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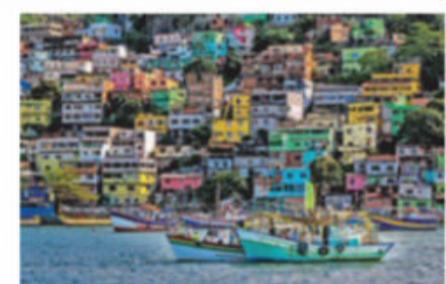
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In its most ominous warning yet to protesters in Hong Kong, China said the demonstrators were “playing with fire” and on “the verge of a very dangerous situation”. A day earlier a strike hit the city’s transport system and led to more than 200 flight cancellations. The protesters, who initially wanted an extradition bill to be scrapped, are now calling for Carrie Lam to resign as Hong Kong’s leader and for direct elections. China’s spokesman in Hong Kong said Ms Lam was staying put.

India’s Hindu-nationalist government unexpectedly ended the autonomy granted to Indian-administered Kashmir, splitting it in two, putting local party leaders under house arrest and ordering non-residents, including tourists, to leave. The government poured another 25,000 troops into the region. Pakistan said the move was illegal. Relations between the two countries were already fraught because of an attack by Pakistani-based jihadists on Indian troops in Kashmir six months ago.

The Taliban started a fresh round of talks with America’s envoy for Afghanistan. The talks, held in Qatar, are aiming for a deal under which America will withdraw its troops from Afghanistan, but only if the Taliban starts negotiations with the government in Kabul. As they were talking, the Taliban claimed responsibility for a bomb that killed 14 people and wounded 145 in Kabul.

The Philippines declared a national dengue epidemic. At least 146,000 cases were recorded from January to July, double the number in the same

period last year. More than 620 people have died.

New Zealand’s government introduced a bill to decriminalise abortion and allow women to seek the procedure up to 20 weeks into a pregnancy. At present a woman has to get permission for an abortion, and may have one only if her pregnancy endangers her physical or mental health. New Zealand’s abortion rate is nevertheless higher than in most European countries.

Would you please just go

America imposed a complete economic embargo on the government of Venezuela, freezing all its assets and threatening sanctions against firms that do business with it, unless they have an exemption. The move steps up the pressure on Nicolás Maduro’s socialist regime. America, along with 50-odd other countries, recognises Juan Guaidó, the opposition leader, as Venezuela’s president, though Mr Maduro is still supported by China and Russia.

The head of Brazil’s institute for space research was fired after a spat with Jair Bolsonaro, the country’s president, over satellite images that showed a sharp increase in the Amazon’s deforestation. Mr Bolsonaro had questioned the data and said it brought Brazil’s reputation into disrepute.

All too familiar

The latest mass shootings in America elicited more pleas for gun controls. Even some Republicans said they would support “red-flag laws” that would take guns away from those who are a violent risk. The gunman who slaughtered 22 people at a Walmart in heavily Hispanic El Paso was in custody, as police trawled through an anti-immigrant screed he had written. The shooter who murdered nine people, including his sister, in Dayton was killed by police officers on patrol after 30 seconds of mayhem.

America’s immigration agency arrested 680 **illegal migrant workers** at seven factories in Mississippi. Some were released and told to appear at an immigration court; others were sent to a detention centre in Louisiana. The operation, said to be the biggest of its kind in a single state, had been planned for months.

Donald Trump withdrew his pick of John Ratcliffe as the new **director of national intelligence**, just days after putting his name forward. Many had criticised the selection, as Mr Ratcliffe’s only credentials seemed to be a staunch defence of Mr Trump at a recent congressional hearing on the Mueller report.

Puerto Rico’s Supreme Court ruled that the appointment of a new governor by Ricardo Rosselló, who was forced from office by street protests, was unconstitutional and he would have to step down. The court sided with the territory’s Senate, which had not been given a vote on the appointment. After the court’s decision Wanda Vázquez was sworn in as governor, though she had said she didn’t want the job.

Tributes were paid to Toni Morrison, the only black woman to have won the Nobel prize for literature, who died aged 88. Ms Morrison’s work was based on narratives about race and slavery.

City carnage

A car-bomb in central Cairo killed 20 people. Egypt’s government blamed a violent offshoot of the Muslim Brotherhood for the blast.

Britain joined an American-led initiative to provide naval protection to ships travelling through the Strait of Hormuz amid heightened tensions with Iran. In July Iran seized a British-flagged oil tanker.

Mozambique’s president signed a peace agreement with the leader of Renamo, a rebel movement. Renamo said it will

disarm some 5,000 fighters and peacefully contest elections scheduled to be held in October. It waged a guerrilla war from 1977 to 1992 before laying down its guns, but took up arms again in 2012.

The UN World Food Programme said that 5m people in Zimbabwe—a third of the population—are at risk of starvation. The country was the region’s breadbasket until the government began stealing farms and handing them to ruling-party cronies.

Rounding up the opposition

There were more demonstrations in Moscow against the authorities’ decision to exclude opposition figures from contesting next month’s municipal elections. Hundreds of protesters were arrested, including Lyubov Sobol, one of the leading candidates to have been barred from appearing on the ballot.

Italy’s government tightened the laws on dealing with migrants, sharply increasing the fines that can be imposed on NGOs that rescue people at sea and bring them to Italy without permission. The government had to present the vote as an issue of confidence, but easily prevailed.



Powered by kerosene in a backpack, Franky Zapata flew across the English Channel on a **hoverboard**. The French inventor, who demonstrated his device at this year’s Bastille Day parade, took 22 minutes to make the 35km (22-mile) crossing. A handy alternative to the Eurostar when it is next disrupted by weather/strikes/technical issues. ➤



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America officially categorised **China as a currency manipulator** for the first time in 25 years, after the yuan weakened past the psychologically significant mark of seven to the dollar, the lowest point for the Chinese currency since the financial crisis. The yuan trades narrowly in China around an exchange rate set by the central bank. It dismissed the idea that the yuan had been manipulated, submitting that its depreciation was caused instead by "shifts in market dynamics", which include "escalating trade frictions".

Those trade frictions had indeed escalated when Donald Trump earlier announced 10% **tariffs** on an additional \$300bn-worth of Chinese goods in the two countries' trade war. Mr Trump said he was punishing China for not keeping its promise to buy more American agricultural goods, among other things.

Stockmarkets had a rocky week, with the S&P 500, Dow Jones Industrial Average and NASDAQ indices recording their worst trading day of the year so far. Most **Asian currencies** tumbled following the yuan's depreciation. But the yen, considered to be a haven in uncertain times, soared against the dollar. **The yields on government bonds**, another safe bet, fell as investors ploughed into the market.

Investors were also unnerved by a wave of larger-than-expected **interest-rate cuts**. India's central bank shaved 0.35 of a percentage point off its main rate, to 5.4%; New Zealand's slashed its benchmark rate from 1.5% to 1%; and Thailand's first cut in four years left its main rate at 1.5%. All three were pessimistic about the prospects for growth.

A trade dispute caused sales of cars made in **Japan** to plunge in **South Korea** last month. Samsung, South Korea's biggest maker of smartphones and memory chips, said it was searching for substitute suppliers of some essential

chemicals that Japan has tightened its grip on, which South Korea calls an embargo. This week Japan approved its first shipment of high-tech material to South Korea in a month. The row was sparked by a political spat.

The golden girl

The EU selected **Kristalina Georgieva** as its candidate to head the IMF, but only after the rancorous exercise concluded with some telephone diplomacy. Ms Georgieva is currently the second-highest official at the World Bank. Under an informal convention, Europe gets to pick the managing director of the IMF (and America the president of the World Bank), so Ms Georgieva is favoured to get the job in October, when the IMF will choose its leader. But it must first change a rule that says a new managing director must be under 65. Ms Georgieva turns 66 on August 13th.

John Flint's decision to step down as chief executive of **HSBC** after just 18 months in the job took markets by surprise. His resignation was made "by mutual agreement with the board", which reportedly lost confidence in Mr Flint's ability to steer the bank

through increasingly choppy waters stirred by trade tensions between America and China. Most of HSBC's profit comes from Asia. The bank is expected to take its time choosing a successor.

A report prepared for the Inter-governmental Panel on Climate Change suggested that a move away from meat and towards **plant-based diets** could help fight global warming, but it pulled back from recommending that people become vegetarians. Companies selling plant-based products have seen their share prices soar this year.

The latest takeover in the consolidating payments industry saw **Mastercard** agreeing to buy **Nets**, a Danish real-time payments provider, for \$3.2bn. It is Mastercard's biggest acquisition to date.

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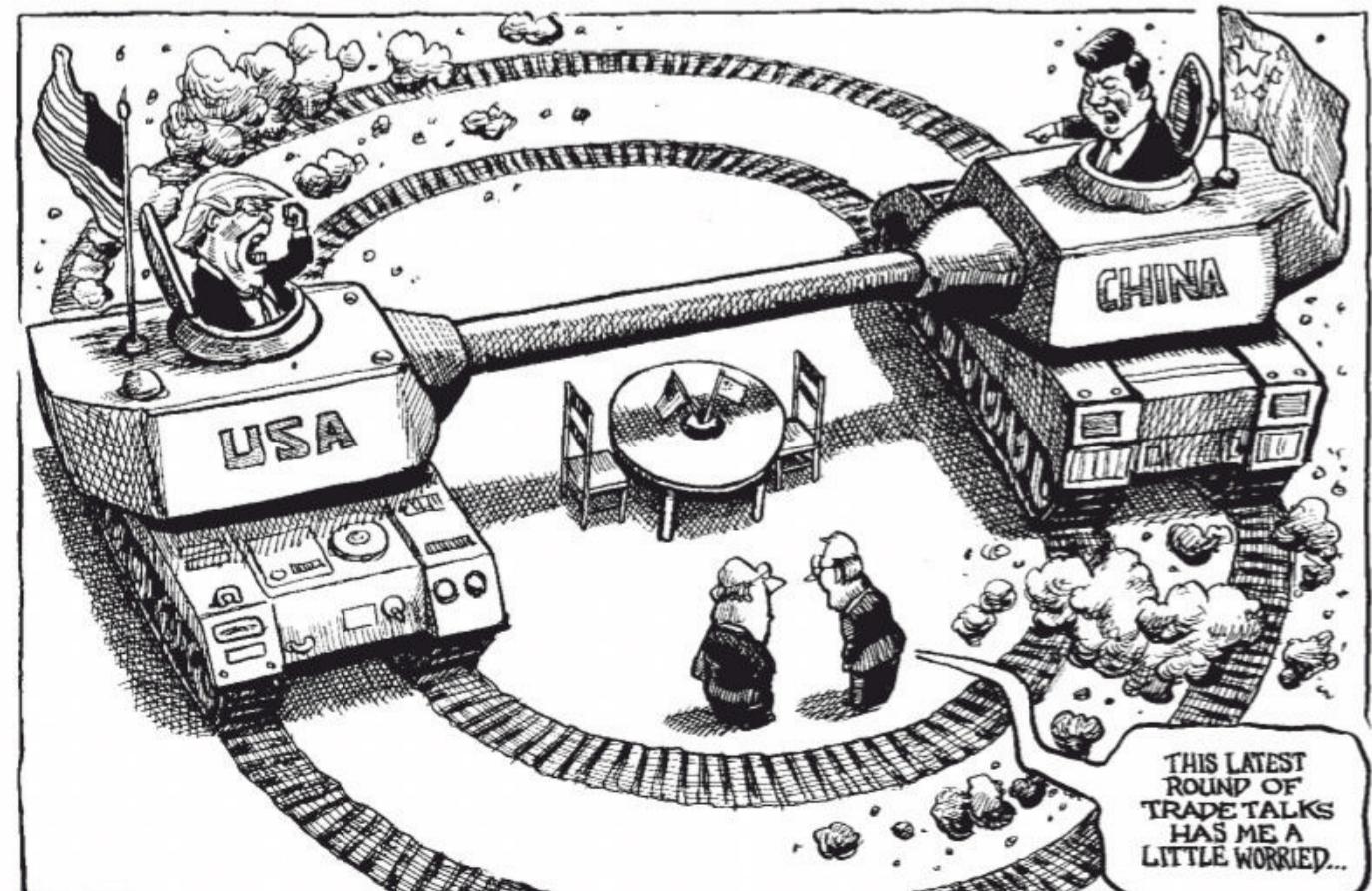
Vivendi, a French media company, said it was considering selling a stake of at least 10% of its **Universal Music** business to **Tencent**, a Chinese technology conglomerate, possibly raising that to 20% at a later date. If completed, a deal might allow Tencent to combine its expertise in streaming with

Universal's vast catalogue of artists, which include Abba, the Beatles, Drake, Elton John and Taylor Swift.



The **Harland and Wolff** shipyard in Belfast entered administration, marking the probable end of a business that built the *Titanic* and other famous vessels. The yard once employed 15,000 workers, but now just 122 work on repairs. It has not built a ship since 2003.

Barneys New York, a luxury department-store chain that opened shop in 1923, filed for bankruptcy protection and said it would close most of its stores. The company is restructuring its debt and expects to keep seven stores open, including its flagship premises in Manhattan, made famous by "Sex and the City". Its insolvency proves that the upheaval in retailing is not confined to suburban shopping malls.



How will this end?

If China were to react brutally, the consequences would be disastrous—and not just for Hong Kong

IT IS SUMMER, and the heat is oppressive. Thousands of students have been protesting for weeks, demanding freedoms that the authorities are not prepared to countenance. Officials have warned them to go home, and they have paid no attention. Among the working population, going about its business, irritation combines with sympathy. Everybody is nervous about how this is going to end, but few expect an outcome as brutal as the massacre of hundreds and maybe thousands of citizens.

Today, 30 years on, nobody knows how many were killed in and around Tiananmen Square, in that bloody culmination of student protests in Beijing on June 4th 1989. The Chinese regime's blackout of information about that darkest of days is tacit admission of how momentous an event it was. But everybody knows that Tiananmen shaped the Chinese regime's relations with the country and the world. Even a far less bloody intervention in Hong Kong would reverberate as widely (see Briefing).

What began as a movement against an extradition bill, which would have let criminal suspects in Hong Kong be handed over for trial by party-controlled courts in mainland China, has evolved into the biggest challenge from dissenters since Tiananmen. Activists are renewing demands for greater democracy in the territory. Some even want Hong Kong's independence from China. Still more striking is the sheer size and persistence of the mass of ordinary people. A general strike called for August 5th disrupted the city's airport and mass-transit network. Tens of thousands of civil servants defied their bosses to stage a peaceful public protest saying that they serve the people, not the current leadership. A very large number of mainstream Hong Kongers are signalling that they have no confidence in their rulers.

As the protests have escalated, so has the rhetoric of China and the Hong Kong government. On August 5th Carrie Lam, the territory's crippled leader, said that the territory was "on the verge of a very dangerous situation". On August 6th an official from the Chinese government's Hong Kong office felt the need to flesh out the implications. "We would like to make it clear to the very small group of unscrupulous and violent criminals and the dirty forces behind them: those who play with fire will perish by it." Anybody wondering what this could mean should watch a video released by the Chinese army's garrison in Hong Kong. It shows a soldier shouting "All consequences are at your own risk!" at rioters retreating before a phalanx of troops.

The rhetoric is designed to scare the protesters off the streets. And yet the oppressive nature of Xi Jinping's regime, the Communist Party's ancient terror of unrest in the provinces and its historical willingness to use force, all point to the danger of something worse. If China were to send in the army, once an unthinkable idea, the risks would be not only to the demonstrators.

Such an intervention would enrage Hong Kongers as much as the declaration of martial law in 1989 aroused the fury of Beijing's residents. But the story would play out differently. The regime had more control over Beijing then than it does over Hong Kong now. In Beijing the party had cells in every workplace, with the power to terrorise those who had not been scared enough by the

tanks. Its control over Hong Kong, where people have access to uncensored news, is much shakier. Some of the territory's citizens would resist, directly or in a campaign of civil disobedience. The army could even end up using lethal force, even if that was not the original plan.

With or without bloodshed, an intervention would undermine business confidence in Hong Kong and with it the fortunes of the many Chinese companies that rely on its stockmarket to raise capital. Hong Kong's robust legal system, based on British common law, still makes it immensely valuable to a country that lacks credible courts of its own. The territory may account for a much smaller share of China's GDP than when Britain handed it back to China in 1997, but it is still hugely important to the mainland. Cross-border bank lending booked in Hong Kong, much of it to Chinese companies, has more than doubled over the past two decades, and the number of multinational firms whose regional headquarters are in Hong Kong has risen by two-thirds. The sight of the army on the city's streets would threaten to put an end to all that, as companies up sticks to calmer Asian bases.

The intervention of the People's Liberation Army would also change how the world sees Hong Kong. It would drive out many of the foreigners who have made Hong Kong their home, as well as Hong Kongers who, anticipating such an eventuality, have acquired emergency passports and boltholes elsewhere. And it would have a corrosive effect on China's relations with the world.

Hong Kong has already become a factor in the cold war that is developing between China and America. China is enraged by the high-level reception given in recent weeks to leading members of Hong Kong's pro-democracy camp during visits to Washington. Their meetings with senior officials and members of Congress have been cited by China as evidence that America is a "black hand" behind the unrest, using it to pile pressure on the party as it battles with America over trade (a conflict that escalated this week, when China let its currency weaken—see next leader).

Were the Chinese army to go so far as to shed protesters' blood, relations would deteriorate further. American politicians would clamour for more sanctions, including suspension of the act that says Hong Kong should be treated as separate from the mainland, upon which its prosperity depends. China would hit back. Sino-American relations could go back to the dark days after Tiananmen, when the two countries struggled to remain on speaking terms and business ties slumped. Only this time, China is a great deal more powerful, and the tensions would be commensurately more alarming.

None of this is inevitable. China has matured since 1989. It is more powerful, more confident and has an understanding of the role that prosperity plays in its stability—and of the role that Hong Kong plays in its prosperity. Certainly, the party remains as determined to retain power as it was 30 years ago. But Hong Kong is not Tiananmen Square, and 2019 is not 1989. Putting these protests down with the army would not reinforce China's stability and prosperity. It would jeopardise them. ■



US-China trade

Dangerous miscalculations

America cannot have a strong economy, a trade war and a weak dollar all at the same time

SINCE THE trade war began in 2018 the damage done to the global economy has been surprisingly slight. America has grown healthily and the rest of the world has muddled along. But this week the picture darkened as the confrontation between America and China escalated, with more tariffs threatened and a bitter row erupting over China's exchange rate. Investors fear the dispute will trigger a recession, and there are ominous signs in the markets—share prices fell and government-bond yields sank to near-record lows. To avoid a downturn, both sides need to compromise. But for that to happen President Donald Trump and his advisers must rethink their strategy. If the realisation has not dawned yet, it soon should: America cannot have a cheap currency, a trade conflict and a thriving economy.

The latest spike in tensions began on August 1st, when the White House threatened to impose a further round of duties on \$300bn of Chinese exports by the start of September. China responded four days later by telling its state-run companies to stop buying American agricultural goods. On the same day it let its heavily managed currency pass through a rate of seven against the dollar, a threshold which may seem arbitrary but is symbolically important (see *Buttonwood*).

That lit a fuse beneath the Oval Office. Mr Trump has long claimed that other countries, including China, keep their currencies artificially cheap to boost their exports, hurting America. He has been griping about the strong dollar for months. In June he accused Mario Draghi, the head of the European Central Bank, of unfairly weakening the euro by hinting at rate cuts. Hours after the yuan dropped, America's Treasury designated China a "currency manipulator" and promised to eliminate its "unfair competitive advantage". As the hostilities rose, markets swooned, with ten-year bond yields in America reaching 1.71%, as investors judged that the Federal Reserve will slash interest rates to try to keep the expansion alive (see *Finance section*).



There is no denying that China has manipulated its exchange rate in the past. But today a different dynamic is playing out around the world. Mr Trump wants a booming economy, protected by tariffs and boosted by a cheap dollar, and when he doesn't get them he lashes out. But economic reality makes these three objectives hard to reconcile. Tariffs hurt foreign exporters and dampen growth beyond America's borders; weaker growth in turn leads to weaker currencies, as business becomes cautious and central banks ease policy in response. The effect is particularly pronounced when America is growing faster than other rich countries, as it has recently. The dollar's enduring strength is a result, in part, of Mr Trump's policies, not of a global conspiracy.

Unless this fact sinks in soon, real harm will be done to the global economy. Faced with the uncertainty created by a vicious superpower brawl, firms in America and elsewhere are cutting investment, hurting growth further. Lower interest rates are making Europe's rickety banks even more fragile. China could face a destabilising flood of money trying to leave its borders, as happened in 2015. And further escalation is possible as both sides reach for economic weapons that

were considered unthinkable a few years ago. America could intervene to weaken the dollar, undermining its reputation for unfettered capital markets. China or America could impose sanctions on more of each other's multinational firms, in the same way that America has blacklisted Huawei, or suspend the licences of banks that operate in both countries, causing havoc.

As it pursues an ever more reckless trade confrontation, the White House may imagine that the Federal Reserve can ride to the rescue by cutting rates again. But that misunderstands the depth of unease now felt in factories, boardrooms and trading floors around the world. In September talks between America and China are set to resume. It is time for a settlement. The world economy cannot stand much more of this. ■

Mass shootings in America

It's the guns

Other rich countries do not have frequent mass shootings. There is a simple reason for that

THE TWO mass shootings within 24 hours of each other last weekend, one in El Paso, Texas, the other in Dayton, Ohio, were horrifying. Yet at the same time they were not surprising—at least in a purely statistical sense. So far this year America has averaged one shooting in which four or more people are killed or injured every single day. The death toll at the El Paso Walmart was 22. And that awful number made it only the fifth-deadliest shooting this decade. The ten people killed in Dayton put the murder spree there down at number 11 on the same list.

When police officers are trying to solve a murder they look at motive and opportunity. That framework is useful for thinking

about mass murders, too. The shooter in Dayton left no explanation for his actions. His social-media accounts show he was a misogynist with an interest in leftish causes. The El Paso killer posted a manifesto filled with racist anxiety about the replacement of whites by Hispanics, as well as language that could have been drawn from a Trump rally (see *United States section*).

After the killings, people have blamed any number of causes—from mental illness and video games to the internet and the social alienation of young men. Yet cause and effect are hard to pin down, as shown by the row about Donald Trump's culpability for what happened in El Paso. His role matters not just be-

cause, as president, he has a responsibility to unite the country, but also because America's biggest mass shootings come in patterns. In the 1980s there was a wave of post-office shootings. Later, shootings at schools and universities became a way for a certain type of young man to achieve fame. More recently there has been an increase in acts of terrorism perpetrated by white men who believe they are locked in a struggle against non-whites and Jews. This thread connects the shooting at a Charleston church in 2015 to the one at a Pittsburgh synagogue last year and to the El Paso Walmart shooting.

That is where Mr Trump's language comes in. His presidential campaign began with an impromptu speech in which he said Mexico was sending rapists across the border, and it continued in that vein. The White House has not changed him. At a rally in Florida in May, where he denounced migrants at the southern border, someone in the crowd shouted that the solution was to shoot them. "That's only in the Panhandle you can get away with that kind of statement," responded Mr Trump, to laughter and cheers. After the El Paso shootings, as after Charlottesville, the president, reading from a teleprompter, condemned white supremacists and bigots. Yet the next time he is in front of a big crowd he will be at it again.

If you accept that the words people say have some effect, then the words that a president says must matter more. There is no way to calculate the probability of such racially divisive language encouraging someone to act out violent racist fantasies, but it is not one and it is not zero. Run the experiment enough times with enough people and at some point it becomes lethal.



Yet it is also true that mass shootings were common before Mr Trump took office and will continue after he has gone. The El Paso shooter's main fixation was immigration, but he also wrote in his manifesto about excessive corporate power and environmental damage. The Dayton shooter was not a Trump supporter at all. In such cases it is impossible to know whether the ideology makes the person violent, or whether the violent desires come first and the half-baked justification follows after.

If motive can be hard to attribute precisely, and policy correspondingly hard to design, the same is not true of opportunity. White nationalists can be found in many Western countries, as

can politicians who exploit racial divisions. But in a society where someone with murderous intent can wield only a kitchen knife or a baseball bat, the harm he can do is limited. When such a person has access to a semi-automatic weapon, which can hold 100 rounds of ammunition and discharge them in under a minute, it is grievous—and hence, lamentably, more seductive.

The answer is obvious: restrict the ownership of certain types of guns, as New Zealand did after the shootings in Christchurch, and introduce proper background checks. Such measures will not prevent all gun deaths. The constitution will not be rewritten and too many weapons are in circulation. Yet given the number of fatalities, even a 5% reduction would save many innocent lives. Mass shootings in America have become like deforestation in Brazil or air pollution in China—a man-made environmental hazard that is hard to stop. Such hazards are not cleaned up overnight. That should not prevent people from making a start. ■

Kashmir's status

Modi's bad move

The revocation of Kashmir's autonomy points to a radical nationalist agenda

WHEN THE princely state of Jammu & Kashmir joined the fledgling Indian union in October 1947, it had little choice in the matter. Pakistan-backed tribesmen had invaded; only Indian troops could repel them. The consolation was that Kashmir was promised a lot of autonomy. That came to include trappings of statehood—a separate constitution and flag—and more substantial differences, such as a ban on outsiders buying property.

On August 5th the government of Narendra Modi, India's prime minister, tore up this compact. That has electrified his Hindu-nationalist supporters, who want Kashmir, India's only Muslim-majority state, brought to heel. But it is likely to unleash forces that do just the opposite.

Mr Modi's plan is far-reaching. Jammu & Kashmir, already split into two in 1947 when Pakistan grabbed one-third of it, has been divided further, with the high desert of Ladakh hived off into a separate entity. Both the new parts were demoted from constituents of a fully fledged state to mere "union territories", ruled from New Delhi. And Article 370 of India's constitution has been gutted, thus eliminating Kashmir's autonomy at a stroke.

The repeal of that provision has been a totemic issue to Hindu nationalists for decades. In their view, the state's political privileges have fanned the flames of separatism by encouraging Kashmiris to view themselves as irredeemably different from other

Indians. Direct rule would bypass Kashmir's fossilised political dynasties, dragging the state into the political mainstream.

That is a forlorn hope. For one thing, Mr Modi enacted the change through repression and subterfuge. Kashmiri political leaders were arrested, internet and phone networks were shut down and public assembly was forbidden. In the week before the move 30,000 troops were sent into the region, and another 8,000 afterwards. The government has also resorted to constitutional chicanery, exploiting the fact that Kashmir's state legislature—which would normally have to assent to such changes—was dissolved over a year ago. India's Supreme Court ought to look unkindly on such legal sleight of hand, which would allow any other state to be similarly conjured out of existence.

Second, the move is likely to compound Kashmiris' mistrust of the Indian government. The autonomy they were promised in the republic's earliest years had already been whittled down. As early as the 1950s, the state's independent-minded political leaders were occasionally jailed. The government's rigging of an election in 1987 sparked an insurgency, stoked by Pakistan. Violence, which had subsided for many years, has ticked up recently, notably after the killing of a charismatic militant leader in 2016. Local people are angry and disillusioned. Turnout in this year's national elections was less than 30% in Kashmir and a dismal 14% ►

► in the capital, Srinagar, compared to a national average of 62%.

But, as Kashmir's bloody history suggests, things can get much worse. The potential demographic impact of the loss of autonomy might be its most incendiary consequence. Many fear that the removal of restrictions on ownership of land and property by outsiders, which were embedded in its constitutional deal, will lead to an influx of Hindu immigration. The gloomiest Indian observers have drawn comparisons to China's Sinicisation of Tibet and Xinjiang.

Lastly, there may be ripples beyond Kashmir (see Asia section). Those of India's north-eastern states that also have been granted extra autonomy are worried that their own constitutional carve-outs may be under threat. And Pakistan has reacted to Mr Modi's move with a promise to "exercise all possible options to counter the illegal steps", which might include increasing support for jihadist groups. Although it is incumbent on Paki-

stan to clamp down on its proxies, the angrier Kashmiris are, the easier it is for Pakistani warmongers to recruit them. That increases the risk of military escalation—which, between two nuclear-armed states, is a frightening prospect.

Mr Modi portrays himself as a leader who is willing to break boldly with convention—from the botched withdrawal in 2016 of most cash in circulation to the (commendable) abolition of instant Islamic divorce on July 30th. He is emboldened by a towering majority in parliament, won in an election earlier this year, and pliant opposition parties. Yet his shake-up of Kashmir is an unmistakable signal of how he intends to exercise that power. He might now turn to other Hindu nationalist fixations, such as the construction of a temple on the site of a mosque razed by a radical Hindu mob in 1992. Mr Modi is setting himself more firmly on the path of zealous nationalism, ideological purity and religious chauvinism. It will lead nowhere good. ■

Endangered species

The elephant in the room

Now is not the time to liberalise the trade in endangered species

NEARLY 6,000 species of animals and about 30,000 species of plants are listed in the various appendices of the Convention on International Trade in Endangered Species (CITES) to protect them against over-exploitation. But as CITES convenes its three-yearly decision-making conference in Geneva this month, one animal, as so often in the past, will attract much of the attention: the African elephant.

The elephant is in many ways CITES's mascot. It was rescued in 1989 from what seemed inevitable extinction after half the population had been wiped out by poaching in just a decade. That year elephants were included in CITES's Appendix I, under which virtually all international trade in their products is banned. The slaughter slowed. This month's meeting will consider competing proposals about how absolute the ban should be, since in some countries elephant populations have recovered (see International section). Countries seeking a modest relaxation have a strong case to make. But it is not strong enough. The ban must stay.

Understandably, countries that have done a good job protecting their elephants feel this is unfair. They point out that they have devoted huge resources to the elephant, through the costs of law enforcement alone. And the real burden of all this is borne by poor local people who are in competition with wildlife for resources, and sometimes in conflict with it—elephants can be destructive. People and governments, so the argument goes, need to have an economic stake in the elephants' survival. The ivory trade would give them one.

That's why Zambia wants its elephants moved to the slightly less restrictive Appendix II, which would allow some trade in, for example, hunting trophies. Four other southern African countries (Botswana, Namibia, South Africa and Zimbabwe), whose elephants were moved to Appendix II 20 years ago, want to be allowed to trade in their products, which, despite the change in status, they have mostly been prohibited from doing.

To understand why these reasonable-sounding proposals

should be rejected, consider what has happened to elephant numbers since CITES most recently authorised some legal trade, when Botswana, Namibia and South Africa were allowed in 2007 to sell a fixed amount of ivory to Japan, as a one-off. Elephant numbers started falling again. A survey conducted in 2014-15 estimated that elephant numbers had fallen by 30% across 18 countries since 2007; another estimated a decline of over 100,000 elephants, a fifth of the total number, between 2006 and 2015. Increased poaching was at least partly to blame.

These numbers suggest that the existence of even a small legal market increases the incentive for poaching. It allows black-marketeers to pass off illegal ivory as the legal variety, and it sustains demand. The biggest market is in China. Last year the government banned domestic sales of ivory, but its customs

officials seize a lot of smuggled products—notably from Japan, which CITES licensed as a market in 2007. For the poachers, ivory is fungible. If it is hard to secure in Zambia or Botswana, another country's elephants will be in the gun-sights. Congo, Mozambique and, especially, Tanzania, have seen sharp declines. Unfair though it is, countries with better-run conservation programmes are, in effect, paying for the failings of those with feeble institutions.

In the long run technology can help make trade compatible with conservation. In better-resourced national parks, drones are used to make it easier for rangers to spot poachers. DNA testing of ivory shipments can establish where they came from, and thus whether they are legal. As prices fall and countries get richer, both technologies are likely to spread.

The objection to trade in products of endangered species is not moral, it is pragmatic. When the world is confident that it will boost elephant numbers rather than wipe them out, the ivory trade should be encouraged. Regrettably, that point has not yet come. And until it does, the best hope for the elephant—and even more endangered species, such as rhinos—lies not in easing the ban on trading their products, but in enforcing it better. ■



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The satisfied stay home

I can think of at least one reason why the increase in happiness in European countries coincides with the rise of populist parties ("The satisfaction paradox", July 13th). The rise in happiness that has been recorded in national surveys does not necessarily affect elections, as only a subset of the population turns out. And populist parties are more successful at elections with a lower turnout. The parallel rise of happiness and populist parties is not puzzling if the satisfied tend to stay at home on election day.

DOMINIK SCHRAFF
Post-doctoral researcher
Centre for Comparative and
International Studies
ETH Zurich

Take Poland, for example. It has enjoyed economic growth, low unemployment and rising living standards, and seen the populist Law and Justice Party romp home at elections. Voter turnout hovers around 50%. Why don't half these Poles go to the polls? Do they stay away because they are happy, or are they unsatisfied? Some might believe that their single vote does not matter. Some might think that none of the parties represents their views. Whatever the reason, there is a growing realisation that if only some of those who stay away could be persuaded to vote, the rise of right-wing populists could be forestalled.

PIOTR ZIENTARA
Associate professor of
economics
University of Gdansk

Thomas Jefferson did not think of "the pursuit of happiness" in terms of our inward-looking contemporary scale of satisfaction. It is an elusive turn of phrase, but one closer to the classical philosophical notion of happiness as part of the individual's civic existence. Through that lens, the pursuit, that is, the attainment or practice, of happiness reflects the virtuous life of the citizen within the body politic. This is the inverse of happiness as a

quantity to be measured and exploited by politicians.

DEREK O'LEARY
Berkeley, California

Reform minded

Your obituary of Li Peng (July 27th) described Zhao Ziyang, the general-secretary of the Communist Party at the time of the Tiananmen massacre in 1989, as a "seeming liberal". Indeed, when he ran Sichuan province, Zhao allowed farm prices to fluctuate, causing production to increase. And in 1988 he invited Milton Friedman to be his only Western consultant after China experienced high inflation. Friedman said that Zhao was the best economist he had ever met in a socialist country.

BERTRAND HORWITZ
Asheville, North Carolina

Citizenship test

Along with most other media, *The Economist* reminded its readers that three of the four congresswomen who were subjected to Donald Trump's rants were born in America and the fourth is a naturalised citizen (Lexington, July 20th). It was commendable that you described his language as "racist" rather than "racially charged". However, one point that is always overlooked is that Alexandria Ocasio-Cortez is not "of recent migrant stock". Puerto Ricans have been citizens of the United States for many decades. Her mother did not emigrate to New York from Puerto Rico any more than I emigrated to New York from Iowa. We simply moved.

It is unfortunate that Americans need to be reminded that Puerto Rico is a United States' territory and that Puerto Ricans are American citizens.

JOSEPH ENGLISH
New York

One of the charges laid at the door of liberals is hypocrisy, the odious practice of preaching values and promoting solutions without accepting any of the consequences. For example, liberals (broadly speaking) are keen to allow

asylum-seekers into their countries, but not into their own communities, where the only outsiders who are permanently welcome are those who can afford the house prices and private-school fees.

My suggestion is that you bear some of the consequences of your values. Why not convert a small amount of space at each of your offices around the world into accommodation for asylum-seekers? Your good action would be widely publicised and set an example that might be replicated elsewhere. That is, if your desire to defeat Trumpian bigotry is genuine.

THOMAS HODSON
London

Let plastic sink

Plastic pollution that remains local to its source, either on land or in shallow waters, is certainly less of a problem than the vast amount accumulating in our global oceans (Schumpeter, July 27th). Some plastics are denser than water and do not float. The lighter plastics can incorporate heavier particles in their polymer resins to ensure they don't float either. Plastic bottles, which otherwise float like boats on the water surface, can be shaped to flood easily and thus sink rapidly.

It seems the packaging companies and their heedless customers are avoiding a simple and inexpensive fix to the worst part of the plastic pollution problem. Plastics and plastic bottles should all be made to sink to the ocean floor.

ION YADIGAROGLU
Partner
Technology Impact Fund
New York

No comparison

You compared Boris Johnson to Winston Churchill, because both leaders "inherited" a serious crisis ("Here we go", July 27th). I disagree. Mr Johnson did not inherit, but actively helped create this Brexit crisis. He deserves no comparison to Churchill.

JOCHEM BORREN
Eindhoven, Netherlands

If Mr Johnson were to lose power in the coming months he may not, as you suggest, be Britain's "shortest-serving prime minister". Counting only those who formed fully effective ministries, he could still beat George Canning, who served as prime minister for 119 days in 1827. By a more generous definition, the record could belong to the Earl of Bath, who held office for 48 hours in 1746.

Horace Walpole commented that the earl "never transacted one rash thing...and left as much money in the Treasury as he found in it". Sadly, Mr Johnson is also unlikely to match these accomplishments.

JACOB WILLIAMS
London

Mr Johnson's closest parallel may be neither Churchill nor Neville Chamberlain but Galba, the Roman emperor who succeeded Nero in 68AD but lasted only a few months. The pithy and scathing assessment of Tacitus was "omnium consensu capax imperii, nisi imperasset". Rough translation: had he never become emperor everyone would have agreed that he had the capacity to reign.

MARTIN EATON
Bromsgrove, Worcestershire

The original rocket man

You mentioned China's plan to land someone on the Moon by 2035 ("The next 50 years in space", July 20th). This may be a repeat visit by China. According to legend one Wan Hu became the world's first astronaut more than 4,000 years ago by tying 47 fireworks to his chair. The sheer impact of his landing on the Moon caused the formation of a large crater, which is named after him.

TED PAUL
Weymouth, Dorset



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Basel, Switzerland

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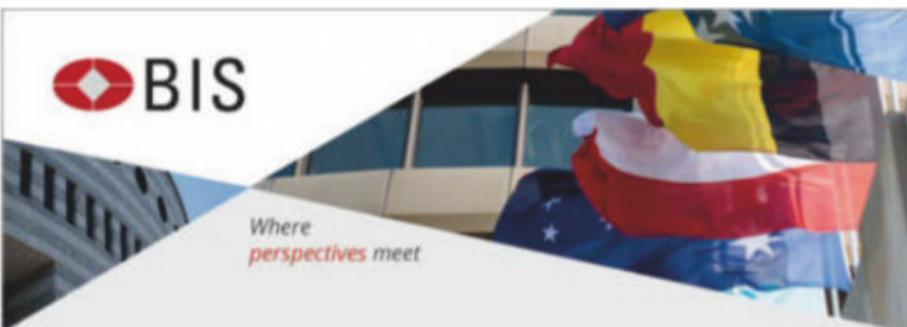
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Seeing red

HONG KONG

Asia's pre-eminent financial centre is on the brink

FOR THE past nine weeks and counting huge anti-government protests have rocked Hong Kong, with no obvious end in sight. On August 5th pro-democracy protesters organised the first general strike in the territory for half a century. It shut down parts of the transport system. Banks, advertising companies and many other businesses also closed, or urged their employees to work from home.

