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On the cover

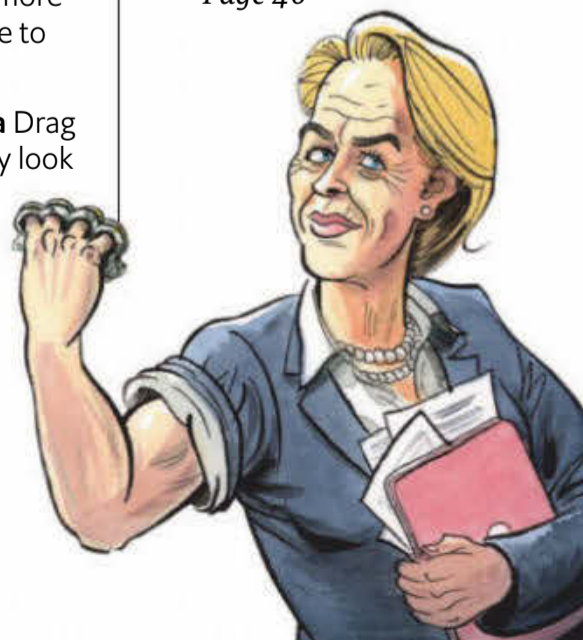
A new age of space exploration is beginning. It will need the rule of law and a system of arms control to thrive: leader, page 9. Attacking satellites is increasingly attractive. It could also be very dangerous: briefing, page 18. Space is commercialising. The legal system needs to catch up, page 50. There is renewed interest in returning people to the Moon. This time it might actually happen, page 65

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Ursula von der Leyen, until recently Germany's defence minister, was approved by the European Parliament as the next **president of the European Commission**, the EU's executive arm. She secured 383 votes, nine more than the required absolute majority, suggesting that she will take office with her authority already brittle. Her first, and very tricky, task is to assign jobs to the commissioners of each country.

France's environment minister, François de Rugy, resigned. The French press had

lashed out at him for spending large amounts of taxpayers' money on lavish dinners, including fine wine and lobsters, which he says he does not like ("champagne gives me a headache"). He denies any wrongdoing.

There were 1,187 drug-related deaths in **Scotland** last year according to official figures. That is a rate of just over 218 people per million, higher than in the United States, which is in the grip of an opioid epidemic. Scotland's drug problem has escalated quickly; over the past five years the number of drug-related deaths has more than doubled.

Turkey took delivery of the first of its S-400 anti-aircraft missiles from **Russia**. The purchase has caused a huge row with NATO. America has ended Turkey's role in making F-35 fighter planes, for fear that its secrets will be stolen by Turkey's Russian partners.

Tit-for-tat

A Turkish diplomat was killed in a gun attack in Erbil, the capital of **Iraqi Kurdistan**. Turkey recently stepped up its offensive in the Hakurk region of northern Iraq against Kurdish fighters, who have waged war with Turkish forces for decades.

The soldiers running **Sudan** signed a power-sharing deal with the opposition, whose protests led to the fall of President Omar al-Bashir, a tyrant, in April. The accord lacks many details, but the two sides have agreed on a path to elections after three years, and the composition of a sovereign council of civilians and military types.

The World Health Organisation formally declared the **Ebola** epidemic in the Democratic Republic of Congo to be a global health emergency. More than 1,670 people have died in the latest outbreak.

Tentacles of a scandal

Police arrested Alejandro Toledo, a former president of **Peru**, in California. Peru has requested his extradition to face charges that during his presidency from 2001 to 2006 he took \$20m in bribes from Odebrecht, a Brazilian construction company. He denies wrongdoing.

A judge in New York sentenced Joaquín Guzmán, also known as **El Chapo** (or Shorty), to life in prison plus 30 years. The former head of Mexico's Sinaloa drug gang, who has twice escaped from Mexican prisons, was convicted in February on ten charges, including trafficking cocaine and heroin and conspiracy to murder.

Donald Trump ordered that **asylum-seekers** who have passed through another country en route to America (ie, most of them) must prove that they have applied for asylum in ►►



▶ that country first—and been rejected—before they can claim sanctuary in the United States. Civil-rights groups sued to overturn the order.

A heck of a layover

Tsai Ing-wen, **Taiwan's** president, upset China by dawdling in America while on her way to and from the Caribbean. She was scheduled to spend four days on American soil—some-what longer than is necessary to change planes. Her meetings with American politicians infuriated the People's Republic, which insists that no one should treat Taiwan like a country. America also announced a \$2bn arms sale to Taiwan. Meanwhile, the Kuo-mintang, Taiwan's main opposition party, chose as its candidate for presidential elections next year Han Kuo-yu, a mayor, rather than Terry Gou, the founder of Foxconn, the world's biggest contract manufacturer of mobile phones.

America barred four Burmese generals from entering the country, saying that they were involved in **Myanmar's** "gross violations of human rights". The Burmese army helped lead a pogrom that sent 700,000 members of the Rohingya minority fleeing into neighbouring Bangladesh in 2017.

Ambassadors from 37 countries signed a letter praising China's "contribution to the international human-rights cause", including in its restive western region of **Xinjiang**, where China has locked up perhaps 1m people, mostly Muslim Uighurs, in "vocational training" camps. The signatories were all from authoritarian regimes with dodgy human-rights records. An earlier letter condemning the camps was signed by 22 democracies.

Unrest continued in **Hong Kong** over a law that would allow criminal suspects to be

sent for trial in mainland China. The bill has been shelved, but protesters want it formally withdrawn.

A hit on "The Squad"



Donald Trump told four non-white **Democratic congresswomen**, two of them Muslim, to "go back" to where they came from and fix their "own" corrupt governments before criticising America. Three of the women were born in the United States; the other is an American citizen. A resolution to impeach Mr Trump over his words attracted 95

votes, losing heavily. It was the first time such a motion against Mr Trump had come to a vote. A Republican senator called the women "a bunch of communists".

Thousands of protesters demanded the resignation of **Puerto Rico's** governor, Ricardo Rosselló. Some threw bottles and fireworks at police, who responded with tear gas and rubber bullets. Mr Rosselló is in trouble after 900 pages of chat-group messages were leaked, in which he apparently referred to a female politician as a "whore" and suggested that the US federal board that oversees Puerto Rico's awful finances should commit a sex act with itself.

Alex Acosta resigned as America's **labour secretary**. As a prosecutor in 2008, Mr Acosta had struck a plea deal with Jeffrey Epstein, a financier accused of having sex with under-age girls.

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In a presentation to scientists, Elon Musk said that a startup he backs which is developing technology to integrate artificial intelligence with the brain plans to begin tests on humans by the end of next year. **Neuralink** is working on a system that will connect the human brain to machines by implanting hundreds of electrode “threads”, thinner than strands of hair, into the brain, using a surgical robot. The procedure is intended for patients with severe neurological disorders, but could eventually be used to boost the brain’s power.

News emerged that **Facebook** is to be fined \$5bn in America for violating users’ privacy in the Cambridge Analytica scandal. Although this would be by far the biggest penalty levied on a technology company in the United States, one bipartisan group of senators described it as “egregiously inadequate”, and that \$5bn was too small to “alter the incentives and behaviour of Facebook and its peers”. The Federal Trade Commission is awaiting approval for the settlement from the Justice Department.

Meanwhile, there was more push back from officials against Facebook’s plan to launch a global **cryptocurrency**, to be named Libra. Steven Mnuchin, America’s treasury secretary, said that given concerns about the potential for money-laundering, Libra was a national security issue and that Facebook has “a lot of work to do” convincing government.

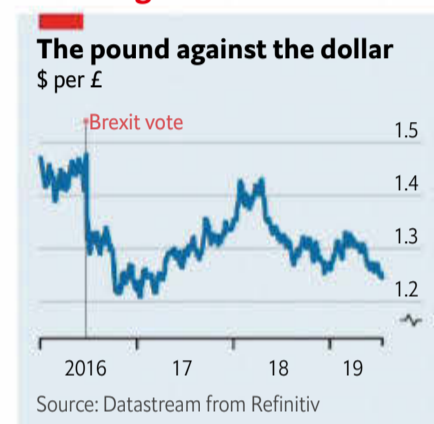
The negative political rumblings on Libra were one factor behind a dramatic fall in digital-currency prices, a volatile market at the best of times. **Bitcoin** plunged by a third over the course of the week.

The EU’s competition regulator trained its sights on **Amazon**. The retailer is to be investigated over the process for sharing the “Buy Box” on its website with independent vendors, and whether it uses data provided by the vendors to its

own advantage when selling its own products.

Netflix’s share price tumbled after it disclosed that it had lost subscribers in America for the first time in eight years and had signed up just 2.7m new users globally in the second quarter, far below its forecast of 5m. Netflix raised the subscription price for its American customers earlier this year, just as it is about to face strong competition from other media companies starting their own online streaming services.

Brexit nightmare



Sterling fell sharply against the dollar and other currencies. Markets are waking up to the likely victory of Boris Johnson in the race to become Britain’s new prime minister. Mr Johnson maintains a hard-line position that he is prepared to leave the EU without a

deal on October 31st; Britain’s fiscal watchdog thinks a no-deal Brexit would plunge the country into recession.

Four months into its search for a new CEO following the abrupt departure of Timothy Sloan, **Wells Fargo** reported a higher-than-expected quarterly net profit of \$6.2bn. The bank is struggling to find a new boss as it continues to deal with the regulatory fallout from a fake-accounts scandal. Other **American banks** also released second-quarter earnings. Profit came in at \$9.7bn for JPMorgan Chase, \$7.3bn for Bank of America and \$2.4bn for Goldman Sachs, all above forecasts.

China’s GDP grew by 6.2% in the second quarter, year on year, the slowest pace in three decades. As the trade war with America hits exports, China’s economy is now fuelled by domestic demand.

South Korea’s central bank sliced a quarter of a percentage point off its main interest rate, to 1.5%. It was the first cut in three years and comes amid a slump in the country’s exports.

The new governor of **Turkey’s** central bank suggested that there was now “room to manoeuvre” on cutting

interest rates, given a fall in inflation to 15.7%. Murat Uysal was appointed to the job when his predecessor was ousted in a row over monetary policy with the government. Recep Tayyip Erdogan, the country’s president, said recently that he expects a “serious” reduction in the 24% benchmark rate.

Anheuser-Busch InBev scrapped a sale of shares in its Asian business, blaming market conditions. The brewer had hoped to raise \$9.8bn on the Hong Kong stock exchange, which would have made it the world’s biggest IPO this year, ahead of Uber.

Strange brew

AG Barr, the maker of **IRN-BRU**, a soft drink that holds a special place in the Scottish psyche, issued a profit warning, blaming a “disappointing” summer in Scotland for a drop in sales. The company, which counts Tizer and Big Willie ginger beer among its brands, has also had to reduce the amount of sugar in its drinks to comply with a sugar tax. IRN-BRU’s distinct fluorescent orange colour (and its unique taste, a product of 32 flavouring agents) evokes such passion that a butcher in Fife once produced IRN-BRU infused sausages.



The next 50 years in space

A new age of space exploration is beginning. It will need the rule of law and a system of arms control to thrive

THE MOMENT when, 50 years ago, Neil Armstrong planted his foot on the surface of the Moon inspired awe, pride and wonder around the world. This newspaper argued that “man, from this day on, can go wheresoever in the universe his mind wills and his ingenuity contrives...to the planets, sooner rather than later, man is now certain to go.” But no. The Moon landing was an aberration, a goal achieved not as an end in itself but as a means of signalling America’s extraordinary capabilities. That point, once made, required no remaking. Only 571 people have been into orbit; and since 1972 no one has ventured much farther into space than Des Moines is from Chicago.

The next 50 years will look very different (see Science section). Falling costs, new technologies, Chinese and Indian ambitions, and a new generation of entrepreneurs promise a bold era of space development. It will almost certainly involve tourism for the rich and better communications networks for all; in the long run it might involve mineral exploitation and even mass transportation. Space will become ever more like an extension of Earth—an arena for firms and private individuals, not just governments. But for this promise to be fulfilled the world needs to create a system of laws to govern the heavens—both in peacetime and, should it come to that, in war.

The development of space thus far has been focused on facilitating activity down below—mainly satellite communications for broadcasting and navigation. Now two things are changing. First, geopolitics is stoking a new push to send humans beyond the shallows of low-Earth orbit. China plans to land people on the Moon by 2035. President Donald Trump’s administration wants Americans to be back there by 2024. Falling costs make this showing off more affordable than before. Apollo cost hundreds of billions of dollars (in today’s money). Now tens of billions are the ticket price.

Second, the private sector has come of age. Between 1958 and 2009 almost all of the spending in space was by state agencies, mainly NASA and the Pentagon. In the past decade private investment has risen to an annual average of \$2bn a year, or 15% of the total, and it is set to increase further. SpaceX, Elon Musk’s rocket firm, made 21 successful satellite launches last year and is valued at \$33bn. Jeff Bezos, the founder of Amazon, sells off \$1bn-worth of his shares in the company each year to pay for Blue Origin, a space venture. Virgin Galactic plans to go public this year at a valuation of \$1.5bn. As well as capital and ideas, the private sector provides much greater efficiency. According to NASA, developing SpaceX’s Falcon rockets would have cost the agency \$4bn; it cost SpaceX a tenth of that.

Two new commercial models exist or are within reach: the big business of launching and maintaining swarms of communications satellites in low orbits and the niche one of tourism for the rich. The coming year will almost certainly see Virgin and Blue Origin flying passengers on sub-orbital excursions that offer the thrill of weightlessness and a view of the curved edge of Earth against the black sky of space. Virgin claims it might carry almost 1,000 wealthy adventurers a year by 2022. SpaceX is de-

veloping a reusable “Starship” larger and much more capable than its Falcons. Yusaku Maezawa, a Japanese fashion mogul, has made a down-payment for a Starship trip around the Moon; he intends to go with a crew of artists as early as 2023.

Such possibilities could see the annual revenues of the space industry double to \$800bn by 2030, according to UBS, a bank. Still further in the future, space development could remake how humanity lives. Mr Musk hopes to send settlers to Mars. Mr Bezos, the richest man in the world, wants to see millions of people making a living on space stations, perhaps before Armstrong’s footprint marks its centenary.

At a time when Earth faces grim news on climate change, slow growth and fraught politics, space might seem to offer a surprising reason for optimism. But it is neither a panacea nor a bolt-hole. And to realise its promise, a big problem has to be resolved and a dangerous risk avoided. The big problem is developing the rule of law (see International section). The Outer Space Treaty of 1967 declares space to be “the province of all mankind” and forbids claims of sovereignty. That leaves lots of room for interpretation. America says private firms can develop space-based resources; international law is ambiguous.

Who would have the best claim to use the ice at the poles of the Moon for life support? Should Martian settlers be allowed to do what they like to the environment? Who is liable for satellite collisions? Space is already crowded—over 2,000 satellites are in orbit and NASA tracks over 500,000 individual pieces of debris hurtling at velocities of over 27,000km an hour.

Such uncertainties magnify the dangerous risk: the use of force in space. America’s unparalleled ability to project force on Earth depends on its extensive array of satellites. Other nations, knowing this, have built anti-satellite weapons, as America has itself (see Briefing). And military activity in space has no well-tested protocols or rules of engagement.

America, China and India are rapidly increasing their destructive capabilities: blinding military satellites with lasers, jamming their signals to Earth or even blowing them up, causing debris to scatter across the cosmos. They are also turning their armed forces spaceward. Mr Trump plans to set up a Space Force, the first new branch of the armed forces since the air force was created in 1947. On the eve of the annual Bastille Day military parade on July 14th Emmanuel Macron, France’s president, also announced the formation of a new space command.

In Heaven as it is on Earth

It is a mistake to promote space as a romanticised Wild West, an anarchic frontier where humanity can throw off its fetters and rediscover its destiny. For space to fulfil its promise governance is required. At a time when the world cannot agree on rules for the terrestrial trade of steel bars and soybeans that may seem like a big ask. But without it the potential of all that lies beyond Earth will at best wait another 50 years to be fulfilled. At worst space could add to Earth’s problems. ■



Immigration and America

While you were tweeting

Amid the outrage over the president's race-baiting, his administration rewrote asylum law

IT IS A familiar pattern. The president says something outrageous—this time Donald Trump told four black and brown-skinned Democratic congresswomen, all of whom are US citizens and three of whom were born in America, to “go back” where they came from. His supporters, who have come to accept what many of them previously found unconscionable, stay silent. His opponents, rightly appalled, lament what has happened to their country. At the same time the Trump administration makes a big policy change that attracts far less attention—in this case, an edict that directly affects tens of thousands of people a year and overturns half a century of precedent.

