.8	+3.2
Europe (FTSEurofirst 300)	1,466.1	+0.5	-4.1	-1.3
World, dev'd (MSCI)	2,134.5	+0.9	+1.5	+1.5
Emerging markets (MSCI)	1,218.7	+2.5	+5.2	+5.2
World, all (MSCI)	522.9	+1.1	+1.9	+1.9
World bonds (Citigroup)	969.3	+0.2	+2.0	+2.0
EMBI+ (JPMorgan)	815.3	+0.4	-2.5	-2.5
Hedge funds (HFRX)	1,2[illegible].4§	+0.4	+0.5	+0.5
Volatility, US (VIX)	17.2	+17.8	+11.0	(levels)

Stephen Hawking
The cosmos from a wheelchair

The cosmos from a wheelchair

Stephen Hawking died on March 14th

The man who explained the universe was 76

Print edition | Obituary Mar 14th 2018

PREDESTINATION was not part of Stephen Hawking's system of belief. It was mere coincidence that he was born 300 years to the day after Galileo Galilei died. But he did share something with him, other than being a great physicist; he became famous as much for his suffering as for his physics. His was caused not by ecclesiastical politicians who preferred obedience to free enquiry, but by muscle-wasting amyotrophic lateral sclerosis. It meant that he, too, had to fight to be heard.

In youth he never lacked confidence. He once interrupted the great astrophysicist Fred Hoyle in mid-lecture, at the Royal Society, to correct him on the masses of particles. But once he could no longer write down equations, theories had to be translated into geometry in his head; and after a tracheotomy in 1985, the ocean of his thinking had to be forced through a cumbersome and narrow technological aperture. His words necessarily became so few that he had to stare hard at the universe in order to define, and refine as far as possible, the new things he had to say about it. His theories of everything emerged in a voice that was both robotic, and curiously laden with emotion.

His books, too, made his case even to the man in the street. "A Brief History of Time", published in 1988, sold in millions, though its difficulty meant that many copies languished on coffee tables. His "Briefer History" of 2005 was the same thing made plainer, at least to him. He hoped people would understand it, because it was important for scientists to explain what they were doing. His branch of science, cosmology, was now purporting to answer questions that were once asked of religion. In both books and several more he declared that the laws of science explained everything, without any need to bring God into it. If string theory and its 11 dimensions were understood, for example, it might show how the universe began.

In his day job, as Lucasian professor of mathematics at Cambridge University until he retired in 2009, it was black holes in particular that he worked on. He even proclaimed once that he was their master, adding to his mystique. Black holes, which were predicted by maths before they were discovered in nature, are singularities—points where the familiar laws of physics cease to apply. They are surrounded, however, by surfaces known as event horizons. Anything crossing the event horizon is swallowed for ever.

This was a problem. The second law of thermodynamics, the strictest of nature's constraints, says that entropy, a form of disorder, must always increase. But if high-entropy systems could be sucked into nothingness by black holes, that would not be the case. Dr Hawking solved this problem by showing that black holes themselves had entropy, and that the more they swallowed, the greater it got. This in turn implied that black holes had a temperature, and thus must give off radiation.

He gave his name to it, but "Hawking radiation" surprised him as much as anyone; he claimed to have just tripped over it, to his annoyance. (His voice-synthesising machine included a button for jokes.) The radiation was not observed in his lifetime, which was why he never won a Nobel prize. But the link it provided between the theory of relativity, quantum mechanics and thermodynamics was rich food for physicists' imaginations.

Finite time, infinite space

His interest in singularities was not restricted to black holes. The universe itself can be viewed as a singularity, albeit one which human beings are seeing from the inside rather than the out. And he was intensely interested in its origin, coeval with that of time itself. To explain this concept, that before the Big Bang there was truly neither time nor space, he compared it to asking what lay south of the South Pole. He revelled in these unanswered, perhaps unanswerable, questions. When his disability left him behind in conversations, he happily drifted off to them again.

His work also encompassed large N cosmology, Yang-Mills instantons and the S matrix, anti de Sitter space, quantum entanglement, the Brans-Dicke and Hoyle-Narlikar theories of gravitation and Euclidean quantum gravity. His contribution to scientific journals continued throughout, but he wanted most keenly to outline for non-experts, baffled by the weirdness of scientific terms and the apparent contradictions of modern theories, humanity's place in the universe.

The departure of scientific reality from what common sense suggests is going on (the sun going round the Earth, for example) no longer threatens political institutions, but it threatens the human psyche just as much as it did in Galileo's day. Dr Hawking's South Pole of time was 13.7 billion years in the past—three times as old as the Earth. His mathematics showed that the universe, though finite in time, might be infinite in space.

No philosophy that puts humanity anywhere near the centre of things can cope with facts like these. All that remains is to huddle together in the face of the overwhelmingness of reality. Yet the sight of one huddled man in a wheelchair constantly probing, boldly and even cheekily demonstrating the infinite reach of the human mind, gave people some hope to grasp, as he always wished it would.

This article appeared in the Obituary section of the print edition under the headline "The cosmos from a wheelchair"