The absolute number of protesters on the streets has fallen—from an estimated 2m who marched, largely peacefully, on June 16th, to 350,000 strikers. But the fluid tactics of the black-clad vanguard, which is increasingly using violence, has challenged the resources of a police force determined to crack down on the protests. As the methods of the protesters have changed, so too has their target: what began as opposition to a bill that would have allowed suspects in Hong Kong to be extradited to mainland China has become a popular revolt against the local government—and, for at least some on the streets, against Chi-

nese rule itself.

How China and the international community, particularly America, react to the continuing crisis will shape the future of Asia's pre-eminent financial centre. Already it is clear that, were somehow the protests to be quelled peacefully, Hong Kong cannot simply revert to its imagined old form. Gone, possibly for ever, is the notion, rooted in colonial days but slavishly repeated by China after the territory's handover from the British in 1997, that Hong Kong can endeavour to be an "economic" city in which politics plays a minor role, and only then among an enlightened, disinterested elite. Politics has, now, firmly taken hold.

The battle outside raging

Chinese officials and Communist Party media divine Western "black hands" behind the protests. The rhetoric from the mainland has escalated markedly since July 21st, when protesters defaced the national insignia of the central liaison office,

the central government's representative in the territory. At the end of July Major General Chen Daoxiang, commander of the usually invisible Hong Kong garrison of the People's Liberation Army (PLA) called the unrest "absolutely impermissible", sending the message that the PLA would not hesitate to step in to restore order if Xi Jinping, China's ruler, demanded it. In an unsubtle message, the garrison released a video showing Chinese forces using machine-guns to suppress mock riots.

This has led to anxious speculation in Hong Kong and around the world that Chinese security forces might be preparing to intervene in a territory to which, in its formula of "one country, two systems" it had promised "a high degree of autonomy". On August 5th, at a press conference after two weeks hidden from public view, a rattled Mrs Lam spoke of Asia's financial hub being on the "verge of a very dangerous situation". A day later, at an even rarer press conference, a spokesperson for the Hong Kong and Macau affairs office in Beijing emphasised the mainland's faith in Mrs Lam, but also warned that Hong Kong's "shocking" protests had gone beyond legitimate free assembly and were pushing the territory into a "dangerous abyss".

China is no longer as directly dependent on Hong Kong for its economic welfare as it once was, when foreign firms operating from the territory, managerial expertise and access to international mar-

kets via its port were critical. At the time of the handover in 1997, the territory's economy was equivalent to nearly a fifth of China's. Today the figure is 3%, and its port is no longer important in shipping goods from the mainland (see chart).

The structure of Hong Kong's economy has changed little in two decades. In terms of their contribution to the economy, trade and logistics along with finance are remarkably similar (22% and 19% respectively). The same old family-run conglomerates in Hong Kong have a lock on property development, port operators, utilities and supermarkets. Meanwhile Shenzhen, across the border, has been transformed into a hub for new giant tech firms such as Huawei, Tencent and ZTE.

The old road is rapidly ageing

Yet Hong Kong remains more important to the mainland than might at first appear, and not just as a showcase for how China acts in a way befitting a country claiming greater status on the world stage. The paradox is that the more autocratic the mainland gets the more it needs Hong Kong commercially. Had China reformed its financial and legal system, the territory would be irrelevant to its global business. Instead the opposite has happened: China has grown fast and globalised, but not opened up.

As a result, Hong Kong's economy is disproportionately useful to China. It has a status within a body of international law and rules that gives it seamless access to Western markets. The status is multifaceted. It includes: a higher credit rating; lower risk-weights for bank and counterparty exposures; the ability to clear dollars easily; independent membership of the WTO; "equivalence" status for its stock exchange with those in America, Europe and Japan; recognition as a "developed" stockmarket by index firms and co-operation agreements with other securities regulators.

Cross-border bank lending booked in Hong Kong has roughly doubled in the past decade, much of it Chinese companies borrowing dollars intermediated through the territory. Hong Kong's stockmarket is now the world's fourth largest, behind Tokyo's but ahead of London's (see chart on the next page). About 70% of the capital raised on it is for Chinese firms, but strikingly the mix has shifted from state enterprises to tech firms such as Tencent, Meituan and Xiaomi. These firms have specifically chosen not to do mainland listings because the markets there are too immature and closed off from Western investors. Alibaba, an e-commerce conglomerate, is also in the process of doing a Hong Kong listing (at present it is only listed in New York).

Most Chinese foreign direct investment flows through Hong Kong. The stock domiciled in the territory has roughly doubled

in the last decade, to \$2trn. Hong Kong's share of total FDI flowing into mainland China has remained fairly constant, at 60%. Although the amount of multinational money flowing into and out of China has soared, most firms still prefer to have Hong Kong's legal stamp.

Meanwhile, the number of multinationals with their regional headquarters in the territory has increased by two-thirds since 1997, to around 1,500. Hong Kong hosts the most valuable life insurer in the world, excluding mainland China, AIA, while a global firm with a big Asian arm, Prudential, is about to shift its regulatory domicile to Hong Kong.

This all means that how turmoil in Hong Kong is resolved matters to more than just to its own people. Already boards of multinationals are debating over whether to move their regional domicile to Singapore. Indeed, one existing weak spot for Hong Kong is that major American tech firms, such as Google, Amazon and Facebook, have set up their regional headquarters in Singapore, perhaps because of cyber-worries. An executive with a biotech startup says the company is moving money out of the territory and considering an American listing instead.

China will not take action in Hong Kong lightly: it knows how much is at stake economically and how much its biggest firms depend on the territory, quite apart from the reputational risk. Yet it also sees the situation spiralling into a threat to the Communist Party itself—one that America, it

believes, is trying to exploit.

Its evidence for this is that the American government, already caught up in a gargantuan tussle with China over trade, cyber-technology and dominance in Asia, is taking an increasing interest in developments in Hong Kong. President Donald Trump called the demonstrations "riots", echoing the language coming from Beijing. Yet his administration is staffed with China hawks. Many see the protests as a response to the way China has undermined Hong Kong's autonomy.

Should the party intervene more forcibly, says a senior administration official, it would be "a tragedy for Hong Kong, bad for China and the latest act of decoupling from the free world and regressing to the darkness of the Mao years." The official likens Hong Kong's status, in some respects, to "West Berlin during the cold war". "One country, two systems," the official adds, "risks dying a premature death."

As the present now, will later be past

China knows that America has a formidable weapon to wield in the form of the Hong Kong Policy Act of 1992, which recognises Hong Kong as a separate legal and economic entity from China with all the rights of an open economy. An intervention by the Chinese army might lead the administration to declare Hong Kong to be in breach of the act. This, though, would be a nuclear option: one that America is likely to take only in extremis.

In the meantime, Congress, led by Senator Marco Rubio, is working on legislation that would, among other things, test Hong Kong's system of export controls to make sure Chinese companies are not circumventing rules, as well as ensure that demonstrators are not penalised if they seek American visas, just because they were arrested during the protests.

If it ever happened, intervention by the Chinese army would not necessarily be in the form of tanks and blazing machine-guns. Its deployment would follow a process set out in Hong Kong's post-colonial constitution, the Basic Law, and a piece of Chinese legislation called the Garrison Law. These allow Hong Kong to ask the central government for the PLA garrison's help in maintaining public order. This could, in theory, merely entail a few discreet units backing up Hong Kong's police. It would be very unlikely to involve the random violence seen, for example, in 1989 in Tiananmen: the PLA today is far better trained, and the garrison has been drilling its men in crowd-control techniques that resemble those of the Hong Kong police. But avoiding any such eventuality, says one of Mrs Lam's advisers, has always been the Hong Kong government's "number one" priority. Having the PLA come in is "the last thing" anyone wants to have happen. It would



The goose that still lays golden eggs

Value of stockmarkets, August 8th 2019, \$trn



Sources: Bloomberg; World Federation of Exchanges; Hong Kong government statistics; Shanghai & Shenzhen stock exchanges *Excl. China

Hong Kong in numbers

	1997	Latest
Mainland China stockmarket value, \$bn	118	6,390
Hong Kong stockmarket value, \$bn	431	4,940
Total loans by Hong Kong banks, \$bn	532	1,277
US dollar and other foreign currency deposits, \$bn	155	851
Number of multinational firms with regional HQ*	744	1,333

it failed in the long run. The authorities wore down the umbrella protests demanding democracy in 2014 and restricted even further the scope for representative politics. That just bred a more radical generation of protesters. As for the increasing "mainlandisation" of Hong Kong politics, among ordinary Hong Kong folk it has fostered only cynicism and a sense of powerlessness. The central liaison office, once almost invisible, now owns Hong Kong's largest publisher, provides loans to patriotic businesses, ensures China's choice of chief executive and backs candidates favoured by the Communist Party in elections for the legislature and district councils. Now it is also pushing loyal placement into the leadership of many professions.

A hopeful scenario does exist for Hong Kong. According to an adviser to Mrs Lam, if the streets grew calm it would be possible to imagine the government presenting once more a package of political reforms that it first offered five years ago. It would include allowing universal suffrage in choosing the chief executive. In 2014 democrats in the legislature rejected the package, partly because, in effect, only party-approved candidates would be allowed to run. This time, says Anson Chan, a former chief secretary who now backs the democratic cause, a deal could be done, so long as a timetable for universal suffrage were agreed. Mrs Lam should consider this option. After all, her crisis of legitimacy comes, at heart, from not being elected by Hong Kong. All her unelected predecessors ended their terms in failure too.

Indeed, some democrats are urging hot-head protesters to rethink their tactics. Attacking police stations, they say, just plays into the hands of the authorities. A more valuable battleground is emerging: elections for the territory's district councils in November. While ordinarily such elections have to do with matters such as rubbish collection and bus lanes, in the current climate they will be a referendum on political values. Unless democrats move from the streets to the campaign stump, says Kevin Yam, a lawyer and columnist, the pro-establishment camp, whose grass-roots organisations in housing estates and the villages of the New Territories is funded by the central liaison office, risks dominating. Should that camp win, Mr Yam argues, it will say: "you see, we [not you] are the silent majority."

If the violence continues, avenues for peaceful advocacy and dissent will be blocked by one side or the other. At best this scenario would entail a long tearing of Hong Kong's social fabric and a relentless decline in the territory's economy. At worst it could mean the end of Hong Kong as it has long been imagined, as soon as the armoured anti-riot vehicles roll out of the garrison compound. ■

▶ show Hong Kong incapable of "keeping our house in order".

Perhaps Mrs Lam's administration thinks that the protests might lose steam along with popular support. At the outset, many parents marched with their children. But now, growing numbers of Hong Kong people are deeply concerned about the escalating violence on all sides; it is the chief topic of everyday office conversation. Parents with children at school or university have been withholding pocket money in the hopes that, penniless and underfed, they will come back home. Many long for the start of the new academic year in early September, hoping that young protesters will return to their studies.

But it is not only students who are critical of the government. Even groups that in the past have been staunch supporters of the administration have been having second thoughts. This week many businesses made it clear to their staff that they would not be penalised for joining the general strike. And though it strongly condemns recent violence, describing it as a threat to Hong Kong's position as a financial centre, the Hong Kong General Chamber of Commerce, the largest business organisation, has backed protesters' calls for an independent inquiry as a necessary step for restoring calm. By the standards of Hong Kong business, that is a bold move. A few other organisations and individual companies, risking becoming the target of online anger from the mainland, are more quietly backing the peaceful aspirations of protesters (among whom number their staff).

An emerging viewpoint, even among some pro-party types, acknowledges that many Hong Kong businesses had concerns about how the extradition bill might add to the arbitrary risks of doing business with the mainland. This viewpoint admits to sympathy for Hong Kong's disaffected youth, who are alarmed at the rapid integration of the territory's economy with China's. Members of this camp may hold that the political job is now to tilt the economic playing field in favour of the

young—more public housing, for instance—but they do not acknowledge a democratic dimension to the protests.

It will prove a hot and critical August. For now, the line in Beijing avoids any direct threat of intervention: stand behind Mrs Lam's stricken authority, urge the police and courts to be tough, and be on a ruthless lookout for separatist tendencies. On August 7th Hong Kong members of two mainland bodies, the National People's Congress and the Chinese People's Political Consultative Conference were ordered to Shenzhen to hear the message first-hand.

Mr Xi has an urgent reason to wish that a tighter grip and a firmer message will bring order to Hong Kong. On October 1st he presides over China-wide celebrations marking the 70th anniversary of the Communist Party coming to power: the birth of a "new" China which Mr Xi can now claim is also a powerful one. To ensure the anniversary is marked without a hitch, security across the mainland is being tightened and dissent stifled even more vigorously than usual.

However, firmness in the face of unrest has been tried before in Hong Kong, and though it succeeded in the immediate aim,





Mass shootings

The definition of insanity

EL PASO

America grapples with a lethal mix of terrorism and lax gun laws

THEY LOOKED like something out of Donald Trump's fever dream: a bunch of burly, bearded, tattooed Latinos massed outside a blood bank wielding metal objects. But the objects were spoons and spatulas, and the men were Christians on a mission. Soon after a gunman killed nearly two dozen people at a Walmart, Pastor Anthony Torres and members of his flock stocked their mobile kitchen and drove down from Alamogordo, New Mexico. In the two days that followed they served hundreds of meals to El Pasoans who donated badly needed blood to local hospitals. Asked why he brought nearly a dozen people, a mobile kitchen and hundreds of dollars-worth of food to another city to help people he had never met, Mr Torres just shrugs: "We felt we had to be here."

The El Paso massacre was the deadliest of three in less than a week—all perpetrated by young men using legally purchased semi-automatic weapons. The death toll, including two shooters, stood at 36: 22 in El Paso, four at a festival in Gilroy, California and ten in Dayton, Ohio, with dozens left

injured. America has grown accustomed to such events. There have been 31 shootings with three or more deaths in 2019. On average, according to a research outfit called the Gun Violence Archive, this year has seen one shooting in which four or more people were killed or injured every day.

Two of these attacks—in Gilroy and El Paso—are being investigated as domestic terrorism, raising questions about how police and politicians confront the threat from white-supremacist terror. On July 23rd Christopher Wray, the FBI director, said his agency had made around 100 domestic-terror arrests since October, most of them related to white supremacists. Yet even though, according to the Anti-Defa-

mation League, an NGO, right-wing extremists were responsible for 70% of killings apparently motivated by some extremist ideology in America between 2009 and 2018, the counterterrorism apparatus remains geared more towards catching foreign terrorists than domestic ones.

That stems partly from a legal distinction. Providing money or personnel to a designated foreign-terrorist group such as al-Qaeda or ISIS is illegal. No such statute exists for domestic terrorism, and in any case white-supremacist attacks are carried out by individuals who buy their own guns and radicalise themselves online. Initiating a terrorism investigation based on opinions posted on web forums gets into murky First Amendment waters.

But the imbalance also stems from priorities set at the top. Former counterterrorism analysts say that the government does not devote nearly as much intellectual energy to understanding the ideology of domestic white supremacists, and mapping out paths from ideology to action, as it does to jihadist terrorism—even though, as Clint Watts, a former FBI special agent who worked on terrorism, notes, the two ideologies are structurally similar. Both argue that they—Muslims in one case, white people in another—are superior, and need their own separate state ruled by their own people, and are justified in committing acts of violence in their people's name.

Despite that passing similarity, the path to radicalisation seems different. Jihadist ➤

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► groups recruited through mainstream platforms such as Facebook, Twitter and YouTube, where they comprised a negligible share of these firms' revenue and users. That made it easy for companies and governments to kick jihadists off these sites. White-nationalist extremists use smaller platforms that have no interest in joining the mainstream. Sometimes their service providers step in: Cloudflare, for instance, withdrew its web-security protections from 8chan, a web forum popular with the far right. These sites then pop up elsewhere, hosted in an obscure jurisdiction.

Shortly before he began his attack, Patrick Crusius, the El Paso shooter, appears to have posted a manifesto on 8chan. He wrote that his attack was "a response to the Hispanic invasion of Texas"—a state that until 1836 was part of Mexico. He railed against immigration and environmental damage, and advocated "decreas[ing] the number of people in America using resources. If we can just get rid of enough people, then our way of life can become sustainable." Towards that end, he travelled from the suburb of Dallas where he was brought up to El Paso, a majority-Hispanic border city, and opened fire in a store packed with back-to-school shoppers from Mexico. One survivor said he specifically targeted people he thought were Hispanic.

"The Hispanic community," he wrote, "was not my target until I read *The Great Replacement*." This refers to a conspiracy theory that blames feckless Western elites for "replacing" people of European ancestry with non-white immigrants. "*The Great Replacement*" was the title of a book by a French polemicist. Brenton Tarrant, an Australian man who earlier this year murdered 51 people in two mosques in New Zealand, used it as the title of his own manifesto, which Mr Crusius endorsed.

This is an updated version of an older conspiracy theory known as white genocide, which propounds that the world's white population is being deliberately

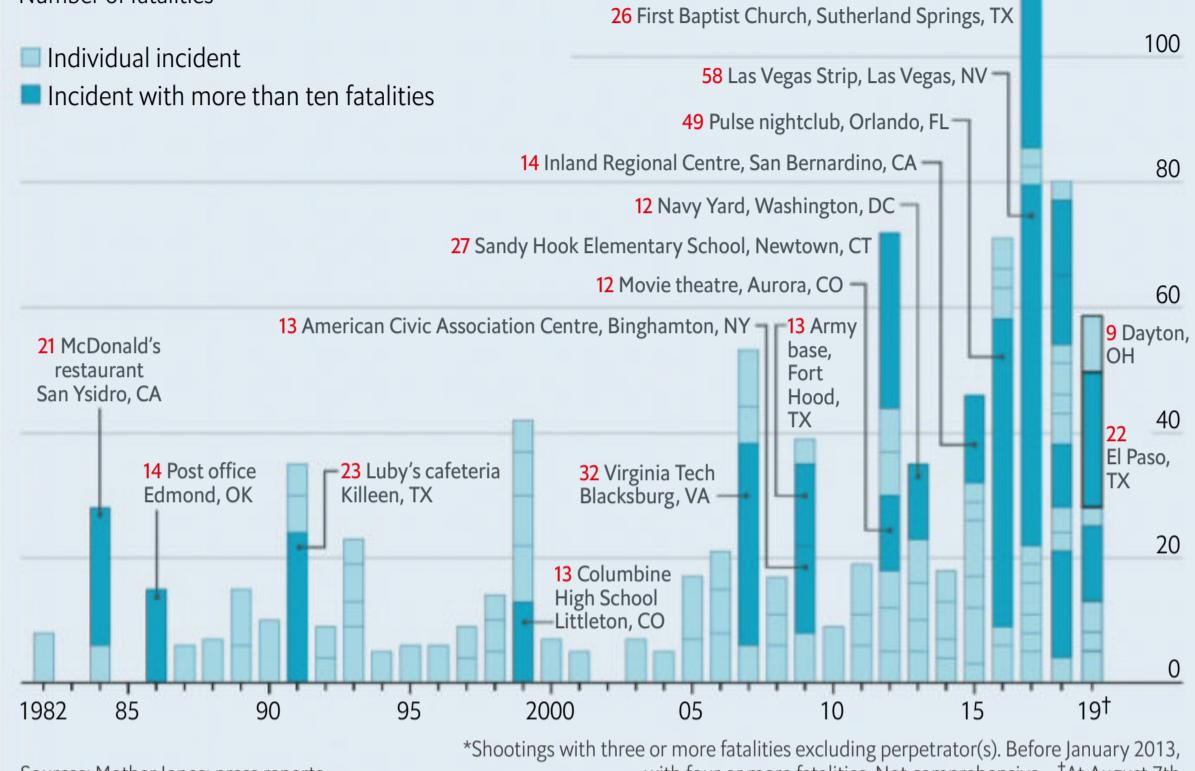
X and why

United States, mass shootings*, 1982-2019

Number of fatalities

■ Individual incident

■ Incident with more than ten fatalities



Sources: Mother Jones; press reports

*Shootings with three or more fatalities excluding perpetrator(s). Before January 2013, with four or more fatalities. Not comprehensive †At August 7th

shrunk and diluted through mass immigration, low fertility rates, multiculturalism and miscegenation (Mr Crusius also inveighed against "race mixing"). Unsurprisingly, many on the far right believe this to be a Jewish plot.

These beliefs, notes Oren Segal of the Anti-Defamation League, "are not just on these fringe internet forums. If anyone operating there turned on Fox News, they would hear similar sentiments." Tucker Carlson, the second-most-popular host on cable news, has said that Democrats want "demographic replacement" through "a flood of illegals". Laura Ingraham, another host, has argued that Democrats "want to replace you, the American voters, with newly amnesty citizens and an ever-increasing number of chain migrants."

Prominent politicians have said the same thing. Steve King, a congressman

from Iowa, infamously wrote that "we can't restore our civilisation with somebody else's babies." On the House floor Ted Yoho and Louie Gohmert, both Republican congressmen, have compared immigrants to invaders. During a trip to Europe in 2018, Donald Trump said that immigration has "changed the fabric of Europe", and told a British tabloid, "I think you are losing your culture. Look around." More recently, his Facebook campaign ads have warned, "We have an INVASION...It's CRITICAL that we STOP THE INVASION." Take this literally and violence becomes a defensive measure.

Correlation is not causation, but FBI data show a recent uptick in reported hate crimes. Men who killed Jews in synagogues in California and Pittsburgh blamed Jews for immigrant "invaders" and the "genocide of the European race". Despite the president's occasional disavowals, these people really like him. The Christchurch shooter called Mr Trump "a symbol of renewed white identity and common purpose". One researcher who attends extremist rallies (in disguise) reports "unanimous support for Trump...These folks rallied around him. They saw large parts of their messaging getting into the mainstream."

To his credit, in a speech on August 5th Mr Trump denounced "racism, bigotry and white supremacy". He also advocated making it easier to commit the mentally ill to hospital, "stop[ping] the glorification of violence in our society" and develop "tools that can detect mass-shooters before they strike". Missing from the list was a commitment to moderate his own speech, or anything that would make it substantially harder for angry young men to obtain semi-automatic weapons. ■



On malign words

"Oppressive language does more than represent violence; it is violence; does more than represent the limits of knowledge; it limits knowledge. Whether it is obscuring state language or the faux-language of mindless media; whether it is the proud but calcified language of the academy or the commodity-driven language of science; whether it is the malign language of law-without-ethics, or language designed for the estrangement of minorities, hiding its racist plunder in its literary cheek—it must be rejected, altered and exposed."

Toni Morrison's Nobel lecture, as the first African-American writer to receive the prize, in 1993. She died on August 5th.

Tom Dart

Bull's-eye

CHICAGO

What happens when a radical sheriff comes to town

WHEN IT COMES to the treatment of mentally ill people, says Tom Dart, "in future people will look back and call us evil." Mr Dart, who serves Cook County in Illinois, may be the most interesting sheriff in the country. America locks up the mentally frail "out of indifference", he says. Behind bars, with few officers trained to help, the sick grow more troubled and likely to reoffend.

In Chicago Rahm Emanuel, the previous mayor, closed six of 12 public-health clinics in 2012. Sheriff Dart thinks that resulted in more ill people losing their way, going off medication, getting arrested and being dumped in his gargantuan, crumbling jail on the city's South Side. His staff say that of nearly 40,000 people who pass through yearly, 37% (as of mid-July) suffer some form of mental ailment.

Early in his term (he was first elected in 2006) the sheriff, a former Illinois lawmaker, tried raising awareness. He calls the neglect of mental health chronic, inhumane and costly. Imagine if we treated diabetes by locking sufferers in a small room, he says. But as Alisa Roth writes in "Insane", published last year, the prison system has been known as a warehouse for the mentally ill for decades. She cites a federal study that suggests 75% of female detainees suffer mental illness.

The sheriff's response has been to try making his jail "the best mental-health hospital" possible. He has done away with solitary confinement, a practice which has long been known to cause and worsen mental woes. (Doing so has also cut staff assaults, he says). He appointed psychologists as jail directors and hired medically trained staff in place of some guards. Inmates can take courses in yoga, chess and other activities intended to rehabilitate.

Spend a day in his jail and much appears unusual for a place of detention. In a damp and gloomy basement, prison workers hand out questionnaires to men arrested the night before. They scramble to see inmates before they go before a bail judge (who will release most the same day), to get a chance to diagnose the mentally ill, see who gets treatment and offer care.

For those kept inside—the jail holds some 6,000 detainees at a time, many for three-to-six months—further diagnosis and treatment follows. Staff in a beige hospital building distinguish between 1,600 inmates, currently, who are "higher-func-

tioning" for example with depression, 382 of "marginal stability", perhaps with schizophrenia, and 80 who suffer the most acute psychosis. The last are the hardest to manage, let alone release safely.

Treatment includes antidepressants and other medical care, getting sober, and counselling to address low self-esteem. "We diagnose, prescribe and treat, offer therapeutic classes, hotlines for families, and have a discharge plan like a hospital," says Mr Dart. In one cell block a psychiatrist leads 40 women in blue jail smocks in a lively, if scripted, discussion of how to seek self-forgiveness. The women read poetry, talk of betrayal and of shaking off addiction. Over half are hooked on heroin, says an official. A gaunt detainee tells how she struggles with anger, "but I don't think I'm the same person as when I came in, I used to lash out at every little thing."

Therapy sessions for male detainees bring forth stories of isolation, absent parents, addiction, violence, fear and arrests. A 25-year-old, Jesus Saenz, says he has been to the county jail 30 times. He laments years lost to cocaine and PCP, gangs, depression and bi-polar disorder. After medical care and months of counselling he now vows to stay clean and get a job. "They helped me stop my bullshit, hurting other people," he says.

What chance does Mr Dart have of suc-

ceeding? Some anecdotes are cheering, but measurement is tricky beyond looking at rates of rearrests. Reoffending in the first ten days of release is down sharply, says the sheriff. A pilot project gives the most vulnerable help to find housing, food and clothing on release. Some are driven home, not just dumped outside the jailhouse door. But longer-term rates of rearrest are not yet noticeably down, he concedes.

The jail population has shrunk by half since Sheriff Dart came in. That is explained by many things, including generally lower rates of arrest by police in the past three years. Bond reform, passed in 2017, is also a factor. Bail is rarely set at thousands of dollars, so fewer are jailed merely for being poor. This has freed up resources for better health care, as did closing a military-style boot camp in the jail. Mr Dart is convinced data will eventually show overall benefits, once experts from the University of Chicago and elsewhere have had time to track outcomes.

What's in a badge

Beyond the jail walls he is trying other experiments, rethinking the role of the sheriff's office and deploying his nearly 7,000 staff in ways his predecessors never imagined. There are over 3,000 sheriffs across America, law officers whose duties are limited mostly to policing and enforcing court orders. Under Mr Dart's expansive view, the office can be a form of alternative government. His mandate is so nebulous, he argues, it amounts to "outrageously broad powers" for a willing sheriff, especially beyond city borders (his county includes 130 towns and villages outside Chicago). He tries what he calls "wildly different stuff...to make my job more bizarre."

Examples include his office helping the mayor of a depopulated, crime-ridden and poor town, Ford Heights, to fix its public lighting and water, build a baseball diamond and replace a defunct police force. Elsewhere he has clashed with banks, by refusing to evict homeowners who are behind on mortgages. He resisted even facing threats of contempt orders against him personally. He called the evictions unjust for a "thoughtful society".

Mr Dart campaigned to close Backpage.com, a website shuttered by federal authorities for hosting adverts for human trafficking and prostitution. And in Chicago he deployed officers to promote community policing—to build trust among residents in especially violent areas—even when city police, at first, seemed reluctant to accept help. Not all these efforts succeed. But through his willingness to try new things until someone stops him, and his enthusiasm for clashing with Democratic power-brokers in Springfield like the House Speaker, Mike Madigan, Mr Dart has reimaged what a sheriff can be. ■



The Dart arts



Life after coal

Comin' round the bend

GILLETTE, WYOMING

America's coal capital knows it must rethink its future

RUSTY BELL climbs a roadside platform and gazes at the sweeping, flower-strewn landscape of northern Wyoming. Immediately before him is a vast hole. Eagle Butte, a canyon of grey and brown rock, is one of the largest coal mines in America. The commissioner of Campbell County calls it a mainstay of the economy. Nearby Gillette, for example, has a swanky recreation centre, decent public-health services, a community college and more, all thanks to coal revenues, he says.

Mr Bell's problem is that nothing moves in the hole. Yellow lorries on the valley floor look tiny and toylike in the distance. Each is really a giant able to haul a payload of 400 tons. The tyres on each one are more than twice the height of a tall man. But where a shift of 75 workers usually toils, all is still. Where trains 1.5 miles (2.4km) long used to leave from the mine's edge, their 140 cars brimming with low-sulphur coal, nothing stirs. Buses that bring 8,000 tourists a year to the mine are also locked out.

The operator, Blackjewel, last year shipped 34m tons from Eagle Butte and a sister mine. About 165bn tons of recoverable coal remain under the prairie grass of the wider Powder River basin. In theory that means hundreds of years of digging yet. But in July Blackjewel declared bankruptcy, chained its gates and sent home over 1,700 workers nationally, including 580 in Wyoming. Officials and residents in

Gillette lament "horrible" incompetence by its boss. The mayor, Louise Carter-King, blames "complete mismanagement", vowing that "these mines will reopen".

In reality Blackjewel's troubles reflect industry-wide woes. Cloud Peak Energy runs three mines nearby and declared bankruptcy in May. Six Wyoming operators have done so since 2015. Some are consolidating, others have restructured and reopened. Nonetheless, production is slumping. America consumes 40% less coal than at its peak in 2005. Just over a decade ago, thermal coal produced half the nation's electricity; today it accounts for little more than a quarter. Many investors are abandoning coal. The only real uncertainty is when digging it will cease to be a significant business. The mayor, gamely, says that "for 10 to 20 years the nation will still need coal in the mix." Others say longer. The overall trend, either way, is downwards as steeply as the edges of Eagle Butte.

Almost a century ago 860,000 coal miners toiled in America; by January just 53,000 did. Roughly 17,000—including those employed indirectly—are in Wyoming, many in Campbell County. They are highly skilled and typically earn almost \$90,000 a year, double the state average. But power utilities increasingly shun what they produce. The Sierra Club estimates that 239 coal-fired plants survive, down from 600 in 2007. Around the corner from

Eagle Butte is Dry Fork, one of the newest coal-fired stations. It cost \$1.3bn and opened in 2011. Talk of a second plant came to nothing. Utilities prefer cheaper and cleaner natural gas, solar or wind power.

Academics from Columbia University forecast coal consumption crumbling by another 25% in the coming decade. For Campbell County, which digs two-fifths of America's coal, that may be the best it can hope for. Many power plants now mix gas with coal, cutting demand. If other energy sources get cheaper, or if congressional Democrats succeed in passing laws designed to limit carbon emissions, demand will fall faster.

Some in Wyoming—which overwhelmingly backed Donald Trump in 2016—see a liberal conspiracy against coal workers and their hardscrabble way of life. One Gillette resident says proponents of clean energy are set on "direct attacks on the good people" who work there. Many scoff at curbing carbon emissions. "I'm not sold that the ice caps are melting, most people aren't persuaded by climate change," says Phil Christopherson, boss of a group trying to diversify Gillette's economy.

Such denial helps nobody. Jim Ford, another local who works on diversifying the local economy away from mining, concedes there is "widespread distaste for carbon-flavoured kilowatts, [so] it doesn't matter what we think." Locals also know that exports alone won't save the county. Governors of western coastal states refuse to let their ports be used—or a new one be built—for shipping Wyoming coal.

Michael Von Flatern, a state senator, expects "we'll be headed for bust more often than boom" as the industry slows. He praises efforts to test how to burn coal cleanly, by catching emissions, but says "we're 20 years too late" in starting such experiments. Mr Ford describes a \$20m international effort at Dry Fork to extract carbon from flue gases while producing marketable products from it. Some local firms hope to use coal to make asphalt, carbon fibre or water filters.

It never will again

Such activities, so far, are small-bore. Mr Von Flatern thus expects tighter belts and rising property taxes to come, because residents cannot expect taxes on minerals (oil, gas and some uranium are also extracted) to keep paying for 58% of all the county's bills. Wyoming gets an estimated \$900m a year in royalties and fees from coal miners. That sum is starting to fall.

The mayor talks of luring firearm-makers or other industries to use Gillette's railway, roads, airport, energy, skilled labour and water. She notes how trade shows, tourism and conferences are growing. "We know we need to diversify, but it takes time," she says. And time is short. ■

Lexington | Rowing about rights

There is a need for fresh thinking on human rights. Mike Pompeo's effort looks like a partisan stunt



MARY ANN GLENDON is not used to having her bona fides questioned. The 80-year-old Harvard professor is an eminent legal scholar whose books on comparative law and human rights are widely respected. A former ambassador to the Holy See, she is also a conservative Catholic, whose opposition to gay marriage and abortion have drawn flak. But her view of abortion is nuanced; she is not for a blanket ban. And her contribution to human rights is significant. She was active in the civil-rights struggle (and had a child with an African-American) in the 1960s; her book on the conservative and Christian roots of the rights movement is seminal. Yet since her former student Mike Pompeo, the secretary of state, announced that she will lead a new "Commission on Unalienable Rights", both she and it have been savaged. Over 400 rights, religious and academic bodies, as well as Obama and Bush administration officials such as David Kramer and Susan Rice, signed a letter asking the panel to be scrapped before it has even met.

In a lengthy email exchange, Ms Glendon sounded understandably bruised: "I really hope that those who have rushed to judgment about the commission before it gets off the ground will one day understand how far off the mark they were." Yet that does seem unlikely. The opposition stems from a belief that Mr Pompeo launched the commission to promote religious liberty—with which evangelical Christians, the Trump administration's most important constituency, are obsessed—at the expense of reproductive and gay rights, which they abhor.

This is a fair deduction. Religious liberty is the only right in which Mr Pompeo, who is evangelical and highly ambitious, has shown any serious interest. He has also previously linked it to the archaic phrase "unalienable right", which conservatives use to denote the rights to liberty and property enshrined in America's founding documents. By contrast, many people, seemingly including Mr Pompeo, view more recent protections for gays and other minorities as mere "interests" or "goods", doled out by liberals for political gain.

Ms Glendon is also among them: she once called gay marriage a demand for "special preference". So are at least some of her fellow commissioners. They are a mainly conservative group of academics and faith leaders, few of whom have any expertise in human

rights. And as if those were not sufficient grounds for scepticism, the commission is viewed with suspicion by the State Department's own human-rights division, which has had no hand in it. Still, Ms Glendon insists that the pre-emptive criticism is wrong: "Nowhere in our charge is there anything about reprioritising [rights]." And someone of her stature deserves a serious hearing.

In her view there are many reasons to reappraise the rights agenda. It is widely recognised in the human-rights community that the great post-1945 human-rights project is in "crisis," she says. To underline that, she quotes a list of liberals, including Salil Shetty, a former boss of Amnesty International, and Samuel Moyn of Yale University, who have expressed similar concerns. One is that governments are not defending rights. The erosion of the fragile consensus that once supported the UN Declaration on Human Rights has benefited and been exploited by the world's worst rights violators, writes Ms Glendon. Like Mr Moyn, she has argued for recognising socioeconomic rights, as European countries do but America does not, as well as civil and political ones.

Her emails also touched on her more controversial views. Pandering to "special interests" has led rights groups to disavow "established rights that do not suit their agendas", she wrote. Applied to gay rights, that is an illiberal view. Yet Ms Glendon can at least cite more history in support of it than her critics allow. With their conservative, Christian roots, the framers of the UN Declaration did not envisage gay marriage. Conservatives like her therefore believe they are not reactionaries, as liberals claim, but rather keepers of the rights movement's true flame.

"Crisis" may be too strong a word, but Ms Glendon is right to note the strain human rights are under, including from authoritarian leaders, ineffective international institutions and rights proliferation. An administration that wanted to lead a good-faith review of such worries could have drawn support from across the political spectrum. Ms Glendon's illiberal views should not disqualify her from leading such an effort. Gay rights are a settled issue in America, and Mr Pompeo would struggle to restrict State Department support for them by more than the minimal steps he has already taken—by denying some embassies permission to fly flags to celebrate Gay Pride, for example. The problem is that there is not much reason to think the new commission is a good-faith effort.

Unalienable, except when they're not

Even beyond Mr Pompeo's evangelical crowd-pleasing, the Trump administration has shown little interest in standing up to the worst rights-violators. Mr Pompeo only ever castigates abusers, such as Iran or Cuba, when it is politically convenient. Mr Trump appears to have no interest in the issue. And the administration's attacks on international rights institutions look equally self-serving. Its argument for pulling out of the UN Human Rights Commission—a troubled body that had nevertheless been improving under American influence—was bogus.

The administration has a record of convening expert panels to score political points. One was given the impossible task of substantiating Mr Trump's claim that his election saw massive vote-rigging. Another has been proposed—under one of the few climate-change deniers in an Ivy League science faculty—on global warming. That Ms Glendon's panel looks like the latest example is, in a sense, nothing unusual. Despite the lofty ideals that attend them, rights claims are always made and resisted as part of broader political battles. Mr Moyn calls them "politics by other means". Yet what is depressing in this case is how small the politics seem. ■

PERSONAL CAPITAL®

BEHIND THE HEADLINES: UNDERSTANDING YOUR PORTFOLIO RISK

What has been driving volatility in the market?

Three things were responsible for market turbulence in the fourth quarter of last year: trade fears; potential growth slowdown; and rising interest rates. Since then, earnings have exceeded expectations and the interest rate outlook has flip-flopped. Trade remains an ongoing risk. China is slowing down and tariffs will exacerbate the effect of this.

How should investors respond to unsettling headlines? Should they be scaling down the risk in their portfolios?

There are scary headlines every year; most years, markets charge right through them. Regarding trade, you can't predict what two unpredictable leaders will do. So far, proposed tariffs remain smaller in magnitude than the 2017 tax cuts. Most investors are best served sticking to a static asset allocation crafted for their needs.

People should have a strategy that works when they're not looking at the headlines. Making decisions based on the latest front page can be costly.

How can investors know how much risk they are really taking?