Last year 120,000 people claimed asylum, the majority of them at the south-western border. On July 15th the White House announced that claims will no longer be considered unless applicants can prove that they sought asylum in one of the countries they passed through on their way to America, and were rejected. There will be legal challenges to the new rule, because America is party to the 1951 Refugee Convention and because the change may contravene America's own Refugee Act of 1980. But in the meantime anyone who passes through Guatemala or Mexico on the way to the southern border without first seeking refuge there may be turned away.

There is no kind way to enforce immigration law, which by its very existence must squash the dreams of some who wish to migrate (see Americas section). Plenty of asylum-seekers at America's southern border are not fleeing persecution but crime and poverty (see Americas). However, this is the wrong way to go about things, for reasons of principle and also of pragmatism.

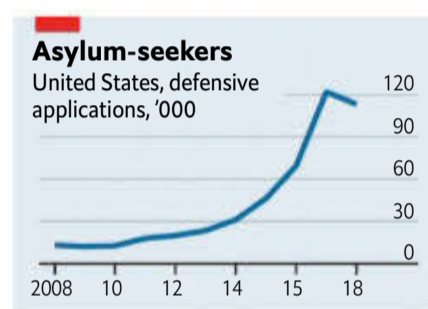
First, principle. The idea that a refugee should be protected, regardless of which countries he might have traipsed through beforehand, is worth defending. It is already dying in Australia and Europe. The European Union outsources much of its asylum policy to Turkey and Libya, for example, or to member states on

its fringes; thousands of people languish in crowded camps in Greece. But for America to abandon this norm sends an even more disturbing signal. The land of the free has a proud history of resettling refugees from far-off places, rehousing many more than any other country.

Second, pragmatism. Mr Trump has already used threats on trade to persuade Mexico to host more asylum applicants on its side of the border while they await news of their claims. Unable to build his oft-promised wall, his administration has tried to deter migrants by other means, including separating children from their parents at the border. Migration numbers are volatile, and tend to decline in the hot summer months, but so far none of these things has cut the numbers enough for Mr Trump. Clamp-

ing down even harder will not alter the incentives to leave El Salvador, Honduras and Guatemala, where most asylum-seekers come from, in search of a better life. It simply makes it more likely that migrants will rely on traffickers rather than the legal system to cross into America.

There is a better way. The first step would be to increase the number of judges, to clear the backlog of immigration cases. There are currently not far off a million cases pending; the waiting time to hear them can be as long as three years. Many asylum-seekers disappear into the grey labour market as they wait for their cases to be adjudicated, joining the ranks of America's 10.5m unlawful migrants; the Department of Justice says almost half do not show up for court hearings. The next step would be to allow the immigration and citizenship service to decide asylum applications at the border. Finally, the federal government could provide more aid to improve conditions in Central America. When Mexico's economy improved and the fertility rate fell, the number of Mexicans migrating north slowed to a trickle. A different president, with a more expansive view of American greatness, would enforce rules and change incentives, not abrogate rights. ■



Business in America

Soaring stockmarket, peaking profits

After years of plenty America Inc is struggling to crank out higher earnings

OVER THE past 25 years America's stockmarket has soared. Far from being built on thin air, this long bull run has rested on a boom in corporate profits. The worldwide earnings of all American firms, whether listed or not, have risen by 455% over this period and are now 35% above their long-term average relative to GDP. America Inc mints \$1bn every five hours.

Globalisation, tepid wage rises, the ascent of tech and feeble competition made the bonanza possible. But as some of these forces ebb, the era of relentlessly expanding profits is under threat. Over the next few weeks America's blue-chip companies will report their latest profit figures, which are expected to drop

slightly (see Business section). Managers and investors need to be alert, especially given the growing number of firms with high debts that rely on bulging profits to stay afloat.

Profits are an essential part of capitalism—they reward savers, incentivise innovators and create surplus funds for investment. America is the home of the bottom line: firms based there account for 33 cents of every dollar made by listed companies worldwide. The level of profitability shifts over time: in the boom after 1945 American firms made hay, whereas they struggled in the mid-1980s. Even so the upswing since the 1990s has been striking. The worldwide post-tax earnings of American ▶▶

► firms rose from 5.9% of GDP in 1994 to close to 10% now (the dip in the 2008-09 recession was short-lived). The trend echoes the prediction of Thomas Piketty, an economist, who argues that the rate of return on capital exceeds the rate of economic growth. This implies that company owners win an inexorably rising share of output as the rest of society is squeezed.

Yet peer closer and the reality is murkier. Domestic profits, and the worldwide profits of American firms, peaked relative to GDP in 2012, and have plateaued since then. President Donald Trump's tax cuts boosted earnings in 2018. But the underlying trend is one of stagnation. The members of the S&P 500 index of big companies are forecast to say that second-quarter earnings-per-share dropped by 3% compared with the prior year, the second consecutive quarter of mild decline. Individual firms' fortunes wax and wane—General Electric's second-quarter profits are expected to drop by 91% from their peak in 2015; Microsoft should book its highest absolute quarterly profits since it was founded in 1975. But there are also deeper forces that are muting the earnings boom.

Globalisation helped make firms more efficient but now pulls down profits. The share of pre-tax earnings made abroad has slipped from 35% a decade ago to 25%. Company conference calls with investors now feature discussions about trade wars. At home the jobs market is tightening, putting more pressure on wage bills, which rose by about 5% last year.

The earnings boom of the past two decades has also been fuelled by the rise of a few exceptionally profitable tech firms, such as Alphabet and Facebook. But their growth rates are slowing and the next generation of tech stars, such as Uber and Netflix, burn up cash rather than print it. On July 17th Netflix's shares tumbled after it announced weak subscriber figures. Lastly, there is some sign that competition is biting at last in cosy industries, such as

telecoms, media and branded foods. After years of waving through mergers, antitrust regulators are taking a tougher line on deals.

During recessions corporate earnings typically fall by a sixth or more. But even if the economy keeps on growing—at 121 months old the expansion is now the longest on record—downward pressure on profit margins is on the cards. That would allow consumers and workers to get a better deal from big business, but presents two risks for investors and executives.

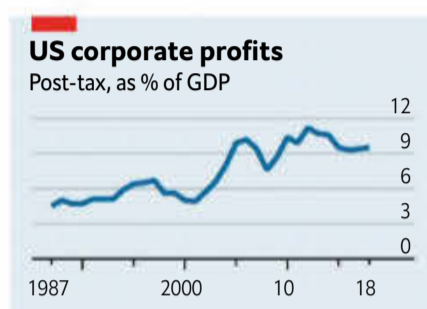
First, equity-fund managers and Wall Street analysts, accustomed to years of high growth, expect a rebound in profits later in the year. They may be disappointed. Second, many firms have

geared up their balance-sheets in the belief that the good times will roll on for ever. Corporate borrowing in America has risen to 74% of GDP, above the peak in 2008; 40% of the stock of debt is owed by highly leveraged firms with debts of over four times their gross operating profits.

Although most managers accept that a mixture of flat profits and high debts is toxic, they never think it will undo them. But already several

giants that were considered reliable profit-machines are struggling. AT&T needs to pay down a colossal pile of \$169bn of net debt even as its profits come under pressure from TV customers jumping ship. Kraft Heinz has to service \$30bn of net debts even as a new generation of consumers abandon Mac & Cheese for healthier products.

In the past, profits have been considered a fickle friend by business people. But after a long boom, rising earnings have become baked into American corporate life. Most investors and creditors assume that profits will go on growing. Almost every company presentation assumes that rising margins are the natural state of affairs. This groupthink is complacent—and possibly dangerous. That's the bottom line. ■



Export controls in Asia

History wars

A trade dispute between Japan and South Korea has echoes of Donald Trump's tactics

TAKE JUST about any trade fight today, and President Donald Trump's America is at the centre of it: with Europe over cars and aeroplanes; with foreign producers of steel; with China over, well, everything. But a brawl now under way in Asia, between Japan and South Korea, has the potential to be as damaging as much of what Mr Trump has stirred up. It is also a sign that his model of abusing economic partners is spreading.

Tensions between Japan and South Korea go back centuries. Japan's colonisation of Korea between 1910 and 1945 is still resented. Japan believes a 1965 agreement resolved claims by South Korea over forced labour. It is incensed that South Korea's supreme court last year ordered Japanese firms to compensate victims (see *Banyan*). Amid a widening rift, Japan took its most serious action on July 4th when it began restricting exports to South Korea of three specialised chemicals used to make semiconductors and smartphones.

The stakes are high. Japan accounts for as much as 90% of global production of these chemicals. It exported nearly \$400m-worth of them to South Korea last year. That may not sound like

much, but their importance is outsized. They are needed to make memory chips, which are essential to all sorts of electronic devices. And South Korean firms are the world's dominant manufacturers of memory chips. If Japan were to choke off exports, the pain would ripple through global tech supply chains.

Japan has also hinted that it might start requiring case-by-case licences for the sale to South Korea of some 850 products with military uses. South Korean firms have called for boycotts of Japanese goods. The two countries, whose trade relationship, worth over \$80bn a year, is larger than that between France and Britain, need to step back from the brink.

Japan's decision to limit exports is economically shortsighted, as it should know since it has itself been on the other side of such controls. When China restricted exports of rare-earth minerals in 2011, Japan responded by investing in its own mines. China's market share dropped. Already, the South Korean government is discussing plans to foster the domestic chemicals production. Japan insists that South Korean companies will, once approved, still be able to buy its chemicals, but the threat of ►



1969

Obsessed with the Moon.





2019

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Volkswagen

Concept vehicle shown. Not available for sale. Specifications may change.

▶ an embargo, once issued, cannot be easily dispelled.

The broader geopolitical context makes Japan's self-harm even more reckless. Regional supply chains are already under assault. South Korean and Japanese companies are scrambling to find alternatives to China as a manufacturing base to avoid American tariffs. Mr Trump has threatened both countries with import duties on their cars.

Ultimately, it is up to South Korea and Japan to repair relations. But America's waning interest in diplomacy does not help. And Mr Trump is normalising the use of trade weapons in political spats. His tactics teach others how to find an excuse for these actions: by citing national security. Japanese media have suggested that South Korea has allowed the shipment of sensitive chemicals to North Korea, a far-fetched claim but one that could feature in a defence of its export restrictions. Under a different

president, America would be doing more to bind together Japan and South Korea, two indispensable allies. Barack Obama pushed the Trans-Pacific Partnership that included Japan, and that South Korea was expected to join eventually. One of Mr Trump's first acts was to ditch that deal.

It is not too late to defuse the situation. The commercial damage has been limited so far. Japan is aware that, notwithstanding America's current tactics, export controls look bad; it is thus susceptible to pressure from other trading partners. The two countries will discuss their disagreement at the World Trade Organisation later this month. This is shaping up to be a test of whether the global trading system can, despite great strains, still soothe tensions—or whether it is being supplanted by a new, meaner order, in which supply chains are weaponised and commerce is purely an extension of politics. ■

Democracy in Malaysia

Time to bury the tools of oppression

The new government should abolish repressive laws while it has the chance

THERE ARE many ways this editorial could fall foul of Malaysian law. If it is too critical of Malaysia's government, or of its courts, or of its system of racial preferences for Malays (the biggest ethnic group), or of its pampered and prickly sultans, it could be deemed seditious. If it contradicts the government's account of any given event or circumstance, it could be in breach of the Anti-Fake News Act, adopted last year. Then there is a series of restrictive laws about who can publish what and who can give offence to whom (it is essential to steer clear of anything that might be construed by a paranoid prosecutor as an insult to Islam, in particular). These rules give the police an excuse to arrest irksome journalists and hand censors the authority to ban and seize offending material. If all else fails, a trio of laws that allow long periods of detention without trial can be used to lock up activists, opposition politicians or anyone else.

Happily, Malaysia is currently run by a coalition that is not inclined to use these sweeping powers. In part, that is because many senior figures from the Pakatan Harapan (PH) government were themselves tormented by the same laws while in opposition. The party in charge until elections last year, the United Malays National Organisation (UMNO), built an elaborately repressive edifice to keep itself in power. In addition to all the restrictions on freedom of speech, UMNO manipulated the electoral system, curbed public protests and prosecuted opponents on trumped-up charges. In the run-up to the vote, PH promised that, if it won, it would repeal or amend the laws that were being used to hobble it. But PH has been in office for over a year now, and the abusive rules remain on the books (see Asia section).

To be fair, when it comes to civil liberties, PH is streets ahead of UMNO. Journalists and opposition politicians regularly take the new government to task, without ending up in prison. It has called a halt to most—but not quite all—prosecutions under the laws it criticised while it was in opposition. It has appointed as attorney-general a man who has spent his career fighting against the manipulation of the law for political purposes. It is in the process of amending one of the laws at issue, to make it easier to

hold public protests. And its failure to do more stems from trouble setting priorities (its manifesto contained 464 different initiatives), as well as opposition from UMNO and its allies which still control the upper house, rather than from any hidden authoritarian impulses.

Yet doing away with the government's critic-cudgelling arsenal should be a much higher priority. Although many senior members of the government have been victims of UMNO's repression, the prime minister, Mahathir Mohamad, himself a defector from UMNO, eagerly and frequently abused the government's authority during a previous stint in power from 1981 until 2003. At one point he had over 100 critics detained without charge, in theory to preserve public order. Dr Mahathir (pictured) does genuinely seem to have turned over a new leaf, but it is only

natural that defenders of civil liberties are not inclined to take his word for it when he promises that the law on sedition, for example, will soon be replaced by something more palatable.

Moreover, restoring political freedoms is not just one item on a long to-do list. It is the reform that underpins all others. The laws in question helped keep UMNO in power for 61 years without interruption, even when it was palpably unpopular. This is a once-in-a-lifetime chance to make politics fairer and more competitive. If PH does not get the economy going, it may wind up in opposition for a few years; if it does not refurbish Malaysia's democracy, it may be out of office for a generation.

Try freedom

More important still, if Malaysians are not confident that they can voice their opinions and debate public policy without repercussion, then PH cannot hope to fulfil their aspirations, because it will not know what they are. Civil liberties are not a hindrance that fair-minded politicians must put up with. They are a tool to help them do their jobs well. UMNO ended up losing power because it did not have an accurate sense of just how unpopular it was. If it had not been so busy silencing its critics, it might have found better ways to answer them. ■



Hong Kong's politics

I must take issue with "China's chance" (June 22nd), which ascribed the recent turmoil in Hong Kong to China's alleged suppression of Hong Kong's freedoms and reluctance to grant the territory universal suffrage in electing its chief. China has gone much further than Britain in democratising Hong Kong. The promise of universal suffrage as the ultimate aim appears in the Basic Law, Hong Kong's mini-constitution, not in the Sino-British joint declaration on the future of Hong Kong. Nor did the British overlords take action to return power to the people until they learned that there would be no hope of extending British rule beyond 1997.

It is naive to suggest that universal suffrage will solve all Hong Kong's problems. Its people, especially the young, are deeply angered by the acute housing and land shortage, the widening wealth gap, worsening living conditions and the narrowing opportunities for upward mobility because of competition from a rising China. Hong Kong, however, is not unique in experiencing deep divisions because of growing disparities.

Universal suffrage to elect the city's leader, with groups fighting on opposing ideological or socioeconomic platforms, would serve only to amplify the existing schisms. Britain's recent political polarisation among Remainers and Leavers is a cautionary tale for those who have romantic illusions about democracy. Our city's priority must lie in tackling deep-rooted social and economic problems with a view to improving the livelihood of our people.

REGINA IP
Member of Hong Kong's
Legislative Council
Hong Kong

In support of free trade

The intellectual origins of your analysis on the benefits of America's and China's growing financial ties ("Counter-flow", July 6th) can be traced back to

Montesquieu. In "The Spirit of the Laws" the French philosopher wrote that because "Two nations that trade with each other become reciprocally dependent...the natural effect of commerce is to lead to peace." The underlying logic of self-interest still offers the greatest hope of an accord between these two countries.

JONATHAN KINCHELOE
Denver

California is still the best

Each week seems to bring an article in the newspapers on how the California Dream no longer exists and why the state is losing its businesses to other places (Special report on California and Texas, June 22nd). Let's look at the facts. California is a \$3trn economy, bigger than Texas and Florida combined. Regarding the "exodus" of people to states like Texas, California's population grew by 18% over the past two decades, more than in any of the world's rich economies. It has added 3.1m jobs since February 2010, and accounts for a quarter of all employment growth in America recently. The state is in good fiscal shape with a \$21.5bn budget surplus, undermining the argument that it is not prepared for an economic downturn.

Yes, California is not the cheapest place to do business, but it is prosperous, which owes much to its appeal as a destination for innovative companies. Some 17% of company properties in the state are research and development facilities, more than in China, Japan and Germany.

It is difficult to agree with the assertion that California's best days are behind it.

MICHAEL DELANEY
Brea, California

It is a mistake to say that in California "non-whites have outnumbered whites since 2000, and in Texas since 2005". These often-cited figures assume that Hispanics are non-white. However, in the 2010 census, 53% of Hispanics identified themselves as white. Liberal states allow people to

determine to which race they belong, in contrast to Nazi Germany and the Old South, which assigned race to people.

Moreover, the implication that Hispanics are a race ("brown") racialises a category of people that actually is made up of ethnic groups (Cuban-American, Mexican-American and so on). Ethnic divisions are more mutable and bridgeable than racial ones. Hence any implication that Hispanics are a race is best avoided.

AMITAI ETZIONI
Institute for Communitarian
Policy Studies
George Washington University
Washington, DC

In your report there was no mention of the rapidly growing Asian-American population in both states. Nor did you touch on the role of religion. California's religious diversity makes it more receptive to science than religiously conservative Texas. Cultural pluralism is as important as tax policy in the two states' effect on America.

ROLAND SPICKERMANN
Odessa, Texas

The description of Texas as "freedom loving" and wishing to keep "out of people's private lives" was too simplistic, given the state's restrictive laws on abortion. In April this year a bill was proposed in the state legislature to extend the death penalty to women who have abortions. It did not pass, but this demonstrates that the love for freedom in Texas does not really extend to women.

MATT STOKELD
Melbourne, Australia

London after Brexit

Your analysis of whether London's financial services can survive Brexit did not give sufficient weight to the cluster effect ("City under siege", June 29th). The City is an extraordinary interconnected web of centres of excellence, a unique multidisciplinary cluster-of-clusters which has no rival. In our technological age, this connectivity is how businesses stay current and grow. In the markets that are likely to see

the most growth over coming years (fintech, green finance and the yuan's internationalisation), London has a significant lead over its competitors. Other expanding areas, such as Islamic finance, also benefit from the London cluster of legal, accounting and other professional expertise and London's expert regulatory environment. These areas of innovation do not depend upon deals with the EU for future growth. Their scale is global, not regional.

The City will continue to thrive, deal or no-deal.

ALASTAIR KING
Chairman
Naisbitt King
London

If there were a referendum to vote out bankers in London I'd support it, but there isn't. Luckily I was given a once-in-a-generation opportunity three years ago to change things so, along with 52% of the population, I took it. Will voting for Brexit change the way bankers behave, or the housing crisis, created by financial speculation? Who knows, but one thing is certain; voting for the status quo certainly won't.

JOHN HARRIS
London

A Monty Python sketch

I know just the man to lead Wells Fargo ("The hottest seat in banking", June 22nd). A Mr Herbert Anchovy (aka Michael Palin) was looking to leave his job as an accountant for a more exciting career as a lion tamer. His counsellor (John Cleese) suggested he make that transition by taking an intermediate role as a banker. I imagine that, after a few visits to Congress, lions will seem the more friendly to whoever becomes Wells Fargo's new boss.

PETER GALLIGAN
New York

Letters are welcome and should be addressed to the Editor at The Economist, The Adelphi Building, 1-11 John Adam Street, London WC2N 6HT
Email: letters@economist.com
More letters are available at:
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DIRECTOR – MACRO-ECONOMIC STATISTICS

Eurostat, Luxembourg

COM/2019/10389

Eurostat is a key Directorate-General of the European Commission, providing the European institutions, Member States, financial markets, business community, media and general public with a high quality statistical information service. With a staff of around 120 people and an annual budget of €16 million, Directorate C, Macro-Economic Statistics, focuses on national accounts, including methodology, indicators, production, price statistics; purchasing power parities as well as housing statistics. You will lead the activities of the Directorate and manage its human and financial resources.

Your responsibilities:

- To lead the compilation, approval and dissemination of national account statistics and data;
- To represent the Directorate in key relationships within the Commission and with external stakeholders including other EU institutions, national central banks and international bodies;
- To manage both human and financial resources.

Your skills:

- Very good knowledge of EU economic, budget and trade policies, including the monitoring of macro-economic imbalances, coupled with a thorough understanding of European statistics;
- Proven ability to lead an administrative body with a large multinational and multi-sectoral team;
- Excellent analytical, interpersonal and negotiating skills and a results-driven approach to problem-solving.

The European Commission applies an active equal opportunities policy aimed at further increasing the share of women in management functions and it particularly encourages applications from women.

Please consult the Official Journal C 225 A of 5 July 2019 for the detailed vacancy notice as well as the eligibility and selection criteria.

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

The closing date for registration is **5 September 2019, 12 noon Brussels time.**



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Chief of Staff

Geneva, Switzerland

Gavi is a public-private partnership committed to save lives and protect people's health by increasing equitable and sustainable use of vaccines in lower-income countries. The Vaccine Alliance brings together developing country and donor governments, the World Health Organization, UNICEF, the World Bank, the vaccine industry, technical agencies, civil society, the Bill & Melinda Gates Foundation and other private sector partners. Since 2000, Gavi has contributed to the immunisation of nearly 700 million children and the prevention of more than 10 million future deaths.

The Chief of Staff to the Chief Executive of Gavi is a critical and fascinating role. This is an opportunity to work at the heart of the world's most innovative funder of vaccination and immunization, as it implements an exciting new strategy. The Chief of Staff provides strategic support to Seth Berkley, the CEO. S/he ensures seamless coordination within the Executive Office of Gavi, and between it and the wider senior team. The Chief of Staff also oversees Gavi's risk function and leadership engagement with external stakeholders.

Candidates will bring acute intellect and analytical capability, excellent communication skills, and a naturally collaborative working style. They will personify the combination of urgency and accuracy which is the hallmark of Gavi. A familiarity with the global development landscape will be helpful, and global public health experience an advantage.

Gavi is committed to diversity within its workforce and encourages applications from all qualified candidates.

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

The closing date for applications is Sunday 11 August 2019.




El Banco Centroamericano de Integración Económica (BCIE) invita a participar en el concurso para seleccionar a su:

VICEPRESIDENTE EJECUTIVO

El Vicepresidente Ejecutivo, bajo la dirección del Presidente Ejecutivo y del Directorio, apoyará a conducir la Administración del Banco mediante el seguimiento de las resoluciones y de los acuerdos de la Asamblea de Gobernadores y del Directorio, así como las demás disposiciones que regulan la actividad del Banco, a fin de cumplir y hacer cumplir el Convenio Constitutivo, los reglamentos, los acuerdos y las decisiones de la Asamblea de Gobernadores y del Directorio. Durará en sus funciones cinco (5) años, pudiendo ser reelecto por una sola vez.

Los requisitos para optar al cargo de Vicepresidente Ejecutivo, así como el perfil completo de este cargo, que incluye un detalle de sus funciones y atribuciones, puede ser consultado en la página Web del Banco www.bcie.org, bajo la sección Concurso para la Selección del Vicepresidente Ejecutivo.

El idioma oficial del BCIE es el español.

Candidatos interesados deben enviar hoja de vida al correo: concursovicepresidente@externo.bcie.org. No se considerarán hojas de vida remitidas por otros medios.

La información, así como el análisis y evaluación curricular de los candidatos será manejado por una firma de reconocido prestigio internacional.

Solo los candidatos con el mejor ajuste al perfil serán contactados por la firma encargada del proceso de selección.

Fecha y Hora de Cierre de Recepción de Aplicaciones: 19 de Agosto de 2019 a las 23:59 horas. (hora de la República de Honduras)

www.bcie.org

"El BCIE anima decididamente a aplicar a candidatos de ambos géneros y de todas las nacionalidades elegibles que reúnan los requisitos expuestos"

Jane Leighton
REPORTER CREATIVE INDUSTRIES
FORMER MATHS TEACHER

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NOWTEACH

Chief Executive

Ofcom
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The UK's communications industries are among the fastest growing, most rapidly changing and most important in our economy. Consumers, citizens and businesses rely on communications services every day, from the internet and mobile phones to television, radio and post.

As the communications regulator, Ofcom delivers vital work to shape the communications services of today and tomorrow – from helping the UK be a world leader in 5G mobile, to encouraging investment in ultrafast broadband, and maintaining content standards in the digital age. It works increasingly in the online space too, regulating on-demand video, raising awareness of online harms and ensuring networks are resilient to cyber-threats.

The Ofcom Board now seeks an exceptional leader with considerable skill, experience and strong social purpose to deliver its mission – ensuring people and businesses across the UK have access to high quality, affordable communications services.

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

The closing date for applications is
11 August 2019.

R Russell
Reynolds
ASSOCIATES



College of Europe
Collège d'Europe



College of Europe – Rector

The College of Europe invites applications for the position of Rector. He or she will succeed the present Rector, Professor Jörg Monar, whose second mandate will end in August 2020.

The College of Europe is a postgraduate institute of European studies founded in 1949 in the wake of the first Congress of the European Movement held in The Hague in 1948. The College benefits from the support of the European Union, the Belgian federal government, the Polish government, the Flemish authorities, the City of Bruges and from many European countries and regions, as well as from a number of private sector partners. Its truly European and international character is reflected in its faculty, student body and administrative organs. The College consists of two campuses, one in Bruges (Belgium), the other in Natolin (Warsaw-Poland). Further information on the College of Europe and its legal status can be found at www.coleurope.eu.

The Rector holds the overall academic and administrative responsibility for the College as a whole and is assisted by a Vice-Rector who assures the daily administrative management of the Natolin (Warsaw) campus. He or she is committed to further the objectives and traditions of the College, as outlined in the statutes. He or she reports directly to the President of the Administrative Council, currently Mr Íñigo Méndez de Vigo, as from November 2019 Mr Herman Van Rompuy.

Candidates must have the nationality of a European country and should demonstrate substantial academic qualities in the field of European studies, a proven experience of the administration and management of an academic structure of some complexity, and should be able to combine the pursuit of academic

excellence at international level with sound budgetary management.

The rectorship is a full-time position, which excludes the pursuit of any other professional activity or academic affiliation. It requires permanent residence in Bruges and a regular presence in Natolin. Full knowledge of the two working languages of the College, English and French, is required.

The appointment is for five years, renewable once, starting on the 1st September 2020. The employment contract falls under Belgian law.

Accommodation is provided both in Bruges and Natolin.

Before taking up his or her appointment, the new Rector is expected to be available to liaise with the current Rector in order to become familiar with College matters.

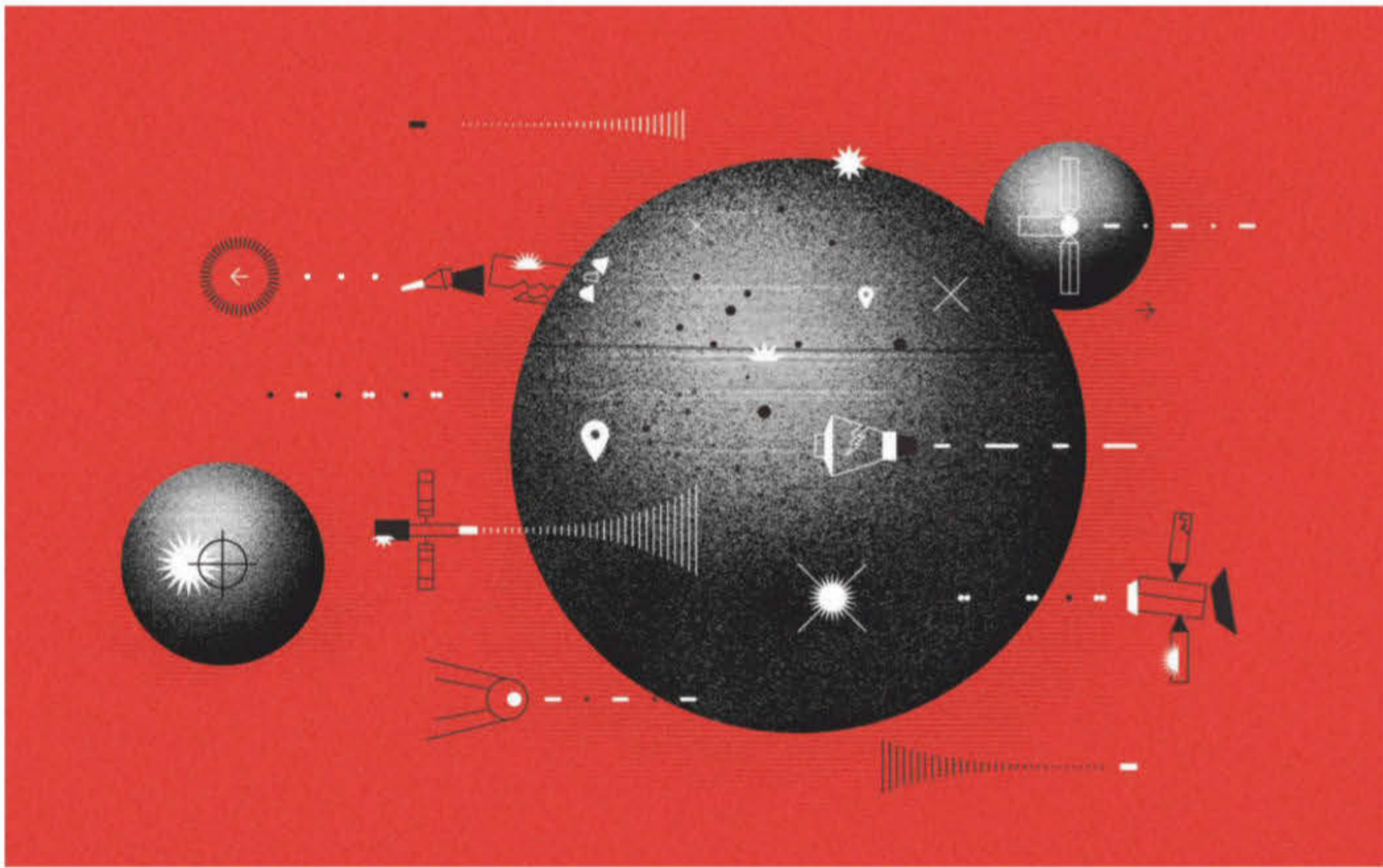
Applications for the position should be made by e-mail to :

Mr Íñigo Méndez de Vigo
President of the Administrative Council
c/o Ms Ann Verlinde
ann.verlinde@coleurope.eu

by *Monday 30th September 2019*. A detailed curriculum vitae, a letter of motivation and the names of two referees should be included.

Interviews of the shortlisted candidates are scheduled to take place on 27th November 2019.

Information about the governance and the status of the College can be obtained from Mrs Ewa Ośniecka-Tamecka (ewa.osniecka@coleurope.eu), Vice-Rector. Further particulars about employment and accommodation conditions can be obtained from Mr Jan De Mondt (jan.de_mondt@coleurope.eu), Director of Administration and Finance or Mrs Angela O'Neill (angela.oneill@coleurope.eu), Director of Communications.