The first step is to understand what your asset allocation actually is. Most investors don't. It is common to have multiple accounts across numerous institutions; this makes it difficult to track and measure risk.

Many portfolios are collections that have been accumulated over time with little strategic thought. However, there are now online tools available that show you an overview of your portfolio positioning, both from an investment and retirement planning perspective.

What are the common mistakes you see investors making, and what can they do to correct these?

There are two common mistakes at opposite ends of the spectrum. First, a lot of people have become overly comfortable with the long bull run, running large over-weights in the technology sector. However, in the dotcom crash, tech stocks lost 80%. In the financial crisis, financials lost 80%. Those were the two most popular sectors, as technology is today. It's typical to underestimate the risk that comes from concentrations in specific companies or sectors.

The opposite problem is holding a large amount in cash, either through fear or through not knowing how to invest it.

What should investors be looking at to increase their diversification?

Continue to think globally. There's a reluctance to invest internationally because the US has done so well in this bull market, driven by technology. However, non-US stocks look attractive, developed-market stocks are cheap, and emerging-market stocks are cheaper still.

Bonds are also appropriate for almost everyone, particularly government bonds, as they are one of the few things that go up when stocks go down. Treasuries should make up the core of the fixed income portion of the portfolio, supplemented by others, such as corporates and emerging market bonds. Furthermore, although inflation has been muted for years, this won't always be the case, so some exposure to inflation-linked bonds is a good idea.



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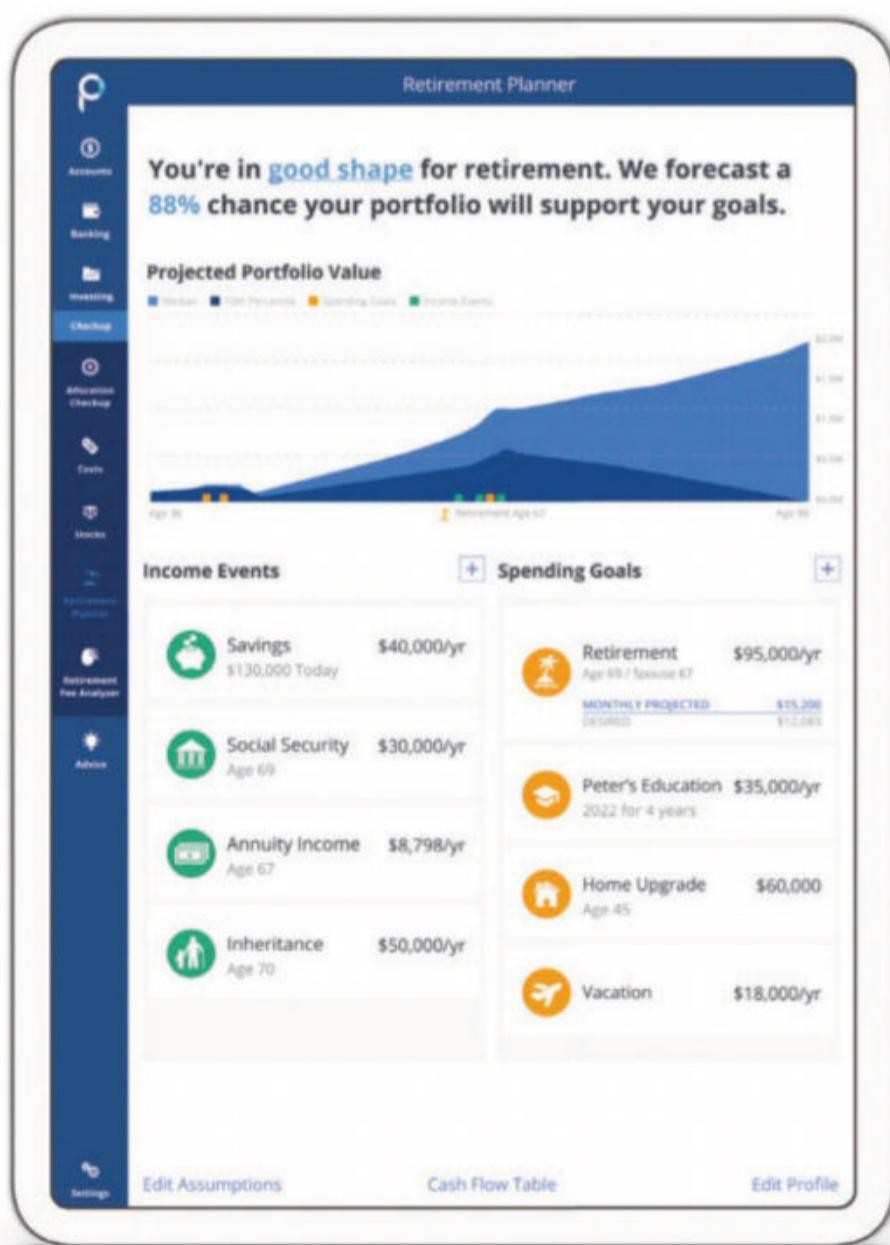
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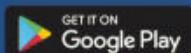
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Espírito Santo

Spirited effort

VITÓRIA

One Brazilian state stands out as a model of efficiency

THE MOQUECA in Espírito Santo, a state of 4m people on the coast of south-eastern Brazil, is lighter than the fish stew in Bahia, its neighbour to the north, explains a tuxedoed waiter in the capital, Vitória. Capixabas, as Espírito Santo residents are called, like it that way. Their beaches are smaller than those of Rio de Janeiro, to the south; their colonial towns plainer than those of Minas Gerais, to the west. Once considered signs of inferiority, these now seem like symbols of frugality. Other states are so indebted they cannot pay salaries, but Espírito Santo's accounts are in order.

That is thanks largely to the last governor, Paulo Hartung, who ran the state from 2003 to 2010 and then again from 2015 to last year. Mr Hartung stood in 2014 on an austerity platform, arguing that "spending is taking the elevator while revenue is taking the stairs". On taking office he set about shrinking spending by 14%. His work means that Espírito Santo is now a model for other Brazilian states to follow.

Brazil's fiscal incontinence is legendary. The number of civil servants grew by 60% between 1995 and 2016, to 12m. Since public-sector workers cannot be fired or have their pay cut, they become a permanent ex-

pense once hired. Perks such as raises for seniority can even extend to widows' pensions, producing the unique "post-mortem promotion". Nearly 80% of government spending in Brazil goes on salaries and pensions, compared with a global average of 50-60%. "Instead of a state that serves the public, you have a state that serves the state," says Samuel Pessôa of the Brazilian Institute of Economics at Fundação Getúlio Vargas, a university.



These days the crisis is worst at the state level. The 27 states' combined pensions shortfall alone is growing by 140bn reais (\$35bn) a year, more than that of the federal government. The deficit has doubled in the past five years. Seven states already do not have enough cash to pay salaries; 12 more are close.

Under Dilma Rousseff, Brazil's president from 2011 to 2015, states like Rio de Janeiro depended on treasury-guaranteed loans from state banks to keep spending. But Brazil's new president, Jair Bolsonaro, has promised to reduce the size of the state. His treasury head, Mansueto Almeida, has made debt relief conditional on efforts to comply with a fiscal-responsibility law—passed in 2000 but long ignored—that restricts spending on personnel.

So how has Espírito Santo stayed in the black? One thing that sets the state apart was foresight about the depth of Brazil's worst-ever recession, which began in 2014. Other governors believed the then president Ms Rousseff, who promised a quick recovery. "We underestimated the size of the crisis," admits Julio Bueno, the treasury secretary in Rio de Janeiro at the time. Brazil's GDP fell by 3.8% in 2015 and by 3.6% in 2016. Rio ended up with a budget deficit of 11bn reais. Espírito Santo finished both years with a surplus.

Boldness is the second thing that sets Espírito Santo apart. "Fiscal adjustment is a cake recipe not a silver bullet," says Mr Hartung. It can easily go wrong. As well as cutting budgets, including for the judiciary and legislature, he had to stand up to the unions, announcing the salary freeze on ►

► his first day. Even when two years later police officers went on strike, and 200 were murdered, Mr Hartung did not back down.

Finally, Espírito Santo was better placed to downsize. Its bureaucracy includes a large share of temporary workers, including roughly 60% of teachers. Unlike civil servants, they can be fired. Mr Hartung eliminated more than 7,000 positions, or roughly 12% of the bureaucracy. In Rio de Janeiro less than 3% of government workers are temporary.

Austerity has been painful. Sergio Majeski, a state congressman who opposed the fiscal adjustment, says that cuts to public investment made it harder to climb out of recession. But despite laying off teachers and closing schools, Espírito Santo jumped from 9th place to 1st on a nationwide secondary school exam between 2013 and 2017. Mr Majeski says this is because weaker students began skipping classes. But according to Marco Aurélio Villela, the director of a government school in Vitória, teachers on short-term contracts tend to perform better because they know they can be sacked.

And cutting staff has helped the state to maintain a relatively high level of investment. According to a study by Brazil's treasury, three states that limited spending on salaries—Espírito Santo, Alagoas and Ceará—were able to invest, on average, 304 reais per person in 2018. Rio de Janeiro, Minas Gerais and Rio Grande do Sul, the states deepest in debt, only spent 91 reais.

Can other states emulate Espírito Santo? It will be difficult without changes to federal laws. Mr Bolsonaro's pension reform, working its way through congress, may only apply to federal workers. The supreme court will soon decide whether to allow indebted states to reduce civil servants' salaries and hours. That would provide some relief, as would a bill to allow people to be sacked for persistent poor performance. But most politicians will balk at unpopular cuts. A pilot project led by Ana Carla Abrão, an economist at Oliver Wyman, a consultancy, found that the city of São Paulo could reduce its payroll by 30% without sacking anyone, by paring back perks for all but the best-performing employees. The project was shelved by a new mayor in 2018.

Last year Mr Hartung decided not to run for re-election. It would have sent a better message if he had, and had won, says Cristiane Schmidt, the treasury secretary for Goiás, a state in deep fiscal trouble. Brazilians tend to blame corruption for their economic woes, even though more money is lost to bloated bureaucracy. Whereas Sérgio Moro, a judge, gained international fame for leading the sprawling Lava Jato anti-corruption investigation, few outside of Espírito Santo have heard of Paulo Hartung. That may change as more states find their coffers empty. ■

Argentina's election

It won't be easy

BUENOS AIRES

Argentina's primaries will show how the presidential election may go

IN ARGENTINE POLITICS, being compared to a fat cow is not altogether a bad thing. At one of his last campaign stops ahead of national primaries on August 11th, Mauricio Macri, Argentina's embattled president, rallied with thousands of farmers at the country's annual agricultural show. Award-winning cows, horses, sheep and even donkeys paraded in front of him, as gauchos dressed in their baggy *bombacha* trousers doffed their berets. Mr Macri "looks like a winner to me", said one cowboy, proudly showing off a bullock weighing close to half a tonne as he sought a selfie with a beaming president.

The first round of the general election is due in late October; Mr Macri faces a tough contest from the duo of Cristina Fernández de Kirchner, Argentina's president from 2007 to 2015, and her former chief of staff, Alberto Fernández (no relation). Cristina is running to be vice president; Alberto for president. Argentina is saddled with high inflation, rising unemployment and soaring debt. But despite the economic woe, Mr Macri may have a genuine chance.

At the show the president celebrated this year's record harvest, after last year's worst drought in half a century. In a stadium speech he mentioned new roads, sewers and schools built during his first term. He promised that his government, if re-elected, would create a million jobs. "Sí, se puede!" (Yes, we can!) the crowd chanted



Macri de cœur

back. Mr Macri is no Barack Obama, but he is learning how to rouse a crowd. "We are not going back," he shouted, to rapturous applause. "We want a true democracy!"

The primary election has no practical effect at the presidential level, because both Mr Macri and Mr Fernández are unchallenged within their parties. But since all Argentines over the age of 16 are legally obliged to vote, it functions in effect as a dry run of the October election. Pollsters reckon the Fernández-Fernández ticket will edge out Mr Macri, perhaps by a few percentage points. But according to one of Mr Fernández's aides, that is not enough to give them a clear lead come October. "We know our best chance lies in an early knockout," he says.

To that end, Mr Fernández has pursued Mr Macri on the economy, a subject the president's team avoids. He talks about little other than inflation, the devaluation of the peso and the record \$57bn bail-out from the IMF. "We can't pay our debts until we start growing again," he says in one TV commercial. He says that, if elected, he could in effect default on government bonds and renegotiate the IMF loan.

That scares the markets. On August 5th, as the standoff between China and the United States hit emerging markets worldwide, the peso fell by almost 2% against the dollar and the yield on Argentina's debt climbed. "Our opponents are doing their worst to create market panic, but we're prepared," says Nicolás Dujovne, the treasury minister.

Mr Macri's longtime political guru, Jaime Durán Barba, sees a narrow loss in the primary as a victory in the making. If Mr Fernández comes out ahead, many voters will then fear he and his former boss could win. As long as Mr Macri survives to the run-off in November, Argentines who dislike Ms Fernández will "come home" from third-party candidates. The former president has been in court recently over corruption charges (she denies them all).

Curiously, given the gap between Mr Macri's centrism and the Fernández duo's populism, the campaign so far has been bereft of ideas, says Sergio Berensztein, an analyst and pollster. Instead the candidates are focusing on "micro-reforms, not the macro-mess of the past 20 years", he says. After the election a real debate will have to start—about the changes Mr Macri promised on taking office four years ago. ■

Sanctions on Venezuela

Feel the pressure

LIMA

America heaps more sanctions on Venezuela

AFTER THE axis of evil comes the “exclusive club of rogue nations”. That at least is how John Bolton, Donald Trump’s national security adviser, described Venezuela’s place in the world when he spoke on the sidelines of a conference in Lima, the capital of Peru, on August 6th. The meeting, attended by representatives of 59 countries, was called by the Peruvian government to discuss what to do about the “day after” Nicolás Maduro, Venezuela’s president, falls from power. But it was the United States that stole the limelight.

On August 5th Mr Trump signed an executive order to, in effect, quarantine Venezuela in economic terms. The order freezes Venezuelan government assets. It is the harshest measure to date, aimed at all assets instead of specific companies, such as the state oil producer, PDVSA, as in the past. But it also applies secondary measures to anyone doing business with Venezuela. It is these sanctions which most threaten Mr Maduro’s government.

According to Mr Bolton, companies around the world need to decide whether they want to receive a “trickle of income” from Venezuela or trade with the United States. The measure would allow the United States to move against any company, country or individual trading with Venezuela. America has had similar third-party sanctions in place against Cuba since the early 1960s, but they have lacked international support. The measures in place against Venezuela now are more like those against Iran and North Korea.

American authorities have despaired of Chinese and Russian companies operating in Venezuela. They have warned that debt incurred by what they say is an illegitimate Venezuelan government would not be recognised by Mr Maduro’s successors, if and when he falls. In his address to the conference, Mr Bolton said China and Russia should not “double down on a bad bet”.

America has been careful to state that the new measure does not apply to humanitarian aid or telecoms, which would hurt ordinary Venezuelans. Mr Maduro’s government called the move “economic terrorism” and pledged to resist efforts to remove him from power in favour of Juan Guaidó, the speaker of the national assembly who is already considered by numerous countries to be Venezuela’s legitimate president.

The Maduro regime and Mr Guaidó’s

Caribbean tourism

Island shopping

LABADIE

Cruise-ship companies are expanding across the Caribbean

THIRTY MINUTES west from Cap-Haïtien, a city in the north of Haiti, tawny sand beaches fringed with coconut palms are blocked by a high barbed-wire fence. It looks like a prison, except that inside are a 800-metre zip line, floating bouncy castles and a line of several hundred jetskis. Steel-drum music pumps from a 225,000-tonne ship rising 20 storeys from the turquoise sea.

This is Labadie, a beach run by Royal Caribbean. Its name is a riff on Labadie, the name of the typically poor Haitian village next door. Though the resort is actually on the second-largest island in the Caribbean, the cruise giant markets it as a “private destination”. And in a sense they are not entirely wrong. Since its inauguration in 1986, passengers who come ashore have not been subject to customs or immigration controls. Extras, such as the signature “Labadoozi” cocktail, are paid for in US dollars, never the Haitian gourde. Haitians not employed by Royal Caribbean cannot enter.

Caribbean countries striking deals with firms to open exclusive resorts



faction have been talking in Barbados, in negotiations brokered by Norway, not least about organising early elections. Mr Maduro began a second term in power in January. The United States and many Latin American governments oppose holding another election while he remains in power, claiming he could rig them—as he was accused of doing last year.

Attendees of the Lima meeting, among whom were representatives of Mr Guaidó, recognise the massive task of reconstruction, starting with the state-owned oil

(with or without customs checks) are “a growing phenomenon”, says Jim Walker, a lawyer based in Miami who deals with cruise liners. In 2015, Carnival opened the \$85m Amber Cove in the Dominican Republic; this year, Royal Caribbean will open CocoCay in the Bahamas after a \$250m renovation. A third of the 30m people who will cruise in 2019 will go to the Caribbean.

For cruise companies, the benefits are clear. Customers—and their money—are kept in one place. And the experience can be tailored to fit nervous travellers. Dillon Mangs, an expatriate resident of Labadie whom Royal Caribbean contracts to run shore excursions, says he tries to showcase Haiti’s culture without dampening holidaymakers’ spirits by exposing them to too much reality. One excursion is to a mock Haitian mountain village, complete with a Vodou show.

Is it a problem that cruise companies have such privileges? Some worry that the deals firms strike with governments are lopsided. To keep cruisers on side, Caribbean countries are “basically giving away parcels of land”, says Ross Klein, of the Memorial University of Newfoundland. Governments which demand too much find the ships go elsewhere.

But for the troubled Haitian government, the Royal Caribbean deal does at least generate some cash. Each passenger, of whom there are over 700,000 a year, pays the state a \$12 surcharge. The company provides jobs, and has also contributed to a school. As a boy, Rodman Decius, who lives in Labadie, attended the École Nouvelle; now he works as first mate on a yacht chartered by Royal Caribbean. He is pleased with the job and does not mind clueless guests. “If they ask questions, it’s nice for me to tell them about my culture,” he says. “But it doesn’t bother me if they don’t.”

company. Venezuela has the world’s largest proven oil reserves, which made it one of the richest countries in South America. But production has crashed to less than 1m barrels a day, around two-thirds lower than in 2000.

The United Nations in June estimated that more than 4m Venezuelans had fled the country. Some 850,000 have moved to Peru, the host of the meeting. The crisis, said Peru’s foreign minister, Néstor Popolizio, “has turned a country rich in resources into a disaster.” ■



Kashmir

A state no longer

DELHI

Narendra Modi scraps the rules in a bid to remake a troubled territory

AT ONE FELL swoop, India's central government has ended the special status enjoyed by Jammu & Kashmir and abolished it as a state. For 70 years it had granted the bitterly disputed Muslim-majority region a modicum of autonomy within India. Late at night on August 4th phone lines, television and internet access were cut and leaders of its political parties put under house arrest. The next morning India's home minister carried a package of legislation into the upper house of parliament. It proposed a radical reorganisation of the territory. It took the house just 90 minutes to strip it of statehood and divide it into two parts to be ruled from Delhi. Kashmiris had been warned, as had the rest of India. It still caused shock.

The Hindu-nationalist Bharatiya Janata Party (BJP) led by the prime minister, Narendra Modi, had long argued that Jammu & Kashmir's special status was an error, dating from soon after India's independence. Mr Modi's re-election in May, with an overwhelming majority in parliament, gave him the confidence to correct it—knowing that doing so would anger Pakistan (which also claims the territory) and enrage many Kashmiris. Pakistan duly ex-

elled India's high commissioner and suspended trade. A curfew imposed on the region on August 5th has kept Kashmiris quiet, for now, as has the presence of thousands of additional Indian troops who have been pouring in since late July, ostensibly to prevent terrorism.

The former state of Jammu & Kashmir is composed of three main parts: Hindu-majority Jammu, in the foothills; the arid highlands of Ladakh, which has a large



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— **Banyan is away**

Buddhist population; and a sprawling basin with Srinagar at its centre that is home to ethnic Kashmiris, most of whom are Muslims (see map). In 1947, when British rule of the subcontinent ended, the Hindu maharajah of Jammu & Kashmir hesitated to join either of the new countries, Pakistan and India. Those countries soon went to war over the area. A stalemate ended with India occupying two-thirds of the state, and Pakistan controlling the rest. India and Pakistan have kept on fighting over the region. The most recent eruption of large-scale hostilities was in 1999.

Mr Modi has gutted an article of India's constitution, which was introduced in the 1950s to secure the state's acquiescence to Indian control. This had decreed that the central government would be responsible only for Jammu & Kashmir's defence, foreign affairs and communications. Long before Mr Modi came to power, however, Indian governments began whittling away at the state's autonomy. However it did retain an important privilege: the right to bar non-residents from buying land. That, too, has gone.

In theory, changing this part of India's constitution requires a two-thirds parliamentary majority, which the BJP does not quite have. So the party devised an easier way: their man in the president's chair simply issued an order annulling Kashmir's special status. That should have required assent from Jammu & Kashmir, too. But since June 2018, when the BJP withdrew from a coalition there, the state had been under direct rule from Delhi. So the rest of India assented on Kashmir's behalf. That

► allowed parliament to abolish the state, and split it into two new “union territories” under the centre’s direct rule: one called Jammu & Kashmir and the other, Ladakh.

The ease with which the state was dissolved will spook some of India’s other regional governments. A challenge has already been filed with the Supreme Court. But there is considerable popular support for Mr Modi’s sleight of hand. Even some parties that are normally fiercely opposed to the BJP have backed him.

Mr Modi’s ministers have justified the move partly on security grounds. Since 1989 insurgents, some of them backed by Pakistan, and campaigns against them have killed at least 45,000 people in Jammu & Kashmir. The Hindu minority in the valley around Srinagar has been driven out. By the time Mr Modi became India’s prime minister in 2014, the conflict had become less intense. Since then it has steadily escalated. Mr Modi believed that the state’s autonomous status was fuelling anti-India violence. Scrapping it, however, is hardly likely to prove an effective cure.

Kashmir’s more moderate politicians feel most badly betrayed. On the campaign trail earlier this year, Mr Modi had sworn that he would not “allow Muftis and Abdullahs to divide India”. He was referring to the state’s two most famous political families. Generations of Indian bureaucrats had parleyed with them to try winning over Kashmiris, greasing the wheels with subsidies. The Muftis and Abdullahs often frustrated their handlers in Delhi, but they are not separatists—unlike many more popular leaders. “Our darkest apprehensions have unfortunately come true,” said Omar Abdullah, a former chief minister of the state who was among those placed under house arrest on August 4th.

Actions that anger Kashmiris can sometimes benefit Mr Modi politically. He has been widely praised in India for his military operations in the region. In September 2016 a day of “surgical strikes” against nearby Pakistani positions achieved little strategically but helped him in elections. It resulted in a patriotic Bollywood movie which was topping the box office when campaigning began for this year’s polls.

But the long-term consequences of Mr Modi’s action may well be ones he regrets. The animosity he has doubtless intensified among Kashmiris will make the area even more fertile territory for recruitment to Pakistan-backed insurgency. By allowing non-Kashmiris to buy land, he has in effect given a green light to Hindus wanting to move into the Muslim-dominated Kashmir valley. That risks stoking ethnic tensions in the area. The country has a long history of bloody confrontation between adherents of the two religions. The just-abolished state has suffered much of it. Its residents are bracing for more. ■

Uzbekistan

Dismantling the gulag

ALMATY

Another good move from Uzbekistan’s new president

UZBEKISTAN’S “YOUTH” camp, Jaslyk in the vernacular, sounds like a children’s holiday camp, but it is a prison where enemies of what was until recently one of the world’s most repressive regimes were isolated and tortured. Now Shavkat Mirziyoyev, Uzbekistan’s reforming president, is shutting it down.

Jaslyk became synonymous with medieval-style barbarism when two inmates died after immersion in boiling water in 2002—in effect boiled alive. Other political and religious dissidents held there were beaten with iron rods, had their fingernails pulled out and were given electric shocks. Situated in a desert in the Karakalpakstan region, where the temperature ranges from 45°C to -35°C, some 1,400km from the capital, Tashkent, and 180km from the nearest town, Jaslyk—like the Soviet Siberian prison camps on which it was modelled—was impossible to escape from. The local railway station is Barsa Kelmes, which loosely translates as “place of no return”.

Jaslyk was opened in 1999 by the tyrannical Islam Karimov, who ruled the post-Soviet Central Asian country for a quarter of a century until his death in 2016, after bombings in Tashkent sparked a hunt for dissidents. His successor, Mr Mirziyoyev, has surprised the world by liberalising politically as well as economically: he has freed 50 political prisoners and removed

20,000 citizens from blacklists of people suspected of extremist tendencies, often simply because they were Muslims.

Mr Mirziyoyev has prohibited the use in court of evidence obtained through torture, in tacit acknowledgment that abuse is rife throughout the penitentiary system, not just at Jaslyk. But the government is shy about facing up to its history: even as it advertises the camp’s closure as a step towards improving the country’s human-rights record, it denies that people were tortured there.

There is some way to go before the country’s criminal-justice system becomes a beacon for the region. Shadowy espionage cases are still being pursued behind a veil of secrecy in closed courts. Andrey Kubatin, an academic, is serving a prison sentence for passing secrets he insists were in the public domain. Kadyr Yusupov, a former diplomat, is on trial for spying for a foreign power, although he left the foreign service years before the alleged espionage began. Mr Yusupov, who has schizophrenia, was arrested following a failed suicide attempt in the Tashkent metro, raising questions about whether he is psychologically fit to go on trial.

And then there is Gulnara Karimova, the late president’s daughter, serving a jail sentence on corruption charges as the government seeks to recover her assets from abroad. She has been confined since 2014, before her father died, but has never faced open judicial proceedings. One trial reportedly took place in the kitchen of a house in which she was being held. If Uzbekistan wants to show that it believes in the rule of law, which is so important to investors, it will need to show that even a “robber baron”—as a WikiLeaks cable once dubbed Ms Karimova—gets a fair trial. ■



Jaslyk, as it once was

Japan's constitution

What grandfather left undone

TOKYO

Can Shinzo Abe change the country's basic law?

IN THE 1950s Nobusuke Kishi, then Japan's prime minister, tried to change the constitution that America had imposed on the country in the aftermath of the second world war. He failed. Now his grandson, Shinzo Abe, Japan's current prime minister, is trying to do the same before he leaves office by the autumn of 2021.

Mr Abe's personal history is not the only reason he is so set on this. For his vocal na-

tionalistic base, it is a passionately held cause. And as one of Japan's longest-serving prime ministers (the longest, if he remains in power until mid-November) he thinks he has the political clout to do it.

There are good reasons to try—despite China's mutterings. (Its state news-agency once said that doing so would be like "releasing the shackles of the nation's legally tethered military.") The constitution is out of step with reality. Article 9 commits Japan to pacifism and to abjuring the maintenance of armed forces—which the existence of the country's Self-Defence Forces (SDF) clearly breaches. This is the most controversial of four areas that Mr Abe's Liberal Democratic Party (LDP) addressed in recent proposals, even though the recommendation to recognise the existence of the SDF (rather than, say, allow Japan to

wage war) is a watered-down version of what many in the LDP would like. The other three areas are upper-house electoral districts, the right to free education and emergency powers for the cabinet.

If the Japanese want to change their constitution, there is no reason why they shouldn't. America's has been altered 27 times since its promulgation in 1788. But Japanese people are proud of their pacifism and keen to stay out of other countries' affairs. A poll in July by NHK, the national broadcaster, found 29% of people supported any revision compared to 32% opposed to it (the rest were undecided or failed to respond). The numbers diverge when the question focuses on Article 9: an Asahi poll found 33% favourable to amending it and 59% against.

The opposition is resistant, too. It has talked about the need to revise parts to improve governance, such as the prime minister's right to dissolve the lower house, or to explicitly add new ideas such as a citizen's "right to know". But no major party bar the LDP unreservedly backs changing Article 9. Even Komeito, the LDP's coalition partner, suggests debate is needed first.

That makes it hard to see how Mr Abe is to get this done. Changing the constitution requires two-thirds of both the upper and lower houses of the Diet, followed by a majority in a referendum. And Mr Abe lost his coalition's two-thirds majority in the upper house in elections last month.

The political calendar is tight, with the change of emperor this year and the Olympics in 2020, and the geopolitical environment is not propitious. America's calls for allies to help prevent further seizures of ships in the Strait of Hormuz are providing the Japanese with a concrete example of the sorts of conflicts into which their country could be dragged should Article 9 be changed. "The numbers don't align, voter interest doesn't align, and the situation in the Middle East doesn't help," says Yuki Tatsumi of the Stimson Centre, a think-tank in Washington.

Mr Abe is moderating his approach. He may shift the emphasis from Article 9 to rights and governance issues that appeal to the opposition, reckons Ms Tatsumi. Yuichiro Tamaki, the head of the Democratic Party for the People, the second-biggest opposition group, agrees that there needs to be a debate. Speaking after the elections, Mr Abe said he hoped for "active discussions", and emphasised that "constitutional revision is not up to the government, but the Diet".

He is pragmatic, but he wants a legacy. Efforts to resolve diplomatic problems left over from the war, such as with Russia, have stalled. The economy, which he pledged to revive, is spluttering. Changing the constitution is a challenge—but no tougher than the others he faces. ■

Race relations in Singapore

Face-off

SINGAPORE

A furore over an offensive advert reveals the government's true colours

YOU WOULD never guess that Singapore has just celebrated Racial Harmony Day. An offensive advert for a government service has kicked off a debate here about how ethnic Chinese, who make up around three-quarters of the population, treat minorities, most of whom are of Malay or Indian descent. The government weighed in after two ethnic Indians made a racially provocative music video attacking the advert. Its heavy-handed response suggests it is not as unprejudiced as it thinks.

The trouble began with an ad campaign for E-pay, a government e-payment system. It depicted Dennis Chew, an ethnic Chinese actor, dressed up as four people, apparently intended to represent a cross-section of Singapore's multi-ethnic society: a Chinese labourer, a Malay woman wearing a headscarf, a fashionable Eurasian woman and an Indian office-worker. For the latter, Mr Chew's face was darkened. Havas, the agency behind the advert, said this was intended to convey the idea that "e-payment is for everyone".

Preeti Nair and her brother Subhas saw something else: a Chinese man in "brownface". On July 29th the Nairs' music video, in which they chant "Chinese people always fucking it up", went viral. Within hours of being posted on Facebook it had been viewed more than 40,000 times.

The government's response was swift. It ordered YouTube and Facebook to remove the video and the police to investigate the Nairs for producing "offen-

**Dennis Chew, as he really looks**

sive content". The government has been wary of ethnic tensions ever since deadly race riots in the 1960s. In 1992 it became illegal to promote "enmity between different groups on the ground of religion or race".

As for the advertisement, K. Shanmugam, the law and home affairs minister, says it is legal. (Havas and Mediacorp, whose talent agency supplied Mr Chew—and which is owned by Temasek, a state investment vehicle—have apologised.) The discrepancy between the government's responses to Havas and Mediacorp and to the Nairs has dismayed many Singaporeans. On Facebook Alfian Sa'at, a playwright, wrote: "We don't really have racial harmony in Singapore, what we have is racist harmony."



Cross-strait relations

Sunset for backpackers

BEIJING AND TAIPEI

China's efforts to influence Taiwan's elections may not achieve much

ON THE AFTERNOON of July 31st youngsters in dozens of Chinese cities raced to government offices, pursuing a precious commodity. Earlier that day the authorities had announced that from midnight they would no longer issue the passes that allow mainland tourists to visit Taiwan independently, without having to join a tour. A 25-year-old newlywed from the eastern province of Zhejiang, who uses the nickname Yuyi, says she got a permit just before the cut-off. Now she wonders whether, given rising tensions between China and Taiwan, it might be wiser to junk the September getaway on the island that she and her husband have been planning.

China has long used carrots and sticks to persuade Taiwan's people to accept its demand for "peaceful reunification". But the sudden suspension of the solo-travel programme, launched eight years ago, was still a surprise. A spokesperson for China's government blamed Taiwan's ruling Democratic Progressive Party (DPP), which abhors the idea of unification. He said it

had "incited hostility towards the mainland". Tsai Ing-wen, Taiwan's president, retorted that China had made "a big strategic mistake" and that its decision would irk both mainlanders and Taiwanese.

Visitors from China accounted for just over one-quarter of Taiwan's tourist arrivals in the first half of this year. About 40% of them were individual travellers. Taiwanese travel agents predict that the Chinese government's new policy could cut visitor numbers by up to 700,000 over the next six months, costing the tourism industry around \$900m in revenue. Barclays, a bank, says the policy could cost Taiwan sums equal to 0.2% of GDP (the Taiwanese government has predicted that its economy will grow by nearly 2.2% this year). There will be intangible costs, too. Re-

search suggests that independent travellers tend to leave with a better impression of Taiwan than those who visit in groups.

All this will leave a mark, but it is no crushing blow. Taiwan is much less reliant on mainland tourists than it was five years ago, when they made up two-fifths of all visitors. That is in part because of restrictions China began imposing on group travel shortly before Ms Tsai's inauguration in 2016. It is also because Taiwan has lately pushed hard to attract visitors from elsewhere. Tourist arrivals reached a record 11.1m last year, mainly because of a surge of travellers from South-East Asian countries.

China is angry with Ms Tsai for rejecting its overtures, and with America for being nice to her. It complained bitterly about her two recent stopovers in America, where she spoke at Columbia University and hobnobbed with foreign diplomats. It raged about the Trump administration's decision last month to approve a long-negotiated arms deal with Taiwan worth about \$2.2bn. But it is probably most annoyed by Ms Tsai's loud support in recent weeks for anti-government protesters in Hong Kong. She says they have "legitimate concerns".

By stemming the flow of tourists, China may be trying to warn Taiwanese voters of what could happen if they re-elect Ms Tsai and support other politicians like her in presidential and legislative elections in January—Taiwan's economy is heavily reliant on China's. The biggest opposition ➤

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party, the Kuomintang (KMT), supports friendlier ties with the mainland and made big gains in regional elections last November. China's leaders would like it to vanquish the DPP in next year's polls. But Ms Tsai's support for Hong Kong's democrats has helped her once-dismal ratings to rebound. She could even keep her job.

In an attempt to capture some of her newfound support, the KMT's presidential candidate, Han Kuo-yu, is trying to sound a bit more sceptical about China (earlier in the year some Taiwanese criticised him for a chummy meeting with mainland officials in Hong Kong, ostensibly to promote trade). Mr Han is the mayor of the southern port of Kaohsiung. Fan Shih-ping of Taiwan National Normal University says the city will suffer disproportionately from China's block on tourism—Kaohsiung has tended to be popular with solo tourists because it is easily reached by train. But the KMT appears to have decided not to make political hay out of China's decision to cut the flow. ■

China will doubtless have more tricks to play in the run-up to January's polls. Having already poached five of Taiwan's diplomatic allies in the three years since Ms Tsai came to power, it may try to peel off at least one more. In the past China has called off military exercises around the strait in advance of Taiwanese elections, for fear of provoking a backlash at the ballot box. Andrew Yang, a former defence minister, thinks that this time China may step up its drills, partly because it has lots of new kit it wants to try out. Taiwan has accused the mainland of trying to influence the island's politics by spreading "fake news" through social media. But how much any of this will work is hotly debated in Taiwan. It may be that such efforts will deter voters from supporting radical anti-China politicians (Ms Tsai is relatively restrained in her approach to the mainland). But the unrest in Hong Kong has shown that even in a place where it has many levers, China can struggle to get its political way. ■

there. Fearing it would be demolished, he organised his students to make a website about the area's history. This won a national prize and drew the attention of the local planning bureau. Now many of Dongshan's buildings have plaques showing they are protected. Some display QR codes providing links to their history. Many original residents still live there. Official permission is needed for any renovation work.

Mr Yang calls his organisation a "culture promotion association". It is one of the few of its kind in China that has succeeded in registering as an NGO (the Communist Party is suspicious of activist groups). Its 60-odd volunteers visit old districts and gather oral histories. They also draw attention to buildings in danger of demolition. "We go there straight away, take photos, and tell the government departments there's a problem," says Mr Yang.

Officials have long recognised the tourism potential of the colonial-style buildings on Guangzhou's Shamian island and a nearby river front close to which foreigners first began trading in the 18th century. They are realising that other old districts—foreign-connected or not—have value, too. Xiguan, a residential area that was home to wealthy merchants before the foreigners arrived, now has several local-history museums. Many of its buildings have been listed as protected. Nearby, a stretch of distinctive colonnaded "shop houses", built in the late 19th and early 20th centuries, is being refurbished. It includes a network of alleyways, known as Yongqing Fang, which has been turned into a leisure zone. One popular attraction is a museum devoted to the late martial-arts actor Bruce Lee in a house where his family lived in the 1940s. It is a sign of growing interest in pre-Communist history. Last year China's leader, Xi Jinping, toured the area.

Some redevelopments cause problems for residents. Many people in Yongqing Fang were moved to make way for the new zone. Some buildings were demolished. The same happened in Shanghai's Xintiandi district—a pioneer of such redevelopment. That area, which includes the site of the party's first meeting in 1921, is now ultra-trendy. Shanghai has recently pledged to preserve 90% of its (few) surviving 1920s and 1930s residential lanes. While some areas have been revived, "demolition continues apace", says Patrick Cranley of Historic Shanghai, a heritage group.

Enthusiasm for old districts has been fuelled by television dramas set in the years before the Communists seized power in 1949. Young people like to take selfies in front of buildings redolent of that era. But Ying Zhou of the University of Hong Kong says local officials do not always recognise the importance of authenticity or retaining original features. "Often the bricks are new fakes, the history is concocted," she says. ■

Historic preservation

Old buildings, new chic

GUANGZHOU

In old urban neighbourhoods, conservationists sometimes win

IN A LEAFY street close to a busy underground station in the southern city of Guangzhou, two middle-aged women sit in a booth giving out hand-drawn local maps to passers-by. These feature cartoon-style images of churches and other grand architectural relics of the city's pre-Communist past. Nearby, giggling youngsters take pictures of each other outside one such edifice: a European-looking villa, its high garden wall topped with ornate green tiles. There are few foreign visitors. The hand-drawn maps are all in Chinese. It is young locals who are drawn to this neighbourhood of large three- or four-storey houses built in the 1920s and 1930s in Western and Chinese styles (one is pictured). Its tree-lined lanes dotted with cafés and art galleries have become fashionable hangouts.