Using the force

COLORADO SPRINGS, VANDENBERG AIR FORCE BASE AND WASHINGTON, DC

Attacking satellites is increasingly attractive. It could also be very dangerous

DEEP WITHIN Vandenberg Air Force Base, a rugged 50km stretch of America's Pacific coast which is home to rolling fogs, sporadic wildfires, the odd mountain lion and the 30th Space Wing of the US Air Force, sits the Combined Space Operations Centre (cspoc), a windowless area the size of a couple of tennis courts that could be mistaken for an unusually tidy newsroom. The men and women in it, mostly Air Force but some from allied countries, guard the highest of high grounds: space.

In one corner sits the 18th Space Control Squadron, tasked with "space situational awareness". Using a worldwide network of radars, telescopes and satellites (see map on next page), it tracks the 2,000 satellites, American and otherwise, that are currently at work in orbit, and a larger number that are defunct, derelict and partially destroyed. All told it tracks some 23,000 objects down to the size of a softball moving at enormous speed and predicts when they will come close to something valuable. In

2013 cspoc sent satellite operators 1m "conjunction data messages"—warnings that something else was going to pass nearby. In each case, the risk of an actual collision is minute; only very occasionally will the orbit of something valuable be tweaked to keep things completely safe. But as time goes on, space fills up. Last year cspoc sent out 4m messages. Photographs of the three astronauts aboard the International Space Station hang on the wall, as a reminder of the human stakes.

Cosmic fender-benders, though, are not cspoc's only interests. This is, as a sign on another wall declares, the place "where space superiority begins". Those standing watch look not only for accidental collisions, but also for threatening manoeuvres. "I came into the Air Force 27 years ago as a satellite operator," says Colonel Jean Eisenhut, who leads the development and deployment of defensive and offensive space systems for Air Force Space Command. "If there was a problem with our sys-

tem or our satellites, we would think something on the satellite broke, that space weather was probably the actor that caused it. We did not think at all that something might be caused by some other actor in space." Today, "the mindset that we are inculcating into our space warfighters is dramatically different."

The people in the converted Titan rocket facility that houses cspoc are not the only ones concerned with such matters. China and Russia established new units for managing war in space four years ago. On July 13th President Emmanuel Macron said that he too had approved the creation of a new space command within the French air force. In 2007 China tested an anti-satellite missile; earlier this year India did the same. "Space is no longer a sanctuary," Patrick Shanahan, then America's acting secretary of defence, told a space-industry audience in Colorado Springs in April. "It is now a warfighting domain."

The idea of war in space is hardly new. As soon as German V-2 rockets started travelling through space on the way to Belgium and Britain in 1944, military minds turned to what could be done with weapons that tarried there. To date, though, most military operations in orbit have not been geared to war in space; they use tools in space to help them fight wars on Earth.

Satellites enable modern war in three ways. One is to spot things below, in order ►►

▶ to answer strategic questions. What forces does the enemy possess? And tactical ones. Twelve missiles just launched! Spy satellites also eavesdrop on communications and radar emissions.

The second is to tell troops, and bombs, exactly where they are. This is where America's 24-satellite Global Positioning System (GPS) and some of its lesser competitors—China's BeiDou, Europe's Galileo, India's NAVIC, Japan's QVSS and Russia's GLO-NASS—come in. From a rarity 30 years ago, precision-guided bombs have become, for America, the norm.

The third role is to get information into and out of desolate warzones. Getting data from a single Global Hawk drone like the one shot down by Iran on June 20th requires at least 500 megabits a second of satellite bandwidth—five times the rate at which all America's armed forces used satellite communications during the 1991 Gulf war. The Pentagon's bandwidth consumption rises by around a third every year.

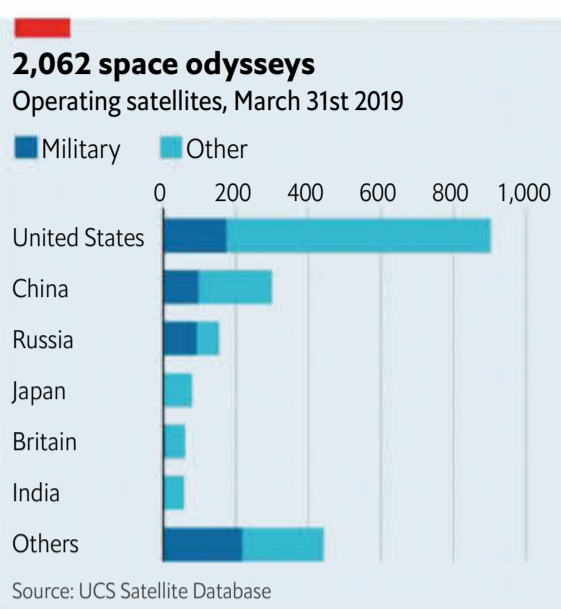
America outspends the rest of the world on military space capabilities by a ratio of three to one. This makes its satellites attractive targets. Knocking some of them out is the surest way to blind, deafen and disorient America's armed forces when they are far from home.

Blunderbuss, shiv or photon torpedo

Perhaps the simplest way to attack a satellite is to hit it with a missile from Earth. This is what China did in 2007, taking out one of its own weather satellites, and what India did this March. Such attacks are easier to do when the target is in a low orbit. But China has tested missiles apparently capable of getting all the way to geostationary orbit—the altitude where satellites take 24 hours to get round the Earth, and thus seem to stay above the same place all the time. These orbits are popular with satellite broadcasters. They are also vital for early-warning systems, since they allow an eye to be kept on a whole continent in the search for missile launches.

One problem with this approach is shrapnel. Just as nukes produce fallout, anti-satellite weapons which explode, or simply hit their target at orbital speed, produce large amounts of debris. An anti-satellite campaign waged with Earth-launched interceptors could leave huge swathes of space unusable for generations. Deniability is another problem. A country with satellites will probably be able to spot a satellite-killing missile's launch site.

An alternative is to pit satellite against satellite. Recent years have seen a surge of interest in "rendezvous and proximity operations"—getting one satellite close to another. Such operations are necessary if satellites are to be repaired or refuelled. But the delicate orbital shimmies and robotic arms that allow one satellite to help another



er could also be used without consent or goodwill. It might also offer ways to kill them with the equivalent of a shiv, rather than a blunderbuss, thus limiting the debris problem.

America, Russia and China all have satellites that carry out manoeuvres close to other people's spacecraft. America's GSSAP satellites have conducted hundreds of manoeuvres in geostationary orbit since 2014, many close to Russian and Chinese satellites. The Secure World Foundation (SWF), an American think-tank, says that some of these encounters have been timed to occur in the Earth's shadow to prevent telescopes on the ground from getting a good look at what was going on.

This is probably simply snooping, rather than rehearsal for skulduggery. Brian Weeden, a former American Air Force space officer now at SWF, says he is not convinced that satellite-on-satellite violence is a good basis for a weapons programme. Targets in low orbits would have hours of warning; those in higher orbits, days. And unless satellites get stealthier, it would probably be possible to tell whose hand was behind any dirty deed. But the fact that a neat idea may also be a bad one does not always stop military planners. Recent stud-

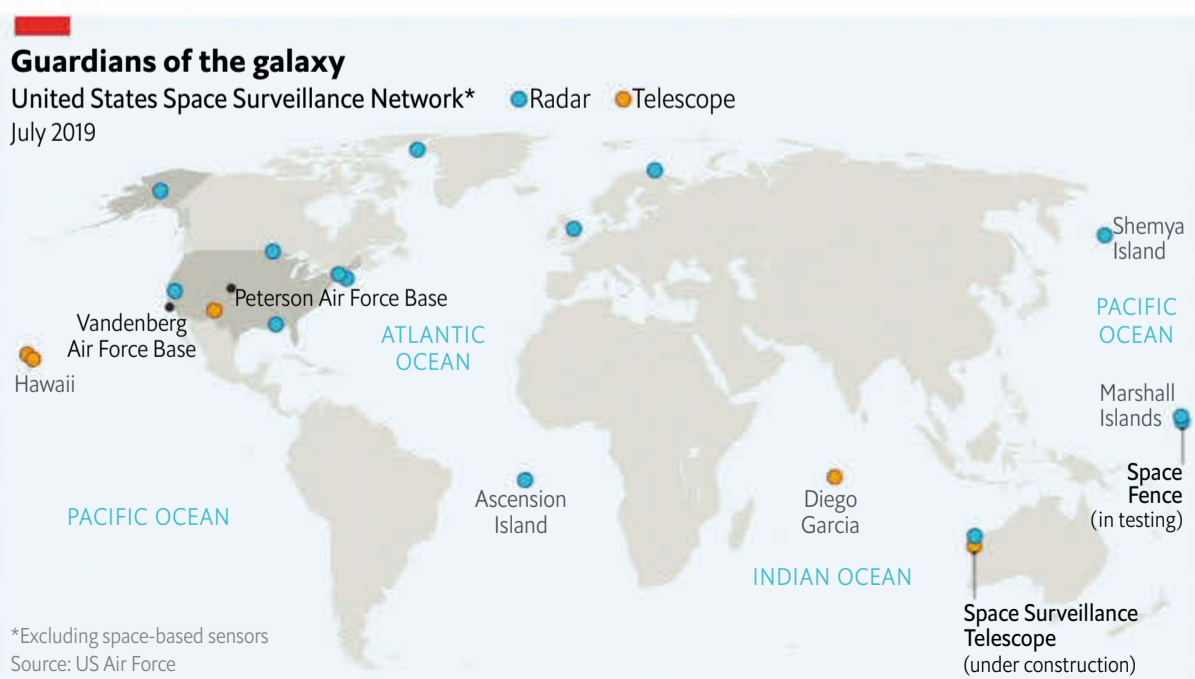
ies by SWF and the Centre for Strategic and International Studies, another think-tank, suggest that some of Russia's proximity operations are connected to an orbital-weapons programme code-named Burevestnik.

Regardless of whether administered from another satellite or from Earth, violence in space does not need to be a matter of physical force. Spy satellites can be blinded with lasers. If the lasers are powerful enough, they can do damage to the rest of the spacecraft, too, as might microwave beams. Signals can also be jammed. In June Israeli pilots lost GPS signals around Ben-Gurion airport for three weeks. Last November NATO forces on exercises lost their GPS signals in northern Norway and Finland. Both incidents were almost certainly a result of Russian electronic warfare.

Satellites are also vulnerable to hacking. Many commercial satellites are "riddled with security vulnerabilities", says Gregory Falco, an expert at MIT. In 1998 Russian hackers reportedly took control of an American-German satellite and pointed it at the Sun, thus destroying its instruments.

One way to respond to all this is deterrence: you destroy my satellite, I destroy yours. But at present no one knows what a given sally would earn by way of riposte, which makes deterrence disturbingly destabilising. Is hitting a satellite like bumping into a frigate, or bumping off a city?

A better option is to avoid taking blows in the first place. But this raises problems of its own. Colonel Devin Pepper, commander of the 460th Space Wing at Buckley Air Force Base in Denver, says that the necessary tactics and techniques remain a work in progress. "What does the right of self-defence look like in space?" he asks. "What do chaff and flares look like in space?" Matthew Donovan, the acting secretary of the Air Force, draws a comparison to the position air-power advocates found themselves in after the first world war. They hankered for new tactics to match their new capabilities; they wanted a dedi- ▶▶



► cated service free of the Army and Navy to foster such innovations. Similar arguments are sometimes used by proponents of creating a new Space Force inside the Pentagon, as President Donald Trump has suggested.

If actual space combat were called for, it would be handled by the 265-strong National Space Defence Centre at Schriever Air Force Base, in nearby Colorado Springs. Having begun round-the-clock operations a year and half ago, its operators are sharpening their skills in novel ways. Instead of relying on simulators, its airmen treat friendly satellite manoeuvres as hostile and practice responses. Thrice-yearly “Space Flag” exercises, begun in 2017, will include allies for the first time in August.

To make such exercises—and, if need be, eventual operations—run better, situational awareness needs to be improved. The airmen at CSPOC currently have to make do with something more like a series of snapshots than a live feed. Low orbits may be mapped out a few times every day. Higher up, maybe just once in three days. “Things can happen between those looks,” says Major-General Stephen Whiting, who commands most of the Air Force’s space units. Space Fence, an especially powerful radar on Kwajalein Atoll in the Marshall Islands, will help to keep an eye out. It should be able to track more than 60,000 objects down to the size of a marble once it enters service later this year.

Learning to fight is one thing. Limiting your losses is another. For some purposes America uses small numbers of eye-wateringly expensive satellites that take over a decade to develop. Mr Donovan points to the importance of designing resilient systems instead. “It’s really efficient to put one giant satellite in space. The problem is that it’s the equivalent of putting all your eggs in one basket.” At Buckley Air Force Base, Colonel Bobby Hutt points to the ceiling, where a scale model of one of the SBIRS satellites is hanging. The chronically delayed project cost \$19bn. “The Chinese love our acquisitions cycle,” he says.

Like the private sector, the Air Force is moving towards “mega-constellations” of smaller, cheaper and more numerous satellites in low orbits that can ping information securely to one another. To degrade such a system’s performance an enemy would have to knock out a significant part of the whole fleet, rather than just one target. The Blackjack programme, which is run by the Pentagon’s far-out research shop, DARPA, envisages putting military sensors onto commercial satellites that cost less than \$6m each.

As well as resilience, there is replacement. Losing a satellite is a lot less worrying if you can quickly pop a substitute up into orbit. The development of a more capable and responsive commercial-launch

industry has already improved matters. But the Pentagon wants to push things further. Next year three companies will participate in a DARPA competition to launch two small satellites into orbit from two locations with a few weeks. The site will be revealed just weeks ahead of launch, and the payload itself within days.

Better response, more resilience and faster resupply are all good ways for America to make itself less vulnerable to anti-satellite attacks—and thus to make such attacks less appealing to adversaries. There are also multilateral approaches to consider. At the moment, there are neither laws nor norms specific to space warfare. The 1967 Outer Space Treaty bans weapons of mass destruction in outer space but is silent on conventional arms. And if two satellites get menacingly close there are no agreed appropriate responses

The fine art of nerf herding

In 2008 the European Union proposed a voluntary code of conduct to promote “responsible behaviour” in such matters. The same year, China and Russia suggested a binding treaty to ban weapons in space. The two ideas were to some extent in opposition to each other; they both foundered.

The treaty was aimed not so much at anti-satellite weapons as at anti-missile weapons based in space—weapons which could be used to destroy ICBMs when they popped out of the atmosphere. America has an interest in such things dating back to the Star Wars programme of the 1980s. It was silent on weapons launched from Earth—such as the one the Chinese had tested the year before. It also failed to establish how states would tell good spacecraft from bad, says Bleddyn Bowen of the University of Leicester. America was having none of it.

Opposition to the code, though egged

on by Russia and China, came mostly from countries in Latin America and Africa. They liked the idea of a demilitarised space that the treaty sought to champion. They disliked the code’s acknowledgment that countries with assets in space had a right to use force to defend them.

Both technology and politics mean that there is unlikely to be much progress in the near future. The line between conventional and space weapons is blurred: when America struck its own satellite in 2008, it used an SM-3 interceptor developed for use against incoming missiles. India’s anti-satellite test was also, it said, a missile-interceptor test. Then there is the issue of trust. America and Russia are busy trashing earthly arms-control deals; they are unlikely to find common ground for a new one. Nor does America show much willingness to try. “We’re basically saying no to everything, and we don’t have a better alternative,” Mr Weeden complains.

But even if there can be no deals, there should at least be dialogue. During the cold war, America and the Soviet Union appreciated that risk reduction and escalation control required a sound understanding of the other side’s nuclear thinking. Yet America and China do not appear to have held talks on space security for three years. Just as the two sides have agreements on encounters between warships at sea, they could flesh out norms for safe distances for proximity operations. That could include requirements to use transponders on all civilian satellites and to provide prior notice of any planned inspections. Many military space operators would be keen on this. If more civilian satellites broadcast their location and behaved predictably, suspicious behaviour would be easier to pick out.

Finally, the fact that there is no law of space war does not mean that the customary laws of war do not apply in space. They apply there as surely as they do on the high seas. How they do so—how to balance humanity and military necessity in a domain without humans—is unclear. But such challenges have been met before. The Tallinn Manual did a comparable job for cyberspace in 2013. The Woomera Manual, spearheaded by four universities in Australia, America and Britain, and the MILAMOS project, led by one in Canada, hope to do the same for space.

The act that established NASA in 1958 declared loftily that “it is the policy of the United States that activities in space should be devoted to peaceful purposes for the benefit of all mankind.” Even then, that was a half-truth. But space has since become a sinew of terrestrial military power in ways that were unimaginable even when Apollo 11 touched down in 1969. The point is not that the next war will be fought in space, as though it is a battlefield unto itself; it is that the next war may not spare it. ■





Paid family leave

Looking after baby

DALLAS AND SAN FRANCISCO

Paid parental leave is gaining more bipartisan political support, although there is no agreement on how to fund it

THE PRESIDENT'S Commission on the Status of Women was unequivocal in its recommendation: "Paid maternity leave or comparable insurance benefits should be provided for women workers." That conclusion was reached in 1963, when John Kennedy was president, but America still has no federal policy in place to guarantee working mothers or fathers paid time off to care for their new babies. It is one of only two countries in the world, along with Papua New Guinea, that have no statutory national policy of paid maternity leave. The average member of the OECD, a club of mostly rich countries, offers new mothers 18 weeks of paid leave.

For decades paid leave was "dismissed as anti-business and marginalised as a woman's issue," says Ellen Bravo, who runs Family Values at Work, an NGO. That is changing. The 2016 race was the first time both presidential candidates publicly lent support to paid parental leave and the issue is likely to feature in 2020. The president's most recent budget included a proposal for

six weeks of paid parental leave, but provided no details on funding. Several bills have been introduced in Congress, including one co-sponsored by Kirsten Gillibrand, a Democratic senator who is running for president, which would provide paid leave for new parents and caregivers for sick family members, and another co-sponsored by Marco Rubio, a Republican senator, which focuses exclusively on new parents. Neither bill has passed, but a national policy will pass both the House and Senate in the next three to five years, Ms Bravo predicts.

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In the meantime, states are taking action. Connecticut and Oregon recently became the seventh and eighth states to guarantee paid family leave, and a handful of others, including Colorado, Minnesota, and Vermont, are expected to take up the issue next year. California recently extended its maximum paid family leave benefits from six to eight weeks, and its governor, Gavin Newsom, has floated the idea of extending parental leave to six months to promote parental bonding with new children and to help families save on child-care costs. "It's the next gay marriage," says Jason Sabo of Frontera Strategy, a lobbying firm in Texas, who predicts that paid leave will quickly evolve from being perceived as a fringe issue to gaining mainstream support and broader acceptance by society.

There are several reasons why paid leave is attracting more interest from lawmakers. First, it is a popular issue with people of all political persuasions, especially younger voters and women, who think new parents should certainly have time off to bond with their babies. Conservatives concerned about the health of families have fastened on to it. Men who want to be more involved in their children's lives have pushed employers to offer paternity leave.

Second, it has become more apparent that existing policies do not reach enough American workers. The Family Medical Leave Act (FMLA) of 1993, signed into law by Bill Clinton, provides unpaid leave for a ▶▶

▶ limited set of tasks, including caring for a new baby. However only 60% of private-sector workers are eligible for the FMLA because of strict requirements about firm size and hours previously worked. Nearly half struggle to afford taking unpaid time off even if they qualify for it.

Whereas small businesses are generally loth to offer paid leave, larger companies have started to do so voluntarily, especially large ones that can afford to foot the bill, such as Deloitte, Nike, Lowe's, Walmart, and many of Silicon Valley's technology firms. But only 16% of private-sector employees nationally have access to paid family leave through their firms, and that access is unequal. It is available to only 6% of people working in the lowest quartile of paid jobs, compared with 25% of those in the highest quartile.

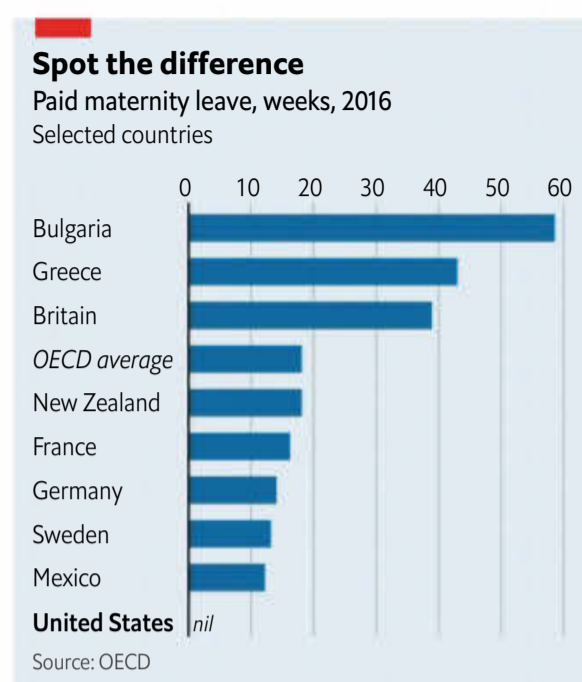
Third, there is mounting evidence from states that have already extended their own paid-leave policies that the policies do not place a big burden on companies and governments relative to their benefits. Research from California, which was the first state to pass a paid family-leave policy, in 2002, shows that most firms found the impact either neutral or positive. Allowing employees to take paid time off increases the chances that they will stay, which is especially valuable in such a competitive job market. Offering paid leave also reduces the likelihood of workers going into debt and drawing on public assistance.

There is also greater understanding of the health benefits of paid leave for babies and parents. Fewer babies are admitted to hospital, and both breast-feeding and vaccination rates increase. Mothers who take some time off are also less likely to suffer from depression.

How far to go?

But while there is growing support for offering paid leave, strong disagreements persist, even among advocates of a federal policy. One concerns whether to extend leave beyond new parents to those who need to care for a sick loved one. Parental leave accounts for only about 20% of the 20m absences taken each year under the FMLA. Caring for a close family member or attending to one's own poor health account for 73% of cases. All states that have passed paid-leave laws have adopted a wider definition of the family than the FMLA does and some states, such as Oregon, go especially far in extending leave not just to family members but to close friends and other chosen family, says Vicki Shabo of New America, a progressive think-tank.

Republicans such as Mr Rubio back paid parental leave more strongly than paid leave more broadly defined. "The key concern folks have is that it's much harder to verify. People worry there's more scope for cheating the system," explains Maya Ros-



sin-Slater of Stanford University, though she doubts that there is much cheating in states with paid leave.

The biggest obstacle, though, is working out how to fund paid leave. The states that have embraced their own policies have funded them through payroll taxes on employees, employers or some split between the two, with rates ranging from less than 0.1% of worker wages in New Jersey up to 1.1% in Rhode Island. The rates are small enough to have avoided a backlash from employers and workers, says Ms Shabo of New America. The bill that Ms Gillibrand has introduced in the Senate, called the Family and Medical Insurance Leave Act, would also be funded by a new payroll tax, with employers and employees each contributing 0.2% of wages. Voters, who are broadly keen on paid leave, may be less so if it comes at a high cost to them. Around three-quarters of Americans support a federal paid-leave programme when costs are not mentioned, but around 52% say they would oppose it if it cost them \$450 a year in higher taxes, according to a survey for the Cato Institute, a libertarian think-tank.

Another way to finance paid leave, endorsed by Mr Rubio, would be for new parents to withdraw money from Social Security early and to delay retirement, but that is controversial. This route would disproportionately hurt women, who take leave more often and would thus be forced to work longer before retirement. It would also drain the Social Security benefits of low-wage-earners, who most need retirement benefits later on.

This puts advocates for a national paid-leave policy in a bind. Is it better to accept an imperfect solution that guarantees progress on paid leave, or hold out in the hope of a more comprehensive, inclusive and generous policy later on? Advocates would be wise to keep momentum going. With a strong economy and bipartisan interest, the moment is right for action. Better 56 years late than never. ■

Parental leave (2)

The Daddy trap

SAN FRANCISCO

Fathers face higher penalties for taking parental leave than mothers do

AN OVERWHELMING number of studies show that working mothers face a motherhood penalty—resulting in lower earnings and poorer evaluations from superiors—while men receive a fatherhood bonus. Stories abound of women struggling to balance motherhood and a career, while stories of men failing to balance children and a career are largely absent. A new study helps to explain why. According to research by Kate Weisshaar of the University of North Carolina at Chapel Hill, opting out of work to care for children has negative consequences for both parents, but it is considerably worse for fathers who choose to stay at home in competitive job markets.

To analyse this effect Ms Weisshaar distributed thousands of fictitious cover letters and cvs to real job postings in 50 American cities for five different types of job. These fictional jobseekers were all parents with similar credentials. They differed only in their work history and in their gender. While some said they had jobs in the cover letter, others said they were unemployed as a result of lay-offs. The third group declared that they had been stay-at-home parents.

The study found that parents who had opted out of work to care for children were least likely to receive a call back for an interview. Whereas 15% of employed parents and 9-10% of unemployed fathers and mothers received interviews, only 5% of parents who had taken time out of the workforce to care for children were called back. The depressed responses were not simply a result of unemployment. Parents who opted out of work were about half as likely to get an interview as parents who were unemployed because of lay-offs.

According to Ms Weisshaar's study, Americans see opting out to care for children as a sign of lower commitment to work and even flakiness. Employers are least likely to hire fathers who are caring for children when the job market is competitive. In less competitive markets, 7% of these fictitious stay-at-home dads got interviews. In more competitive ones, fathers received only one-third as many callbacks. By comparison, 5% of mothers received callbacks, and the rate was not affected by how competitive the market was.

Whereas mothers who take time off to rear offspring face difficulties when returning to work, opt-out fathers may fare worse, says Scott Behson, author of a book ▶▶

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▶ called “The Working Dad’s Survival Guide: How to Succeed at Work and at Home”. America has a workaholic culture, he says. Mothers who put their families first eschew that culture, resulting in costs to their careers. But fathers who do so are violating both the workaholic culture and traditional gender norms.

According to the Pew Research Centre, women are the sole or primary breadwinners in 40% of American households, and 15% of mothers with children younger than 18 earn more than their husbands. In heterosexual unions, families often decide

that a father should stay at home because he has been laid off from work or the mother has a higher-earning career, says Brad Harrington of the Boston College Centre for Work and Family. In 2016, 6% of fathers were stay-at-home. That number is likely to grow as women achieve higher levels of education than men, and American jobs shift away from male-dominated professions to female-dominated ones. Unless norms about who should be responsible for what change, the opt-out penalty will become a bigger problem as more fathers make the choice to stay at home. ■

Monetary policy

Storytime with the Fed

ABERDEEN, NORTH DAKOTA

The Federal Reserve is changing whom it listens to

HEAVEN HELP anyone who complains of a labour shortage to Neel Kashkari, president of the Federal Reserve Bank of Minneapolis. “We just don’t have enough people to build,” said the head of an affordable housing organisation in Aberdeen, South Dakota, on July 11th. A local wind-turbine maker grumbled about his struggles to expand his headcount. Mr Kashkari showed little sympathy: “If you pay more they will come,” he says.

Mr Kashkari has been sceptical of such pleading for years, convinced that the labour market could be hotter. His doubts appear to have spread. When testifying to Congress on July 10th Jerome Powell, the Fed’s chairman, said that “while we hear lots of reports of companies having a hard time finding qualified labour, nonetheless we don’t see wages really responding.”

It may seem strange that anecdotes would matter to monetary policymakers, given the swathes of statistics at their disposal. But the Fed devotes a non-trivial amount of energy to gathering them. Eight times a year they are compiled in a publication known as the Beige Book, based on interviews with business folk and “community contacts” across America.

Since 1983 the Beige Book has been released two weeks before each meeting of the Federal Open Market Committee (FOMC). The gap, according to the Minneapolis Fed, was supposed to send the message that the information was not timely, and therefore “did not have a major influence on policy.” Still, financial analysts pour over every new edition. Anecdotes from the Beige Book pepper the minutes of each FOMC meeting. And although weathered economists will say that data and models determine policy, the stories are

supposed to serve as reality checks.

For years the Beige Book has revealed that workers are neither as abundant, nor as cheap, as employers would like. When complaints of shortages started popping up in it in 2011, they were laughable. (The unemployment rate was then above 8%.) But they became more plausible as unemployment fell. And when theory and data pointed to fears that a burst of inflation was round the corner, gripes from business owners reinforced the view that a rise in interest rates would be necessary to get in front of it.

“Those anecdotes did matter,” says Tim



Mr Kashkari, on safari

Duy of the University of Oregon, adding that “they matter less now.” This is because the inflation that was supposed to arrive in 2018 never did. As unemployment sank below 4%, wage growth remained in line with the sum of inflation and productivity growth. That has raised doubts about whether the labour market is as hot as people thought. On July 10th Mr Powell quipped that “to call something hot, you need to see some heat.”

Signs of coolness have been around for years, in the data and in the Beige Book. In September 2017 contacts in New England reported that they were adapting to the “tight-supply landscape” by expanding online, building stronger relationships with job-market candidates, and “active community engagement”. In October 2018 some businesses reported “non-wage strategies” to recruit and retain workers, such as flexible work schedules and longer holiday time. If employers were really so desperate for workers, Mr Kashkari has argued, they should be bidding up their price.

The voices found in the Beige Book are skewed towards businesses, who will tend to prefer an abundance of workers and resent the hassle of having to train up less-qualified recruits. The lack of excessive wage pressure and muted inflation have allowed a new set of stories to become more prominent. As part of recent “listening sessions”, union leaders and local development organisations have shared their tales about how the hot economy is forcing employers to pull in some of America’s most marginalised workers. In a speech on July 16th Mr Powell said he had heard “loud and clear” about the benefits of the long recovery for low- and moderate-income Americans. Previously the most prominent stories supported interest-rate increases. The newer ones highlight the risks of killing off the expansion.

If inflation were rising above the Fed’s 2% target, its leadership would be picking different tales to emphasise. And if, as investors expect, the Fed cuts interest rates at its next meeting on July 30th and 31st, Mr Powell will probably cite uncertainties about trade and global growth, as well as a downward drift in inflation expectations. (The latest Beige Book, published on July 17th, contains plenty to support him.)

But if Mr Powell wants some more anecdotes, he could pick them up from the rest of Mr Kashkari’s trip. A breakfast to discuss substance abuse included complaints from participants that, despite a local unemployment rate of merely 2.7%, employers were still being far too snuffy about hiring ex-felons. “They can stack shelves,” said one reproachfully. Such stories might mislead and they can easily be cherry-picked. But at the moment these anecdotes seem to be carrying more weight than complaints from employers. ■

Contraception

The other kind of pro-choice

NEW YORK

Abortion laws get more attention, but access to contraception is shrinking

THE DEBATE OVER women's reproductive rights revolves around abortion. Planned Parenthood sacked its president, Leana Wen, this week largely because of a disagreement over how to respond to Republican lawmakers' efforts to make abortion illegal. But while that culture war rages, significant changes in access to contraception attract less attention. Power to Decide, formerly the National Campaign to Prevent Teen and Unplanned Pregnancy, estimates that 19m American women live in contraception deserts, meaning they do not have reasonable access to health clinics that provide a full range of birth-control methods. These deserts may expand if the Trump administration has its way.

Rates of unintended pregnancy are highest among low-income women, according to the Guttmacher Institute, a pro-choice think-tank. The federal government's Title X programme helps fund family-planning clinics, such as Planned Parenthood, that provide health services to poorer and uninsured women. A rule issued in March would cut funding for any Title X centre that refers patients for an abortion or lets them know that it is an option. Legal challenges to the measure are still winding their way through the courts, but on July 15th the administration said it would begin to enforce the rule anyway.

The dollars at stake for these centres do not go towards funding abortions. Rather the cuts would hurt clinics' ability to administer contraception or STI and cancer screenings to women with few other options for care. The rule is also unpopular. About three-quarters of Americans surveyed by the Kaiser Family Foundation said it is important that the federal government provides funding for reproductive health services for poorer women.

At the moment most forms of preventive birth control must be prescribed by a doctor or nurse, which can make obtaining it harder. But a consortium of medical groups including the American College of Obstetricians and Gynecologists has long endorsed the idea of making oral contraception available over the counter. Studies have consistently shown that women can use checklists to screen themselves for possible health concerns associated with taking hormonal birth-control pills. Moving birth control over the counter is one of the few issues where Democrats and Republicans agree, at least in principle. But

the parties' different stances on crucial details, such as age limits and insurance coverage, have so far frozen any progress.