The area, known as Dongshan, is close to central Guangzhou, the capital of the southern province of Guangdong. It was built by the families of Cantonese who moved to America in the late 19th and early 20th centuries. Many old neighbourhoods in China have been bulldozed to make way for new development. Dongshan is an example of how some are being saved, and even turning chic.

The survival of Dongshan's old buildings owes much to growing public interest in preserving urban heritage—not merely

the few structures that the government designates as important. Activists have been taking up the cause, and some developers have begun to support their efforts.

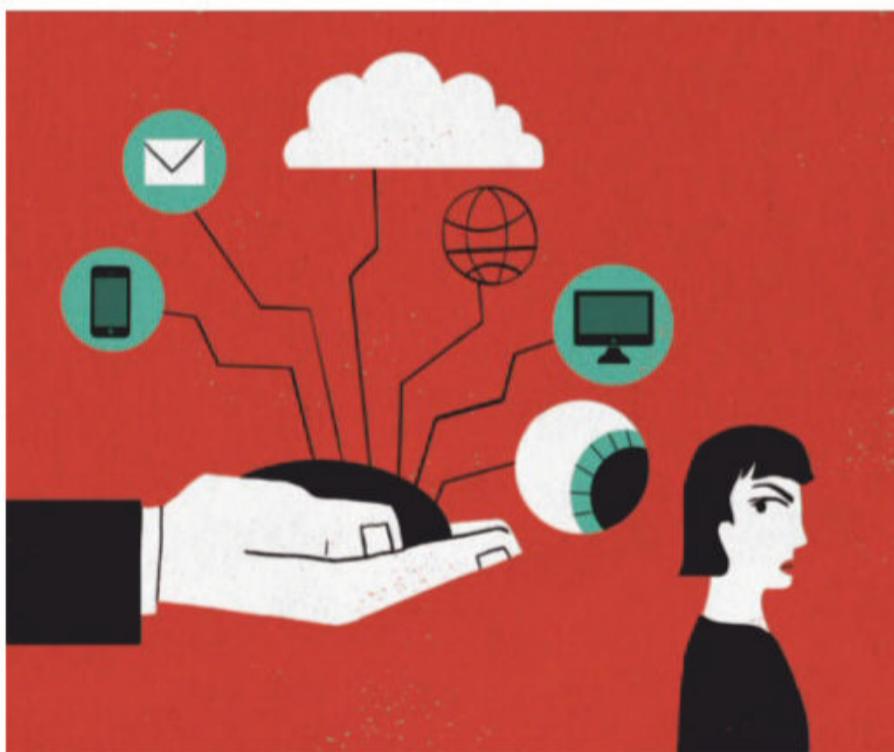
Much of the credit for protecting Dongshan goes to an NGO founded by Yang Huahui, a primary-school teacher who grew up



A missed selfie opportunity

Chaguan | Distrust and verify

Huawei is trying to solve a hard problem: how to sell sensitive tech in the absence of trust



ON BALANCE, it seems implausible that a committee—let alone a committee run by grey-suited Communist Party commissars—could design anything as odd as the new research campus of Huawei, the Chinese telecommunications giant. Comprising 12 replica European “towns” spread across lush subtropical hills near the southern city of Dongguan, the campus houses 18,000 scientists, designers and other boffins in turreted German castles, Spanish mansions and Italian palazzi, connected by an antique-style red train. Staff canteens include Illy espresso bars and French bistro. A herd of bronze rhinoceroses grazes by the river that divides faux Verona from ersatz Heidelberg. It is not hard to see why the campus is a stop on tours that Huawei has started offering to foreign journalists in recent months. Impressive, mad and a bit tacky, the research campus is a suggestive bit of evidence. Perhaps Huawei may just be what it claims to be, at least when it comes to decisions about architecture: a privately held company guided by the ambitions and quirks of its billionaire founder, Ren Zhengfei, a former military engineer and Europhile history buff.

After 30 years spent largely shunning publicity, Huawei has turned into one of the world’s chattier high-technology firms, inviting journalists into once-secret research laboratories and smartphone assembly lines. The reasons for all this choreographed openness are straightforward. Huawei, whose worldwide revenues exceeded 720bn yuan (\$102bn) in 2018, stands accused by Trump administration officials and members of Congress of being variously owned, subsidised or at least controlled by the Chinese state, with notably close links to the army and intelligence services. American officials accuse Huawei of stealing technology from American and other foreign rivals. They scoff at claims that the firm is owned by its own employees in a benign sort of shareholding co-operative, and that its Communist Party committee is tasked with nothing more sinister than staff training and welfare. The secretary of state, Mike Pompeo, has spent months touring the globe, urging allies not to allow Huawei to help build their 5G mobile telecommunications networks, with mixed success. In May Huawei’s reputation landed it on the American Commerce Department’s “entity list” of firms that may threaten national security.

Step back a bit, and the company’s woes are an early sighting of

a conundrum with no easy solution. Technological advances are expanding the list of products and services that require a lifelong commitment of trust between clients and suppliers, from chips that keep aeroplanes aloft, to devices that control electrical power grids. At the same time, globalisation has built supply chains linking countries that do not much like each other. The problem is acute when those chains connect America, a country used to setting its own technical and security standards, to China, an uneasy mix of trade partner, commercial competitor and ideological rival.

Broadly speaking, when Chaguan visited the firm’s headquarters this week, senior Huawei officers advanced two different solutions to the problem of high-tech globalisation in a low-trust age. Only one of those solutions is very persuasive.

That persuasive idea is to treat distrust in global supply chains as a technical challenge, rather than a political one. In this model, distrust can never be eliminated but may be mitigated. A Huawei executive with experience in African and European markets, where the firm’s products are seen as robust and cheap, draws an analogy with the “ABC” approach to cyber-security, meaning: “Assume nothing. Believe nobody. Check everything.” Huawei high-ups praise Britain and other European countries for applying a risk-management approach to the task of building such infrastructure as wireless networks, involving common standards for security and transparency with which all companies are invited to comply, and lots of third-party verification. The organising principle is that no product should be either trusted or distrusted unconditionally, simply on the basis of its country of origin.

Huawei’s second, unpersuasive solution involves trying to convince outsiders that, given the right written and verbal assurances from the state, firms from China can, as it happens, be trusted not to help Chinese spies steal secrets. Thus Huawei bosses note assurances from the Chinese foreign ministry that no law exists that could make Chinese firms install backdoors in digital devices, for spies to use. Asked about national-security laws requiring firms to assist Chinese intelligence services, they retort that such laws do not apply outside China’s borders. A company executive grumbles that Western sceptics seem to doubt that China is run according to the rule of law. At times, a cultural gap in perceptions is detectable. Huawei veterans recall their firm’s early years, when state-owned enterprises bullied private businesses, and on occasion lobbied government officials to deny Huawei the right to seek overseas business. China is so much more open now, such veterans say, lamenting that outsiders cannot see this, or prefer to focus on remaining differences with the West.

What Huawei should say, but cannot

Alas, it is not credible to claim that promises or laws bind the Communist Party and its security apparatus. The party explicitly claims “absolute leadership” over courts, calling judicial independence a Western error. Then there is the exceptional size of China’s visible machinery of repression and surveillance. Given that security services in every country tend to be like icebergs, with still-larger hidden parts, it is reasonable to be exceptionally wary of China’s.

A more convincing approach would see Huawei admit that China is different and concede that some party commands cannot be defied. That agreed, Huawei could then focus on making high-tech products and systems designed for use in a world of low or non-existent trust. Huawei bosses cannot make that argument, because party leaders would be incensed. Those turreted castles are impressive. But outside those manicured grounds is China. ■



Tertiary education in Africa

A higher challenge

KIGALI

New initiatives hint at how Africa's universities can respond to its youth boom

IN RWANDA IT'S not easy to get a job," says Jean-Paul Bahati, a student at Kepler, a college founded in Kigali in 2013. But the 22-year-old believes his course will help him stand out. He studies health-care management, a growing industry in Rwanda. Kepler's degrees are accredited by Southern New Hampshire University (SNHU), which runs one of the largest online universities in America. The first six months are a crash course in skills such as critical thinking, English, communication and IT. "I like that Kepler knows what employers want," says Mr Bahati.

In recent decades millions of young people like Mr Bahati have swelled the number of students in sub-Saharan Africa. Today 8m are in tertiary education, a term that includes vocational colleges and universities. That is about 9% of young people—more than double the share in 2000 (4%), but far lower than in other regions (see chart). In South Asia the share is 25%, in Latin America and the Caribbean, 51%.

Both the number and share of young people in tertiary education in sub-Saharan Africa will keep growing. The region has about 90m people aged 20-24, a figure projected to double over the next 30 years.

Whereas 42% of that age group had completed secondary school in 2012, 59% are forecast to do so by 2030. If African countries are to meet the aspirations of educated young people, they must ensure there are opportunities for further study.

So far they have struggled. State-run institutions that trained the post-colonial elites are finding it hard to serve a mass market. In much of the region public funding per student has fallen since the late 1990s as enrolment has surged.

This reflects competing priorities. In the poorest African countries it costs 27 times more to fund a university place than one at primary school. Since students typically come from affluent families, university spending subsidises the children of elites. In Ghana, the higher-education spending that goes to the richest tenth of households is 135 times that spent on the poorest tenth. Policymakers find themselves deciding whether to spend scarce resources on helping poor children attend school or rich children go to university.

The effects of spreading public funding thinly are apparent on campuses. African universities have 50% more students per professor than the global average. Students

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are more likely to study humanities degrees than science ones, which are more expensive to teach. Over 70% of graduates have arts degrees, versus 53% in Asia.

More young people are heading abroad instead. In 2017 some 374,000 studied overseas, up from 156,000 two decades earlier. Many never return. One in nine Africans with a tertiary qualification lives in an OECD country, compared with one in 13 Latin Americans and one in 30 Asians.

With the public sector struggling to meet demand for places and to offer a high-quality education, the private sector is filling the gap. From 1990 to 2014 the number of public universities in sub-Saharan Africa rose from 100 to 500, while private universities grew from 30 to more than 1,000. Many are small. In Kigali, the University of Rwanda has 30,000 students, while private ones have a few hundred each. But they are enrolling a growing proportion of students, notes Daniel Levy of the University of Albany. In 2000 about 10% of African students went to private institutions; by 2015 the share was 20%. In Rwanda more than half do so.

Students at private universities often benefit from new ways of teaching. Consider Ashesi, which has grown steadily since its founding in 2002 in Accra. Much of Ghanaian higher education is based on rote learning, observes Patrick Awuah, its founder and a former Microsoft engineer, and was not "teaching students to think critically". He based Ashesi on American liberal-arts colleges, where students combine humanities and sciences.

Vocational outfits can innovate, too. ►

► ALX, a for-profit institution that opened its first campus in Nairobi last year, runs a six-month “boot-camp” in soft skills, then helps students find a six-month internship. Its gambit is that its brand becomes so strong that employers do not mind that its graduates lack a degree.

“A traditional university model is very hard to make profitable,” says Fred Swaniker, the Ghanaian founder of ALX. He should know. In 2013 Mr Swaniker set up the African Leadership University (ALU), which was dubbed the “Harvard of Africa”. But its campuses in Mauritius (\$15,000 per year for board and tuition) and Kigali (\$9,000) are “too expensive”, he concedes. It has ditched plans to open dozens of campuses like these and is instead expanding the cheaper (\$2,000 per year) ALX model.

Another reason for the shift is regulation. Gaining accreditation is arduous. Rwanda made ALU buy 90 desktop computers, even though it gives students laptops. Kepler’s application ran to 1,100 pages.

Yet the biggest barrier to expanding access to tertiary education is student financing. This is true for private and public universities, since in most African countries public ones charge upfront tuition fees. (Scholarships exist, but these are often granted on merit, not need, putting them out of reach of poor children with good but not stellar grades.) “The bottleneck is not the education model; it’s the financing,” says Teppo Jouttenus of Kepler.

This is not just an injustice but a sign of economic inefficiency. The average gap between wages earned by graduates and non-graduates in sub-Saharan Africa is wider than in other regions. It would make sense if students could defer the expense. This would ensure that those who benefit the most from university cover the costs, leav-

ing more public money for other things.

Several African countries have introduced state loan schemes. But governments have struggled to chase up debts. The private sector is now trying to do a better job. Kepler and Akilah, an all-female college in Kigali, are working with CHANCEN International, a German foundation, to try out a model of student financing popular among economists—Income Share Agreements. CHANCEN pays the upfront costs of a select group of students. Once they graduate, alumni pay CHANCEN a share of their monthly income, up to a maximum of 180% of the original loan. If they do not get a job, they pay nothing.

Kepler’s experiment began only in January. But models such as these should help more students gain qualifications, while encouraging institutions to think about their job prospects. That can only be good news for young Africans. ■

Higher education 2

Go figure

KIGALI

An African maths institute is encouraging home-grown boffins

ALBERT AGISHA NTWALI was resigned to becoming a maths teacher at a secondary school. The 23-year-old from Bukavu in the Democratic Republic of Congo was a stellar undergraduate at his local university. But his career options seemed limited until a professor told him about the African Institute of Mathematical Science (AIMS), a network of postgraduate academies that offers scholarships to budding African mathematicians. Last year Mr Ntwali enrolled at the AIMS campus in Kigali, Rwanda’s capital. “Now I can join a company, become a data scientist, do a PhD...” He goes giddy listing the options.

For decades there were few possibilities for African mathematicians to reach their potential on the continent. Many gave up studying; others went abroad. Wilfred Ndifon, a Cameroon-born biologist who oversees research at AIMS, recalls that after he completed his PhD at Princeton in 2009, he was put off from returning home by the lack of computing power. “Universities mostly used Excel,” he says.

The institute is making scholars think twice about forsaking study or moving overseas. In 2003 the first campus was founded on the outskirts of Cape Town by Neil Turok, a South African physicist. Today there are five more, in Senegal, Ghana, Cameroon, Tanzania and Rwanda. Funding for each one comes partly from the host country’s government and partly from in-

ternational donors. Nearly 2,000 students from 43 African countries have graduated.

That number is set to rise quickly. The institute will open nine new campuses. And it is adding new degrees. In July the first cohort of students graduated in Kigali with a masters in machine intelligence.

The course was founded by Moustapha Cisse, who runs Google’s AI research in Ghana. It is sponsored by Google and Facebook. One of the students, Ines Birimahire, a Rwandan, explains that she wants to apply machine learning to areas that Western researchers neglect. She is collecting audio data from radio stations to ensure that “natural language processing” software (such as Google Translate) can manipulate African languages. Another project involves collecting photos of cassava leaves to develop software that helps farmers identify diseases.

Professor Ndifon argues it is vital that the institute does not just teach, but conducts research as well. African researchers bring “unique perspectives”, he argues. Google has funded Quantum Leap Africa, an artificial-intelligence centre, in Kigali, and AIMS has plans for seven new research chairs. Some of these will be dedicated to climate science; Professor Ndifon notes that African policymakers need better forecasting models.

African mathematicians, like all ambitious masterminds, will still look for jobs at top global universities and companies abroad. The resources at elite colleges in Europe or America surpass those in Senegal or Rwanda. But the growth of AIMS means that there is at least a chance for more scholars to do world-class work nearer home. “Maths is a universal language,” says Mr Ntwali. AIMS is making sure more Africans are fluent in it. ■



Go forth and multiply

Underclass

Tertiary education, gross enrolment ratio by region*, %



Source: UNESCO
Institute for Statistics

Liberia

On the edge

GBARNGA

Economic crisis and corruption scandals could lead to violence

UNDER THE corrugated-iron roof of the Bong Intellectual Centre, a tea house in Gbarnga in northern Liberia, the air is thick with anger. Dozens of people sit on plastic chairs, discussing politics. They complain that their businesses are failing, corruption is rising and food prices have doubled in recent months. "The hungry man is an angry man," says Augustin Jalla, a 55-year-old social worker. "If something does not change there's going to be an uprising."

That is alarming talk, in a country that suffered an on-and-off, 14-year-long civil war that killed about 250,000 people—almost a tenth of the population at the time—and destroyed the economy. Liberia's conflict also devastated the region. The country's former president, Charles Taylor, started or fuelled wars in three neighbouring countries: Sierra Leone, Guinea and Ivory Coast.

After the fighting stopped in 2003, the world poured in aid to support Liberia's transition to democracy and to prop up the administration of Ellen Johnson Sirleaf, a wily World Bank veteran who was elected president in 2005. By 2010 the west African nation was receiving \$360 in aid per person. Helping to keep the peace was a UN mission that cost more than \$500m a year.

Since then, however, the world has lost interest. By 2017 aid had slumped to just \$132 per person. In 2018 the UN's peacekeepers packed away their blue helmets and went home. Left in their wake are a failing economy and a weak state that has been hollowed out by corruption and is still riven by enmities.

Start with the economy. Between 2010 and 2014 growth was galloping along at 6-8% a year and was forecast to go into double digits. Then the country was hit by two enormous shocks. The first was an outbreak of Ebola in 2014 that killed almost 11,000 people in Liberia, scared off investors and aid workers and caused a recession. The second was the withdrawal of peacekeepers, whose average annual budget was equal to almost a quarter of Liberia's GDP between 2007 and 2018. The IMF expects growth of 0.4% this year.

Widespread corruption makes everything worse. Last year a poll by Afrobarometer found that half of Liberians had to pay backhanders for public services.

In 2017 Liberians elected a former football star, George Weah, as president. Mr Weah promised to help the poor and give



He was more popular on the pitch

corruption the boot. He is doing neither. Scandals have blighted his first 18 months in office and soaring inflation, which peaked at 29% in December, is hurting the poor in a country where more than half the population lives on less than \$2 a day.

The president's conduct has not helped. He has built about 50 houses in a compound in the capital. He says he used money he had earned during his days of football stardom. But citizens cannot be sure of this, since he has refused to publicly declare his assets. "It raises eyebrows," says Anderson Miamen of Transparency International, a corruption watchdog.

Governing a country as poor and fractious as Liberia is an unenviable task. But Mr Weah is simply not up to the job. He is said to forget key facts, bungle media interviews and drift off in meetings.

In Gbarnga, Mr Taylor's base during Liberia's first civil war between 1989 and 1997, social workers say crime and hard-drug use are rising. David Brown, a 25-year-old salesman who voted for Mr Weah, says this is because people have lost hope. Keba Collins started her business selling handbags on the streets. Two years ago she was making the equivalent of \$75,000 a year. Now her business is near to collapse—as are those of several of her friends—because of high inflation and the costs of corruption. Frustration over graft and poor governance led to people staging huge, peaceful protests in June (pictured).

St Peter's Lutheran Church in Monrovia, the capital, is filled with children and worshippers. But its windows, pockmarked by bulletholes, hint at a dark history: in 1990 government soldiers massacred 600 people here. Isaac Dowah, the pastor, points at two white stars marking the mass graves and frets: "We're at a breaking point." ■

Ride-sharing in Lebanon

At your service

BEIRUT

How Beirut's shared taxis cope with competition from Uber

TO OUTSIDERS, BEIRUT'S taxi-hailing rituals can seem baffling. A flurry of honks announces the arrival of a driver, who peers out of his window with eyebrows raised. Hesitate a moment too long—as the uninitiated often do—and he'll speed off, leaving the would-be passenger breathing exhaust fumes and wondering what went wrong. But beneath this brusque treatment lies a rich set of norms and customs that have helped the shared taxis, known as "service" taxis (or "servees"), survive the incursion of Uber into Lebanon's capital.

The service taxi system relies on split-second individual negotiations, rather than prices imposed by meters, regulations or ride-sharing software. When a driver spots a potential passenger, he slows down until the passenger names a destination. If the driver agrees, the ride costs a modest 2,000 Lebanese pounds (\$1.33), usually less than what Uber charges. He may also ask for twice the fare or, for an out-of-the-way trip, suggest that the passenger buys all the seats for 10,000 pounds.

This system allows drivers and passengers to reach agreements based on factors such as traffic conditions and whether the route is likely to provide more passengers. "You have clear, true market economics," says Ziad Nakat of the World Bank. "It's not regulated or constrained—just supply and demand, based on what you're willing to sell and what I'm willing to buy." Both parties appear happy with the system, although it does make Beirut's terrible traffic even worse, as drivers slow down to haggle.

Many drivers shun Uber, fearing the software will strand them on traffic-heavy routes or penalise them for declining too many rides. Others work with Uber, but act as a service taxi when they think their local knowledge will give them an edge over Uber's algorithm. (Uber cars and service taxis have the same red licence-plates.) Muhammad, an Uber driver, turns the app off on Sundays, when certain high-demand routes earn him nearly double. "It depends on if it's good for me," he says.

The residents of Beirut came to rely on service taxis after trams and railways were destroyed during the 15-year civil war that ended in 1990. Service taxis are lightly regulated, but because they rely mainly on collective norms they endured even as the country's dysfunctional politics hindered the reintroduction of public transport. In a

► city divided by sect and class, they also lead to unexpected encounters. Your correspondent has heard drivers recite traditional Arab poetry and a Hizbullah fighter recount a trip to Syria to fight Isis.

The system does have its downsides. Every ride is a gamble. Some drivers deviate from planned routes in search of extra fares, making commuting times unpredictable. (The definition of hell, some joke, is to be in an empty service taxi, behind a full one.) Female passengers often opt for Uber to avoid harassment. Marwan Fayyad, the head of the local taxi-driver syndicate, laments that poor regulation has allowed forged licence plates and unlicensed drivers to proliferate, making it harder for registered service drivers to make ends meet.

Still, a little chaos will have to remain—in many ways, the lack of regulation is the central appeal of service taxis. “As a service driver, you’re free,” says one who refuses to use Uber. “No one is in charge of you—you’re in charge.” ■

Egypt's austerity

Poverty on the Nile

CAIRO

Three years of impressive reforms have come with a cost

EXCEPT FOR the glow of a mobile phone behind the watermelons, the fruit-and-vegetable shop on a busy Cairo street looks deserted. The owner says his wares are 25% more expensive than last summer. As prices rise, buyers skimp: regulars who used to buy a kilogram of fruit now settle for half. He keeps the lights off between shoppers to save a few pounds. There are no lights either at the butcher’s next door, who reckons revenues are down by 20%. “I sell a lot of bones for soup,” he says.

Last year Egypt vowed to halve poverty by 2020 and eliminate it by 2030. It is going in the wrong direction. On July 29th the national statistics agency released a long-delayed report on household finances. It found that 33% of Egypt’s 99m people were classified as poor last year, up from 28% in 2015. Even that dismal finding may not be dismal enough. The government has fixed the official poverty line at just 736 pounds (\$45) a month, a figure that many economists say is too low. The World Bank said in April that 60% of Egyptians were “either poor or vulnerable”.

The numbers are a stinging assessment of the economic reforms overseen by the president, Abdel-Fattah al-Sisi. Backed by the IMF, which approved a \$12bn loan in 2016, his government cut fuel subsidies, let the currency depreciate and imposed a 14%



value-added tax. These gave Egypt a primary surplus and cut its deficit to 8.3% of GDP, from 12.5% three years ago.

But macroeconomic gains came at the expense of Egyptians themselves. Cuts to fuel subsidies have pushed up transport costs. For an Egyptian on the official poverty line, a short daily trip on Cairo’s metro would now consume 25% of their monthly income. Average household expenditures have increased by 43% since 2015. Income rose by just 33% during the same period, while household debt to banks jumped by 58%. Adjusted for inflation, which peaked at 33% in 2017 (see chart), Egyptians are earning less than they did three years ago.

Though inflation has cooled, the IMF expects it to remain in double digits until at least 2021. The poorest Egyptians, who spend up to 48% of their income to eat, are hardest hit. Meat is an unaffordable luxury: a kilo of beef costs 9% of an average week’s pay. Even a humble plate of *koshari*, the mixture of lentils, chickpeas, rice and pasta that is a staple lunch for many, is becoming expensive. A small plate used to cost three pounds. Now restaurants charge at least five, and often more.

Add to that a government determined to squeeze every pound out of its citizens. The price of almost every service, from driving licences to gun permits, has gone up. Public-school fees have jumped by 20-50%. Taxi drivers at the airport grouse about new charges: 2,000 pounds a month for a permit, plus parking fees that have quadrupled. Their passengers are being squeezed too, with a new \$25 departure tax. For businesses, there is a proposed 0.25% levy on revenue that would be used to fund a new national health-care scheme.

Many of these changes are long overdue. (Fuel subsidies were regressive, inefficient and unaffordable; hospitals need investment.) But Mr Sisi’s government seems oblivious to their impact on the poor. It points to the expanding economy—a 5.6% rise in GDP last year gave Egypt the fastest growth in the Middle East. But the jump is mostly due to a boom in oil and gas. Other sectors look stagnant. Though jobs are being created, many are in low-wage or informal sectors.

Subsidies were the heart of Egypt’s social safety-net. Nothing has adequately replaced them. The main cash-transfer schemes for the poor, Takaful and Karama, cover an estimated 9.4m people, less than 10% of the population. A monthly payment to families with children barely covers a tin of baby formula. Ration cards give access to cut-rate staples, but no one can live on cooking oil and rice alone.

Faced with bad news, the government has done what it does best: blame the messenger. The poverty report should have been released in February. It was delayed twice, with the authors told to revise their findings. Mr Sisi needs to move beyond fiscal reforms by cutting red tape, removing barriers to trade, and pushing the army out of business. Unless he does this, the only way for him to meet his goals on poverty will be to define it out of existence. ■



Bearing the burden of reform



Migrants in Italy

Turning into a trickle

FERNETTI

But that does not stop Matteo Salvini exploiting them

ABDUL AZIZ, a tall, strongly built young man, falls silent and looks down. He has been describing how the Taliban spread their influence through his part of the tribal areas bordering Afghanistan. His father defied them. "They killed my father," he says, tears welling up in his eyes.

The 24-year-old Pakistani farmer is standing in the courtyard of Malala Yousafzai House, a few hundred metres from the border between Italy and Slovenia. The house, a former revenue-guard barracks, is an initial reception centre for Italy's unnoticed migrants: the thousands who enter the country by slipping across the heavily wooded nearby frontier after a gruelling journey from Asia that sometimes takes years. Abdul Aziz's most frightening moment was on the Iranian-Turkish border when he came under fire. "They shoot people there," he says.

Once in the Balkans, migrants become counters in a game of snakes-and-ladders: Slovenian police who catch people trying to go across the country send them back

down to Croatia, where they are once more expelled, to either Serbia or Bosnia. Undeterred, most of them simply turn round and try again. Marco Albanese, who runs the centre for the Italian Consortium of Solidarity (ICS), an NGO, says some people he has taken in have been pushed back across a frontier 15 times.

While Italy's deputy prime minister and interior minister, Matteo Salvini, has focused attention on the arrival by sea of mostly sub-Saharan African migrants on the southern coast, larger—though still

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modest—numbers have been entering the country from the other end. Mr Salvini's policy of closing Italy's ports to NGOs' rescue boats has helped more than double support for his party, the Northern League. But his achievement is less significant than he makes out. The previous, centre-left government had already drastically reduced the number of arrivals from the Mediterranean, and some still manage to get to Italy, usually on fishing boats or yachts. According to the International Organisation for Migration, a UN body, in the year to July 20th, 3,365 people had reached Italy's southern shores.

At the ICS's headquarters in Trieste, its president, Gianfranco Schiavone, says that over the same period his organisation alone took in 1,192 people—most of them from Pakistan, Afghanistan and Iraq. That was almost double the number in the first seven months of 2018. In June, the increase prompted Mr Salvini to talk of building a wall (the frontier is, however, a not inconsiderable 230km, or 140 miles, long). "We'll launch mixed patrols with the Slovenians in July but, if the flow of migrants doesn't stop, then extreme evils require extreme remedies," he declared.

The ICS is not the only voluntary group receiving migrants in the area, and Mr Schiavone notes that their combined total of perhaps 2,000 arrivals so far this year takes no account of the many who seek to avoid all contact with either NGOs or the ►

► authorities for fear of being registered in Italy. Under the EU's so-called Dublin Regulation, asylum-seekers are the responsibility of the first country to record their presence. "Invisible migrants", as Mr Schiavone calls them, try to slip unnoticed through Italy to countries with more of their compatriots, or to richer countries with better job opportunities and welfare provision. But even among those who are registered in Italy, many still prefer to leave for other EU member states.

That explains a second migrant flow that has passed almost unnoticed: that of the *dublinati*, as they are known in Italy. These are migrants who were registered in Italy, moved on to other EU states, were picked up and returned to Italy.

At dusk, in the shadow of Rome's hyper-modern Tiburtina railway station, volunteers from another NGO, Baobab Experience, have just finished doling out food from a makeshift soup-kitchen to scores of Africans who are starting to bed down in the open. There was until recently an encampment on a nearby disused bus park where the migrants could pitch tents, but it was broken up on Mr Salvini's orders. Most of the migrants are without papers. Some have dodged registration. Others have failed in their bid for asylum. Many are heading north. But not all: one man, who declined to give his name, said he had been caught without papers in France and returned to Italy. Andrea Costa of Baobab Experience says that in the previous 12 months the number of *dublinati* turning up at the soup-kitchen has increased tenfold.

According to the EU, there were 6,351 transfers to Italy last year. But that was less than a tenth of the number Italy was actually asked to take back. As Matteo Villa, of Italy's Institute for International Political Studies, wrote in an article for Politico, a website, "Once migrants move to another EU country...it is very hard to send them back." Many go to ground after being stopped. Officials in the country of arrival (Italy, in this case) can use bureaucracy to slow the process. And after six months the migrants become the responsibility of their new host state, giving a strong incentive for foot-dragging.

According to Mr Salvini's own ministry, more than a quarter of a million immigrants who have entered the EU since 2015 through Italy (out of a total of around 480,000) have already been found in other member states, having somehow managed to cross borders ostensibly closed by France, Austria and Switzerland. He and other Italian politicians rail incessantly at the Dublin regime, arguing that it places an unfair burden on the EU's frontier nations and that what is needed is a comprehensive system for the redistribution of migrants. In fact, despite Mr Salvini's rhetoric, the "burden" is quietly shifting itself. ■

Fish-smuggling

Cod awful

OSLO

Norway has had its fillet of fish-smugglers

AT MOST INTERNATIONAL borders the authorities look for anything they think smells fishy: drugs, weapons, cigarettes or alcohol. In Norway they also look for fish. This summer, Norwegians are worrying that tourists are depleting their crystal-clear waters and smuggling their catch out of the country.

Popular prejudice says that the typical fish-smuggler is a beer-bellied German. But new statistics show that Ukrainians, Czechs, Poles, Lithuanians and Belgians are the true scoundrels. Border guards seized eight tonnes of illegal catch from vehicles driven by people from those countries in the first six months of this year.

Visitors to Norway are allowed to take home 10kg of their catch (salmon, trout and char are not counted), and double that if they fish with a licensed tourist company. The current bout of *turistfisk* activity, as the phenomenon is known, suggests many are going far past that limit. In recent weeks officials have caught dozens of cars and motorhomes laden sometimes with 100kg or more of fish, mainly cod.

Officials refuse to be drawn on whether the smugglers are simply enthusiastic holidaymakers, or part of a bigger racket. But the fact that some of those caught in the trawl have been exporting fillets ready for consumption rather than fresh fish suggests they may be organised, and are trying to evade Norway's systems of licences and controls for commercial fishing.



There's competition

In an attempt to stop the piscine flow, spot-checks have increased, says Geir Pollestad, a Centre Party MP and chairman of the Norwegian parliament's committee for business and industry. Prosecutors have also doubled the fines for smuggling.

Norwegians increasingly see tourists as a problem, not a boon. Cruise ships bring thousands to tiny villages at the heads of hitherto pristine fjords. Nusfjord, in the northern archipelago of Lofoten, has already set a limit of two tourist coaches a day. "We've had enough of people coming here and leaving nothing but shit and pollution," says one resident. A growing number of politicians support a tourist tax. The idea would be to raise money while deterring those tourists who strain infrastructure but spend no money. Now that tourists are after precious Norwegian fish, perhaps parliament will bite. ■

Brussels jobs

All aboard the gravy train

A consulting firm founded by an outgoing commissioner tests the rules

COME NOVEMBER 1ST, 17 of the 28 European commissioners, one per EU member state, will be thumbing through their Rolodexes in search of their next job. (The rest have either been nominated for another term or won seats in the European Parliament.) Germany's outgoing commissioner, Günther Oettinger, has wasted no time. At the end of July news broke that he had founded a political-consulting firm in Hamburg, where he plans to work after leaving office.

Mr Oettinger's foray into political consulting has provided a test case for rules on commissioners' post-term activities, which were recently revamped by the current European Commission president, Jean-Claude Juncker. The rules were tightened after his predecessor, José Manuel Barroso, who presided over the commission at the peak of the Greek sovereign-debt crisis, accepted a non-executive role at Goldman Sachs, an investment bank that is said to have profited from disguising the extent of Greece's debt.

The passage leading from the Berlaymont building, the commission's headquarters in Brussels, into political advisory work for corporate clients is well-trodden. One-third of the commissioners who served during Mr Barroso's second presidential term took up lucrative positions at corporate giants, including ArcelorMittal, Volkswagen and Bank of America Merrill Lynch. One of them, Neelie Kroes, a former

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► commissioner for competition and digitalisation, now sits on the public-policy advisory board of Uber, after having criticised Germany's court-imposed ban of the taxi-hailing app while in office.

Both Mr Barroso and Ms Kroes took up their corporate positions following an 18-month embargo on lobbying work prescribed by the code of ethics for commissioners. Under Mr Juncker's new rules, this cooling-off period has been extended to two years for commissioners and three for the president. This is still a short spell by the standards of some countries. Many admire the Canadian system, which prohibits ministers and MPs from lobbying for five years after leaving office.

More troubling is the proviso that the cooling-off period applies only to matters related to a commissioner's former portfolio. Corporate Europe Observatory, a campaign group, claims this is an artificial distinction, because commissioners discuss major policy decisions among themselves before assuming collective responsibility. It is also unclear how this rule would be applied to Mr Oettinger. He is currently responsible for the EU's budget, which funds all areas of the bloc's activity.

Transparency International, a good-governance watchdog, points to another problem. Under current rules, deciding whether Mr Oettinger's consulting venture breaches the code of ethics will fall to the other sitting commissioners, his longtime colleagues, a few of whom may be exploring similar opportunities. Mr Juncker has requested a purely advisory opinion from a three-person ethics committee, but it has been appointed by the commissioners themselves. Commissioners are unlikely to be deterred by existing sanctions, which range from a public rap on the knuckles to losing their EU pension of around €55,000 (\$62,000) a year. They can expect a lot more than that in the corporate world. ■

Social care

Club 18-108

DEVENTER

A Dutch care home experiments with housing students with the old

SOES DUMAN is a normal 29-year-old. He goes to the cinema, follows the Champions League attentively, parties occasionally and talks about life and love with his friends. Later in the week he will see an action movie with his mate Piebe. Before that, he may go to McDonald's with Martey, another chum. It might take more time than usual for his friends to get ready for these activities. Piebe is 79 and Martey a sprightly 94. Does Sores think his weekend plans are odd? "No, I do similar things with friends my own age. I don't see the difference in age as an obstacle."

Mr Duman lives at the Humanitas care home in Deventer, in central Holland. His housemates' average age is over 85. He has been there for three years, along with five other students from nearby universities and around 150 elderly residents. They are part of a scheme started in 2012 that provides them with free housing in exchange for 30 hours per month of their time living as a "good neighbour". Only one activity is mandatory: preparing and serving a meal on weekday evenings.

Both parties appear to benefit from the programme. Mr Duman estimates that he has saved over €10,000 (\$11,200) in rent. He claims that living in a care home has not impinged on his university experience. "We have big parties here," he says, pointing to a room for hire that sits empty at night. "We host everything from beer-pong tournaments to yoga classes." In a promotional video, one resident calls the initiative *gezellig*, a Dutch word that roughly translates as cosy: "Now and then they put me into the walker and race me through the hall," she explains.

Onno Selbach, the first student to move in, says he learnt to be more patient as a result of the experience; the pace of life is slower at the home. The scheme has helped attract prospective residents. The home now has a waiting list, which it previously did not. And students are queuing up. When two left the home in April, 27 applied to replace them.

Humanitas is not the first institution to urge old and young people to live together. Municipalities across Spain and care homes in Lyon, France, and Cleveland, Ohio, have also experimented with the idea. A team from Finland visited Deventer and was inspired to start a similar scheme.

Such initiatives could help combat loneliness, an increasing problem across

the rich world. The very old, migrants, the sick or disabled, and singletons are most at risk of feeling lonely. It goes hand in hand with social isolation. About 18% of adult EU citizens—some 75m people—see friends or family at most only once a month. Nearly half of Britons over the age of 65 say that television or pets are their main form of company. Loneliness is also reckoned to have serious health consequences: a study from 2015 found that lonely people had on average a 26% higher risk of dying in its seven-year study period than those who were not lonely. And the problem may only get worse. The share of people who are aged over 80 will more than double in the EU by 2080. Social isolation is becoming more common partly because people are marrying later. Creating a space for the elderly to mingle with youngsters can lift spirits—and help cash-strapped millennials. ■

The Black Sea

Gunboat diplomacy

ABOARD THE USS CARNEY

America and its allies are helping Ukraine to get its sea legs back

DRIFTING GENTLY, USS *Carney* floats in the Black Sea. Two Russian warships and the odd dolphin lurk nearby. Then the order is given: "Release the killer tomato." Several warships line up alongside the 9,000-tonne destroyer, as though at a shooting gallery. A gigantic inflatable cube, garishly true to its name, is hoisted over the edge of *Carney* into the still waters. The frigate *Hetman Sahaydachnyi*, the pride of Ukraine's navy, takes the first potshots. On *Carney*'s bridge, a young sailor seated at a screen with arcade-style joysticks unleashes a burst of fire from the ship's remote-controlled cannon. *HMS Duncan*, a British destroyer, goes next. The balloon shrivels as shells thump into the water. The tomato is duly squashed.

The target practice is part of the annual ►



► Sea Breeze exercise, led by America and Ukraine, now in its 19th iteration. The exercise posits that the nefarious state of Blackland, a behemoth to the east, is fuelling an insurgency in Maroonland, a breakaway province of Roseland. Ukraine, America, Romania, Bulgaria and Georgia play the good guys. One of NATO's standing fleets, led by a Canadian frigate, stands in for the foes. The scenario requires little imagination. Since Russia's annexation of Crimea and invasion of eastern Ukraine in 2014, 13,000 people have died. Four Ukrainian soldiers died in a rocket attack on August 6th.