Moving some forms of birth control over the counter is not the only way to increase access for women who live far from a family-planning clinic. States have passed laws that require insurers to dispense larger amounts—a six-month supply, rather than three months, for example. There is also a gaggle of newish "telehealth" startups prescribing and mailing birth-control pills directly to women, no doctor's visit necessary. Some of these apps take insurance but they must navigate regulations that can vary in each state, making coverage patchy for women in regions, such as the Great Plains, that would most benefit from the service. One of the newest firms, Hers, has plastered subway cars in New York City with glossy ads. Perhaps it should do the same in Omaha. ■

Strange bedfellows

Trump supporters need not apply

New research suggests politics plays a big role in choosing a flatmate

FOR APARTMENT-HUNTERS in Santa Ana, California, a city about an hour south of Los Angeles, a \$625-per-month sublet recently listed on Craigslist, a classified-advertising website, might seem ideal. The apartment, which is shared among four 20- and 30-somethings, is spacious, tidy and only minutes from a park. It comes with conditions, however: "No racists, no ho-

mophobes, no Trump supporters!" Discrimination of this sort is not uncommon on Craigslist, which is based in San Francisco. Toni, an artist seeking a flatmate in Ann Arbor, Michigan, advises potential applicants, "I won't live with anyone bigoted, racist, sexist, or Trump supporting." Another Craigslist-poster in Missoula, Montana warns, "Trump supporters need not apply".

One might assume that such political preferences would be held only among staunch partisans. But a new paper by Richard Shafranek, a political science PhD student at Northwestern University, suggests they are relatively common. In his study, published last month in the journal *Political Behaviour*, Mr Shafranek surveyed a group of students at a large midwestern university. He asked them to answer a series of demographic questions followed by questions about their politics, interests and personal habits. Subjects in the study were then presented with two fictitious flatmates and asked to rate each on a scale of one to seven based on the same set of demographic and personal characteristics. This was repeated for ten hypothetical housemate pairs.

The results were striking. Among the 40-odd attributes included in Mr Shafranek's survey, partisan affiliation—specifically, whether a potential roommate was a member of another party—had the biggest effect, reducing ratings by 0.56 points (see chart). This was true even after controlling for traits normally associated with support for the two political parties. Other undesirable characteristics proved less influential.

Subjects who described themselves as "not at all clean and tidy", for example, were rated 0.46 points lower. Those who said they preferred going to bed early were downgraded 0.24 points. To ensure his results were robust, Mr Shafranek estimated how a match with a potential roommate on a given characteristic affected their rating. Using this approach party political affiliation once again came out on top. A match on cleanliness boosted scores by only half as much. Jewish sports fans who listen to hip-hop are the Platonic ideal of a flatmate.

Does this study say anything broader about American politics? The temptation is to conclude that Americans like living with those who are politically like-minded. In fact it is more that they dislike living with those who think about politics differently. In an illustration of a phenomenon political scientists call "negative partisanship"—the tendency for voters to be defined more by their hatred of the other side than love for their own—the desire not to live with someone who votes for the other party is much greater than the desire to live with a fellow Democrat or Republican. Indeed, according to Mr Shafranek's estimates, it is about seven times as large. ■

Why can't we be friends?

US university students, effect on housemate rating (out of seven), by attribute
March-May 2018, points



Source: "Political Considerations in Nonpolitical Decisions: A Conjoint Analysis of Roommate Choice", by R. M. Shafranek

Lexington | Back to where he came from

The president's re-election campaign is likely to be even more racially divisive than his first



DONALD TRUMP'S bigotry is such an established part of American public discourse that, in retrospect, one of the most febrile debates of 2016 looks naive. Back and forth it went, in the months before the election, as the Republican candidate issued a slur against a Mexican-American judge and for a while refused to disavow the endorsement of a former Ku Klux Klan Grand Wizard. Was Mr Trump mainly appealing to his supporters' economic concerns—in spite of his chauvinism? Or was his race-baiting really the main draw?

The answer was in long before the president sent an especially offensive tweet this week, inviting four unnamed, but by inference non-white, Democratic congresswomen to “go back” to where they came from. It was settled before he refused to condemn the white supremacists of Charlottesville two years ago. The data from his 2016 election have been scrutinised, and the resulting analyses, detailed in books and papers, are in agreement. Political scientists find no clear economic rationale for Mr Trump's victory.

Many states, such as Georgia and Maryland, which had moved away from the Democrats in the tough times of 2012, drifted back towards their candidate in the better ones of 2016. The millions of working-class whites whom Mr Trump recruited in rustbelt states did not buck that trend because of economic anxiety. They were no likelier to attribute their vote to it than they had been in 2012.

Rather, they were unified by nothing so much as antipathy to America's growing diversity, and an attendant feeling that whites were losing ground. Both were expressed in hostility to immigration, immigrants and welfare spending (which many wrongly believed was being slurped up by migrants). No doubt these feelings were exacerbated by economic as well as cultural and sometimes personal fears: people are complicated and America is changing. These sentiments also predated Mr Trump. Yet they had not been such a big factor in voting decision-making until he made them so, by drawing out his audience's inner grievances, like a magnet tugging at a metal splinter.

In their book “Identity Crisis”, John Sides, Michael Tesler and Lynn Vavreck describe the rationalisation such Trump supporters made as “racialised economics”. Only a small minority of voters hold old-style racist views on questions like black-white marriage,

but a very large number believe that “undeserving groups are getting ahead while [my] group is left behind.” An earlier study by the Voter Study Group found hostility to immigrants to be the best predictor of a Trump voter. One by the Public Religion Research Institute found much the same. There has been no serious counter-argument. Mr Trump's race card was the winning one.

Hence his inflammatory comment this week. For while the strength of the economy might appear to have given him a better electoral option, Mr Trump is intent on a repeat performance. There is no prospect of him toning down his rhetoric and pocketing the grateful majority of Americans who consider their personal finances to be “good” or “excellent”. The fact is, his behaviour and policies have already repelled a majority of voters. He wants the applause of his adoring base too much to change style. And his view that America is essentially a white country messed up by escapees from non-white ones appears to be irrepressible. Amid the continuing outrage his racist tweet stirred this week, there are three important things to say about this.

First, Mr Trump's campaign will be more racially divisive than it was in 2016, when he won white voters by 20 percentage points. He was still feeling his way then, looking for praise from the *New York Times* and MSNBC's “Morning Joe”. And when he did ramp up the rhetoric he was criticised by Republican leaders. Even as late as Charlottesville, his inflammatory language was repudiated by elected Republicans, business leaders and senior aides including his daughter Ivanka and Gary Cohn. He has received nothing like such criticism this week. Moreover, his slur against the four congresswomen, Alexandria Ocasio-Cortez, Ilhan Omar, Rashida Tlaib and Ayanna Pressley—of whom only Ms Omar was born overseas and Ms Pressley is not even of recent migrant stock, merely black—came not from an eccentric candidate, but the president. If Mr Trump only repeated his divisive 2016 lines next year, they would carry more weight. And he will probably say worse, because he wants vindication, for himself and his reviled method. In the event of any setback, he is liable to double down.

It might work again, too, which is the second point. Mr Trump's approval ratings are low, but resilient and competitive. Set aside the state-level polling, which is less positive for him, and he is only a few points short of the 46% he won in 2016. He need not be loved to make up the difference. He needs only to make his opponent more hated, which was his other ploy in 2016. This makes Democratic voters, whose early support for Joe Biden suggests a demand for a plain-vanilla moderate whom Mr Trump might find hard to demonise, more sensible than the party's left-wing activists. They see in his vulnerability an opportunity to bring about a leftward shift that most Americans do not want. One plausible, though possibly too ingenious, theory for his attack on Ms Pressley and the rest, all of whom are left-wingers, is that he wanted to boost their prestige within the party. That may in any event be the result.

The Gipper took a different view

Democrats must resist Mr Trump setting their agenda in any way. They do not need revered anti-Trump warriors. They need to be able to rebuke his divisiveness smartly, keeping in mind their own reputation for hyperventilating. The bill introduced by Nancy Pelosi to censure his tweet passed that test. Its citation of a line from Ronald Reagan's last presidential address, “If we ever closed the door to new Americans, our leadership in the world would soon be lost,” also spoke to the third point, which is the fundamental one. Mr Trump's exclusionary vision of America is a travesty. ■



Asylum

Building a bureaucratic wall

NUEVO LAREDO

Migration is your problem, the United States tells its neighbours

AT A MIGRANT shelter in Nuevo Laredo, a city in the Mexican border state of Tamaulipas, the mood is cheerful. Children play among cinderblocks and piles of sand. Volunteers fry eggs in the kitchen. Residents tell their stories. “The salaries! It’s seven dollars a week in Cuba,” says Eldis, an engineer who left the island in May. A woman, her arms draped around her two daughters, one-ups him. “In Venezuela, it’s six dollars a month,” she replies. They are smiling because these hardships seem to lie behind them. But the mood darkens when the conversation turns to news from the United States, where they are heading.

On July the Trump administration promulgated a rule that upends the United States’ system of dealing with asylum-seekers and could dash the hopes of those in Nuevo Laredo and thousands more. Under the new rules, no migrant can apply for asylum unless he or she has sought it in “at least one” other country along the way and been refused.

The rules affect anyone who is not Mexican and arrives at the American border by land. That describes a lot of America-bound migrants. Of the 688,000 apprehended at the border between October 2018

and June this year, only 18% were Mexican. Most of the rest came from Central America and countries elsewhere in Latin America. Now they must appeal for asylum to Mexico or somewhere farther south.

The order is President Donald Trump’s latest attempt to keep immigrants out of the country but in the headlines. It followed the last-minute cancellation of a visit to the White House by Guatemala’s president, Jimmy Morales. He had been expected to conclude a “safe-third-country agreement”, which would have allowed the United States to deny asylum to anyone who had passed through Guatemala from other countries. The deal fell apart, perhaps because Guatemala’s constitutional court seemed likely to block it.

Even before the new rule took effect, the migrants in Nuevo Laredo were subject to an earlier decision by Mr Trump to require asylum-seekers to remain in Mexico while American courts process their claims. In

June Mexico’s government agreed to extend that all along its border, and to step up policing of its borders, after Mr Trump threatened to impose tariffs on Mexican exports if it failed to stop the migrant flow.

“Metering” will make the migrants’ wait longer. That is a revival of an American policy, used during the Obama administration, to limit the number of asylum claims the border authorities will consider each day. This year apprehensions at the border have been soaring, which suggests that the bureaucratic wall has had little effect. That may be starting to change. In June the number of apprehensions dropped 29% from May. Hot weather usually reduces the number but the decline was bigger than expected. Even so, 95,000 people were nabbed.

Under international and American law, people are entitled to asylum if they face persecution in their home countries because of their race, religion, nationality, membership of a social group or political opinion. In recent years, governments and judges have expanded their understanding of what constitutes persecution. A growing number of migrants have tried to use those rights to gain admission to the United States. The share asking for asylum after being apprehended without the right documents has risen from 5% to 40% over the past decade. Many do not qualify even under an elastic definition of persecution. Central Americans are more likely to be fleeing poverty. Relatives in the United States are a big draw.

A “large majority” of asylum claims at the border are rejected, says the Justice Department. Officials say that “meritless” ▶▶

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► claims worsen overcrowding in American detention centres and lengthen delays. Even genuine refugees should not be able to “shop” for asylum in their preferred country, they grumble.

The Trump administration’s response has been to narrow its interpretation of what asylum means and, at the same time, to transfer to other countries responsibility for caring for asylum-seekers and judging their cases. It has tightened the standards under which victims of gang violence or domestic abuse can claim they are suffering from “persecution”.

Mr Trump’s latest order makes migrants’ situation more uncertain than ever. The recent deal with Mexico now seems “obsolete”, says Andrew Selee of the Migration Policy Institute, a think-tank in Washington, DC. Instead of waiting in Mexico for a ruling from American authorities, migrants are now expected to stay in a country that cannot provide security to its own citizens. Those still determined to reach the United States may have to pay large sums to people-trafficking gangs and risk their lives in the desert.

Migrants’ hopes of a less perilous passage depend on whether American courts overturn the new policies. They have already struck down a rule that denied the right to claim asylum to people who cross the border without authorisation. The “remain in Mexico” policy faces a challenge. Mr Trump’s latest order is illegal because the United States has no safe-third-country agreements with any of the Latin American countries to which it might send asylum-seekers, contends Lee Gelernt of the American Civil Liberties Union, which has filed a lawsuit against the new rule.

Tamaulipas, a hub for drug-trafficking, is among Mexico’s least safe states. Newspaper offices have memorials to murdered journalists. Truckloads of armed men prowl the roads at night. But more migrants go through Tamaulipas than any other state. Miami-bound Cubans and Venezuelans often choose it as the shortest route without taking account of the dangers. America sends a third of deported Mexican migrants to Nuevo Laredo. Those waiting in shelters are reluctant to venture outside. One risk is that drug gangs will try to press them into service. Their favourite recruits are said to be Cubans, who typically have military training (as conscripts in the Cuban army).

Eldis, the 46-year-old from central Cuba, has waited eight weeks in Tamaulipas to apply for asylum in the United States but is now unsure what to do. He expects that Mr Trump will reverse his decision, at least as it applies to Cubans, when he realises that it could cost him votes in Florida, a swing state. If not, he will ring the Canadian embassy, he says. Chances are, he will get a friendlier refusal. ■

Wildlife

Right whales, wrong place

OTTAWA

Ships and fishing lines are killing an endangered species

WHEN 12 NORTH ATLANTIC right whales died in the Gulf of St Lawrence in the spring and early summer of 2017, Canada imposed speed limits on large ships in the area and told snow-crab fishermen to move. In the following year the government worked with researchers, fishermen and the shipping industry to refine the restrictions. No whales died in the gulf in 2018. “We kept wondering if what we had done was good, or were we lucky?” says Moira Brown, a scientist at the Canadian Whale Institute, a research body.

Apparently it was luck. Six right whales died in the gulf in June this year after colliding with ships or getting entangled in fishing lines. Three others were spotted near Miscou Island trailing ropes, which attach crab and lobster traps on the seabed to buoys (see map). Just 400 North Atlantic right whales, which can grow to 18 metres (60 feet) in length, remain alive. The steps Canada is taking to save them from extinction are expensive for industry.

On July 8th Canada responded to the latest deaths by expanding the zone in which ships must observe a ten-knot speed limit, reducing to 13 metres from 20 the length of ships that must comply, increasing aerial surveillance of whales and extending the period during which a fishing area must close after a whale is sighted. The measures will reduce risk for whales but will not eliminate it, says Jonathan Wilkinson, Canada’s fisheries minister.

The whales, which migrate annually



north from the coast of Florida, have been “showing up in areas where we did not anticipate they would be”, says Mr Wilkinson. Because of climate change the Gulf of Maine, where the whales used to stay, is warming faster than almost all other ocean regions. That has pushed northward their favourite food, copepods, a kind of small crustacean.

The Canadian waters into which the whales are now venturing hold some 400,000 fishing lines. That is in addition to the 600,000 the animals navigate already. An analysis of 30 years of data showed that every year a quarter of right whales, which can live to be 100, are wounded by fishing gear. There is “no place within the fished area along the east coast of North America for which entanglement ►►



Not many left

FEEDING THE FUTURE

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▶ risk is zero”, concluded a report in 2018 by the National Oceanic and Atmospheric Administration (NOAA), an American government agency.

Some solutions cause problems. In 2015 the NOAA told American fishermen to put more traps on each fishing line to reduce the number of lines in the water. That required stronger rope, which made it harder for whales to free themselves. Some ships are thought to speed up before entering a speed-limit zone, raising the risk of killing a whale. In American waters, the speed limits near whale sightings are voluntary.

The whale-protection measures have reduced fishermen’s catch. The speed limit on large boats can lengthen by eight hours the time it takes to get from Cabot strait to Montreal. Cruise ships have had to cancel stops. Owners of container ships may need to add more vessels to meet delivery schedules. Despite the extra costs, captains have mostly obeyed the rule. According to the Canadian transport department, only 111 of the 1,472 ships that sailed through restricted zones between April 28th and June 27th broke the speed limit.

The government hopes that eventually

new devices, like ropeless fishing gear, will save some whales. It is giving more money to organisations like Campobello Whale Rescue, a group of scientists, researchers and fishermen on Campobello Island in New Brunswick. They set forth in inflatable speedboats to free whales from fishing lines. It is dangerous work. In 2017 a whale struck one of its rescuers with its tail, killing him. On July 8th this year another team sped out from Campobello to free the whales off Miscou island. By July 15th they had disentangled two of them partially. The whales swam off trailing ropes. ■

Bello A faint hope for Venezuela



Can negotiations restore democracy?

SINCE A FAILED attempt on April 30th to trigger a military uprising against the dictatorship of Nicolás Maduro, Venezuela has entered a costly stalemate. The opposition is not strong enough to bring Mr Maduro down. He cannot halt the country’s slide into penurious ungovernability. Against this background, both sides sat down in Barbados this week at talks convened by Norway’s government. After three preliminary meetings, this marked the start of “continuous and expeditious” negotiations, according to Norway’s foreign ministry.

The plan is to meet every Monday to Wednesday in Barbados to tackle a six-point agenda, starting with elections and the lifting of sanctions imposed by the United States and others. The opposition’s delegates command wide respect. The government team are officials close to Mr Maduro. The Norwegians are experienced mediators. Having acted as facilitators in the peace talks in Havana between Colombia’s government and the FARC guerrillas they are trusted by Cuba, Mr Maduro’s chief international backer. Yet there are big reasons for scepticism.

Many in the opposition scorn talks, after three attempts since 2014 that Mr Maduro used merely to buy time and sow division. Juan Guaidó, the opposition leader and speaker of the national assembly who is recognised as interim president by more than 50 democracies, has backed the Norway initiative. But to keep his fractious coalition together he has also refused to rule out inviting military intervention by the United States to overthrow Mr Maduro.

Despite the talks, the government continues to try to crush the opposition. On July 12th it arrested two of Mr Guaidó’s bodyguards. His chief of staff, Roberto Marrero, has been in jail since March.

Two dozen opposition assembly members are in exile or in hiding, having been stripped of parliamentary immunity. Mr Maduro rules through paramilitary police forces, repression and torture, as a report by the UN High Commissioner for Human Rights this month made clear.

Each side still appears to want different—and impossible—things from the talks. Jorge Rodríguez, one of Mr Maduro’s representatives, said brightly this week that his boss was committed to “a permanent dialogue for peace”. That is precisely what the opposition does not want. Mr Guaidó’s oft-repeated three-point programme, backed by Donald Trump’s administration, is “an end to the usurpation” (meaning that Mr Maduro steps down), a transitional government and a free presidential election within a year. The opposition says it will leave the table if there is no progress within a few weeks.

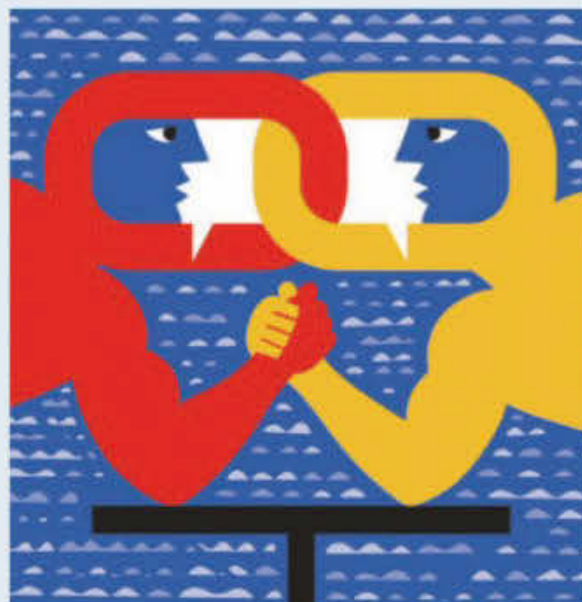
“The government hasn’t decided whether it’s willing to risk losing power,” says Phil Gunson, who works in Caracas for Crisis Group, a Brussels-based NGO. “I don’t get a clear sense that they know the

situation is untenable and that they have to negotiate a way out.”

The big question is whether Mr Maduro is prepared to step down to allow a transition. Similarly, the opposition would probably have to accept a genuine transitional government, composed of both sides and headed by a third figure, rather than a takeover by Mr Guaidó.

The alternatives are bleak. Even before Mr Trump imposed sanctions on Venezuela’s oil industry in January, mismanagement was destroying the economy and public services. Some 4m Venezuelans have emigrated since 2015. If nothing changes, that figure will double by the end of next year, reckons the Organisation of American States. Most will go to Colombia, which is struggling to cope and cannot close its 2,200km (1,400-mile) border with Venezuela. If the talks fail, there is a risk of violence. One diplomat close to the situation fears a border war between Colombia and Venezuela, which hosts 1,000 or so Colombian guerrillas from the ELN group.

Several things would aid the talks. The armed forces and Diosdado Cabello, Mr Maduro’s de facto deputy and rival, should be at the table. The European Union and most Latin American democracies have backed the talks. The United States, China and Russia should do so, too. More pressure on Mr Maduro is needed. Federica Mogherini, the outgoing EU foreign-policy chief, said this week that were the talks to fail Europe would step up sanctions against regime leaders and their families. That, more than oil sanctions, which hurt all Venezuelans, is what Mr Maduro’s people most fear. It is a threat that should be tied to swift and measurable progress in Barbados. Otherwise, the last, best hope for Venezuela will slip away.





Democracy in Japan

Yawning in the face of danger

TOKYO

A largely predictable election is a sign of a worrying political malaise

IT IS THE opposite of election fever. On July 21st Japan will go to the polls to vote for 124 of 245 seats in the upper house, where members sit for six years. Were it not for the posters, the odd noisy campaign van and occasional rallies outside train stations, few people would notice. The vote is not the main topic of conversation in the media nor in crowded cafés. Indeed, given the lack of interest, some analysts fret that turnout will dip below 50%.

There is little upheaval in Japan's politics, but that does not make them healthy. Turnout has long been falling for all age groups (see chart on next page)—and the decline may accelerate if the young remain disengaged as they age. The lowering of the voting age in 2016 from 20 to 18 seems to have made little difference. Faith in the system is faltering, too. In 2018 only 40% of Japanese said they were happy with their democracy, down by ten percentage points from a year earlier, according to the Pew Research Centre, an American think-tank.

The dearth of interest is not for lack of

pressing issues. Three topics are dominating the election. The first is a planned hike in the consumption tax from 8% to 10%, which is intended to slow the growth of Japan's monstrous public debt (currently around 250% of GDP), but which many economists fear could cause the long-faltering economy to stumble yet again. The second is pensions. The government has tried to disown, play down and deny the recent finding of the Financial Services Agency, a regulator, that the average elderly couple will need to top up their public pension by an eye-watering 20m yen (\$185,000) to

maintain a reasonable standard of living. The third is a proposed amendment to the pacifist clause of the constitution to make it clear that the Self-Defence Forces, Japan's army in all but name, is legal (the government has abandoned the idea of scrapping the clause altogether).

The amendment is the first item in the manifesto of the ruling Liberal Democratic Party (LDP), but polls suggest a majority of voters oppose it. Nonetheless, the LDP is likely to win handsomely. It has ruled for all but a handful of the past 65 years. At the moment, says Aurelia George Mulgan of the University of New South Wales, there is only "a weak desire to throw the bastards out". "It is practically a one-party state," says Hajime Yoshikawa of the Social Democratic Party.

A few, like Mieko Nakabayashi, a former MP with the Democratic Party of Japan (DPJ), blame voters for not giving opposition parties a chance despite supporting many of their policies. The DPJ's three-year stint in power from 2009 to 2012 was "not enough time to raise a baby", she laments. The DPJ's chaotic tenure made voters wary of turning to the opposition—a reluctance reinforced by nettlesome foreign-policy problems that seem to demand experienced hands, such as North Korea's nuclear programme, China's military build-up and American protectionism.

The law that restricts most forms of campaigning to between 12 and 17 days, de- ▶

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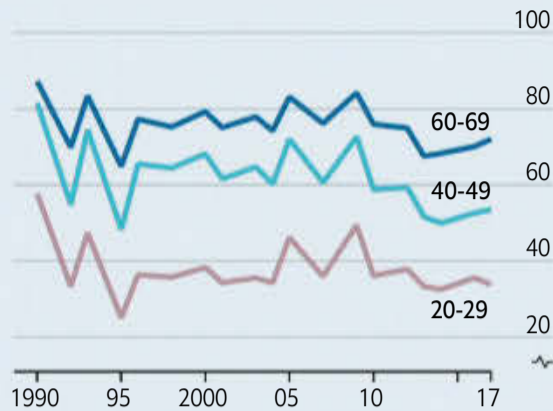
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Thinking outside the ballot box

Japan, voter turnout in elections

By age group, %



Source: The Association for Promoting Fair Elections

▶ pending on the election, makes it difficult for new parties and candidates to catch voters' attention and convey a coherent message. "Most simply repeat their names over and over again in front of train stations or on their campaign cars, because that's all they have time to do," says Kenneth Mori McElwain of the University of Tokyo. Even if the opposition were to get into power again, the bureaucracy, which has close ties to the LDP after all these years, would work against it, as it did to the DPJ.

The LDP's long dominance has also kept politics a pursuit for old men. This is the first parliamentary poll since the Diet approved a resolution urging all parties to try to field more female candidates: 28% of the 370 people contesting seats on July 21st are women, a record. But only 15% of the LDP's candidates are female. Many LDP MPs, including Shinzo Abe, the prime minister, inherited their seats from their fathers.

A recent poll of candidates revealed that the LDP's have less socially liberal views than those of other parties. "It is to do with the gate-keepers, the party elite, who have very old ideas of what leadership looks like and entails," says Linda Hasunuma of the University of Bridgeport in America. There are hardly any openly gay politicians, for instance. Mari Murakami, a 29-year-old lesbian, says she feels "marginalised" when she votes, because the leading parties are against same-sex marriage.

The long tenure of Mr Abe has made things worse. He faces little opposition from within his own party because of his successive electoral victories and because of a weakening of the factions that once jostled for power within the LDP. He has concentrated authority in the Kantei, the prime minister's office. A recent editorial in the *Asahi Shimbun*, a left-leaning newspaper, lamented that "the relationship between the administrative and legislative branches of the government has lost the healthy tension vital for a sound democracy... this has led to endemic arrogance and lax discipline within the administration."

Ministers drag their feet about provid-

ing information to the public and debating policy. The budget committees of both houses have not held a single meeting since the Diet passed the budget in April. The government refuses to provide clear and detailed explanations of scandals such as the one concerning Moritomo Gakuen, a private school that has ties to Mr Abe and was able to buy public land on the cheap.

The Constitutional Democratic Party, the largest opposition grouping, is campaigning in part on reviving Japan's democracy. *Asahi* reckons that the upper house elections "will be an opportunity for Japanese voters to make choices that help restore health to this nation's democracy". They seem unlikely to seize it. There is a chance that voters might deprive the ruling coalition of its current super-majority of seats, Ms Mulgan says, which would impede its plan to amend the constitution. But polls suggest even that may not happen, leaving the government strong and public enthusiasm for politics weak. ■

Pakistan's tribal areas

Political camouflage

KHYBER DISTRICT

Poor borderlands win full political representation for the first time

NAHEED AFRIDI is something of a spectacle. She is canvassing for votes in Khyber district ahead of elections later this month. In a region where women are largely confined to their homes, her progress through villages near the Afghan border attracts curiosity and admiration, but also criticism. "I know I have challenged the ego of so-called strong men, and that's why they tell me it's against our religion and culture," she says.

The poll on July 20th, in which candidates will vie for one of 16 slots in the provincial assembly, is a milestone for Pakistan's neglected tribal borderlands: it is the first time they have been allowed to vote for local administrators. Since colonial times, the area has been run directly by the central government. But last year a constitutional amendment brought the Federally Administered Tribal Areas (FATA), as the frontier zone used to be known, into the political and legal mainstream by merging it into the neighbouring province of Khyber Pakhtunkhwa. In theory, that gives the region's 5m inhabitants the same rights as other Pakistanis. But the ballot follows a military crackdown against the very movement for civil liberties which has recently been invigorating local politics.

FATA has been starved of development and repressed for decades—in part, pre-

sumably, because its people had little say in how it was run. The Frontier Crimes Regulations—passed more than a century ago—awarded a colonial official nearly absolute power. The set-up stayed in place after the British left because it suited the Pakistani authorities too.

Life for residents worsened when FATA became a battleground after 9/11. Used for years as a base for Islamist insurgents who served as Pakistani proxies in Afghanistan, and then colonised by Afghan militants, it became a haven for jihadists. Residents, mainly from the Pushtun ethnic minority, found themselves caught between the militants and the army's repeated offensives. The most recent, in a part of FATA called Waziristan in 2014, finally pushed the militants out and ended a bloody domestic terrorist campaign by the Pakistani Taliban.

The army now claims that peace has been restored in the tribal borderlands and that rebuilding is under way. Opposition parties say that its tough tactics undermine promises of reform and show it has little intention of allowing civilian governance to bloom. The disagreement is at the core of the forthcoming election. Although security in the country has improved, military campaigns have displaced hundreds of thousands of people and soldiers stand accused of human-rights abuses.

A popular protest movement called the PTM arose in the area in 2018. Its activists complain of oppressive curfews and checkpoints, and also decry extra-judicial killings and disappearances. Supporters thronged to its rallies. Unaccustomed to such dissent, the army at first tried to appease the PTM. Then its intolerance returned. In April infuriated generals publicly warned that the PTM's time was up. The following month troops at a checkpoint in Waziristan fired into a crowd of its supporters and killed 13. The army claimed the soldiers were fired on first; the PTM says the ▶▶



Weapons? Drugs? Democratic stirrings?

► crowd was unarmed. Two MPs who support the PTM and were at the scene, Mohsin Darwar and Ali Wazir, are being held under anti-terrorism laws. The army accuses the PTM of anti-state activities, backed by India and Afghanistan. Journalists have been ordered not to cover the group.

The crackdown shows that power still lies with the army, despite the democratic promise of the approaching elections. In Waziristan a ban on rallies and political meetings was in place until two weeks before the contest. Opposition politicians say the reason given—to ensure security—is a

pretext to constrain them and so help the Pakistan Tehreek-e-Insaf (PTI) party, which is in government at both the provincial and national level.

Whoever wins the privilege of representing the region will have their work cut out. Large investments are needed in schools, hospitals, roads and water supplies to bring services in the area to a level similar to the rest of Pakistan. But promised money has yet to arrive. Adopting a proper judicial system is another headache. The borderlands have no courts and tribal police flail in the face of paperwork

and investigations. Lawyers in interim courts say cases suffer when caught between the old and new systems.

Despite growing disaffection with the slow pace of reforms and the pain of austerity measures imposed by the national government, the PTI is expected to do well at the polls. Ameer Muhammad Khan, a candidate for the party, says he meets scores of enthusiastic party workers at his campaign office each day. The vote will prove “historic in the life of every tribal person”, he says. It will also test the limits of the army’s forbearance. ■

Banyan Chemical corrosion

Relations between Japan and South Korea are fraying alarmingly

THEY ARE two full-blown democracies, a rarity in their part of the world. In terms of history and culture, they have dollops in common. Above all, in a fraught region, they are crucial allies of the United States. Yet Japan and South Korea have been acting more like foes than friends.

This month Japan slapped export controls on chemicals critical to South Korea’s semiconductor and smartphone industries—a big escalation in the two sides’ mutual antagonisms. Although South Korea only imports a relatively paltry \$400m or so of these chemicals each year, alternative supplies are scarce, so the impact on global supply chains could be huge.

South Koreans have reacted with rancour. Celebrities show off cancelled plane tickets to Japan on their Instagram accounts. Japanese-made cars have been deliberately scratched. Shopowners have launched a boycott of Japanese goods. Politicians say Japanese brands should be labelled “made by war criminals”.