That war explains why Ukraine's naval contribution to the drills has thinned out in recent years. Ukraine's navy, which was headquartered in the Crimean port of Sevastopol, lost three-quarters of its personnel and warships virtually overnight. In the wardroom of *Hetman Sahaydachniy*, a Ukrainian officer gestures to a silver plaque which documents the ship's eight captains since 1993. Two names have been scratched out. "They were traitors," says the officer bitterly. "One of them was appointed chief of the navy. The next day we realised he had defected to Russia. It was a blow to the head." Another setback came last November when Russia rammed and seized two Ukrainian gunboats and a tug attempting to enter the Sea of Azov, a body of water shared between them.

Ukraine is now rebuilding. Its short-term goal is a "mosquito fleet" of small, agile and affordable vessels to deter Russia in coastal waters, rather than big and expensive warships for the high seas. Two shiny new patrol boats, bristling with guns, sat in Odessa's harbour on the country's naval day on July 7th. Stepan Poltorak, Ukraine's new minister of defence, and Vice-Admiral Lisa Franchetti, commander of America's Europe-based Sixth Fleet, clambered into one and cruised off. That is a vital relationship for Mr Poltorak. In the past four years 92% of Ukraine's military assistance has come from America. This includes two patrol boats presented in 2018, with another pair due shortly. America is also beefing up Ukrainian naval facilities east of Odessa to take larger foreign warships.

However, Ukraine needs more than arms. Its military culture prefers top-down orders and centralised planning to the initiative and autonomy favoured in NATO armed forces. "We still see remnants of the Soviet command structure," says a Swedish officer who is mentoring the Ukrainians in the operations centre of the exercise. "We're trying to teach an old dog new tricks." He says that corruption seems to be down and the work ethic up. In past years, the operations room would shut down in the afternoon. "Some saw it as a vacation down here." Now it runs around the clock, with Ukrainian officers doing more of the heavy lifting.

The Faroes' puffins

Well worth saving

TORSHAVN
The adorable seabirds are in danger

WITH THEIR engagingly rainbow-coloured beaks, puffins are the star attraction on the Faroe Islands. But puffin boffins fear that their numbers are falling so fast that in 20 years they may have vanished from the archipelago. In 1997, estimates Jens-Kjeld Jensen, the Faroes' top puffin expert, the islands were home to 1.5m of the birds; but now their numbers are down by 80%. A tiny uptick in numbers in the past two years won't be enough to save them, he fears.

Hunting has been part of the reason. Ecologists are quick to rage at the Faroese, sharing film of the traditional and bloody slaughter of pilot whales, which are not endangered. But no one protests when puffin is on the menu at the islands' only Michelin-starred restaurant.



Please don't eat me

American and European support for Ukraine reflects a wider Western concern about the balance of power in the Black Sea. Russia had sent only one new warship to its Black Sea fleet between 1991 and 2014, says Dmitry Gorenburg, an expert at the Centre for Naval Analyses, a think-tank, leaving it "barely functional". But since the seizure of Crimea Russia has put the fleet on steroids, adding half a dozen new submarines, three frigates and a slew of missile-toting boats. It has also stuffed Crimea full of missiles, including the S-400 air-defence system, making it far riskier for foreign ships and planes in wartime.

That is changing. Carney's visit to the Black Sea was the fifth by an American warship this year. Ships from NATO's standing

The 18 islands comprising the Faroes are home to 51,783 people who govern themselves as an autonomous part of Denmark. When they were poor, and there were plenty of puffins, the Faroese used to scoff more than 200,000 of the birds a year. Twenty years ago, by which time they were just a delicacy, they were still roasting 100,000 a year. Now, says Mr Jensen, the number is down to 1,000. Hunting bans are in force in some areas, but not nationally; and he thinks the government won't ban catching puffins completely for fear of offending traditionalist voters.

Hunting may have sharply declined, but other forces are at work. The Faroes sit in the middle of a region, stretching from Scotland to Norway to Iceland, where the decline in puffin numbers is also dramatic. One theory is that climate change is taking a toll. Puffins feed their young on sand eels and, suspects Sjurdur Hammer, a conservation scientist at the Faroese Environment Agency, sand eels' nutritional value has gone down because the seas are warmer, speeding up their metabolism. In the future, laments Mr Jensen, "the only place you will see a lot of puffins is in the tourist office."

Might tourism, in fact, help? Gudrid Hojgaard, the Faroese government's tourism chief, says that since 2012 tourist numbers have already doubled to 120,000 a year. She hopes that revenue this year will be 800m kroner (\$120m), a considerable sum for such a thinly-populated place. Apart from admiring the wonders of nature, there is not a lot for visitors to do. Better conserve those puffins before it is too late.

fleets spent 120 days there in 2018, up from 39 in 2014 and 80 in 2017. There is a limit to such naval shows of force; the Montreux Convention, which dates back to 1936, sets caps on the number, tonnage and length of stay of foreign warships in the Black Sea. But there is pushback on land, too. In June the Pentagon announced a fresh \$250m in military aid for Ukraine, bringing the total to \$1.5bn over the past five years. In July America moved Reaper surveillance drones from Poland to Romania, putting the whole Black Sea within reach. And from October a Romanian will serve as NATO's deputy secretary-general—the first official from a Black Sea littoral state to do so in nearly five decades. Those are comforting thoughts for Ukraine's sailors. ■

Charlemagne | The eastern summer

A wave of pro-democracy protests and elections sweeps the east of Europe



EUROPE IS PREPARING to mark 30 years since the fall of communism. On August 19th Angela Merkel will travel to Sopron. With Viktor Orban, Hungary's authoritarian prime minister, she will commemorate the anniversary of a peace protest on the border between Hungary and Austria that helped chisel the first chink in the Iron Curtain. The event will have a grotesque quality: a German chancellor celebrating the rebirth of democracy alongside a leader who is systematically dismantling democratic institutions in his country. And it will doubtless lift the curtain on an autumn of commentary lamenting the failed promise of 1989. Expect doleful references to Europe's new east-west cleavage and sardonic asides about the predicted "end of history".

The images from Sopron will not do central and eastern Europe justice. Democracy and liberal values have indeed come under attack in the region. The Economist Intelligence Unit (a sister of *The Economist*) finds that since 2006 democracy has deteriorated more there than in any other part of the world. And yet there have been quite a few glints of hope—especially in the past few months.

The prelude to this "eastern European summer" came in March with the election of Zuzana Caputova, a liberal anti-corruption campaigner, as president of Slovakia. She has since stood up for independent judiciaries and publicly rebuked Mr Orban's illiberal abuses in neighbouring Hungary. April brought a presidential election in North Macedonia in which nationalists were defeated by the Social Democrats, who had just settled a long-running dispute with Greece over the country's name in order to pave the way for EU membership. And May brought wins for pro-European moderates in the Latvian and Lithuanian presidential elections.

Slightly further afield, in June a re-run of the Istanbul mayoral election put an opponent of President Recep Tayyip Erdogan at the helm of Turkey's largest city, confirming that the autocratic leader's grip on the country is faltering and prompting breakaways from his political party. Czechs protested in the largest demonstrations since the fall of communism—some 250,000 marched in Prague—after Andrej Babis, the prime minister, was charged with fraud and appointed a crony as justice minister. Protests also burst onto the streets of Moldova, where an "anti-oligarch" coalition ultimately ousted Vladimir Plahotniuc's crooked regime, and onto

the streets of Georgia in opposition to Russia's ongoing occupation of parts of the country. In July, across the Black Sea, Romanians and Bulgarians also staged demonstrations: the former over police incompetence and the latter over cronyism in the judiciary. Ukraine's parliamentary election delivered the only absolute majority in its post-communist history for Volodymyr Zelensky, a former comedian promising to tackle corruption and to anchor the country to the West.

Now Moscow is centre-stage. On July 27th some 20,000 people took to the streets, the largest demonstration there since 2012. Vladimir Putin's approval ratings are sinking. So are real wages. The surge of patriotism that followed Mr Putin's annexation of Crimea, part of Ukraine, has faded. And Muscovites are bridling at an upcoming election in which non-approved independent candidates will be barred from the ballot. Another protest on August 3rd saw thousands return to the streets, despite the threat of arbitrary beatings and imprisonment. One major figure in the Russian opposition is Lyubov Sobol, an anti-corruption campaigner. Women are at the heart of many of the rebellions against the strongmen. Ms Sobol, who has now been arrested, and Ms Caputova are two. Others include Canan Kaftancioglu, a leading force in the Turkish opposition; Laura Kovesi, a Romanian graft-buster set to become the EU's first public prosecutor; and Barbara Nowacka, who led women's protests against reactionary social reforms in Poland.

To be sure, this is no new 1989. The encouraging protests and election results mostly concern local issues—though they have common factors, such as lots of young people and a pro-EU bent. Poland's election, set for October 13th, will probably see the governing populists triumph. Mr Orban is going nowhere. Mr Babis is still riding high in the polls. It is far from clear that Mr Zelensky will break from Ukraine's oligarch-dominated past. In Russia and Turkey change is most likely to come from shifts within the ruling party, albeit ones that may be catalysed by street protests.

History is back

And yet the events of this summer prove many of the western European clichés about eastern Europe wrong. States scarred by communism are not incapable of producing strong civil-society movements. Slavs and Turks do not have some innately "Asiatic" preference for authoritarian leadership. Nothing lasts forever. History never ended.

Eastern Europe's liberal marchers and voters deserve more support from the continent's west. While protesters on the streets of Moscow are being beaten and countries like Ukraine and Georgia are striving for independence, Germany is embracing Nord Stream 2, an unnecessary gas pipeline tailored to the Kremlin's geopolitical and financial interests. Meanwhile Mrs Merkel and Emmanuel Macron are pouring cold water on North Macedonia's hopes of joining the EU. The union spends far too much of its budget on misguided priorities like farm subsidies, and not enough on supporting independent media and civil-society organisations on its fringes. Dissenting voices in countries like the Czech Republic, Romania and Turkey receive scant coverage from western European politicians and journalists. That should change.

To assume eastern Europe is all Orbans, Erdogan and Putins is to do the region a grave injustice. This summer has proved that eastern Europe is in fact teeming with democrats and liberals willing to put their own interests on the line for their cause. If the EU stands for anything, if it truly values the promise of 1989, it will stand by them. ■

**No-deal Brexit**

Can Parliament stop it?

The government claims MPs cannot stop Britain leaving the European Union on October 31st. Yet many are determined to try

IN MARCH the House of Commons rejected the idea of a no-deal Brexit by a handsome 43-vote margin. Yet this week Dominic Cummings, Boris Johnson's Svengali-like adviser, suggested that it was now too late for MPs to stop Britain leaving without a deal on October 31st, the latest Brexit deadline. This position was echoed by a Downing Street spokesman and by the health secretary, Matt Hancock, who was previously strongly opposed to no-deal.

There are two parts to the argument. The first is that October 31st is now the default option, legally binding on both Britain and the EU. In the absence of some specific action, such as agreeing to another extension, Brexit will take place then. The second is that, given the imminence of the deadline, MPs do not have enough power or time to prevent no-deal—unless the government co-operates. And Mr Johnson will not do that. Downing Street is threatening to force a no-deal Brexit even if the prime minister loses a no-confidence vote.

Does he mean it? It would be sensible to take the latest bluster with a pinch of salt. Mr Johnson has two clear bargaining reasons to talk up the risk of a no-deal Brexit on October 31st. One is to ensure that Brussels takes the notion seriously, which it did not when Theresa May was prime minister. That should raise the pressure on the EU to drop its refusal to reopen the withdrawal agreement. The second is to win back voters from Nigel Farage's Brexit Party, who positively favour no-deal. The Tories' loss of the Brecon by-election on August 1st confirmed that, even under Mr Johnson, they are still vulnerable to Mr Farage.

Even so, a clear majority of MPs still oppose no-deal. Opinion polls suggest most voters are against it as well. Although Mr Johnson has required all his ministers to sign up to the possibility, several are known to have been fretful about the consequences, including Michael Gove, who is in charge of preparing for it. Some two-dozen Tory rebels have indicated that they

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are ready to join any cross-party efforts to stop a no-deal Brexit. They include several of Mrs May's former cabinet ministers, notably Philip Hammond, David Gauke, Greg Clark and David Lidington.

Yet there are big hurdles in the way of attempts to prevent a no-deal Brexit. Some look back to March, when MPs succeeded in hijacking the Commons agenda, which is usually controlled by the government, to pass an act requiring Mrs May to seek an extension of the Article 50 Brexit deadline. But this was possible only with the peg of legislation or an amendable motion. Mr Johnson's team say neither will be needed or allowed before October 31st.

Are there other routes? Chris White, a former adviser to Tory whips now at Newington Communications, reports talk in Westminster of using emergency debates or opposition days. Rebel MPs expect help from the speaker, John Bercow, who seems willing to tear up normal procedural rules if need be. But the government will not allow any opposition days. The shortage of parliamentary time acts in its favour—fewer than 30 sitting days are planned before October 31st (rebels are therefore seeking a way to cancel the autumn recess). And there is no majority for the drastic option of revoking the Article 50 Brexit letter.

Such uncertainties explain why many MPs now talk of a vote of no confidence. The Labour leader, Jeremy Corbyn, prom-

ries to propose one soon after the Commons returns on September 3rd. Mr Johnson's government has a working majority of just one, so it requires only a handful of Tories to switch sides for a vote to succeed. Yet Mr Johnson will say he needs more time to secure a deal. It is hard for backbenchers to vote down their own government, which may be why since 1945 only one vote of no confidence has succeeded, against Labour's James Callaghan in 1979.

The rules were also changed by the Fixed-term Parliaments Act of 2011. Previously, any vote of no confidence would trigger the prime minister's resignation and a general election. But the 2011 act allows a period of 14 days during which either the sitting prime minister or an alternative tries to form a government that can win MPS' confidence. Only if these attempts fail must an election be called, on a date fixed by the outgoing prime minister. As Catherine Haddon of the Institute for Government, a think-tank, notes, it is not even clear under the act that the prime minister must resign, though a refusal to do so would produce a constitutional row that might even involve the queen.

Some MPS hoping to block no-deal are discussing the formation of a cross-party "government of national unity" to replace Mr Johnson's, with the express purpose of asking for another Brexit extension to allow time for an election. The idea would be that a veteran such as the Tories' Ken Clarke or Labour's Margaret Beckett might be its nominal leader. Yet it is hard to see this working. Labour is not keen, and is likely to insist instead that any alternative government must be led by Mr Corbyn. Rebel Tories are most unlikely to support this.

Big battles between the legislature and the executive are usually won by the former. But the anti-no-deal majority is less coherent and focused than are hardline Brexiteers. This may explain one more suggestion from Mr Cummings: that any election after a vote of no confidence is put off until November, ensuring that no-deal Brexit happens meanwhile. The cabinet manual says that, during an election campaign, no big decisions should be taken by a caretaker government. But Brexiteers retort that, since October 31st is enshrined in law as Brexit day, the big decision would be to stop it, not to let it proceed.

For Mr Johnson, the politics of this are uncertain, at best. If an election were held before Brexit, Mr Farage would whip up support by telling voters they were about to be betrayed. On the other hand, engineering a no-deal Brexit against MPS' wishes would outrage many people. And an election held amid the likely chaos that would follow a no-deal Brexit could help opposition parties. Some therefore wonder if the government will schedule a ballot for November 1st, "Independence Day" itself. ■

Rural internet

Our island Instagram story

KIRKWALL

A plan to bring super-fast mobile networks to the middle of nowhere

THREE ARE NO traffic lights on the Orkney islands. Despite having the highest rate of car ownership in Scotland, with 919 vehicles per 1,000 adults, the archipelago is so thinly populated that there is no need for stop signals. Drivers politely make way for each other on the narrow lanes, waving as they pass. The occasional roundabout regulates busier junctions.

Orkney's rural nature makes it a pleasure to drive in. But it also makes it a nightmare for mobile connectivity. "By the time something is rolled out to the extremities of the country...it is out of date," complains James Stockan, the leader of the Orkney Islands Council. That is only a slight exaggeration. The first 4G signal arrived in Kirkwall, Orkney's biggest settlement, in 2016, nearly four years after it came to urban Britain. Smaller islands, such as Papa Westray, have no 3G coverage, let alone 4G.

In all, only 35% of Orkney households can make a voice call on all four networks, and 4% can do so on none at all, according to Ofcom, the telecoms regulator. It is worse for data services. Only 18% of premises can access 4G on all four networks and 7% get no signal. Skara Brae, a Neolithic site protected by UNESCO, has no network coverage, forcing tourists to wait until they return to Kirkwall to post pictures to Instagram.

It is not just social-media addicts who suffer. Farmers have trouble accessing mandatory forms; jobseekers struggle to



#NoFilter—but no signal either

make applications; civil servants miss out on online training. As mobile networks start to roll out 5G coverage this year, Mr Stockan is keen to avoid the delays of the past. He would like Orkney to "jump over one generation to the next".

Such talk of leapfrogging usually focuses on the poor world, where charities and tech firms promise to send balloons and drones to bring the internet to people without landlines. Yet something similar is now under way in Orkney. 5G RuralFirst, a consortium of 30 organisations backed by a £4.3m (\$5.2m) government grant and led by Cisco, which makes networking gear, has been running a private 5G network on the island for the past year. Investment by mobile-network operators purely because of consumer demand "is not likely to happen", says Greig Paul of the University of Strathclyde, which is part of the consortium. RuralFirst is trying to figure out how to make it commercially viable.

Its main idea is to find local industrial uses for the tech. That is part of the promise of 5G networks in general: not only can they offer much greater speeds, but they are designed to be super-responsive and capable of connecting to many more devices at once. "If we can drive industrial use then there will be more demand, which means more revenue, which means more capacity," says Mr Paul.

In the Orkneys, local businesses seem keen. Scapa, a whisky-maker, sees potential in automating bits of production and tracking employees throughout the distillery. Richard Gauld, who runs a small wind farm, says replacing copper wires with 5G would make the local electricity grid safer and more efficient. Out in the Scapa Flow, Richard Darbyshire of Scottish Sea Farms says 5G would offer a more reliable connection from base to barge. That would allow his men to feed fish remotely in bad weather, and support high-definition live video from the salmon pens.

There are also ideas for ways to cut costs, such as making more efficient use of radio spectrum, using software to do things that typically require hardware, and sharing infrastructure among mobile networks. The biggest expense is access to spectrum, which costs billions at auction. That will soon be less of an obstacle. On July 25th Ofcom announced that it would offer spectrum to local communities for as little as £80 a year.

The Orkney programme runs until the end of September, after which the consortium will evaluate the business case for 5G in rural areas. "If it works for us, maybe we can offer the service to other small communities that want to have their own 5G cell," says Greg Whitton, who runs CloudNet, the local internet service provider. Getting online on the island could soon be as easy and speedy as driving around it. ■

Bagehot | Theresa 2.0

A sense of déjà vu in Downing Street



HISTORICAL PARALLELS with Boris Johnson, Britain's new prime minister, abound. Mr Johnson's acolytes compare their leader to Winston Churchill, who also once helped Britain out of a pickle in its relations with Europe. Smart alecs opt for George Canning, a fellow Old Etonian with populist tendencies, who became prime minister in 1827—and died in office after just 119 days. David Lloyd George, a Liberal prime minister whose time in office combined huge constitutional changes, political chicanery and enthusiastic infidelity, also fits.

Yet the better comparison is with a more recent and less likely prime minister: Theresa May. Mr Johnson and Mrs May are different species. She was determinedly dull, while he is unstoppably jolly. She ascended to the highest office by careful management of a cabinet job, whereas he almost torpedoed his career with a dodgy stint as foreign secretary. Mrs May embodies a strand of curtain-twitting suburban Conservatism. Mr Johnson represents the party's wing of cavalier public-school *bons vivants*. Yet these different political animals have strikingly similar strategies.

Team Johnson has cornered itself on Brexit, painting negotiating red lines with the same enthusiasm as Mrs May. Mr Johnson has promised to take Britain out of the European Union by October 31st, just as Mrs May pledged to do so by March 29th—the missed deadline that, in effect, sealed her fate. Both prime ministers' Brexit strategies have at their heart the threat that "no deal is better than a bad deal". Injecting that phrase into the bloodstream of British politics was one of Mrs May's few successes as a political communicator. Fatally for her, she turned out not really to believe it, chickening out when the possibility of leaving with no deal arrived in March. Mr Johnson's team in Downing Street have adopted the same mantra, and insist that, unlike her, they will hold their nerve. They may secretly suspect that their promise will never be tested, as Parliament is plotting to force an election rather than allow the country to be dragged out of the EU without a deal.

The possibility of an election gives rise to the next similarity between the May and Johnson regimes: their serene confidence that a vote will lead to a Conservative victory. The same thinking dominated in the spring of 2017, when Mrs May plotted her snap general election. Such a victory was to be built on Leave-voting

constituencies in the Midlands and the north, with voters flocking to the Tories on a pledge of a pure Brexit. Mr Johnson's electoral pitch is the same. In his first speech as prime minister he spoke of "answering at last the plea of the forgotten people and the left-behind towns", just as Mrs May pledged to right the "burning injustices" that led to the Brexit vote. When it came to the election, Mrs May framed it as a battle between the people and an establishment determined to thwart their will. If MPs do force an election, Mr Johnson would play a similar tune, with what aides describe as a "people versus the politicians" campaign.

Even the coverage of their advisers has been similar. Westminster is given to "Life of Brian" syndrome, in which a single bag-carrier is designated as a political messiah. For Mrs May, it was Nick Timothy, a bald Machiavelli who fell out with David Cameron while in government and spent a hiatus from politics composing forthright blogposts, before finding himself in Downing Street. For Mr Johnson, it is Dominic Cummings, a bald Machiavelli who fell out with David Cameron while in government and spent a hiatus from politics composing forthright blogposts, before finding himself in Downing Street.

Despite their different styles, the presentation of the two prime ministers is oddly familiar. Mr Johnson, who prides himself on his campaigning skills, shuffles between photo opportunities, agreeing only to carefully staged pool interviews, as was Mrs May's wont. Although Mr Johnson looks comfortable chatting to farmers or petting their livestock in a way that Mrs May never could, the strategy is the same: keep the prime minister away from the press. This should be little surprise. Staffers from CTF Partners, a political consultancy that oversaw Mrs May's bungled 2017 election, have taken roles in Mr Johnson's operation.

Once more, with feeling

That a strategy failed once does not mean it will always fail. Mrs May's former aides moan that figures such as Philip Hammond, her chancellor, hamstrung the prime minister by refusing to play along with her pantomime preparations for a no-deal Brexit. Mr Johnson's team has seen off this problem by selecting a cabinet of true Brexit believers and a few former Remainers who have kissed the ring. Labour gained 20 points during the course of the 2017 election campaign, a feat it may struggle to repeat. In calling her snap election, Mrs May looked opportunistic—an ugly trait for a politician whose selling point was a sense of duty. Mr Johnson may be forced into one, or at least look as if he was. Grand political realignments also take time. The 2017 election was called only ten months after the Brexit referendum. Now, after three years of incessant argument, people identify more strongly with their vote in the referendum than with a political party. It may be that the authors of Mrs May's strategy were merely ahead of their time.

Yet the May-Johnson approach still suffers from gaping flaws. An election cannot be won with the votes of Leavers alone. Napping seats from Labour in pro-Brexit areas is pointless if Remainer seats in London suburbs and university towns are lost. Mr Johnson may frame an election as a plebiscite on Brexit, but it will be voters who decide which topics matter. Mrs May, astonishing as it may now seem, was once wildly popular, entering office with an approval rating of 35. Mr Johnson's is -7. And whereas Mrs May had options when she became prime minister—a majority, a malleable mandate from the referendum and a public less divided than today—Mr Johnson has none of these. The new prime minister has taken the path of May Mark 2. It is a treacherous one. ■



Illegal wildlife trade

Where the wild things are going

BEIJING AND KAFUE

In the battle against the trade in endangered species, the criminals still have the upper hand

BROWSING PEACEFULLY at a waterhole, the herd of two dozen elephants seems oblivious to the car that has stopped 100 metres away and disgorged three visitors to gawk at them. The vast expanse of the Kafue National Park in western Zambia is quiet and deserted of other people. These humans are just curious, but potential killers would be hard to stop. An anti-poaching unit based about 20km away tries to protect the animals in the park's 22,000 square kilometres, with just 27 rangers working shifts, and a few jeeps and rifles. Given the odds, and the rewards poaching brings, they have been remarkably successful.

The park is home to leopards, rare antelope, hippos, pangolins, aardvarks and crocodiles as well as elephants, of which Kafue had about 60,000 in the 1960s, when it also had one of the world's largest populations of black rhinos. But in the 1980s, the very last black rhino was poached. The elephant population has dwindled to 4,000.

Elephants will be high on the agenda when the Convention on International Trade in Endangered Species of Wild Fauna and Flora (CITES), an agreement signed to date by 183 countries, convenes its triennial "conference of the parties" (COP)—its decision-making forum—in Geneva from August 17th-28th. WWF, a wildlife charity, estimates that around 20,000 African elephants are killed by people every year.

The animals' meat, hides and, above all, tusks are money-spinners. East Asia is the biggest market for ivory and for many illegally traded products, such as animal parts used in traditional Chinese medicine (TCM)—tiger bones, rhino horns, pangolin scales—or in its cuisine—pangolin meat, for example. In July the authorities in Singapore seized 8.8 tonnes, about 300 elephants'-worth, of ivory, along with 11.9 tonnes of pangolin scales, from some 2,000 of the anteaters, the world's most widely trafficked endangered mammal.

The annual profits of the trade in illegal wildlife products are estimated at between \$7bn at the low end and \$23bn. This makes it the fourth-most profitable criminal trafficking business, with links to others—slavery, narcotics and the arms trade.

On the agenda in Geneva is a proposal from Zambia to shift its elephants from CITES' Appendix I, which bans virtually all trade, as the species is deemed at threat of extinction, to the less restrictive Appendix II, to allow some trade, for example, in hunting trophies. Botswana, Namibia and Zimbabwe also want to trade some stockpiled ivory. Zambia argues that its elephant population has stabilised, at about 27,000 animals—just one-tenth of the number 50 years ago, but a marked increase on the estimated 18,000 that survived the poaching epidemic of the 1970s and 1980s. The animals have enough space and are not split into unsustainable subpopulations.

It's the people, stupid

Many local people would be quite happy to see elephant numbers decline. These beasts, protected in reserves and national parks such as Kafue, which cover around 30% of the country, can be destructive, trampling farmland and wrecking homes.

Everybody involved in conservation agrees that the best protection for wildlife would be for local people to have an inter-

est in their survival, but that is proving hard to bring about. In a village just outside Kafue, Gertrude Mwiba is one of those trying to rub along with the local megafauna. As a local organiser for a community-based natural-resource-management forum, she has been helping find ways to reduce poaching by promoting other livelihoods. Growing maize, soya beans and cassava, the local staples, are options; beekeeping deters elephants, which hate bees, as well as providing an income. But poaching is more profitable than any of them. Elephants are far from the only targets. Various types of antelope, buffaloes and even hippos are sought after as "bush-meat" in the capital, Lusaka, and abroad.

Having big endangered beasts as neighbours brings in some money. Safari lodges dotted through the park attract tourists with a few hundred dollars a night to spend. But they do not create many jobs. Locals would have nothing against trophy-hunting—tourists paying to shoot animals—but believe they would see little of the proceeds. Of the money the government gets from safari operators, 20% is earmarked for local villages. But Ms Mwiba says disbursement can take two years, if it happens at all, and most is spent on anti-poaching activities anyway. Around the world, poor farmers like her are the front line of defence for some endangered species. Yet for them, wildlife protection brings no obvious benefits, just costs.

Some conservationists believe that in order for locals to be given an interest in the survival of wildlife, a controlled market in products must be allowed. Trade is a relatively small danger to the world's biodiversity. Far more important are loss of habitat and climate change.

Others argue the opposite: that the trade in some products, such as ivory and rhino horn, has been a big factor in the threat to those species. In countries that lack sufficiently solid political institutions and law-enforcement agencies, the argument goes, trade will encourage short-term killing rather than long-term investment, and the existence of any legal market encourages and enables the illegal one. It makes it easier to launder illegal products and sustains the demand that fuels the trade.

Vested interests on both sides distort the argument—those sitting on valuable stocks of ivory or rhino horn obviously stand to profit from trade; and some conservationist NGOs' purpose and fund-raising rely on a purist approach. But the numbers tend to support the abolitionists.

After the ivory trade was banned in 1989, elephants' fortunes turned around. The two camps squabble about whether that was mainly the result of falling demand or of better anti-poaching measures, as African governments came under pressure to do more to protect them. But a resurgence

of poaching in the past decade seems linked to a partial liberalisation in 2007, when a one-off sale of some existing ivory stocks was permitted (see chart). Japan was approved as an authorised importer as its market seemed sufficiently well regulated. The result, say the abolitionists, is that it has become the centre of the illegal trade in worked ivory. The biggest seizures of smuggled artefacts these days are by Chinese customs of goods entering the country from Japan.

The trend, within CITES, is towards stricter controls. At the previous COP, held in Johannesburg in 2016, more species were added to the appendices—all eight species of pangolin, for example, are now listed in Appendix I—and protection was enhanced for the African grey parrot, lion, cheetah, helmeted hornbill and totoaba (a fish whose bladder is used in Chinese medicine). CITES congratulated itself that wildlife was now "firmly embedded in the agendas of global enforcement, development and financing agencies".

There has indeed been progress since 2016, notably in making it harder for criminals to trade wildlife products on global internet platforms. And the issue has gained prominence, helped by a high-profile conference in London in 2018. The firms that unwittingly provide the infrastructure for the trade are getting better at monitoring it—haulage companies at checking cargo, banks at spotting suspicious flows of money. China has just taken over the chair of the Financial Action Task Force, a plurilateral body supposed to curb money-laundering. The new chairman, Liu Xiangmin, has listed going after the proceeds of wildlife crime as an objective.

Some advances have also been made in curbing demand for the illegal products. What happens in China matters most. The emergence of hundreds of millions of Chinese with disposable incomes turned what were once niche products into a huge market. The Beijing metro has posters publicising the fight against wildlife crime. Yao Ming, a retired basketball star, has lent his

name to campaigns to save elephants, sharks and rhinos. And at the end of 2017 China put into force a ban on all domestic trade in ivory. (Because of CITES, trading newly acquired ivory was already illegal.)

Technology is also helping. In some parks in Zambia and elsewhere, rhinos and elephants are fitted with sensors and monitored by drones. DNA testing of seized ivory makes it possible to identify fairly precisely where the animal was killed. However, only 20% of large seizures are tested—"representing an important missed opportunity to better understand the criminal networks trafficking ivory", says Matthew Collis of the International Fund for Animal Welfare, a charity.

In the soup

But ahead of the Geneva meeting, the mood among conservation NGOs is not upbeat. After all, about 5,800 animals and 30,000 species of plant are listed by CITES, and still more are likely to be added this year—such as some new species of shark, killed for the fins so prized in Chinese soups.

And efforts to eliminate the trade offer an object lesson in the law of unintended consequences. Often, when demand is suppressed in one place, it pops up in another—especially in China's neighbours such as Vietnam and Laos. China's ban did cut the price of ivory. But that prompted some ivory poachers to turn to pangolins.

Rhino horn is another example. China has banned its sale since 1993; and demand for its use in traditional Chinese medicine (for fevers, rheumatism and gout) has fallen. But it has picked up in Vietnam on non-sensical rumours it can cure cancer. Tiger-bone remedies are being replaced by lion- and leopard-bone ones. And so on.

Moreover, although China is trying to curb illegal trade, it is also promoting TCM as one of its civilisation's great contributions to the world. It has indeed made breakthroughs, such as artemisinin, now a widely used defence against malaria. Very few of its cures come from animals and the official pharmacopoeia has been purged of illegal (and useless) treatments such as rhino horn and tiger bone. But some TCM practitioners still prescribe them, so conservationists are alarmed that in May the World Health Organisation gave TCM respectability by including diagnoses for 400 conditions in its influential International Classification of Disease list.

Efforts to cut demand for illegal products have had an impact, and attitudes are changing. Sharks'-fin soup, for example, is no longer a fixture at Chinese banquets, and more and more diners know it is at best a controversial taste. But as endangered species dwindle further, the market for many products is still robust. Trafficking in them remains, in Mr Collis's phrase, "a low-risk, high-reward crime". ■

The price of ivory

Estimated elephant population in Africa*, '000



Source: "Continent-wide survey reveals massive decline in African savannah elephants", by M. J. Chase et al., PeerJ 2016



The fertility business

Seed capital

NEW YORK

Investors are pouring money into companies that promise to help people conceive

BRIGHT-BLUE letters greet women at Trellis, an egg-freezing studio in New York. "It's up to each of us to invent our own future," they enjoin. No baby pictures here, of the sort that adorn joyless waiting rooms at traditional fertility clinics. Instead the client-experience manager, Casy Tarnas, invites visitors to grab a charcoal-coloured "fertility-friendly juice". Turkish-cotton robes await. If this feels like a spa rather than surgery, that is the idea. Egg-freezing, which promises to preserve young women's healthy eggs until they are ready to start a family, is supposed to be "an empowering experience".

The fertility business has always peddled hope to people who struggle to conceive naturally. It still does, extending the promise to singles and same-sex couples as social norms shift, and increasingly—as in the case of Trellis—to the much larger clientele of young women who wish to postpone childbearing while they pursue a career or await "the one", and are therefore likelier to need help when they do eventually want babies. Data Bridge, a research firm, predicts that by 2026 the global fertil-

ity industry could rake in \$41bn in sales, from \$25bn today. Today one in 60 in America is born thanks to in vitro fertilisation (IVF) and other artificial treatments. In Denmark, Israel and Japan the figure is more than one in 25—and rising. In China revenues could double to over \$7bn by 2023, according to Frost & Sullivan, a data firm. Add high operating margins—of around 30% in America for a \$20,000 round of IVF—plus the recession-proof nature of the desire for offspring, and inves-

tors are understandably excited.

In 2018 fertility firms received \$624m from venture capitalists and private-equity firms, compared with less than \$200m in 2009, according to Pitchbook, a data provider. In June Jinxin Fertility raised \$360m in an initial public offering, the first on the Hong Kong Stock Exchange for a Chinese fertility firm. The market capitalisation of Vitrolife, a listed Swedish company, has tripled since 2015, to \$2bn.

The money is flowing not just into treating infertility (as IVF clinics do) but also preserving fertility (egg-freezing clinics) and, even further removed from conception, diagnosing if either treatment or preservation might be needed one day (tests and trackers). Of these, infertility treatment is the most mature, though the landscape remains fragmented 41 years after the first IVF baby was born.

In America and Europe consolidation is now afoot. Private-equity firms think they can cut costs, acquire more patient data and build brands, as they have done with dental clinics. Last month Impilo, a Nordic investment firm which already owned the Fertility Partnership, a big British provider, agreed to buy VivaNeo, which has clinics in Austria, Germany and the Netherlands. China, where between 2006 and 2016 the number of fertility clinics ballooned from 88 to 451, could be next. Everywhere, clinics are bolting on pricey new services, from testing embryos for genetic problems to surgically wounding the womb to encourage the embryo to implant itself.

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The second type of fertility business—preservation—was spawned by more recent breakthroughs in flash-freezing sex cells, which dramatically increased the survival rates of frozen sperm and eggs after thawing. Egg-freezing clinics purport to sidestep a dilemma faced especially by women who wait beyond their mid-thirties, when egg cell deterioration can accelerate, to have a baby. Traditionally such women could improve their chances by buying young, healthy eggs from donors, or accept longer odds with their own eggs. Egg-freezing lets young, healthy women donate to their future selves.

The procedure mushroomed in America after the American Society for Reproductive Medicine removed the “experimental” label from it in 2012. In 2017 nearly 11,000 American women froze their eggs, 24% more than the previous year, according to the Society for Assisted Reproductive Technology. In Britain the number of frozen-egg cycles doubled between 2013 and 2016, to 1,321. Egg-freezers claim margins similar to IVF; some may already be profitable.

Although preservation services are mostly aimed at women, firms are also eyeing men. Geneva-based Legacy (“The only life investment you’ll make”) sends a return sperm-collection container by mail, analyses it and, for a hefty premium, stores it in a Swiss nuclear bunker. Since January thousands of men have bought the \$99 “Dadi kit” from Dadi, a company in Brooklyn (“Store your sperm, stop the clock”). They include a surprising number of men preparing for a vasectomy, though the average customer is a 31-year-old millennial who has realised that “men too have a biological clock”, says Tom Smith, the founder.

The babies of the fertility business offer diagnostics. Firms like Everlywell and Modern Fertility send users a kit, costing about \$160 apiece, to collect a finger-prick of blood or a drop of spit, which is then analysed for hormonal signs of potential problems. Celmatix, another startup, offers a pricier test to identify genetic markers associated with fertility problems.

All fertility businesses stir controversy. Last year Pacific, a fertility clinic in San Francisco, and the Cleveland Medical Centre, in Ohio, lost many eggs and embryos to faulty storage. CHA Fertility, in Los Angeles, has been accused of implanting the wrong embryos, which led to the birth mother having to give up twins who were genetically related to two other couples. Peiffer Wolf, an American law firm representing several families involved in similar cases, says the industry, which can face fewer rules in America than nail salons, urgently needs some.

Clinics in America and beyond are also accused of playing up success. Like motorists and asset managers, most claim above-average results. As for their newfangled ex-

Fertility benefits

Fert perks

More employers want to help workers make babies

WHEN APPLE and Facebook began paying for employees to freeze their eggs in 2014, this generosity was met with cynicism. Critics dismissed it as another attempt at social engineering from Silicon Valley, no bastion of female-friendliness. Rather than empowering women, they feared, it would press them to delay motherhood; Apple would do better to install child-care facilities at its brand new headquarters.

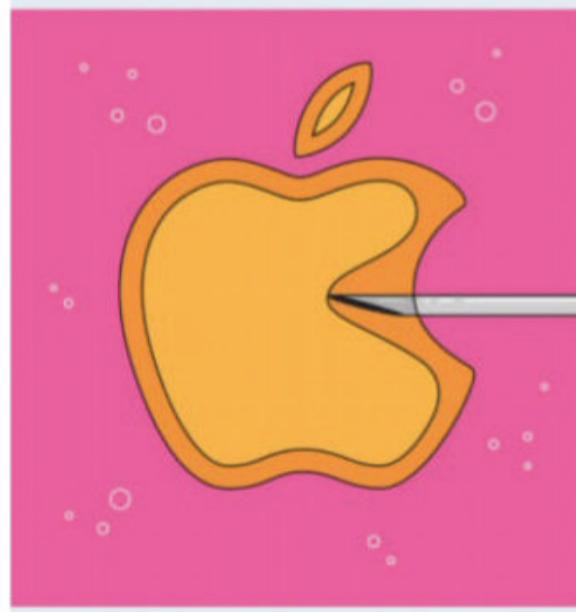
Such gripes have not stopped employers from embracing such schemes. Quite the opposite. More than one in four large American companies now pay for some fertility treatment, according to consultants at Mercer; one in 20 covers egg-freezing. In America Bain, a consultancy, KKR, a private-equity firm, and Tesla, a

carmaker, pay for unlimited IVF cycles (which can cost \$100,000), according to Fertility IQ, an educational site for fertility patients. This week Starbucks said it would raise its fertility cover to \$25,000, including for baristas who work over 20 hours a week for more than six months. For part-timers on \$12 an hour that can add up to twice their annual salary.

Most American states still do not require insurers to cover infertility treatment. So companies use the benefits to differentiate themselves. This helps recruit and retain staff, says Jake Anderson-Bialis of Fertility IQ. It found that 62% of workers whose employer had paid in full for IVF said they were more likely to stay in their job. Firms keen to promote “diversity and inclusion” see health plans with IVF or surrogacy as a way to attract LGBT employees.

Some companies insist that workers try the natural way for a year before they qualify for treatment (to the exclusion of anyone who isn’t a heterosexual in a stable relationship). Others appear to adopt fertility benefits in response to harassment scandals. Under Armour, Uber and Vice added family-friendly policies, including generous fertility perks, following such controversies.

A lot of this is welcome. But advocates of gender equality are right to point out that some benefits—egg-freezing in particular—look like a distraction. And it is no substitute for eliminating the motherhood-penalty in the workplace.



tras, the British regulator, which uses a traffic-light system to grade 11 popular IVF add-ons, has yet to give one a green light, meaning it is both safe and effective. The newer breeds of fertility firm are similarly criticised for misleading customers. In fact, existing egg-preservation techniques are expensive, invasive, often ineffective—and regularly oversold.

In Britain just 41 “ice babies” were born in 2016 using the mother’s own frozen eggs, not nearly enough for reliable statistics, so egg-freezers often cite success rates from defrosted eggs of donors, an unrepresentatively young, healthy sample. Prelude, an American company which recently merged into a bigger venture offering treatment and preservation, promises, improbably, to help families have “as many healthy babies as they want, whenever they want”. Extend Fertility, another American firm, advertises egg-freezing “for the price of a

healthy snack”. Celmatix claims that its tests help people “dramatically improve their chances of conceiving”. Modern Fertility concedes it cannot predict the future, but offers a “fertility timeline” that some customers may treat as a bespoke egg timer. Some startups give Instagram influencers subsidised treatments in exchange for touting the service to millennial followers.

None of which dampens the fertility industry’s appeal to women, men—or investors. Many will be disappointed: prospective parents, because too many of them will still, despite fertility businesses’ promises, be unable to conceive; and, with nothing like the emotional toll, those pouring money into these firms. But the methods—and providers’ prospects—are bound to improve with time. With luck, the capital currently flowing into research on reproduction, a surprisingly mysterious aspect of human biology, will hasten the process. ■

Energy companies

Shale sale

NEW YORK

Investors flee the Permian

FOR MORE than a decade investors have waited for America's shale industry to mature. Ahead of the latest quarterly reports, they wanted to know if firms could produce more oil and rein in spending. For some big producers, the answer was "no". Many shareholders got tired of waiting.

The share price of Concho Resources, a firm with operations in Texas's Permian basin, sank by more than 20% overnight, despite the assurance of a "free cashflow inflection in 2020". An admission by Whiting Petroleum, which drills mainly in North Dakota and Montana, that it would not meet targets for production wiped more than a third off its market capitalisation over 24 hours.

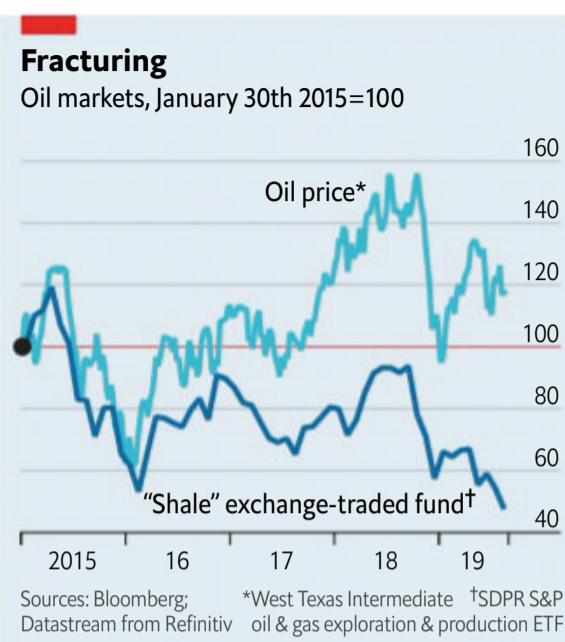
Other shale companies, including EOG, Diamondback and Parsley, presented evidence that they could boost output efficiently. Yet an index of American exploration-and-production firms plunged by 12% in the week to August 7th, worse than the market as a whole.

Because fracking depletes wells quickly, companies must spend more to sustain output. In the past year producers have shown signs of living within their means. On August 6th Diamondback reported that its well costs continued to drop. Consolidation could boost efficiency. Based in part on that logic, shareholders of Anadarko, with big holdings in the Permian, were expected to approve its \$38bn acquisition by Occidental Petroleum on August 8th, after *The Economist* went to press.

Some attempts at boosting efficiency look counterproductive, however. Drill wells too close together and they produce less oil. The price of gas, which once boosted firms' profits, briefly fell below zero this spring, when companies were paying customers to take the stuff off their hands amid a supply glut.

The shale industry, whose shares prices used to track that of oil, down by 18% since April, now looks untethered (see chart). "Investors have decided it's too volatile," says Bob Brackett of Bernstein, a research firm. So they are diverting capital elsewhere. Occidental's massively oversubscribed \$13bn bond offering on August 6th shows fixed-income investors' thirst for yield rather than an appetite for shale.

The energy behemoths have the balance-sheets to buy the wildcatters. But many, like ExxonMobil, have enough land in the Permian to keep them busy. They are



in no hurry and, like others, wary of overpaying—reasonable enough in light of shale firms' falling value. The market has punished recent acquirers, including Concho, which bought RSP Permian last year. Carl Icahn, an activist investor, calls the Anadarko purchase "a travesty" and is trying to sack four of Occidental's board members. Rumours swirled in 2018 that Royal Dutch Shell would buy a company called Endeavor. No announcement has come. ■

Steelmaking

Double-edged

NEW YORK

American tariffs on foreign steel cut both ways for domestic producers

"IF I HADN'T been elected, you would have no steel industry right now," declared President Donald Trump last month. He claimed that his "massive" tariffs of 25% on steel imports, imposed in March last year, have returned the domestic industry to rude health. A year ago he would have been right, if habitually hyperbolic. A tonne of hot-rolled coil, an industry benchmark, which sold for roughly \$600 in America at the start of 2018, fetched over \$800 by the summer. Volumes that American steelmakers shipped domestically rose too, by 5% in 2018 compared with the previous year.

Today the boast looks out of date. Steel prices have slumped back to pre-tariff levels. Although the price of iron ore, from which a third of American steel is smelted, has tumbled in the past month, it remains roughly double what it was a year ago. Steelmakers' profits collapsed. Nucor, US Steel and Steel Dynamics, the country's three biggest producers, all reported a steep fall in second-quarter earnings. The industry's share prices languish a fifth be-

low their level a year ago (see chart). Mr Trump's recent promise to force federal agencies to buy steel with at least 95% domestic content, up from a minimum of half today, is unlikely to change things. It could even make matters worse.

The reason is economics. By raising domestic prices the tariffs distorted incentives. The extra cash, combined with an apparent rise in demand, induced steel companies to splash out on new capacity. Timna Tanners of Bank of America Merrill Lynch estimates that by 2022 the projects currently in the works could increase output by the equivalent of a fifth of America's steel consumption in 2017.

There may be nowhere for all the extra steel to go. Overseas, America's high-cost producers cannot compete with cheap alloys from places like China. At home, last year's uptick in volumes was caused chiefly by customers substituting domestic steel for suddenly pricier imports. Demand is now likely to grow at its underlying rate of 1-2% a year, estimates Andreas Bokkenheuser of UBS, an investment bank.

Higher prices may even be dampening it. Some American manufacturers have delayed steel-heavy projects or switched to alternative materials. With factory activity slowing, as it did in July for the fourth straight month, demand for steel is slipping, too. US Steel has acknowledged that "market conditions have softened".

Peter Marcus of World Steel Dynamics, a research firm, praises Mr Trump for stimulating "massive investment that will modernise the industry". Most has gone into "electric arc" furnaces, which smelt steel more cheaply from scrap metal rather than from iron ore. But high fixed costs, testy trade unions—and Mr Trump himself—discourage companies from retiring old, inefficient blast furnaces. Some of these will have to go if the industry is to avoid what Ms Tanners calls a "steelmageddon" of excess capacity. Fresh levies from the trade-warrior-in-chief may postpone it—but at a cost of making the eventual reckoning all the more painful. ■

Rusty

Share and commodity prices
January 1st 2017=100



Apps for the old

Silver screens

SHANGHAI

The next big growth market for China's tech firms

SOON AFTER dinnertime, Xiangyang Park in central Shanghai transforms into a ballroom. Loudspeakers pump out old pop songs as elderly folk sway under the plane trees. A picture of geriatric nostalgia—until you meet Ms Shi and Mr Zhou, a couple in their 70s whose enthusiasm for the waltz is matched only by that for their smartphones. Mr Zhou reads online novels. Ms Shi watches far-flung Chinese parks come alive with their own group dancing on Huoshan, a short-video app favoured by teens. Both love WeChat, a messaging app. “I can go without food, but not without my smartphone,” Ms Shi confesses.

She and her husband remain unusual. Less than one in three Chinese over 50 reported owning a smartphone in 2016, the latest year for which the Pew Research Centre, a think-tank, has data, half the share in America. A survey by the Chinese Academy of Social Sciences and Tencent, which owns WeChat, found that only 17% frequently paid for purchases with mobile phones; close to half had never done so.

Tech companies want to lure more Ms Shis and Mr Zhous online—and take a bigger slice of the 7trn yuan (\$1trn) that Chinese seniors are expected to spend on consumer goods in 2020. To tech firms, the disconnectedness of China’s 250m-odd old, or 18% of the population, is an opportunity. Unlike the young, whose fragmented attention is fought over by thousands of apps, retirees are up for grabs. And once on the internet, they splurge. In 2017 JD.com, a big e-commerce firm, found that they spent 2.3 times as much as the average user. Their typical deposit in Yu’E Bao, an online cash-management service controlled by Alibaba, a giant internet firm, is 7,000 yuan compared with 4,000 yuan across all ages.

Early adopters may be better-off than a typical senior, rattled when shops refuse cash. But startups see rich pickings. “I Have A Partner”, a grey-dating app, debuted last year with bold fonts and voice messaging for slow typists. Tangdou Guangchang Wu (“Jelly Bean Square Dance”), which started out posting dance videos (with filters to iron out wrinkles), aspires to be a one-stop shop for the old. It reports over 200m downloads since its launch in 2015.

The big generalists hope to lock the oldies in early. The over-60s use four-fifths of their mobile data on WeChat, against 7% for those aged 18-35. In 2017 Tencent made a video of old-timers rapping about their



Senior netizen

confusion over tech to encourage children to set their parents up with WeChat Helper, an app assistant. People over 55 are now WeChat’s fastest-growing cohort. Last year Taobao, Alibaba’s online emporium, introduced a “pay-for-me” option for elderly customers to use with family members. The site broadcasts daily over 1,000 live-streaming shows aimed at them. Ele.me, a food-delivery service bought by Alibaba last year, is trialling meal and medicine deliveries for the elderly, and one-off help with things like changing light bulbs. With the over-60s’ share of the population expected to double to one-third by 2050, there is wisdom in this strategy. ■

Private equity

Locusts in lederhosen

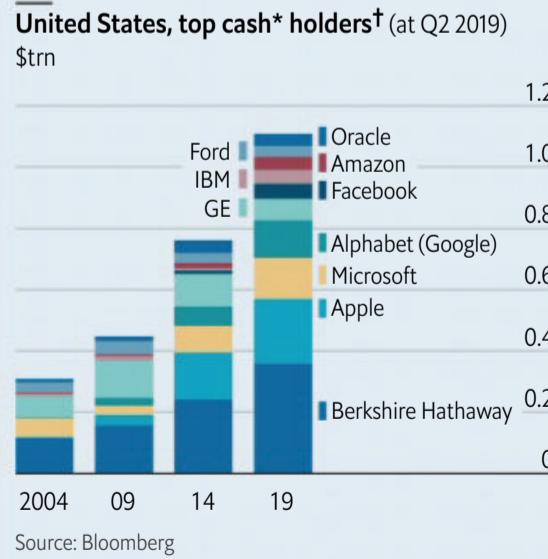
BERLIN

Buy-out firms embrace Germany—and vice versa

KKR IS ON a roll in Germany. On July 4th the American private-equity firm announced its takeover of a majority stake in heidelpay, a payment-processing firm. A day later Axel Springer, a giant publisher, said that more than 20% of its shareholders had agreed to sell their shares to KKR, bringing a full takeover by the Americans a step closer. Last year KKR opened an office in Frankfurt. Its European boss is Johannes Huth, a German. Since it entered the country in 1999 it has spent \$5bn on buying more than 20 German companies, including Arago, a maker of artificial-intelligence software, Hensoldt, a defence-electronics business, and Gfk, a research firm.

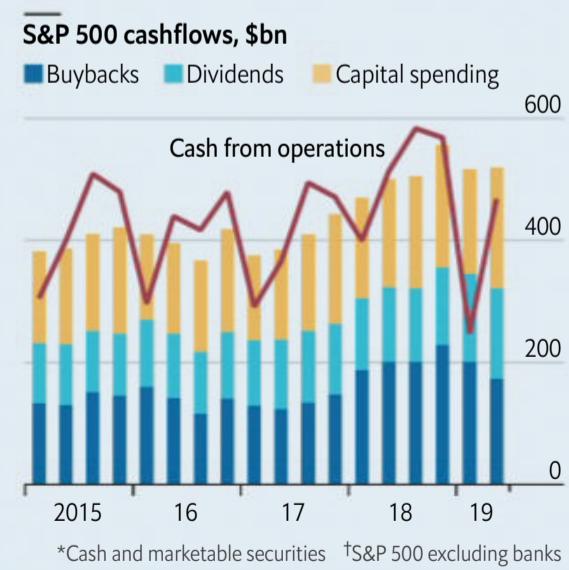
For private-equity companies this marks a turnaround no less profound than those they try to engineer at the businesses they acquire. In 2005 Franz Müntefering, then boss of the Social Democratic Party, described them as “swarms of locusts that fall on companies, stripping them bare before moving on”. These days the locusts are increasingly seen as a force to help companies improve performance (not strip assets) and create jobs (rather than destroying them). KKR says it has increased the workforce of its German, Austrian and Swiss companies by an average of 8% from ▶

Pile-up



Cashing out

Do American companies buy back too many shares? Or do they cling on to too much cash? Both accusations have been levelled against America Inc. It is hard for both to be true at once. In fact, neither is quite right. Yes, Apple, Berkshire Hathaway and a few other giants sit on piles of idle cash. But for the top 500 listed firms in total the amount of cash reinvested or returned to shareholders has roughly matched the amount being generated. Those firms that have a shortfall often plug it with cheap borrowed money.



► the moment of purchase to divestment.

Indeed, rather than fend off KKR's advances, Mathias Döpfner, Axel Springer's boss, actively sought it out as an investor. To win employees over to the deal, Mr Döpfner invited Mr Huth to one of his regular staff town-halls. Last month Osram, a struggling maker of lights, said it is fully behind a €3.4bn takeover bid from Bain Capital and Carlyle, two American buy-out behemoths.

German conglomerates have long been happy to offload unwanted parts to private-equity companies. Siemens sold its dentis-

try-equipment arm to Permira, a British firm, in 1997. KKR bought Hensoldt from Airbus. Buy-out firms are also becoming an important source of capital for the *Mittelstand*, the small and medium-sized companies that constitute the German economy's backbone. Thousands of these enterprises already have private-equity firms among their shareholders.

This year 250 private-equity fund managers surveyed by PwC, a consultancy, named Germany as Europe's most promising market by a long way. They are drawn by its stable politics, skilled workforce and

steady economic growth. Nine in ten told PwC that Germany will be interesting for private-equity investments in the next five years (one-third as many said the same about Brexit Britain). Eight out of ten said they will increase their German holdings.

The number and size of private-equity deals in Germany are both smaller than in Britain or America. "The market has matured but remains relatively uncharted," says Steve Roberts, PwC's head of private equity in Germany. That leaves more opportunities for the cash-rich locusts to swarm around. ■

Bartleby Turn off and drop out

Holidays are good for both workers and their companies

THE SWIMMING trunks have been dug out of the chest of drawers. The beach shoes (still caked with last year's sand) have been retrieved from the shed. Like tens of millions of others, Bartleby is about to go on his annual holiday.

A vacation gives workers a chance to recharge their mental batteries. For Bartleby, this means reading books that do not have titles like "Beyond Performance 2.0" (sadly, a genuine example of a management tome). Heading to a new location allows employees to clear their thoughts. After all, there is more to life than spreadsheets and sales forecasts. To misquote Timothy Leary, the 1960s hippie guru, a holiday is time to "turn off and drop out".

It also means workers get more sleep by escaping the tyranny of the early-morning alarm. In addition, they no longer suffer the agonies of the daily commute: the cramped railway carriages or gridlocked roads. And best of all, there are no meetings to endure—no need to sit with a vaguely interested expression on your face while time seems to slow to a crawl. In short, holidays reduce stress. And in the long run, stress makes workers less likely to perform well.

That means going away for at least a week. An extended weekend break, favoured by many Americans, risks adding to the stress, as a high proportion of the vacation period is spent travelling to and from the desired destination. No sooner do you arrive than you have to think about packing for the trip back.

Although it does lead to congested traffic and crowded airports, there is something to be said for the European tradition of cramming everyone's holidays into August. The predictability of the season means that companies can adjust their plans accordingly. Even

those people who are in the office can enjoy an easier pace of life. Most of their customers and suppliers are on a break so there is not much that anyone can do.

For those on vacation, the occasional work-related thought might occur when walking quietly along the beach, or through a wood. Often such ideas will be all the more original for being dreamed up in a moment of detachment. Returning to 3,000 unread emails is also not an appealing prospect, so five minutes deleting the detritus while the rest of the family is in the shower seems like a reasonable compromise. Some favour an "out of office" message but such devices can easily generate automated replies that subsequently clog up the in-box.

The one thing that workers certainly do not need is contact from their managers. Answering the phone to a work-related call should be a complete no-no. Just occasionally, a genuine crisis might require the company to be in contact. In 2007 Bartleby was paddling in the Atlantic next to an analyst from a credit-rating agency receiving frantic messages on his BlackBerry

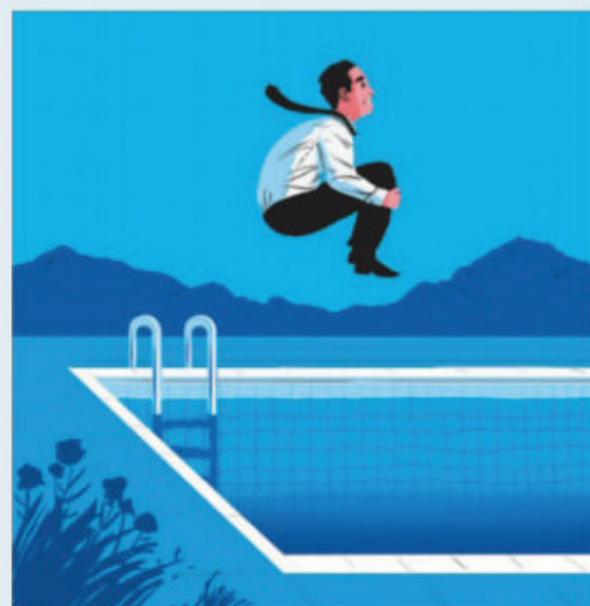
about the collapse of the credit system. But most of the time, executives should really be able to rely on staff who remain in the office.

Indeed, just as employees need a break from the workplace, companies sometimes need a break from their employees. After a trading scandal at Société Générale, a French bank, in 2008, Britain's then regulator, the Financial Services Authority, recommended that all traders take a two-week break at some point in the year. The aim was to ensure that any unusual dealing patterns would be discovered while the miscreant was away from their desk.

Senior managers can also benefit from seeing what happens when their juniors head to the beach. Does office morale improve as soon as a mid-level manager disappears? If so, this suggests that he or she is not running the department well. Does an underling impress when standing in for their boss? In that case, they may be overdue a promotion.

Some Americans are reluctant to take a long holiday for fear that their employer will find they can easily manage without them. None of that nonsense at *The Economist*. Ambitious young writers will be eager to fill the vacant space left by this column with insights into the business world. The business editor will be relieved of the need to remove some of this writer's questionable puns [much appreciated, ed.].

Work can be irritating but, as any unemployed person will tell you, it is better than the alternative. It gives purpose to people's days and, on occasion, can even be fun. But not every day. Some days it is better to be reading a paperback. By a pool, in the sunshine. Enjoy.



Schumpeter | The Exxon Valdez of cyberspace

If data are the new oil, data breaches should be treated like oil spills



IN 1989 the thin-hulled *Exxon Valdez* supertanker ran aground in Prince William Sound, Alaska, pouring a quarter of a million barrels of oil into the surrounding waters. At the time, it was America's worst offshore spill, and a huge blow to the reputation of the ship's owner, Exxon. The firm paid \$3bn to clean up the area and settle legal claims, and to improve safety the American government ordered the phasing out of single-hull ships such as *Exxon Valdez*. All vessels used worldwide by Exxon's corporate descendant, ExxonMobil, are now double-hulled. But that is not all. The disaster gave rise to a cultlike culture of discipline within ExxonMobil that helped turn it into the profitmaking beast it is today.

Three decades later, as a result of a relentless surge in cyber-crime, digital firms are floundering towards their own *Exxon Valdez* moment. The latest is Capital One, a big American bank with a market capitalisation of \$42bn, which on July 29th revealed that a hacker had stolen personal and financial details of 106m credit-card customers and applicants. Prosecutors allege that over four months Paige Thompson, a 33-year-old software developer, infiltrated a Capital One server hosted on Amazon's cloud-computing platform through a misconfigured firewall. Bizarrely, the bank did not notice even after the hacker pseudonymously boasted about the heist on social media—until it was tipped off. For a company hitherto seen as one of the most technologically adept in finance, this is a blow.

The incident has two parallels with the oil industry. Robert Knake, a former White House cyber-security adviser and co-author of "The Fifth Domain", a new book on the subject, describes the way the hacker penetrated a layer of security called a web-application firewall as a "perfect analogy" to the era of single-hulled oil tankers. Like *Exxon Valdez*, Capital One should have had more protection. Like the oil companies of old, the bank may have also lacked a culture of safety sufficiently strong to ensure that it relentlessly probed for new vulnerabilities. Both are a reminder that, if data are now more valuable than oil, data breaches bear an unhealthy resemblance to oil spills. Internet firms can learn a lesson or two from hoary old carbon-belchers like ExxonMobil on how to avoid them.

Exxon Valdez was a watershed moment for Exxon. In 1989 it had

already been around for a century. But the disaster led to a full-blown overhaul of the firm's safety and risk-management culture. In "Private Empire", a book about ExxonMobil by Steve Coll, the author can barely disguise his astonishment at how far this went. In its offices, desk drawers had to be kept shut lest employees bump into them. Every meeting began with a "safety minute", akin to a blessing before a meal. Cuts by office paper clips were monitored. Even today its 11-point Operations Integrity Management System—as detailed in its pursuit of safety nirvana as the Buddhist path to enlightenment—is drilled into new recruits, incorporated into performance assessments and shared with contractors and suppliers. For 27 years it has worked remarkably well.

Corporations can argue that data are trickier to manage than oil. Preventing data breaches is a fiendish game of cat-and-mouse. Companies do not know who their attackers are—criminals? state actors? lone wolves?—or what they want. The hacker only has to be right once to penetrate a system. Defenders have to parry every jab, all the time; one misstep and they lose. Many companies bridle at being held responsible for being the victims of crime or acts of war.

Still, the oil industry's experience is instructive. First, the emphasis on ingraining safety in every employee can strengthen the weakest link in cyber-security: the individual. In "The Fifth Domain" Mr Knake and Richard Clarke argue that companies deploying ever more sophisticated anti-hacking technology cannot eliminate "Poor Dave", the guy in every organisation who can't resist a phishing email. Studies show that employees are often, by accident or intentionally, the main cause of successful cyber-attacks. Wise firms fake phishing emails to flush out the Daves.

Oil firms' insistence on their supply chains speaking the same language, and loudly, on safety is also worth emulating. Hackers increasingly infiltrate large corporations by first penetrating the defences of smaller suppliers and piggybacking on the communications systems which link the two. This is made easier by the fact that many firms treat hacks like gonorrhoea, an embarrassing affliction no one wants to admit even if speaking about it would stop its spread. Some call it a tragedy of the cyber-commons.

Third, the near-death experience suffered by BP after the Deepwater Horizon oil disaster in 2010 shows how data can turn from an asset into a crushing liability. It ended up costing the British firm more than \$50bn. Its reputation has yet to recover fully.

For now, the costs of a data breach look absurdly light by comparison. Capital One says its recent hack will cost it up to \$150m this year, mainly in extra customer support. Ignoring potential fines, that is less than \$1.50 per victim—and a tenth of the bank's latest quarterly profits. Equifax, a credit-scoring firm, recently agreed to pay up to \$700m to resolve lawsuits and other claims after data of nearly 150m clients were hacked. IBM Security, a consultancy, puts the average cost of a data breach worldwide at \$150 per victim. Messrs Knake and Clarke think it should be more like \$1,000 to spur the investment needed to prevent losses.

Tar and feathers

Governments are indeed getting tougher. Last month Britain's proposed fining British Airways £183m (\$222m) after data about 500,000 passengers were stolen. That marks the first big penalty linked to the EU's newish data-protection rules. The airline said it would appeal. It may yet convince regulators it is not to blame. But as with Exxon or BP, that argument may wear thin with regulators and consumers. Companies which trade in data—ie, most big ones these days—had better get ahead of the problem. ■



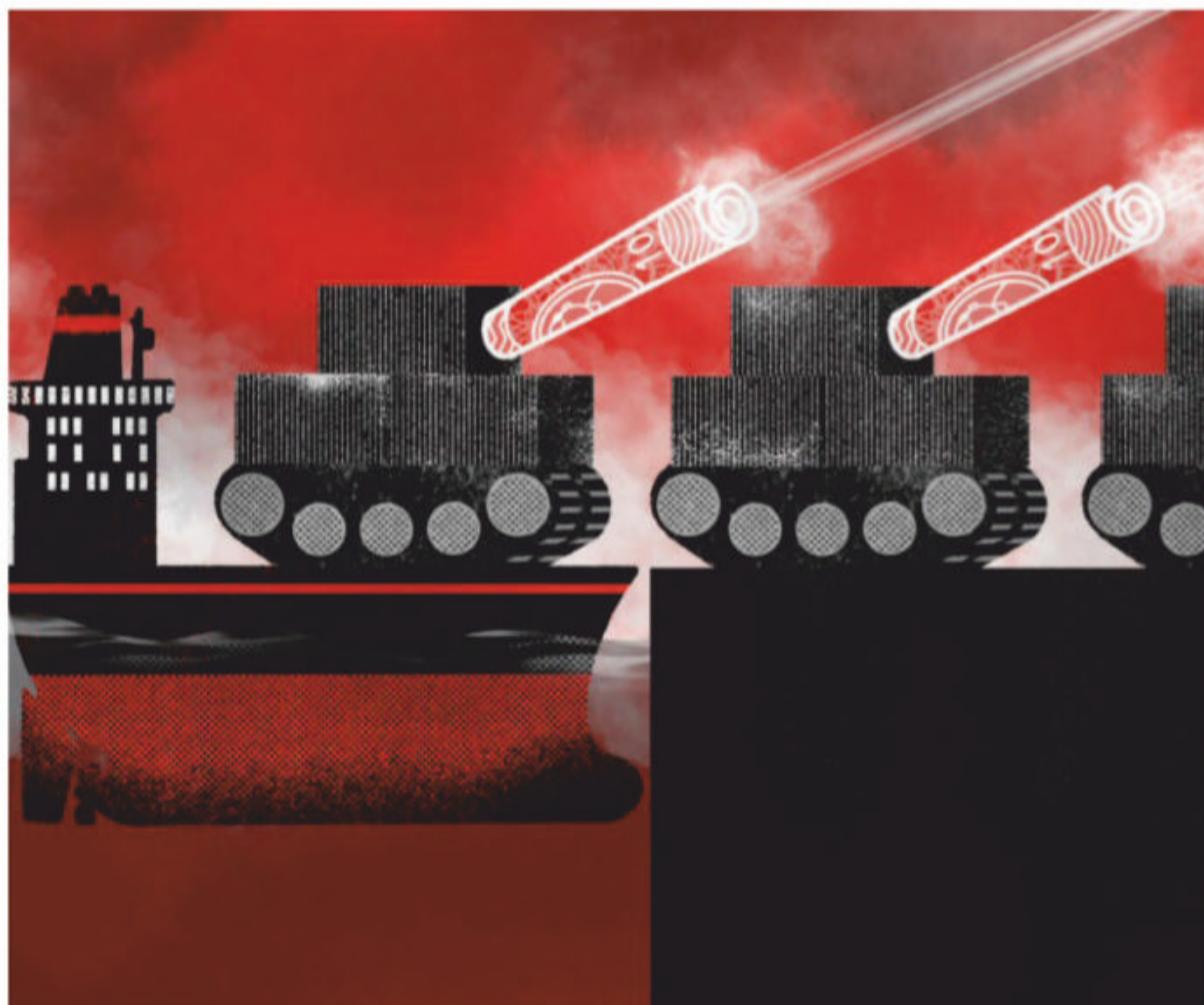
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Currency wars

The guns of August

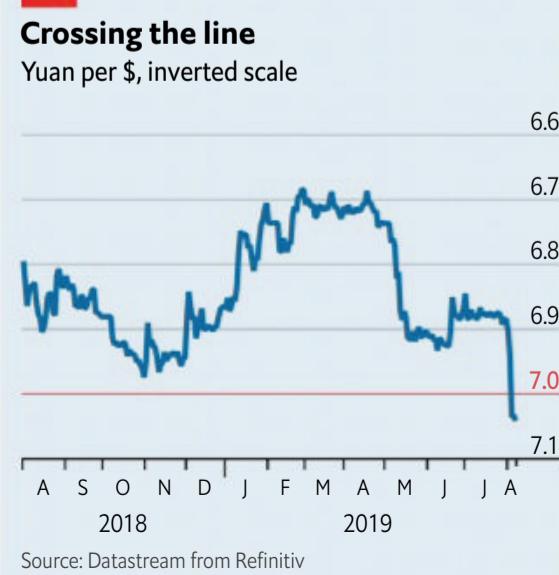
The trade war escalates, and the fog of war descends

CARL VON CLAUSEWITZ, the Prussian military theorist, never wrote about currency wars. But some policymakers see them in his terms: as the continuation of trade politics by other means. That, at least, is how the Trump administration views China's decision on August 5th to let its currency weaken past seven yuan to the dollar for the first time since 2008. Though arbitrary, that threshold has assumed huge symbolic importance among traders, economic officials and fund managers (see Buttonwood). They were left stunned.

America's Treasury quickly branded China a "currency manipulator", a charge it has not levelled against any country for 25 years. China, in the Americans' view, was cheapening its currency to gain an unfair edge in retaliation for President Donald Trump's surprise announcement four days earlier that he would impose new tariffs of 10% on roughly \$300bn of Chinese goods.

This marked the end of investors' hopes for a peaceful summer. At the end of July the Federal Reserve had cut interest rates to guard against a slowdown in America's respectable growth rate, and trade tensions had "returned to a simmer", as Jerome Pow-

ell, the Fed's chair, noted with satisfaction. But after the yuan's move America's stock-market suffered its worst day this year. Emerging-market currencies, including the Brazilian real, Indian rupee and South African rand, fell. The price of Brent crude oil tumbled below \$60 a barrel and safe havens, such as gold, rallied. The same search for safety pushed American ten-year government bond yields to 1.7%, as investors



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bet that the Fed would be forced to slash interest rates further to prevent a recession. The Reserve Bank of New Zealand cut its benchmark interest rate by twice as much as expected, citing "heightened uncertainty" and "historically low" global bond yields. The Australian dollar fell to its lowest level in a decade.

In matters of war and peace, countries must prepare for the worst. But precautions can look like provocations. In allowing the yuan to fall, China signalled it is prepared for a protracted trade war. It let the yuan weaken in response to the threat of tariffs much as a floating currency would. Otherwise it would have needed to defend an arbitrary line against the dollar every time America turned belligerent. Its move nonetheless makes further belligerence more probable. Mr Trump is now unlikely to change his mind about the new tariffs before they kick in on September 1st.

Both sides blame the other for starting the fight. China has raised tariffs only in response to America's. But America sees its combative economic diplomacy as a belated response to decades of intellectual-property theft and other misdeeds. Each side's attempt to get even looks to the other like one-upmanship. China views a weaker yuan as a reasonable response to Mr Trump's trade duties; Mr Trump, according to the *Wall Street Journal*, sees those tariffs as retaliation for China failing to commit to buy more American farm goods.

The irony is that Chinese purchases of American soyabeans and pork were already rising, and the government was offering ►

► buyers exemptions from some tariffs. But after Mr Trump's new tariff threat it has reportedly told state-owned companies not to buy American farm goods after all. Thus Mr Trump's tariffs may have caused the decision they were designed to punish.

Whatever the cause of the new levies, what might be their effect? Some of America's existing tariffs (of 25% on roughly \$250bn-worth of merchandise) had been imposed on Chinese goods that American importers can buy elsewhere. That minimised the harm to American buyers and maximised the harm to China's exporters,

which lost business to close rivals elsewhere. Indeed, according to Goldman Sachs, other Asian countries have filled around half of the gap created by the previous round of tariffs.

The next round of tariffs will hit goods for which China has fewer competitors. That should make it harder for American buyers to switch suppliers. Nonetheless the new tariffs' direct impact could reduce China's growth by at least 0.3 percentage points in 2020, according to UBS, to below 6% for the first time since 1990.

To support a slowing economy, China's

government has already cut taxes, increased infrastructure spending and relaxed in its campaign to restrain credit growth. But it is reluctant to boost the property market, which helped pull the economy out of previous slowdowns, points out Andrew Batson of Gavekal, a research firm. House prices have risen mercilessly and developers have accumulated worrying levels of debt. China, in short, wants to keep growth stable, stand up to America in the trade war and constrain excesses in the housing market. It is becoming harder to do all those things at once. ►

Buttonwood The meaning of seven

How yuan-dollar became the world's most closely watched asset price

A PRINCIPLE FOLLOWED by traders who speculate on short-term movements in market prices is "cut your losses early". This doctrine finds expression in the stop-loss—an order to sell a security, such as a company share, automatically when it hits a predetermined price. People being people, stop-loss orders tend to cluster at salient levels, such as whole or round numbers. They might instruct a broker to sell the pound at \$1.20, say, or sell Apple at \$200.

The round-number fetish is a strange one. But when a situation is uncertain (and financial markets are always uncertain) arbitrary numbers or thresholds are often charged with great meaning. And few have had the significance of seven yuan per dollar. So when the yuan broke through seven on August 5th, it prompted a violent sell-off in stocks and a rally in bonds. That was followed by a formal charge by the US Treasury that China was manipulating its currency.

On the face of it, that looks like an overreaction. If things were fine when the yuan was at 6.99, why did all hell break loose when it reached 7.01? Odder still is the idea that a currency that has only fairly limited use outside China is suddenly a prime mover in global capital markets. Yet China's heft in the world economy has made it so. The yuan-dollar exchange rate is now the world's most watched asset price. And "seven" mattered simply because people had come to believe that it did.

To understand why, go back four years. Until August 2015 the yuan had been closely tied to the dollar. Since then its external price has been set by officials each day, ostensibly by reference to a basket of currencies. The idea is that the yuan's value should somewhat reflect market forces. The outcome is that the

yuan has moved in a limited range against the dollar, capped at seven. Were the yuan to surge, it would hurt China's exports; were it to plummet, the dollar debts of Chinese firms would loom larger. A large fall would intensify an ever-present fear: devaluation and capital flight.

The yuan is still a long way from being a free-floating currency. It is further away still from being a global one to rival the dollar. It is not a straightforward business to buy and sell yuan. Traders joke that it is less liquid than the shares of Alibaba, a giant Chinese e-commerce firm, which is listed in New York. Yet despite the constraints, the waxing and waning of the yuan's value has had a growing influence on the foreign-exchange market and on asset prices more generally.

This is in large part because the currencies of economies that do a lot of trade with China have tended to move in tandem with the yuan. Its clout owes much to China's weight in the global economy, but also to its gravity in export markets. When the yuan moves, it imparts news about global trade. The message is quickly picked

up by the currencies of other export-oriented economies, not only in Asia but in Europe too.

It is not wholly surprising, then, that President Donald Trump's trade war with China has bled into a conflict over the yuan-dollar exchange rate. Reports from China in recent months suggested that it had become a sticking point in the stalled trade negotiations. The governor of China's central bank even dropped a public hint in June that there was no red line at seven. America's treasury secretary, Steven Mnuchin, countered that if China gave up supporting the yuan, it might be interpreted as an attempt to weaken it. That is one reason why crossing seven caused such a fuss.

But there are others. The yuan-dollar exchange rate has become a gauge of global risk appetite. A weak yuan is often associated with weakness in a host of other important currencies, including the euro. The result is a strong dollar. That in turn squeezes global credit, because many countries and companies beyond America's borders borrow in dollars. One consequence is slower global GDP growth. Another is that money tends to flow out of riskier sorts of securities, such as stocks and emerging-market bonds, into safer assets such as Treasury bonds.

Arbitrary numbers often take on a life of their own in financial markets. China bears some blame in this instance. It has a penchant for control and opaque policymaking. Left to their own devices, investors start to impute greater significance to key thresholds. Officials follow their lead. The markets had become used to the yuan trading in a familiar range. It is not clear what the new rules are. The only thing that is certain is that yuan-dollar remains the asset price to watch.



The damage to America's economy is less tangible. A survey by the Federal Reserve Bank of Atlanta suggested that tariffs and trade-war uncertainty had hurt private investment by 1.2% (and manufacturing investment by over 4%). The unease has also made it harder for the Fed both to preserve stable growth and to raise interest rates to more normal levels. That will give it less room to act if the economy flounders for other reasons.

In a tweet, Mr Trump called on the Fed to respond to China's weakening currency. Although the dollar is technically the responsibility of America's Treasury, the Fed's decisions have a profound influence over its value. It does not take orders from the president and treats the exchange rate with benign neglect. But if the uncertainties of the trade war inflict enough harm on confidence and spending, it might cut interest rates anyway. The futures market prices in a roughly 40% chance of at least 0.75 percentage points of easing by the year's end. The fog of war can be as damaging as war itself.

The trade fight has reverberated globally. America's Treasury had already expanded the list of countries it is monitoring for signs of currency manipulation. None of the countries listed met all three of the Treasury's criteria (a large bilateral surplus with America, a material overall surplus and persistent currency intervention by the central bank). But then, neither did China. The definition of manipulation is, it seems, highly manipulable.

One of the currencies most affected has been Japan's yen. A haven in troubled times, it rose sharply after Mr Trump's surprise announcement. A strong yen makes it harder for Japan's central bank to revive inflation, especially as its interest rates already lie below zero. Although Japan has not intervened directly in the currency markets since 2011, its officials are watching the yen's rise with alarm. If the currency strengthens closer to the psychological threshold of 100 to the dollar, Japan's authorities might feel compelled to act. Currency wars can also be the continuation of monetary policy by other means.

Nor has Europe escaped. Industrial production in Germany fell by 5.2% in the year to June. "Foreign macro shocks" account for about two-thirds of Germany's slowdown since 2017, according to Goldman Sachs. European banks, including ABN AMRO, Commerzbank and UniCredit, this week warned of squeezed interest margins, rising provisions or flagging revenues. In a recent economic bulletin, the European Central Bank worried that trade uncertainty had delayed global investment, damaging European exports of manufacturing, machinery and transport equipment. In a globalised economy, everything is a continuation of everything else. ■



HSBC

Chipped away

The surprising departure of the British bank's chief executive

MARK TUCKER and John Flint always seemed an unlikely double act at the top of HSBC, Britain's biggest bank. Mr Tucker's first profession was football—he was on the books of Wolverhampton Wanderers, now a Premier League club—and you imagine he was robust in the tackle. He never made the first team, but instead became a star in the insurance business. He captained Britain's Prudential and AIA, a big Asian life insurer, before transferring to HSBC, as chairman, in 2017.

The wiry Mr Flint, by contrast, completes triathlons and was an HSBC lifer, joining from university in 1989. He climbed the ranks in HSBC's time-honoured way, running the retail and wealth-management division before becoming chief executive in February 2018.

On August 5th, to general surprise, HSBC declared that Mr Flint was standing down after just 18 months. Noel Quinn, the head of commercial banking, will take interim charge. The bank's tradition has been to appoint its chief executives from within—Mr Flint's predecessor, Stuart Gulliver, ran the bank for the last seven of his 38 years on the staff—but it will look externally as well as internally for a permanent replacement.

At first blush, Mr Flint's ousting looks harsh. On the same day as it announced his departure, HSBC reported that its net income in the first half of 2019 had risen by 18.1%, to \$9.9bn. Its return on tangible equity (ROTE), a standard measure of profitability, was a respectable 11.2%. In Asia, where it made almost four-fifths of its pre-tax profit, revenue grew by 7%. Not every-

thing is rosy—the American business is flagging and will miss its ROTE target for next year—but all in all the record looks decent. Moreover, Mr Tucker told analysts that there was no disagreement about a strategy that was revised only in June 2018. Nor, despite the contrast in their characters, was there a clash of personalities.

So why did Mr Flint have to go? Although results are heading in the right direction, Mr Tucker thinks progress should have been brisker. He also sees more difficult times ahead and evidently believes that Mr Flint is not the man to lead HSBC through them. Lower global interest rates—the Federal Reserve cut its benchmark rate on July 31st for the first time in more than a decade—are not good for banks. The geopolitical outlook is dicey too. Trade wars are not good for trade specialists like HSBC, and a Sino-American trade war is especially worrisome for a bank with Hong Kong and Shanghai in its name and its marrow. The board, Mr Tucker said, had decided that "a change was needed to make the most of the significant opportunities ahead of us". Mr Quinn, he added pointedly, will bring "pace, ambition, decisiveness".

Mr Flint may perhaps count himself unlucky. At Standard Chartered, another British bank with an Asian centre of gravity, the chief executive has so far had four years to knock the institution into shape. But Mr Tucker has brought an unwonted impatience to HSBC. It may just be for the best. ■

Speeding up payments

Overdue

The Fed says it will build a real-time interbank payments system. Eventually

IN SEVERAL countries—Britain, say, or Sweden—bank transfers are more or less instant. The moment your wages leave your employer's bank account, they arrive in your own, giving you the wherewithal to pay the bills and feed the family. But America is far behind. Transfers can take days to clear, landing many Americans—chiefly those who can least afford additional expense—with hefty overdraft fees or pushing them towards payday lenders charging high interest rates. In an age when millennials can split a drinks tab on their smartphones before leaving the bar, this almost beggars belief.

The Federal Reserve wants to speed things up. On August 5th it said that it would build a faster-payments system, as central banks have in other countries. But not, alas, instantly. FedNow, its proposed ►

► service, will not start before 2023. Covering all of America's 10,000 banks and other depository institutions will take even longer.

In fact, America already has a real-time payments system. The Clearing House (TCH), which is owned by 25 big banks, has been running one since 2017. Between them, says Steve Ledford of TCH, the 16 banks that have so far joined the system hold just over half of the accounts from which payments can be made. TCH is pushing for near ubiquity next year.

So why does the Fed want its own? First, it is not convinced that TCH's system will ever connect to all the country's tiny banks. Mr Ledford says that TCH's plan is to reach smaller banks through the technology companies that provide their computing systems. Second, it fears that without competition prices will be too high, quality too low and innovation too slow. (The TCH has promised not to discriminate against small banks. It charges sending banks a flat 4.5 cents and receiving ones nothing.) Third, it worries that a single service will create a "single point of failure". Doubling up will make the whole system safer.

Big banks told the Fed, in a recent consultation, not to bother. Even by considering its own system, it was delaying the adoption of faster payments by more banks. Randal Quarles, the Fed's vice-chair in charge of supervision, evidently agrees. When the five governors on the Fed's board voted to back FedNow, he was the sole dissenter. He said he saw no "strong justification for the Federal Reserve to...crowd out innovation when viable private-sector alternatives are available."

Smaller banks, which for years have been urging the Fed to build a system, are delighted to be promised a choice. "The private sector has a product but not the reach," says Cary Whaley of the Independent Community Bankers of America, a trade group. "The public sector has all the reach but not yet the product." (Most of America's 4,900 community banks have assets of less than \$1bn; the country's biggest lenders weigh in at \$2trn-plus.)

Aaron Klein of the Brookings Institution, a think-tank in Washington, argues that the Fed has not gone far enough. Five years is too long to get its new system up and running, he says. Meanwhile, the banks will still be pulling in overdraft fees. He adds that the Fed should also have obliged banks to let customers draw funds as soon as they are deposited.

Last month Chris Van Hollen, a Democratic congressman, and Senator Elizabeth Warren, one of the Democratic candidates for the presidency in 2020, introduced a bill that would amend the Expedited Funds Availability Act of 1987 to force banks to do just that. Time is money, goes the adage. That's even more true for struggling Americans than for rich ones. ■

Bond yields Under water

As yields turn negative, investors are having to pay for safety

PENGUINS ON A melting icecap must choose between budging up tighter and taking the plunge. Institutional investors such as pension funds and insurers now face a similar unappealing choice, with ever-fewer safe assets that do not lose them money. According to an index calculated by Bloomberg, a quarter of the bonds issued by governments and companies worldwide are now trading at negative yields. Creditors holding \$15trn-worth of securities will make a loss if they hold them to maturity (see chart).

Yields on many European government bonds turned negative in the mid-2010s as central banks engaged in quantitative easing—colossal bond-purchase programmes. By 2015, 40% of the continent's sovereign bonds offered negative yields. But as economies perked up, central banks changed course. By November 2018 many European bonds were back above sea level.

Now many have gone negative once again. France's ten-year bonds have been flirting with negative yields for two months; they went below zero three weeks ago and stayed there. Ireland followed on August 5th. Fiscally conservative countries like Austria and the Netherlands are well past that point. Spain and Portugal may soon follow, says Iain Stealey of JPMorgan Chase's asset management division. Germany's entire yield curve is already submerged.

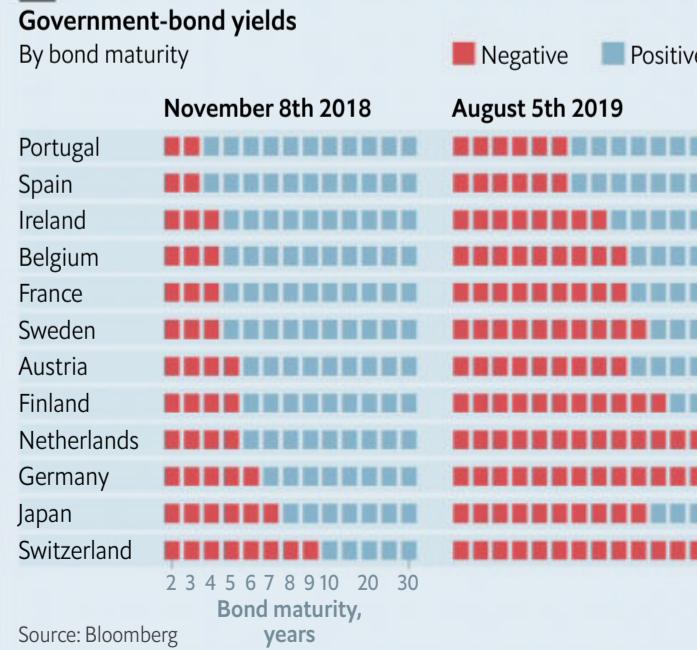
As the trade war between America and China intensifies, investors are taking refuge in government bonds, pushing

yields down. Meanwhile central banks, fearing a global downturn, are cutting interest rates. Mario Draghi, the president of the European Central Bank, recently hinted that it might ease policy after the summer.

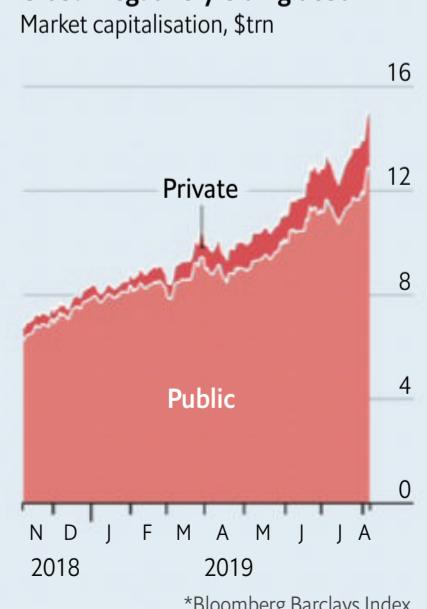
Central banks have failed to pep up inflation, which has hovered well below the 2% or so targeted by most ratesetters in the rich world. Investors do not think that central banks are on track to nudge inflation up any time soon. Five-year forward swaps, which track investors' expectations on the matter, currently predict inflation of 0.9% in Europe and 1.7% in America. This contributes to depressed bond yields. Inflation erodes the purchasing power of bonds' future cash flows, so the higher expectations of future inflation are, the higher the yield investors will demand, and vice versa.

For now American investors still have somewhere to take refuge. Though yields on ten-year American government bonds have collapsed from their 3.25% peak last November, they are still positive, at 1.71%. Their 30-year equivalent yields 2.25%. That is not much comfort for European investors, who must pay around 3% to hedge against dollar swings. If the Fed eases faster than the ECB—and it has more room to do so—the narrower gap between American and European interest rates would make hedging cheaper, though it would also mean there was less point in buying American. Those investors who already had, however, would stand to gain.

Sea of red



Global negative-yielding debt*





Finance in India

On the way to Wall Street

BANGALORE, MUMBAI AND PUNE

Forget call centres. Global banks are shifting their core activities to India

FINANCIAL CENTRES, like delicate plants, thrive in the right conditions. Those include a vibrant private sector, banks that direct capital based on the prospect for profit, analysts with direct access to companies and investors, openness to foreign people and institutions, and business-friendly, consistent laws. For good measure, throw in the cultural amenities that attract the sorts of employees who could choose to live anywhere.

India is not such a place. Its laws are many and perplexing; its domestic markets, inefficient and politicised. Though saving is unrewarding, capital is still costly for entrepreneurs. International firms are mostly limited to cross-border activities. It often scores badly on quality of life.

So it is hardly surprising that although tiny Hong Kong and Singapore are globally renowned centres of finance, Mumbai, India's financial capital, features low on most rankings. But the country is nonetheless becoming an essential hub for international banks. India is often their second-largest place of employment after their home country, and becoming ever more important for their innovation efforts.

India has long received other countries' outsourced jobs. Some of those are unsophisticated, such as answering phones or processing forms. Many, however, rely on

Indian universities' remarkable ability to turn out engineers in great numbers, and computing firms' ability to use them to solve complex problems. Such tasks may be dismissed as "back-office". But they are at the heart of modern finance.

In recent years banks have become global networks that link apps on smartphones, workstations used for sales, and sophisticated programs used to manage compliance and allocate capital. Systems that once merely updated balances now determine financial-product marketing—whom to send offers to, when to increase credit limits and when to adjust charges. For banks all over the world, many such tasks are now done in India.

Brain gain

Even tasks that would seem to require the personal touch—a trusted adviser pitching a deal to the boss of a client firm, say—may rely on a fact-sheet compiled by an Indian research team overnight. The only things that cannot be done in India are client meetings, says Tuhin Parikh, a senior executive at Blackstone. Since 2014 the buy-out firm has nearly quadrupled the amount of property it leases in India to international financial firms, from 690,000 square feet (64,000 square metres) to 2.7m.

India's growing prowess in finance con-

tracts with its weakness in manufacturing. That is despite constant government intervention, most recently through the "Make in India" campaign launched in 2014 by the prime minister, Narendra Modi. The main difference is that financial firms, unlike manufacturers, are able to avoid many of India's impediments: a maze of permissions and tariffs that control production, laws supposed to protect low-wage workers that instead discourage hiring, and wretched transport and communications networks. The towers that house international financial firms have dedicated phone and high-speed internet connections, generators to provide backup power and global standards of fire safety.

Goldman Sachs's new campus in Bangalore cost \$250m. Once inside, a visitor feels he has been transported to the company's New York headquarters (the same architect designed both). Both have similar amenities, such as subsidised fitness and childcare facilities, as well as a medical office. The number of people Goldman employs in Bangalore has risen from 291 in 2004 to 5,000. And India itself now provides expats, with more than 700 Indians on transfers to the firm's offices elsewhere.

In the past few years UBS has opened three new centres in India. The most recent, in the western city of Pune, is in a building shared by Credit Suisse and Alliance and Northern Trust, a stone's throw from others occupied by Barclays and Citi. Between Mumbai and Pune UBS now has 4,000 employees. A sophisticated recruiting effort looks beyond recent graduates to tap émigrés who might be tempted back home by the right opportunity.

Among the recent hires are a group of women returning to work after years away to care for children or ageing parents. Their careers have included stints at banks, rating agencies and a global pharmaceutical company, with expertise in risk analysis, quality control and product management. UBS's research department hires staff with expertise in cloud computing, statistics, machine learning and automation. They have contributed to recent reports using, for example, web-scraping tools to understand trends in the pricing of air-conditioning, geospatial technology to map bank branches and population density, and analysis of corporate filings to map cross-shareholdings of corporations and uncover their vulnerability to a credit crunch.

UBS is perhaps unusually committed to innovation in India. But any large bank with operations in the country is making significant efforts in similar ways. With hindsight, given its prowess in computer engineering, all this will look obvious. But bankers say they have been startled by how fast India, notwithstanding its local challenges, has become an intellectual force that is now shaping their global futures. ■

Free exchange | Cut-price economics

Prices for many consumer goods do not move the way economists reckon they should



TWO YEARS ago British chocoholics felt the pinch from the decision to leave the European Union. As sterling tumbled, global firms selling to the British market faced the same production costs as before, but got less money for each sweet sold. Rather than raise the price per chocolate, some chose to shrink the chocolate per price. The famous peaks on a bar of Toblerone grew conspicuously less numerous (though Mondelez, the bar's maker, said Brexit was not the cause). Other products suffered the same "shrinkflation": toilet rolls and toothpaste tubes became smaller. The threat of Brexit made the phenomenon more visible, but it is surprisingly common. Statisticians and policymakers need to take note.

Every first-year economics student quickly becomes familiar with charts of supply and demand, which place price on one axis and quantity on the other. Given a drop in demand, the charts show, firms can either sell fewer items at the prevailing price or cut prices to prop up sales. But online retailing, which makes it easier to collect fine-grained price data, reveals how poorly textbook models reflect real-world market dynamics. The prices of consumer goods, it turns out, behave oddly.

A forthcoming paper by Diego Aparicio and Roberto Rigobon of the Massachusetts Institute of Technology helps make the point. Firms that sell thousands of different items do not offer them at thousands of different prices, but rather slot them into a dozen or two price points. Visit the website for H&M, a fashion retailer, and you will find a staggering array of items for £9.99: hats, scarves, jewellery, belts, bags, herringbone braces, satin neckties, patterned shirts for dogs and much more. Another vast collection of items cost £6.99, and another, £12.99. When sellers change an item's price, they tend not to nudge it a little, but rather to re-slot it into one of the pre-existing price categories. The authors dub this phenomenon "quantum pricing" (quantum mechanics grew from the observation that the properties of subatomic particles do not vary along a continuum, but rather fall into discrete states).

Just as surprising as the quantum way in which prices adjust is how rarely they move at all. Retailers, Messrs Aparicio and Rigobon suggest, seem to design products to fit their preferred price points. Given a big enough shift in market conditions, such as an increase in labour costs, firms often redesign a product to fit the

price rather than tweak the price. They may make a production process less labour-intensive—or shave a bit off a chocolate bar.

Central banks are starting to see the consequences. Inflation does not respond to economic conditions as much as it used to. (To take one example, deflation during the Great Recession was surprisingly mild and short-lived, and after nearly three years of unemployment below 5%, American inflation still trundles along below the Federal Reserve's target rate of 2%.) In its recently published annual report the Bank for International Settlements, a club of central banks, mused that quantum pricing and related phenomena help account for such trends.

But firms' aversion to increasing prices may be as much a consequence of limp inflation as a contributor to it. When the price of everything rises a lot year after year, as in the 1970s and 1980s, firms can easily adjust the real, inflation-adjusted cost of their wares without putting off shoppers. A 5.5% jump in the cost of a pint after years of 5% increases does not send beer drinkers searching for other pubs in the way that a 0.5% hike after years of no change might. Thus falling inflation can make prices "stickier". To compensate, firms instead find other ways to impose costs on buyers—such as making products smaller or lower-quality.

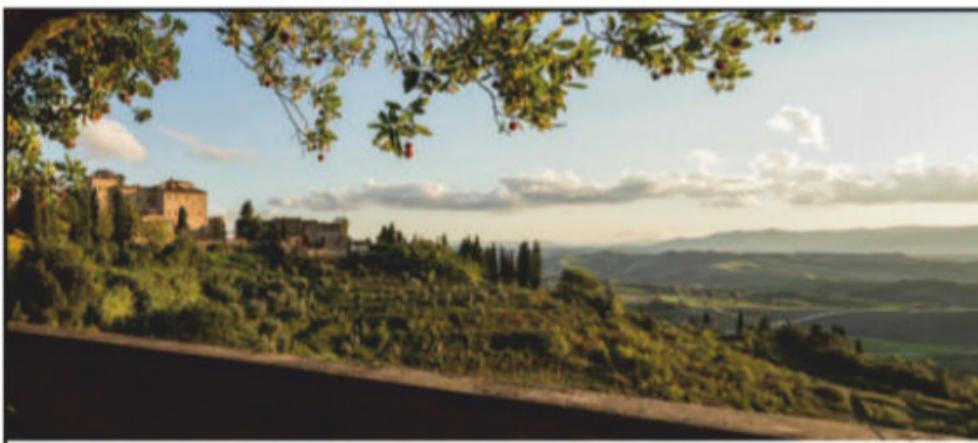
Labour markets are affected, too. Wages are notoriously sticky, especially downwards. In a world of low inflation, the ability to trim pay by raising wages less than inflation is lost to firms, with serious macroeconomic consequences. Economists blame sticky wages for causing unemployment during recessions. Facing reduced demand, firms that cannot cut pay to maintain margins while slashing prices instead reduce output—and sack workers.

But nimble firms have other options: the employment version of shaving a bit of chocolate from the bar. Some cut costs by boosting output per worker, often by driving workers harder. Tellingly, growth in output per worker now tends to fall in booms and rise during busts, precisely the opposite of the pattern 40 years ago, when inflation was high. Firms can respond to market pressures by reducing the benefits available to workers; Asda, a supermarket, recently announced plans to slash British workers' holiday allowances. Or they can offer workers more tortuous schedules. Research published in 2017 suggests that being able to vary workers' hours from week to week is worth at least 20% of their wages. On the flipside, during good times firms often opt to reward workers with office perks and one-off bonuses, rather than pay rises that cannot easily be clawed back during downturns.

The uncertainty principle

If it happens on a sufficiently large scale, the practice of tweaking quality in lieu of price could play havoc with essential economic data. Statistical agencies do their best to account for changing product quality, but if adjustments are unexpectedly common or subtle then muted inflation figures could easily be concealing a more turbulent economic picture. Central banks watching for big swings in inflation or wage growth as a sign of trouble could be reacting to figures that bear far less relation to business conditions than they used to.

What's more, the substitution of quality for price as firms' main way of responding to changing market conditions weakens the case for keeping inflation low and stable. Inflation makes relative prices less informative, economists reckon, making it harder to decide what to buy and how to spend. Rather than clarity, low inflation has brought a different sort of confusion: one of shrinking chocolate bars and lost holidays. ■



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ALGARVE
THE RESIDENCES



Space debris and human safety

Stopping a hard rain

Technologists are working out ways to lessen the likelihood that debris falling from space will kill people

EVERY DAY a tonne or two of defunct satellites, rocket parts and other man-made orbiting junk hurtles into the atmosphere. Four-fifths of it burns up to become harmless dust, but that still leaves a fair number of fragments large enough to be lethal. It is testament to how much of Earth's surface is sea, and how sparsely populated the remainder remains, that the only recorded victims of this artificial hailstorm are five sailors aboard a Japanese vessel, who were injured in 1969, and a woman in Oklahoma who was grazed by a piece of falling rocket in 1997. But it is also testament to luck—and the odds of that luck holding are shortening.

Population growth means that the fraction of Earth's surface which space debris can hit harmlessly is shrinking. At the same time, more spacecraft are going up (111 successful launches in 2018, compared with 66 a decade earlier, and with many launches carrying multiple payloads). And payloads themselves are increasingly designed so that equipment which has fulfilled its purpose falls out of orbit years or

decades sooner than it otherwise would, lest it collide with functioning spacecraft.

In light of all this, more attention is being paid to the safe disposal of satellites and other space junk. To do that, space agencies and private companies alike want to steer craft to the least risky impact-destinations possible, and also reduce the number of fragments that will survive re-entry and endanger people and property.

A drop in the ocean

One tried and tested solution is to plunge a re-entering craft into a zone known as the South Pacific Ocean Uninhabited Area. This is the expanse between Chile and New Zealand. It is island-free, little sailed and little overflown. Such controlled re-entries are not a completely precise science. Any ships and planes heading into the vicinity

→ Also in this section

65 The IPCC land-use report

66 Elephants, ants, trees and fire

at the time will be advised to steer clear of a potential impact area that may exceed 10,000km²—roughly the size of Lebanon. But if everyone takes these warnings seriously, then controlled re-entries are as safe as it gets, according to Holger Krag, head of the European Space Agency's Space Debris Office in Darmstadt, Germany.

Job done, you might think. Yet only a few controlled re-entries are carried out each year. The reason is cost. If a spacecraft is to be put into the steep descent needed to aim it reasonably precisely at a particular spot on Earth's surface, it will need to carry two or three times as much fuel as is required for standard orbital adjustments. It will also require larger thrusters. That fuel and those thrusters add to a mission's weight, and therefore its launch costs. Ground controllers are also necessary to supervise the re-entry. Ending a mission with a controlled re-entry can thus add more than €20m (\$22m) to its cost.

A cheaper alternative is a "semi-controlled" re-entry. Instead of diving towards a pre-arranged target, a satellite is lowered gradually into the atmosphere using either what thruster-fuel remains to it or a specially designed drag-sail. This sail intercepts air molecules that have leaked into space from the atmosphere, slowing down the satellite it is attached to and thus decreasing the craft's altitude until it reaches a point where air resistance to the body itself pulls it into the atmosphere.

The trade-off is that the danger zone as- ►

Associated with such a de-orbiting is much larger than that of a properly controlled re-entry. It is still possible to arrange for this zone to have lots of oceans and few big cities. But there is not the certainty of no casualties that the South Pacific Ocean Uninhabited Area brings with it. Also, though more economical than the fully controlled variety, semi-controlled re-entry is not free. Saving fuel for it shortens mission lengths. Adding a drag sail adds to launch weight. In practice, therefore, almost all spacecraft re-enter the atmosphere at random. But this has not prevented experts from working out the probability that the random re-entry of a given mission will cause casualties. And that is useful information, because it can be used to decide whether a mission should go ahead in the first place.

Re-entry-survivability analysis, as it is known, is done using software that crunches data on the size, shape, configuration, composition and thickness of a satellite's components. That provides an estimate of the number, weight, size and shape—and therefore potential harmfulness—of pieces that atmospheric friction will not reduce to dust. The probability of casualties can then be calculated in light of the population density under the spacecraft's orbit.

Hyperschall Technologie Göttingen (HTG), a German firm, charges about €50,000 for such an analysis. Its clients include three European satellite manufacturers—OHB System of Germany, Elecnor of Spain and Airbus—as well as several space agencies. For their money, these organisations get a bespoke assessment of the likely fate of a particular spacecraft, based on digital files of its design, and using programs with names like "Spacecraft Entry Survival Analysis Module" and "Debris Risk Assessment and Mitigation Analysis" that have

been calibrated by experiments in the plasma wind tunnels owned by Germany's space agency.

If these calculations come back showing that the risk of a satellite killing or injuring someone during re-entry is greater than one in 10,000—which roughly half do—then permission to launch will probably be denied unless the craft is redesigned or can be rigged for a semi-controlled entry at more favourable odds. The idea of setting the acceptable risk at 10,000 to one, though derided by some as arbitrary, was adopted by America's space agency, NASA, in 1995, by Japan in 1997, by France in 1998 and by a dozen or so other places in the years since.

Feeling the heat

Having to do such calculations at all, though, is suboptimal. The best solution to the problem of re-entering space debris is to build spacecraft so that nothing will reach the ground in the first place. One way to "design for demise", says Ettore Perozzi, an expert on debris at Italy's space agency, is to build a spacecraft "like a chocolate bar", so that it snaps easily into pieces. The idea is for specially positioned weak parts to fail early during re-entry, ripping the thing apart at an altitude of about 125km, rather than the standard 80km or so. This exposes the spacecraft's guts to greater destructive heat for additional seconds.

One promising means of getting a spacecraft to rip open early, according to Charlotte Bewick, head engineer for debris at OHB System, is to forge screws, nuts and other parts for couplings out of special "shape memory" alloys. When heated, these alloys return to a "remembered" shape they once held—which, in this case, will facilitate a rapid wiggling apart early in re-entry. Thales Alenia Space, a Franco-Italian firm, sees more promise in another way of accelerating a spacecraft's break-up. It has patented a "demisable" coupling that, thanks to a special washer, comes apart quickly when heated. Engineers are testing prototypes in a plasma wind tunnel and reckon the winning design will contain a low-melting-point alloy of zinc.

Another way to reduce what reaches the ground is to substitute refractory materials such as titanium and steel, used to make things like fuel tanks and fly wheels, with substances such as aluminium and graphite epoxy that vaporise more easily. According to Lilith Grassi, a debris expert at Thales Alenia, this approach is bearing fruit.

Even these measures, though, will not bring every spacecraft into compliance with the one-in-10,000 rule. So engineers have thought up additional ways to lower the likelihood of a casualty. Those at OHB System, for example, have proposed fastening together with strong cabling any components expected to survive re-entry. That will prevent them from fanning out—

meaning, as Dr Bewick puts it, that the surviving debris will hit Earth like a single bullet instead of a shotgun blast, thus reducing the chance that anyone will be struck.

OHB System has yet to find a customer for a satellite fitted with such containment cabling. It would add weight, and thus cost. Moreover, some dislike the notion of increasing the amount of material that will strike Earth, even if that increase reduces the chance of a death. But a related approach is under study at Thales Alenia. This firm may begin encasing in a single package the lenses and other components of optical systems that currently often hit the ground as a spray.

Something no one seems to be asking in all this, is what an appropriate level of safety for satellite re-entries actually is. The original reason for picking 10,000 to one as an acceptable risk level has been lost in the mists of time. To a given individual in Earth's human population of 7.5bn, it translates into one chance in 75 trillion per re-entry. This is vanishingly small, even in a world where re-entries are numbered in the hundreds per year.

On the other hand, any death delivered from outer space in this way would be headline news, and might result in calls for the rules to be tightened still further. So far, the satellite business has a pretty good safety record. It would like to keep things that way. ■

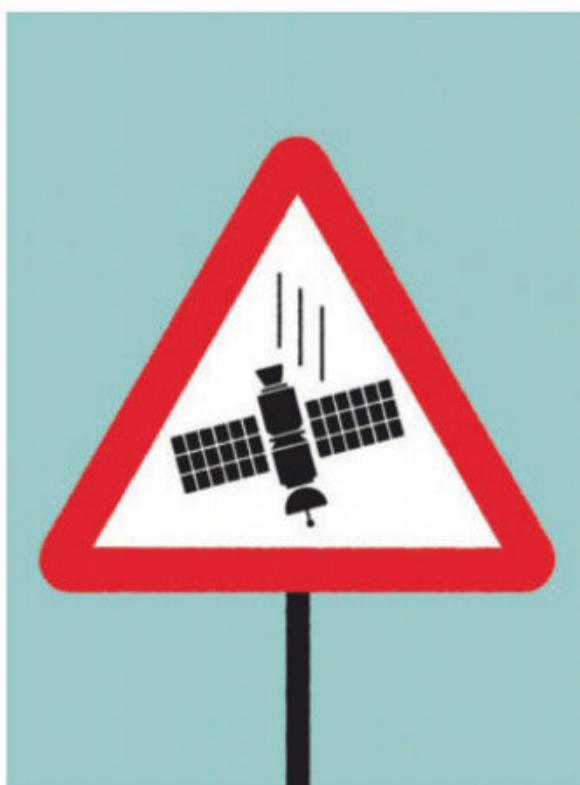
The IPCC land-use report

Il faut cultiver notre jardin

Gloom, but not complete doom, from the climate-change front line

After 29 hours of uninterrupted negotiations the latest report from the Intergovernmental Panel on Climate Change (IPCC), on how alterations in land use are contributing to such change, was gavelled through in Geneva on the afternoon of August 7th. When, minutes later, your correspondent asked to speak with some of the researchers, she was informed they had "gone to bed". The report these exhausted delegates produced—all 1,300 pages of it—fires another warning shot about the state of the planet and the way people are transforming virtually every corner of every continent. Human activities affect roughly three-quarters of Earth's ice-free land, with huge consequences for the climate.

Land masses are natural carbon sinks, absorbing greenhouse gases by a variety of processes, including photosynthesis. They also produce such gases—for instance, when vegetation decomposes or burns. By



► conserving some ecosystems and destroying others to make way for pastures and fields, or chopping down trees for timber, human activities on the land add an extra layer of complexity to already complex natural cycles.

The report found that between 2007 and 2016 such activities produced emissions equivalent to 9bn-15bn tonnes of carbon dioxide each year, or roughly 23% of all man-made greenhouse-gas emissions. During that time, land surfaces soaked up 8.6bn-13.8bn tonnes of carbon dioxide.

At the moment, then, these sinks and sources are roughly in balance. But climate change, deforestation and agriculture mean the CO₂-soaking-up ability of the continents is being depleted. The accelerating destruction of the Amazon forest, which researchers fear may be approaching a point of no return, is of particular concern. And across the world, depending on the type of husbandry practised, farming is eroding soil at a rate between ten times and more than 100 times faster than new soil forms.

Climate change, moreover, creates a vicious feedback loop. Higher temperatures promote the degradation of land through drought, desertification and rising seas, and the promotion of wildfires like the ones currently blazing in Alaska, Siberia and Greenland. This, in turn, increases the amount of greenhouse gases being released by landmasses, which further accelerates global warming.

A swelling human population also needs more land to feed itself. Balancing these needs—for space to grow food on the one hand, and natural carbon sinks to keep temperatures low on the other—is a huge challenge. There are, however, solutions. Recently, a report by the World Resources Institute, a multinational think-tank, listed 22 actions that could be taken to feed, sustainably, close to 10bn people by 2050.

Number one on that list is stopping deforestation, along with efforts to regenerate degraded ecosystems. Reducing food waste is also important. More than a quarter of what the world grows to eat is never actually consumed. That creates a huge carbon footprint to no benefit. And diets themselves need to change. In particular, raising livestock contributes disproportionately to the problem. That means eating less meat, an admonition directed mainly at rich countries, whose people, often overweight, might in any case benefit from going on a diet.

This last point presented one bone of contention between the 195 government delegations charged with approving the panel's report. The role of bioenergy (growing crops for fuel) and BECCS (bioenergy with carbon capture and storage) was another. A previous IPCC report, published in 2018, on the feasibility of limiting global

Ecology

Burning questions

Nature is complex. And unpredictable

ECOLOGY IS A complicated thing. Given the facts that elephant damage often kills trees and bush fires often kill trees it would be reasonable to deduce that a combination of the two would make things worse. Counter-intuitively, though, as research just published in *Biotropica*, by Benjamin Wigley of Nelson Mandela University in South Africa shows, if a tree has already been damaged, fire can actually help to make things better.

One common way in which elephants harm trees is by stripping them of their bark. Dr Wigley, who did indeed start from the obvious assumption, set off to find out how much worse bush fires would make the effects of this bark-stripping. To this end he set up a study in the Kruger National Park, a reserve on South Africa's border with Mozambique.

Since 1954, the Kruger has been the site of experiments in which plots of land have been burned at intervals, to discern the effects of fire on savannah ecology. Dr Wigley tapped into these experiments by looking at trees in three

different zones. In one of these the vegetation was burned every year. In the second it was burned every other year. The third zone, by contrast, was actively shielded from fire.

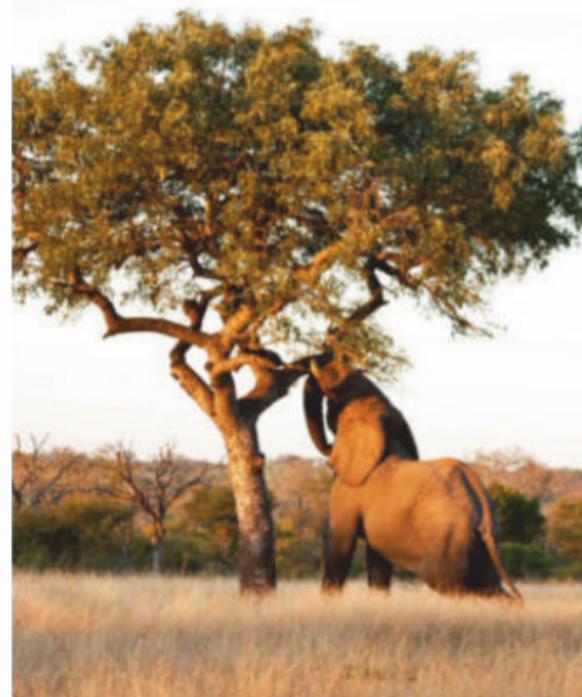
To keep things consistent, he looked at the fate of a single tree species, the marula (pictured), in all three zones. He picked marulas because they are particular victims of elephant activity. Their fruit are delicious, and prized by elephants and people alike. But elephants also seem to enjoy eating their bark.

In July 2016 he and his colleagues identified 20 marulas in every zone and used a hammer and a soil corer to remove from each of them a circular section of bark 5cm in diameter. Having inflicted this damage, they monitored the wounds over the course of the following two years, to see what would happen.

To their surprise, they discovered that the wounds of trees in fire zones recovered far better than those of trees that had seen no fires at all. Wounded trees in the annual burn zone regrew 98% of their lost bark during the two years of the study. Those living in the biennial burn zone regrew 92% of it. But those in the zone where fires were suppressed regrew only 72%.

The researchers also found something else when they were measuring the trees' wounds: ants. Ten of the 20 trees in the fire-suppression zone developed ant colonies in their wounds. The ants in question were a species that is known to damage trees and is presumed to impair tissue healing. By contrast, only five trees in the biennial burn zone and three in the annual zone developed ants' nests in their wounds.

It looks, therefore, as if bush fires are cauterising trees' wounds by killing ants that might otherwise infest them. Though such fires are surely harmful to healthy trees, it seems, in an example of two negatives making a positive, as if they are actually helpful to sick ones.



A quick snack

warming to 1.5°C, made it abundantly clear that this would require large amounts of greenhouse gases be removed from the atmosphere and somehow stored away. BECCS, in which power stations capture and store the CO₂ from burning biofuel, has been touted as a way to do that on a large scale, but the area of land required to grow the biofuel needed to absorb billions of tonnes of CO₂ would be enormous—several

times the size of India.

Optimistically, the report's authors conclude that there should be enough room to provide a growing population with sufficient food, without rushing towards a dangerously warm climate. There is, though, a caveat. That outcome would require what one commentator called a "global intelligent response". But the world, like the delegates, seems to be asleep. ■



Walter Bagehot

The greatest Victorian

A fine biography of our most celebrated editor—who was much more besides

Beyond doubt, Walter Bagehot was *The Economist's* greatest editor. During his 16 years in the job—from 1861 to his death in 1877—he transformed the publication from the mouthpiece of a laissez-faire sect into the voice of mature Gladstonian liberalism. He did this through a combination of natural literary genius and somewhat reluctant networking. He wrote an astonishing proportion of the paper's articles himself, on an astonishing range of subjects, standing at his desk in his office at 340 Strand, his steel pen flying across the page, producing thousands of words a week. He socialised with everyone who mattered, from intellectual luminaries such as John Stuart Mill and George Eliot to political stars. William Gladstone mentioned him in his diary 125 times.

Yet *The Economist* was not enough to absorb all his superabundant energy: the newspaper was then more exclusively de-

Bagehot: The Life and Times of the Greatest Victorian. By James Grant. W.W. Norton; 368 pages; \$29.95 and £19.99

voted to business and finance than it is today, and Bagehot was equally interested in politics and literature. His great book, "The English Constitution", began as a series of articles for the *Fortnightly Review*. He was a successful banker who started his career working for his family bank, Stuckey's, and helped oversee years of uninterrupted growth. He stood unsuccessfully for Parliament several times. He was at work on a projected three-volume history of political economy when he died.

This is a dazzling range of achievements—and may explain why Bagehot fell down dead at the age of 51. But does it justify the claim first made for him by G.M. Young, the most intelligent historian of

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► attended University College, London, a new "radical infidel college" designed for people who refused to subscribe to the tenets of the Church of England.

But the country banker turned journalist felt not the slightest desire to tug the forelock. On the contrary: he dismissed Oxford for turning education into a "narcotic rather than a stimulant", treated aristocrats as highly paid entertainers who existed to distract the people from the real business of government, and laid down the law on every subject under the sun, from the intricacies of banking to the political merits of Sir Robert Peel ("the powers of a first-rate man and the creed of a second-rate man").

Rather than resenting the upstart, the great and the good embraced him, awed by his knowledge of arcane subjects such as finance, dazzled by the bright light of his intellect and by his sparkling prose. E.D.J. Wilson, a journalistic contemporary, judged that, at the height of his powers, he was "an unofficial member of every Cabinet, Conservatives as well as Liberal" and an adviser to every chancellor.

Mr Grant is a surprising author of a book on a Victorian sage: an American investment-guru-cum-financial-journalist who spends his life watching the markets, rather than a historian who spends it burrowing in the archives. But his book is excellent—built on a lot of study (including time in the archives) and written in a gripping style. Mr Grant is at his best when writing about Bagehot's financial journalism and indeed his career as a banker. His accounts of the collapse of Overend Gurney, supposedly the Rock of Gibraltar of Victorian finance, and of "Lombard Street", Bagehot's book about that debacle, are exemplary. He is skimpier when writing about mid-Victorian politics. "The English Constitution" receives rather less than its due, given its revolutionary thesis and its long-term influence on British constitutional thinking and practice.

Daylight on the magic

This is very much a warts-and-all portrait, not a hagiography. Mr Grant presents Bagehot as a man rather than just as an editor: as a supplicant who forged a close relationship with James Wilson, the founder of *The Economist*; as a lover who successfully wooed Wilson's eldest daughter, Eliza, with perfectly crafted letters; as a husband who ate seven meals a day ("with a snack in the interstices") and spent beyond his means; as a failed parliamentary candidate, getting barracked as he delivered lofty speeches and even indulging in a bit of bribery, despite denouncing graft in the pages of his newspaper; as an inveterate leg-puller who once wrote a 213-word sentence in praise of the contention that "short views and clear sentences" were the coming thing in English letters.

Mr Grant recognises that Bagehot had weaknesses as well as strengths. He repeatedly predicted that the South would win the American civil war, in part because the North was led by an incompetent country lawyer—and then effortlessly transformed himself into a fan of Abraham Lincoln when the Union won. He indulged in numerous conflicts of interest—for example advising Gladstone to continue to allow local banks to issue their own currency when he was a substantial shareholder in Stuckey's, a bank that did just that. Asked to support a petition to found a women's college of Oxbridge calibre, he demurred on the ground that women were not suited to high-level jobs. Two thousand years hence

things might have changed, he said, but at present they would only "flirt with men and quarrel with each other".

Bagehot survives these misjudgments with his reputation intact. He does so partly because his glittering prose makes it a pleasure to read even his most mistaken opinions. But he does it too because he was right far more than he was wrong. He was right about the dangers of crowd psychology in both finance and politics. He was right about the importance of "animated moderation" in political life. And he was right that civilisation is a delicate construct that requires skilful—and sometimes cynical—statecraft if it is to be saved from self-destruction. ■

Creepy fiction

Mother courage

An enthralling tale of motherhood and fear

The Need. By Helen Phillips. *Simon & Schuster*; 272 pages; \$26. *Chatto & Windus*; £16.99

MOST PALAEOBOTANISTS plug away with little fanfare. But Molly's years at a particular quarry have yielded some eye-opening finds. Besides countless fossils that defy known records, she has stumbled on a small toy soldier with a tail, a Coca-Cola bottle with cockeyed font and, most thrilling of all, a Bible in which God is female.

These novelties have turned the quiet pit where she works into a buzzing destination for curious tourists and a few religious fanatics. Some come to deliver threats; others send their venom by mail. Molly has taken all this in her stride. But when a mysterious woman arrives at Molly's home one night, while she is alone with her two small children, everything starts to unravel. She is forced to confront a mother's deepest fears.

"The Need" by Helen Phillips, a critically acclaimed but underexposed American novelist, is an enthralling book. With its short chapters, unsettling prose and riveting suspense, it feels designed for binge-reading. But keep an eye on the clock. Immersion in this novel before bedtime is a recipe for sleeplessness.

Part of the appeal is Ms Phillips's stylish mode of storytelling. She creates momentum with brief and often enigmatic scenes, which she strips of all but the most evocative details. The chapters often toggle between moments of heightened drama and past scenes of Molly at work, which is a nicely disorienting way to build tension while delivering expository details. Although the

story is told in the third person, readers are very much inside Molly's head. It vibrates with the kind of neurotic self-recrimination typical of exhausted and ambitious working mothers who find themselves "caught in the cyclone" of their children's needs. Molly's breast-milk invariably comes down at moments of high emotion, which not only dampens her bra but reminds her that she is also, essentially, an animal.

Why doesn't Molly call her beloved husband, who is travelling for work, to explain what is going on? Should her milk be coming in with such vigour when her baby is eating solid foods? Such artistic liberties are excusable. Molly's leaky breasts show just how primal the bond between parents and children can be. Given the fierceness of that devotion, the potential for horror is nearly endless.



Phillips, a stylish storyteller

Life in New Orleans

Lost in the flood

The Yellow House. By Sarah Broom. *Grove Atlantic*; 376 pages; \$26

SARAH BROOM'S moving memoir does not belong to her alone. She shares the story with her mother, Ivory Mae, and with the house in New Orleans East—razed after Hurricane Katrina struck in 2005—in which Ivory Mae brought up 12 children, of whom the author was the “babiest”. As much amanuensis as protagonist, Ms Broom weaves her memories and her mother's testimony into a personal, historical and sociological study of African-American life in New Orleans.

The house was modest, but the book's territory is broad. “The Yellow House” ranges from Ms Broom's grandmother's childhood in the Big Easy to the Californian and Texan cities to which her siblings were displaced after Katrina, and her own stint working at a radio station in Burundi. It combines the most personal details—a sister's teenage lip-gloss habit, a brother's beloved bike—with profound questions: “Who has the rights to the story of a place? Are those rights earned, bought, fought and died for?”

Ms Broom herself left both the Yellow House and New Orleans, though she returned after Katrina. Her book reads less like an assertion of rights than a declaration of love: for her mother, her siblings and their city. She adores the New Orleans of her childhood—not the tourist-filled downtown, but a majority-black, working-class community that is often overlooked, and which her vivid descriptions bring arrestingly to life. In Katrina's wake, New Orleans East smells like “chitlins, piss, stale water, lemon juice”. After the death of her tall, thin, jazz-loving father, his full life was, she writes, shrunk into an obituary comprising “one short column of newsprint, enough to fit between your pointing finger and thumb.”

Often she combines a childhood observation with adult awareness to disconcerting effect. The police department's disrespect for her neighbourhood is captured in one stark image: “Our side of Wilson Avenue, the short end, seems a no-matter place where police cars routinely park, women's heads bobbing up and down in the driver's seat.” She introduces readers to an alternative urban geography mapped around her family's lives. “You will pass run-down apartment complexes...where growing up, my brothers made allegiances and enemies...you will see Natal's Supermarket,

which is really only a corner store, where Mom sent me as a kid to buy ‘liver cheese’.”

This tour of New Orleans stands in critical contrast to the “disaster bus tours” that now haunt neighbourhoods flooded by Katrina. “Imagine”, Ms Broom writes, “that the streets are dead quiet, and you lived on those dead quiet streets, and there is nothing left of anything you owned”—and then tourists appear “in an air-conditioned bus snapping pictures of your personal destruction.” Those “yous” draw readers in, before the bus reminds them that they, like the tourists, are really guests.

A recurring irony in “The Yellow House” is Ivory Mae's refusal to invite outsiders into her home. Once a proud host, she grew ashamed of the Yellow House as it aged. “You know this house not all that comfortable for other people,” she constantly reminds her daughter. The house itself may no longer stand, but in her book Ms Broom proudly opens its doors. ■



Art and activism

High vis

ADELAIDE

An Australian artist confronts viewers with violence, loss and “death jackets”

IF BEN QUILTY, one of Australia's most famous painters, had followed the advice he was given as a teenager, he might have ended up as an accountant. On a sweltering day in Adelaide at the Art Gallery of South Australia, he drew laughs when he dedicated the first major survey of his 25-year career to a school careers adviser who told him to study economics. “This one's for you,” he quipped.

Mr Quilty—who piles paint on his canvases with a cake-icing knife to make gutsy, large-scale works that both charm and challenge his compatriots—has followed an unusual career path. “At a time when the

act of painting was seen as having been exhausted, he was one of the few people who remained dedicated” to the craft, says Kit Messham-Muir, a contemporary at Sydney College of the Arts in the 1990s.

After graduating, Mr Quilty worked as a builder's labourer and took a course in women's studies and design, then became a television news editor, splicing together packages from war zones, suburban crime-scenes and natural disasters. His big break came in 2003, when a gallery in Sydney showed a series depicting his car, an LJ Torana—much loved by Australian motorheads and first sold in 1972 (the year before Mr Quilty was born).

The popular paintings gave him a wide audience and a recurring theme—what Mr Quilty describes as “the debaucherous, shit side of masculinity”. The Toranas were a kind of autobiography, capturing “who I've been, my friends, the way I grew up”, and “the crazy rites of passage”—cars, drugs, booze—that young men go in for. “You go flat out, high off your face, facing the windscreen, like you're all watching a movie, with this incredible danger.” Men need help, Mr Quilty thinks, and a better form of initiation into adulthood, if they are “to become good people”.

A sense of moral duty has informed much of his art. In 2011 he travelled to Afghanistan as Australia's official war artist. Afterwards he invited returning soldiers to sit for portraits in his studio in the southern highlands of New South Wales. The paintings are striking images that muse on post-traumatic stress disorder and the psychological costs of combat.

In 2012 Mr Quilty visited Myuran Sukumaran—one of the “Bali Nine”, a group of young Australians convicted of smuggling heroin—in prison in Indonesia. Sukumaran and another man, Andrew Chan, were under sentence of death. Sukumaran had written to ask Mr Quilty's advice about his own painting; after they met, the prisoner painted 28 self-portraits in a fortnight. Mr Quilty became the public face of a campaign to save the men's lives. It failed: they were executed by firing squad in April 2015. But scores of Sukumaran's paintings from his time on death row have since been exhibited across Australia.

In Mr Quilty's new show, one wall is covered in paintings of life-jackets. The 12 hazard-orange works (one, “Fereshteh”, is pictured) have been layered thick with paint using the same impasto technique that Frank Auerbach and Francis Bacon deployed. Each square mountain of colour is a memorial to a life lost at sea. “There's a violence in the way he paints,” says Mr Messham-Muir, now of Curtin University in Perth. Up close, he says, the canvases are “a mash of different colours and textures and paint so thick that you can still smell it.”

The series arose from a trip Mr Quilty ►

► made in 2016 with Richard Flanagan, a Booker prizewinning Australian novelist, to document the refugee crisis in Greece, Lebanon and Serbia. Thousands of life-jackets were scattered on the shore, like neon *memento moris*. Made from flimsy materials that would never float, they were "death jackets", Mr Flanagan wrote; tombstones in disguise. In Australia, which was dispatching refugees to a legal limbo on remote islands, Mr Quilty's paintings are a call for compassion.

Blurring the line between art and activism can be risky. "There is a danger that he

will become such a public figure that he will more or less end up being viewed as a media persona, rather than a serious artist," says Sasha Grishin of Australian National University. Mr Quilty has duly attracted criticism from the right—a tabloid commentator scorned him as a "politically fashionable" favourite of the left—and from a handful on the left as well. "I've been called a bleeding heart like it's an offence," Mr Quilty says, shaking his head.

His show—now relocated to the Gallery of Modern Art in Brisbane, from which it will move to the Art Gallery of New South

Wales in Sydney—grapples with violence, trauma and loss. Yet often his paintings have an endearingly witty touch. In "Joe Burger", a sweetly funny ode to parenting, he casts his infant son as a technicolour chubby-cheeked burger bun. In his "Budgie" series, the yellow and green birds resemble the pompous busts of statesmen. "Bottom Feeders" presents a stark-naked Father Christmas drinking, smoking and peeing on a pot-plant. You need both beauty and humour, Mr Quilty reckons, "if you want to tell stories about the darker side of the human condition". ■

Johnson Big and basic

Why widely spoken languages have simpler grammar

STALIN SPOKE Russian as a second language. The Georgian dictator of the Soviet Union had a noticeable accent and is said to have mumbled his case-endings. The tale indicates two things. One is that learning new languages is hard, even with a great deal of exposure. (Stalin started learning Russian at around ten and spoke it all his adult life.) The other is that languages are more complex than they need to be. Not having mastered all Russian's finer points didn't keep Stalin from ruling the Soviet Union with a murderously effective iron hand.

Russian really is hard for learners, and a casual comparison might serve the conclusion that big, prestigious languages like Russian are complex. Just look, after all, at their rich, technical vocabularies, and the complex industrial societies that they serve.

But linguists who have compared languages systematically are struck by the opposite conclusion. They tend to find that "big" languages—spoken by large numbers over a big land area—are actually simpler than small, isolated ones. This is largely because linguists, unlike laypeople, focus on grammar, not vocabulary. Consider Berik, spoken in a few villages in eastern Papua. It may not have a word for "supernova", but it drips with complex rules: a mandatory verb ending tells what time of day the action occurred, and another indicates the size of the direct object. Of course these things can be said in English, but Berik requires them. Remote societies may be materially simple; "primitive", their languages are not.

Systematically so: a study in 2010 of thousands of tongues found that smaller languages have more Berik-style grammatical bits and pieces attached to words. By contrast, bigger ones tend to be

like English or Mandarin, in which words change their form little if at all. No one knows why, but a likely culprit is the very scale and ubiquity of such widely travelled languages.

As a language spreads, more foreigners come to learn it as adults (thanks to conquest and trade, for example). Since languages are more complex than they need to be, many of those adult learners will—Stalin-style—ignore some of the niceties where they can. If those newcomers have children, the children will often learn a slightly simpler version of the language from their parents.

But a new study, conducted at the Max Planck Institute for Psycholinguistics at Nijmegen in the Netherlands, has found that it is not entirely foreigners and their sloppy ways that are to blame for languages becoming simpler. Merely being bigger was enough. The researchers, Limor Raviv, Antje Meyer and Shiri Lev-Ari, asked 12 groups of four strangers and 12 groups of eight to invent languages to describe a group of moving shapes on the screen. They were told that the goal was to rack up

points for communicating successfully over 16 rounds. (They "talked" by keyboard and were forbidden to use their native language, Dutch.)

Over time both big and small groups got better at making themselves understood, but the bigger ones did so by creating more systematic languages as they interacted, with fewer idiosyncrasies. The researchers suppose that this is because the members of the larger groups had fewer interactions with each other member; this put pressure on them to come up with clear patterns. Smaller groups could afford quirkier languages, because their members got to "know" each other better.

Neither the more systematic nor the more idiosyncratic languages were "better", given group size: the small and large groups communicated equally well. But the work provides evidence that an idiosyncratic language is best suited to a small group with rich shared history. As the language spreads, it needs to become more predictable.

Taken with previous studies, the new research offers a two-part answer to why grammar rules are built—and lost. As groups grow, the need for systematic rules becomes greater; unlearnable in-group-speak with random variation won't do. But languages develop more rules than they need; as they are learned by foreign speakers joining the group, some of these get stripped away. This can explain why pairs of closely related languages—Tajik and Persian, Icelandic and Swedish, Frisian and English—differ in grammatical complexity. In each couple, the former language is both smaller and more isolated. Systematicity is required for growth. Lost complexity is the cost of foreigners learning your language. It is the price of success.



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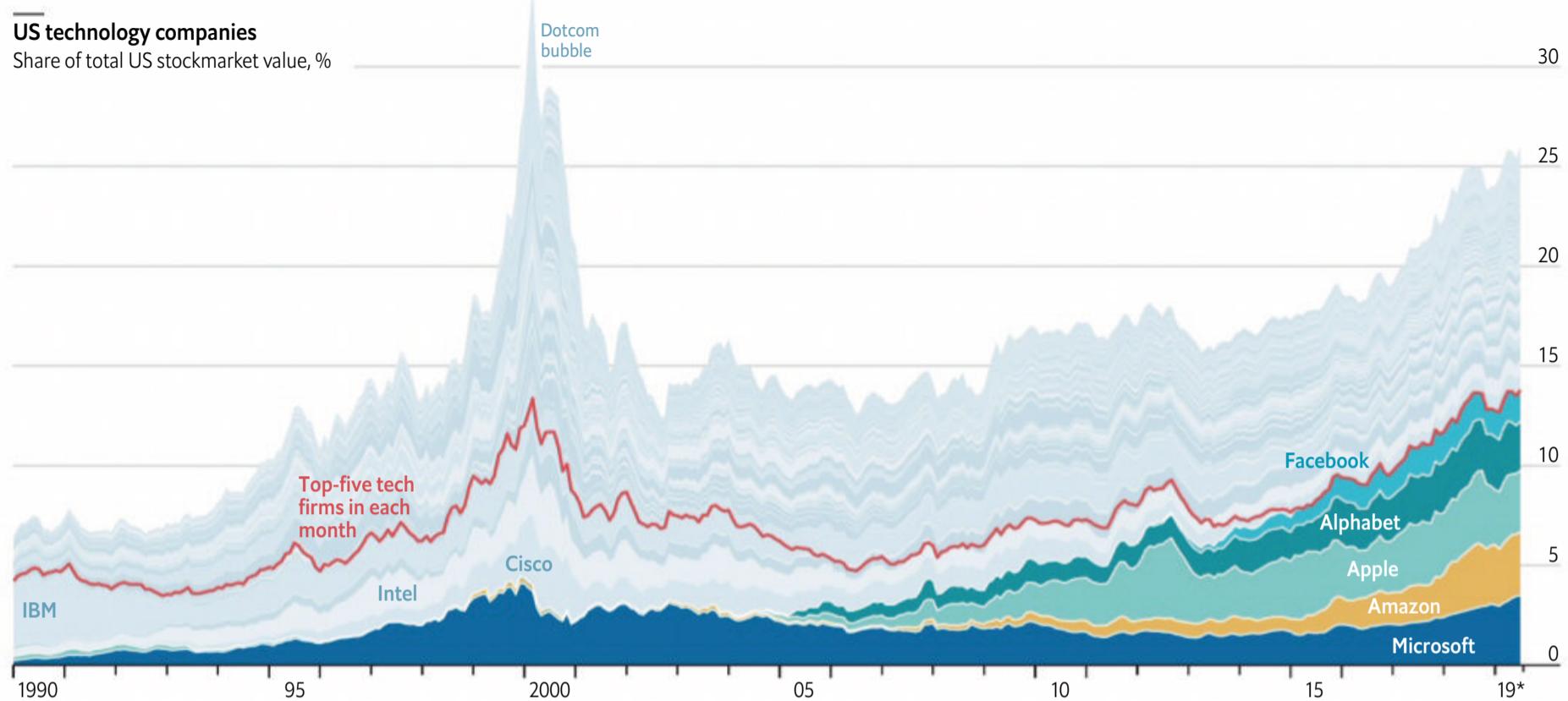
	Gross domestic product			Consumer prices		Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units		
	% change on year ago latest	quarter*	2019†	% change on year ago latest	2019†	%		% of GDP, 2019†		% of GDP, 2019†		10-yr gov't bonds latest,%	change on year ago, bp	per \$ Aug 7th	% change on year ago	
United States	2.3	Q2	2.1	2.2	1.6	Jun	2.0	3.7	Jul	-2.4	-4.7	1.7	-129	-	-	
China	6.2	Q2	6.6	6.2	2.7	Jun	2.9	3.6	Q2§	0.2	-4.5	2.9	§§	-26.0	7.04	-3.0
Japan	0.9	Q1	2.2	1.0	0.7	Jun	1.0	2.3	Jun	3.6	-3.0	-0.2	-31.0	106	5.2	
Britain	1.8	Q1	2.0	1.3	2.0	Jun	1.8	3.8	Apr††	-4.1	-1.6	0.6	-82.0	0.82	-6.1	
Canada	1.3	Q1	0.4	1.6	2.0	Jun	2.0	5.5	Jun	-2.6	-0.9	1.2	-113	1.33	-2.3	
Euro area	1.1	Q2	0.8	1.2	1.1	Jul	1.3	7.5	Jun	2.9	-1.1	-0.6	-98.0	0.89	-3.4	
Austria	1.4	Q1	3.8	1.3	1.6	Jun	1.8	4.5	Jun	2.1	0.1	-0.3	-98.0	0.89	-3.4	
Belgium	1.2	Q2	0.8	1.2	1.4	Jul	1.8	5.6	Jun	0.1	-0.9	-0.3	-101	0.89	-3.4	
France	1.3	Q2	1.0	1.2	1.1	Jul	1.2	8.7	Jun	-0.9	-3.3	-0.2	-97.0	0.89	-3.4	
Germany	0.7	Q1	1.7	0.8	1.7	Jul	1.6	3.1	Jun	6.5	0.7	-0.6	-98.0	0.89	-3.4	
Greece	0.9	Q1	0.9	1.8	-0.3	Jun	1.0	17.6	Apr	-3.0	0.1	2.0	-199	0.89	-3.4	
Italy	nil	Q2	0.1	0.1	0.5	Jul	0.9	9.7	Jun	1.9	-2.5	1.4	-144	0.89	-3.4	
Netherlands	1.7	Q1	1.9	1.6	2.5	Jul	2.6	4.2	Jun	10.1	0.7	-0.4	-92.0	0.89	-3.4	
Spain	2.3	Q2	1.9	2.2	0.5	Jul	1.1	14.0	Jun	0.5	-2.2	0.2	-117	0.89	-3.4	
Czech Republic	2.8	Q1	2.6	2.6	2.7	Jun	2.5	2.0	Jun‡	0.2	0.2	1.0	-125	23.0	-3.8	
Denmark	2.4	Q1	0.5	1.8	0.6	Jun	0.9	3.8	Jun	6.8	1.0	-0.5	-91.0	6.65	-3.3	
Norway	2.5	Q1	-0.3	1.8	1.9	Jun	2.3	3.4	May‡‡	7.1	6.6	1.1	-67.0	8.97	-8.6	
Poland	4.7	Q1	6.1	4.0	2.9	Jul	2.0	5.3	Jun§	-0.7	-2.0	2.0	-112	3.85	-4.7	
Russia	0.5	Q1	na	1.3	4.6	Jul	4.8	4.4	Jun§	7.2	2.1	7.4	-59.0	65.5	-3.1	
Sweden	1.4	Q2	-0.3	1.7	1.8	Jun	1.9	7.6	Jun§	4.9	0.5	-0.3	-89.0	9.63	-7.4	
Switzerland	1.7	Q1	2.3	1.6	0.3	Jul	0.5	2.3	Jun	9.6	0.5	-0.9	-88.0	0.97	3.1	
Turkey	-2.6	Q1	na	-1.7	16.6	Jul	16.1	13.0	Apr§	-0.7	-2.3	15.2	-444	5.48	-4.2	
Australia	1.8	Q1	1.6	2.2	1.6	Q2	1.7	5.2	Jun	-0.4	0.1	1.0	-164	1.48	-8.8	
Hong Kong	0.6	Q1	-1.2	1.7	3.2	Jun	2.6	2.8	Jun‡‡	4.0	0.4	1.3	-86.0	7.84	0.1	
India	5.8	Q1	4.1	6.7	3.2	Jun	3.6	7.5	Jul	-1.8	-3.5	6.4	-142	70.9	-3.1	
Indonesia	5.0	Q2	na	5.1	3.3	Jul	3.1	5.0	Q1§	-2.6	-1.9	7.5	-27.0	14,223	1.5	
Malaysia	4.5	Q1	na	4.4	1.5	Jun	0.8	3.3	May§	2.5	-3.5	3.5	-49.0	4.19	-2.6	
Pakistan	3.3	2019**	na	3.3	10.3	Jul	8.5	5.8	2018	-3.9	-7.1	13.8	†††	376	-21.5	
Philippines	5.5	Q2	4.1	6.0	2.4	Jul	3.6	5.1	Q2§	-2.1	-2.3	4.5	-191	52.3	1.3	
Singapore	0.1	Q2	-3.4	0.9	0.6	Jun	0.6	2.2	Q2	15.8	-0.6	1.8	-70.0	1.38	-1.5	
South Korea	2.1	Q2	4.4	1.9	0.6	Jul	0.8	4.0	Jun§	4.2	0.9	1.3	-131	1,215	-7.5	
Taiwan	2.4	Q2	4.7	1.7	0.4	Jul	0.5	3.7	Jun	13.0	-1.0	0.7	-18.0	31.5	-2.8	
Thailand	2.8	Q1	4.1	3.3	1.0	Jul	1.2	0.9	Jun§	7.9	-2.9	1.4	-122	30.8	7.9	
Argentina	-5.8	Q1	-0.9	-1.3	55.8	Jun‡	48.7	10.1	Q1§	-2.2	-3.4	11.3	562	45.7	-40.3	
Brazil	0.5	Q1	-0.6	0.8	3.4	Jun	3.8	12.0	Jun§	-0.9	-5.8	5.5	-351	3.97	-6.5	
Chile	1.6	Q1	-0.1	2.6	2.3	Jun	2.3	7.1	Jun‡‡	-2.5	-1.3	2.7	-180	718	-10.5	
Colombia	2.3	Q1	nil	3.1	3.8	Jul	3.4	9.4	Jun§	-4.2	-2.5	5.9	-96.0	3,428	-15.5	
Mexico	-0.7	Q2	0.4	0.4	3.9	Jun	3.7	3.5	Jun	-1.6	-2.5	7.4	-35.0	19.7	-6.1	
Peru	2.3	Q1	-2.0	3.4	2.1	Jul	2.2	6.3	Jun§	-1.9	-2.0	5.6	64.0	3.38	-3.3	
Egypt	5.7	Q2	na	5.5	9.4	Jun	11.8	8.1	Q1§	-1.2	-7.2	na	nil	16.6	7.9	
Israel	3.3	Q1	5.0	3.3	0.8	Jun	1.2	4.1	Jun	2.5	-4.0	1.0	-94.0	3.48	5.8	
Saudi Arabia	2.4	2018	na	1.9	-1.4	Jun	-1.1	5.7	Q1	3.8	-5.6	na	nil	3.75	nil	
South Africa	nil	Q1	-3.2	1.0	4.5	Jun	4.8	29.0	Q2§	-3.7	-4.2	8.4	-31.0	15.1	-11.7	

Source: Haver Analytics. *% change on previous quarter, annual rate. †The Economist Intelligence Unit estimate/forecast. §Not seasonally adjusted. ‡New series. **Year ending June. ††Latest 3 months. †††3-month moving average. §§5-year yield. †††Dollar-denominated bonds.

Markets

In local currency	% change on:			% change on:		
	Index Aug 7th	one week	Dec 31st 2018	index Aug 7th	one week	Dec 31st 2018
United States S&P 500	2,884.0	-3.2	15.0	30,277.5	-5.2	-18.3
United States NAScomp	7,862.8	-3.8	18.5	3,184.7	-3.5	3.8
China Shanghai Comp	2,768.7	-5.6	11.0	1,909.7	-5.7	-6.4
China Shenzhen Comp	1,484.0	-5.6	17.0	10,386.2	-4.0	6.8
Japan Nikkei 225	20,516.6	-4.7	2.5	1,669.4	-2.5	6.7
Japan Topix	1,499.9	-4.2	0.4	40,949.3	-2.6	35.2
Britain FTSE 100	7,198.7	-5.1	7.0	102,782.3	1.0	16.9
Canada S&P TSX	16,265.2	-0.9	13.6	40,432.4	-1.1	-2.9
Euro area EURO STOXX 50	3,310.0	-4.5	10.3	13,880.6	3.6	6.5
France CAC 40	5,266.5	-4.6	11.3	1,479.3	-2.3	11.0
Germany DAX*	11,650.2	-4.4	10.3	8,483.0	-2.9	8.4
Italy FTSE/MIB	20,538.9	-4.0	12.1	55,225.3	-2.7	4.7
Netherlands AEX	539.6	-5.7	10.6	2,114.1	-3.4	12.2
Spain IBEX 35	8,746.1	-2.5	2.4	972.7	-6.2	0.7
Poland WIG	56,625.2	-5.1	-1.8			
Russia RTS, \$ terms	1,284.9	-5.5	20.5			
Switzerland SMI	9,534.0	-3.9	13.1			
Turkey BIST	98,056.4	-3.9	7.4			
Australia All Ord.	6,588.5	-4.5	15.4			
Hong Kong Hang Seng	25,997.0	-6.4	0.6			

Today's biggest tech firms have surpassed their predecessors' peak



Top-five technology companies

Share of total, %



Sources: Datastream from Refinitiv; Bloomberg; BEA; eMarketer; Open Secrets; The Economist

*At July 31st †To Q2 ‡Forecast §To Q1

Exalted valley

America's technology giants look more entrenched than ever before

THE TECH wobble of 2018 has turned out to be short-lived. In the final three months of last year, American technology shares dropped by 16%. Since then, however, the biggest firms, including Apple and Facebook, have come roaring back, with their stock prices today sitting near record highs. Meanwhile a parade of smaller digital companies have rushed to float their shares, including Uber and Slack. Airbnb could be next. All told, listed technology firms make up more than a quarter of the value of America's stockmarkets.

The last time tech companies were so important was back in 2000, when they were briefly worth a third of the value of all listed equities in America. Turmoil ensued soon after, with share prices in the sector falling by 66%. Compared with the dotcom

bubble, the industry is more concentrated today: Microsoft, Amazon, Apple, Alphabet (Google's parent) and Facebook represent half of its market capitalisation. The prevailing concern is not that tech firms are too flimsy to justify their valuations, but that their position is too powerful.

The lofty prices for the big five rest on strong fundamentals. In 2010, they made 4% of the pre-tax profits of non-financial firms in America; that figure is now 12%. Their valuations imply that investors expect earnings to grow fast. They have good reason to be bullish, because today's giants are protected by high barriers to entry.

One element of this is that the big tech firms are spending heavily on innovation to try to ensure they remain at the cutting edge. In 2010 the big five tech companies accounted for 10% of the S&P 500's total spending on research and development. Today, their share is 30%.

The big tech firms have also been keen to gobble up potential rivals. When Facebook was young, it rejected myriad acquisition offers, but it is now a predator, not prey, paying \$19bn for WhatsApp in 2014. Since 2010, the big five have spent a net

\$100bn in cash (and more in stock) to buy would-be rivals. Partly as a result, the number of listed American firms worth at least \$1bn that produce software or hardware has been flat since 2000.

The public has a love-hate relationship with big tech. Amazon delivers goods cheaply and makes only a slim margin. Studies suggest that many Americans would pay thousands of dollars a year rather than forfeit access to the digital services they get free. As a result, advertisers still throw mountains of money at tech firms in order to get access to their users. In 2019, one-third of the \$240bn spent on advertising in America will be with two firms, Facebook and Google.

Nonetheless, the spectre of big tech firms abusing their troves of user data has sullied their image. In a new survey by Pew, a pollster, 33% of Americans say that tech companies have a negative effect on society, twice the share in 2015. In July the Department of Justice announced an antitrust review of the industry's leading firms. If you type "Should Google..." into the firm's own search bar, the first autocomplete response is "be broken up". ■



Under the volcanoes

Sutopo Purwo Nugroho ("Pak Topo"), Indonesia's disaster spokesman, died on July 7th, aged 49

THREE TIMES the government asked him and he turned the job down, not wanting to become a mouthpiece for them; but in the end they pressed him, and in 2010 Sutopo Purwo Nugroho became the new spokesman for Indonesia's Disaster Mitigation Agency (BNPB). Almost his first job was to persuade 350,000 people to move away from Mount Merapi on the island of Java. The great, stately, active volcano had been monitored for a long time. People believed it hosted a sultanate of sometimes peevish spirits who had to be soothed, not shunned, when they were angry. His job was to persuade the locals to forget that, and just leave.

He gave the warning late on October 24th. By the evening of October 25th, when the mountain blew its top, the BNPB had overseen the evacuation of almost everyone. (The tight time-lapse was ideal; if he'd waited longer, the evacuees would have started to wander back.) He was there when grey ash started falling on the heads of the elderly villagers he was leading out. The sight made him cry. Worse, though, was the fact that more than 350 people ignored his warnings, preferring to stay on the right side of the spirits.

Before he arrived at the agency, forecasts of natural disasters were a fairly random occurrence. Often they were missed, or the government panicked without reason, dragging along a public panicked by hoaxes posted online. Indonesia was a country of 17,000 islands, perched on the "Ring of Fire" at the edge of the Pacific, with 127 active volcanoes. They could erupt at any time, and the same sliding plates unleashed earthquakes, landslides and tsunamis, adding up to more than 2,300 emergencies a year. As his job went on, the tally got worse: 2018 was the deadliest for natural disasters in over a decade, with more than 4,600 people killed. Yet

Indonesians barely knew what they faced. A poll of his many Twitter followers revealed that 86% had never had disaster training.

So first of all he provided clarity, turning data from monitors on the ground into clear statements to the press. There were plenty of those, and 500 press releases in 2018 alone. Then he did some educating. He filled the BNPB building with dioramas, mud-crusted relics from landslides, notices tipped sideways and backdrops of devastation into which visitors could insert themselves, as rescuers, for selfies. (That might seem silly, but he liked to pose in them himself, smiling a bit self-consciously; it all helped to show schoolchildren, in particular, what being caught up in a disaster was like.) He shrugged off the occasional government grumble about being "too naughty". After all, before he took the job he had already publicised the fact that cracks in a dam were caused by official negligence. They knew he would be a handful.

Social media, though, was his trump card. Almost all Indonesians now had mobile phones. He ran seven WhatsApp groups to exchange data with monitors and journalists, who could always get "Pak Topo" when they needed him, and he used Twitter to keep the public up to speed. Among his posts of good meals, get-togethers, his spoiled cat Mozza and a gecko licking his toothbrush, he tweeted warnings. "Pyroclastic material from Mount Karangetang...can reach 700-1,200 degrees centigrade. Trust me when I say, don't touch it." "Celebrating Eid on Mount Bromo is safe. As long as you are not within 1km of the crater...its charms are waiting for you." Expanding his brief, he urged people to clean their gutters, tweeting a picture of a python being pulled from a drain: "Don't just write 'No snakes'. Snakes can't read." He also told the young to work hard at school, as he had, getting over his hang-up that he was poor and ugly with diligence and lots of hair oil.

For those who wanted them, he tweeted challenging scientific facts: diagrams of volcanoes changing shape before they erupted, and a long thread about volcanic mud. He was not a volcanologist, leaving that job to academic monitors in airless sheds at the foot of uneasy mountains; his training was in hydrology, and he had wasted many years at another agency trying to make rain. But he did spend most of his time at the BNPB staring at wall screens where white lights flashed on the dozens of volcanoes that were active or might become so (a good test for presidential candidates, he mused once, would be to try to name them all), and leaping to his ever-buzzing phone. He needed to watch both the earth moving and fake news accumulating, like steam, in the Twittersphere.

Here, he worked fast. Incipient panics got short shrift: "No tsunami seen in Banggai. Please don't spread hoaxes." Fake images were denounced. ("This eruption is in South America. Ignore and don't spread.") Talk of "portents" was firmly shot down. ("The mountain peak is clouded with altocumulus lenticularis...due to a whirlwind at the top...No connection with mysticism or politics ahead of the election.") As a result, he helped Indonesians feel safer. Jokowi, the president, publicly praised him, which was almost as good a moment as when he at last met the singer Raisa, on whom he had such a crush that he included her Twitter handle in more than 90 of his disaster tweets. He claimed his only motive was to get them retweeted to her 8m followers. Of course!

With all this whirling round him, he was also cheerfully facing disaster of another sort. In 2018 he was diagnosed with Stage 4 lung cancer, though he had never smoked. He could not have foreseen it; Nature was unpredictable. Science helped him understand it, but could not cure it. Allah had planned it, just as He had planned that others should die in earthquakes and tsunamis. Many Indonesians, he had discovered, found it more comforting to think that way. So, after the first cruel shock, did he. His tweets of destroyed places now included MRI scans of his lungs.

Among the 350 people he had not been able to save from Merapi was the guardian of the mountain. Slowly, his house had filled up with grey ash. Before the rest of the villagers made their way down to safety, he simply told them his time had come to go. ■

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