At issue, as ever, are painful, messy questions of history. In first half of the 20th century Japan was Korea’s colonial overlord. Imperial Japan brought not only economic modernisation, but also brutal dominion, especially during the years of total war in the Pacific between 1937 and 1945. South Korea’s left-leaning president, Moon Jae-in, has sought to define his presidency in part by how he views the past. He has removed statues of Koreans deemed collaborators during Japanese rule and renamed streets dedicated to them. Last year he in effect repudiated an agreement between his conservative predecessor, Park Geun-hye, and Japan’s prime minister, Shinzo Abe, that aimed to resolve once and for all the matter of wartime “comfort women”:

tens of thousands of Koreans, a handful still alive today, who were forced to have sex in Japanese army brothels. Under the deal Japan offered an apology and ¥1bn (\$9.3m) to the victims, South Korea agreed to cease using the issue as a diplomatic wedge and to remove the statue of a comfort woman outside the Japanese embassy.

The statue remains. But the cause of greatest annoyance to Japan are rulings last autumn by South Korea’s Supreme Court against two Japanese industrial giants that conscripted Koreans during the war. The court ordered the companies to pay compensation to surviving victims. Japan insists that the 1965 friendship treaty establishing relations between the two countries settled forced-labour claims (though not those of comfort women). It shrugs at those who point out that South Korea was a dictatorship at the time, and that the victims whose claims were supposedly settled were neither consulted about the settlement nor given any of the money Japan paid in compensation.

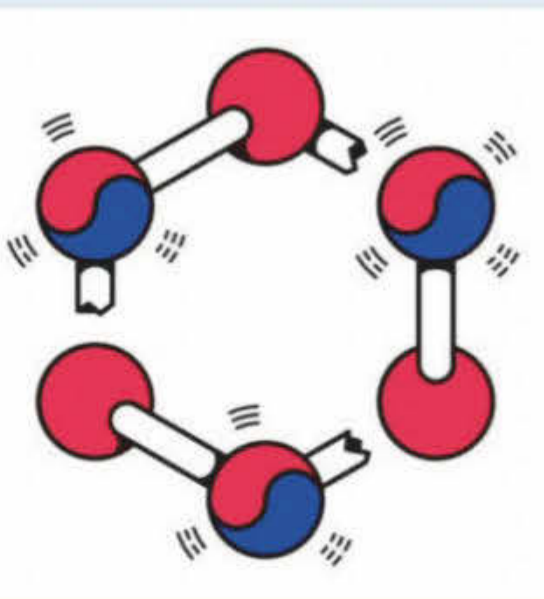
The court has since seized assets belonging to Mitsubishi Heavy Industries

and may sell them. To Japanese officials, this is an act of economic war. South Korean counterparts claim the same for the export controls on hydrogen fluoride and two other chemicals on which South Korean electronics giants rely. Following a disastrous meeting between lower-level officials late last week, Mr Moon suggested that South Korea would have to learn not only to get along without Japanese supplies of the chemicals, but even without Japan.

In Tokyo this week officials are at pains to stress that Japan’s move is not an export ban, rather the reimposition of controls on sensitive materials that had grown lax. Follow the procedures, they say, and the worst South Korean firms will experience is a bigger lag between requesting chemicals and receiving them. They clearly want to defend Mr Abe’s reputation as a global champion of open markets, but admit that claims that the controls have nothing to do with the court case are unconvincing.

The crisis plays right into the hands of China and North Korea. Japanese officials insist that when it comes to defence, security and intelligence-sharing, relations with South Korea remain cordial and effective. But it is hard to believe that there is no impact. America might be able to knock heads and get the two sides to back down, but has so far avoided getting involved.

Mr Moon has been weakened at home, not least because he has little to show for his attempts at détente with North Korea. The row has made him more popular. And with upper-house elections due this month, Mr Abe must not look weak. Both leaders face citizenries whose misgivings about the other country are hardening. There is no easy route to a climbdown.



Wages in Australia

Sun, surf and bonzer pay

Australians benefit from the world's highest minimum wage

AUSTRALIA HAS long been at the leading edge of minimum wages. The state of Victoria was the second place in the world to introduce a wage floor in 1896, beaten only by New Zealand. A landmark legal case in 1907 took a more expansive view of a fair wage, ruling that it should be enough to maintain a family with three children in "frugal comfort". Australia is still at it: it now has the world's most generous minimum wage, reclaiming a distinction it last held more than a decade ago.

The OECD, a club mainly of rich countries, compares minimum wages around the world by adjusting for inflation and the cost of living, and converting them into American dollars. On that basis Australian workers pulled in at least \$12.14 an hour last year, up by nearly 4% from 2017. That puts them narrowly ahead of their peers in Luxembourg, ranked second, and a whopping two-thirds better off than federal minimum-wage earners in America (see chart).

Australians may be incredulous to learn that they are doing relatively well. In recent years one of their big gripes has been sluggish wage growth. The norm in Australia used to be nominal annual wage increases of about 3% to 4%. Even after the global financial crisis of 2008, wage growth remained strong, thanks in part to the natural-resources boom. But over the past five years the resources sector has lost its fizz, and wage growth has ebbed to about 2% a year, lower than in America.

That makes the high minimum wage all the more notable. The Fair Work Commission, an independent panel that sets the minimum wage after considering submissions from industry and the unions as well as academic research, raised it by 3% this year, after increases of 3.5% in 2018 and 3.3% in 2017. These rises have outpaced both inflation and broader wage growth, and have helped give low-end workers a somewhat bigger share of national income.

It used to be an article of faith among economists that higher minimum wages would cause job losses, but data from Australia add to evidence that counters that assumption, at least as long as increases are gradual. A study by the Reserve Bank of Australia (RBA), the central bank, examined minimum-wage increases between 1998 and 2008, and found no discernible effect on employment. Similarly, over the past five years, Australia's unemployment rate has fallen steadily.

Lots of dough down below

Hourly national minimum wage
Selected countries, 2018, \$ at PPP*



The value of the minimum wage is especially important in Australia since the pay of so many workers is linked to it. Under a national system of industry-wide salary awards, pay in many jobs, from cabin crew to funeral directors, is in effect indexed to the minimum wage. Every time the minimum wage goes up, so does the pay of nearly a quarter of Australians, making it a powerful lever to affect the economy as a whole.

The RBA seems pleased with the boost to wages. It wants higher earnings to lift inflation, which is below its target of 2-3%. With the housing market in the doldrums, the economy is growing at the slowest pace since 2009, threatening Australia's 28-year growth streak. But low pay rises, says Philip Lowe, the head of the RBA, harm the economy more than low house prices. ■

Civil liberties in Malaysia

Spare change

KUALA LUMPUR

A callow government struggles to keep its most laudable promises

POTS OF BRUSHES litter the desk of Zulkiflee Anwar Haque, a Malaysian political cartoonist better known as Zunar. Drawings of which he is especially proud decorate the blue walls of his studio in Kuala Lumpur. Several satirise Malaysia's disgraced former prime minister, Najib Razak, who was booted from office more than a year ago, along with his big-haired wife, Rosmah Mansor. Such cartoons drew the ire of Mr Najib's government. Zunar was charged with multiple offences under illiberal laws on publishing and sedition. The surprise victory in last year's elections of a reformist coalition, Pakatan Harapan (PH), brought his legal troubles to an end. But although PH has stopped persecuting jour-

nalists, it has not, as it promised, done away with the instruments of repression. "All the laws that the government used against me before still exist," he grumbles.

Dismantling the oppressive systems put in place by the United Malays National Organisation (UMNO), the party that ruled Malaysia for more than six decades, was never going to be quick or easy. Under Mr Najib and, to a lesser extent, his predecessors, the press was cowed, the electoral system was rigged, the judiciary and bureaucracy were pliant and critics, whether within or outside the government, were harassed or imprisoned, often on trumped-up charges. Officials who complained about corruption at 1MDB, a state investment vehicle from which \$4.5bn disappeared on Mr Najib's watch, lost their jobs. Those charged with investigating the affair say they feared for their lives.

PH, many of whose members were victims of such abuses, promised to change all this. Its manifesto was a liberal wish-list of 464 initiatives, including repealing the Sedition Act, allowing the press greater freedom, reducing the powers of the prime minister and erecting stronger barriers between the executive and the judiciary.

PH has taken some steps in the right direction, most notably by appointing respected figures to pivotal posts such as that of attorney-general, speaker of parliament and chief justice. A former campaigner for fair elections now sits on the Election Commission. The new head of the Malaysian Anti-Corruption Commission, Lath-eefa Koya, is considered independent. And in recent days the lower house of parliament passed an amendment to lower the voting age from 21 to 18. The shift could enfranchise almost 8m young voters in time for the next general election, which is expected in 2023.

But in other respects, the government's record is chequered. An effort to repeal a law on "fake news", which allows the government to criminalise unfriendly reporting, was stymied in the upper house last year by the opposition. There has been no effort at all to repeal or amend a law that allows for detention without trial for 28 days, which was used to arrest the leader of demonstrations against corruption when Mr Najib was prime minister. And revisions to other laws, such as the Peaceful Assembly Act of 2012, which in practice curtails protests, are seen as inadequate. For example, the government plans to amend the law to require protesters to give the authorities seven days' notice of a rally or march, rather than the previous ten. That is still far more, however, than the 48 hours that Human Rights Watch, an international NGO, considers reasonable.

Meanwhile, Malaysians continue to be targeted under the Sedition Act. An outcry followed the High Court's decision this

▶ month to reject the appeal of an Islamic preacher and political activist sentenced to nine months in prison for insulting the Sultan of Selangor, one of the nine monarchs who take turns as Malaysia's head of state. Instead the activist's sentence was increased to a year. The government points out that he was originally charged and sentenced, and his appeal lodged, while UMNO was still in power. But democracy advocates do not understand how a government supposedly determined to repeal the Sedition Act can sit by while such abuses continue. Mahathir Mohamad, the current prime minister, insists that change is at hand. "We are in the midst of structuring the new law and it will be concluded as soon as possible," he declared on July 11th.

But Dr Mahathir may be part of the problem. He is a former UMNO leader who unashamedly used many of the repressive laws that PH is supposed to be repealing during a previous stint as prime minister. More generally, the government is an awkward mix of long-time opposition activists and defectors from UMNO, such as Dr Mahathir, who were put off more by Mr Najib's alleged corruption than by his authoritarian ways.

Then there are Malaysia's racial politics. The government was forced to abandon plans to ratify the International Convention on the Elimination of All Forms of Racial Discrimination, a UN-sponsored treaty, after objections from Malays, the country's biggest ethnic group, who feared this might threaten the many affirmative-action schemes that favour them and discriminate against other groups. The opposition has painted many of the government's reforms as harmful to Malays or contrary to Islam (the religion of most Malays)—charges fledgling ministers, many of whom are neither Malay nor Muslim, lack the confidence to rebut forcefully.

Perhaps the biggest problem is that voters, and thus the government, are more interested in other subjects, most notably the economy. Repealing a hated goods-and-services tax was among PH's first moves upon taking power. "I don't think human rights is a real top priority," admits one activist working with the government.

As voters tire of the government, however, reforms will become harder to enact. "If you don't do it off the bat when you come into power I'm not sure it will ever get done," says Ambiga Sreenevasan, a prominent lawyer investigated for sedition by Mr Najib's government. Malaysians voted for a coalition that loudly and explicitly espoused liberal values—but that may not have been why they voted for it. In the meantime, the state retains the power to repress their views. One of Zunar's drawings captures the situation well. In it the stripes of Malaysia's flag become bars behind which its people are imprisoned. ■

Afghan weddings

Hall change

KABUL

Marble, fountains, all the Red Bull you can drink and 5,000 parking places

THE ISTEQLAL wedding hall in Kabul, Afghanistan's mountain-fringed capital, is quite a sight, at least at night. The red hangar-like structure is lit up by thousands of multi-coloured lights, which make the building glow like a casino. Inside, chandeliers and silk drapes hang from the ceiling, which is lit with blue and pink lights. The floors are all marble.

Such opulence is necessary if you want people to get married in your hall, explains Ahmad Fawal Sharifi, the manager, from behind a thick wooden desk on which sits a large green globe. "The most important thing is the looks and the lights," he says. After that comes the size of the car park. Isteqlal's can hold 5,000 cars. Inside, there is space for 8,000 guests, with enough separate chambers to conduct five simultaneous weddings, each with segregated sections for men and women.

Kabul has dozens of wedding halls, mainly clustered along the road from the airport. Most have a similar style to the Isteqlal. In addition to dramatic lighting, plastic-clad turrets and tree-shaped fountains are popular. Some American soldiers, only seeing the road from helicopters, have been known to compare it to the Las Vegas Strip, though Elvis is unlikely to officiate at an Afghan wedding. From April to September the halls host weddings every day.

Wedding halls in Afghanistan date back at least a century, but the modern neon-and-crystal sort is a recent invention: before 2001 the puritanical Taliban regime

banned such excess. The business boomed under Hamid Karzai, Afghanistan's president from 2004 to 2014. But as the number of NATO troops in the country has fallen from 130,000 to 17,000 in recent years, the amount of money sloshing around has plunged, since fewer troops need fewer kebabs, laundry services and supply roads. Cash-strapped Afghans are now cutting back on ostentatious weddings.

"When we opened, we enjoyed great business," says Mr Sharifi. But now it is not always as easy to fill up every hall. And costs, like the lights, remain undimmed. Running generators can burn over 1,000 litres of diesel a night. Hundreds of staff are involved: not just caterers and musicians, but dozens of armed security guards, since wedding halls are vulnerable to attacks by jihadis. In November a suicide-bomber killed 50 people at a gathering of clerics hosted at a wedding hall. That does rather put people off, admits Ahmad Azimie, the manager of the Arg wedding hall.

A typical ceremony, with perhaps 1,000 guests, plentiful food and at least two cans of Red Bull per person, might set a groom's family back \$9,000, in a country where annual GDP per person is around \$520. Many Afghans complain about being asked to defray distant relatives' wedding costs. Grooms' families complain about being expected to host thousands of guests. Many families are taking on debt. "It is sad for me, but as a businessman, this is where my profits come from," says Mr Sharifi.

Competition is fierce for the remaining customers. Many are from the diaspora. At the Arg, Azhar, a young Afghan-Canadian who drives forklift trucks for a living half-way around the world, is examining halls with his mother. At his wedding, he insists, "Everything must be perfect. I don't care about money, I am looking to my future." Such bravura—and deep pockets—are in dwindling supply. ■



A marriage of ostentation and diesel



Investment migrants

Golden parachutes

BEIJING AND SHANGHAI

Well-off Chinese are the world's best customers for schemes selling "golden" visas and passports

TANG SHOUGANG is one of a generation of young Chinese who seem to have it all. Aged just 35, Mr Tang (not his real name) has a well-paid job for a tech firm, and his wife owns a successful shop. They have two young sons, two cars and an apartment in downtown Shanghai worth a fortune. One perk enjoyed by others of their class, however, eludes them: a passport or long-term residents' visa for a country other than China. Ideally they would like a green card that makes it easier to live, work and educate their children in America. That looks difficult, so the Tangs are pondering other options.

A whole industry has grown in China to help them choose. About a hundred countries around the world have schemes that offer residence—a "golden visa"—in return for a big investment from the applicant. A dozen or so of these go further, and also offer a passport, in effect selling citizenship. By far the biggest users of these "residence or citizenship by investment" (RCBI) schemes are Chinese. Hundreds of businesses compete to help them navigate the labyrinthine procedures. They usually of-

fer other services as well, such as help with applications for student visas.

There are various reasons why Chinese citizens want residence abroad. By far the most common—the Tangs in this respect are typical—is education. Parents want to spare their offspring the horrors of China's gruelling university-entrance exam, the *gaokao*. And they believe that a foreign education will open up opportunities unavailable at home. Even childless Chinese also see the attractions of a "plan B" should the political or economic climate in China deteriorate. Many like the idea of investing abroad, especially in property, to diversify their portfolios as much as to acquire a bolthole. And some may actually prefer to live, or at least retire, overseas.

These, however, are difficult days for China's RCBI industry, for a number of reasons. One, in the words of Larry Wang of

Well Trend, one of the biggest and longest-established visa consultancies, is that it has become "the victim of its own success". The sheer number of Chinese applicants has overwhelmed some of the RCBI schemes. By far the most sought-after is America's EB-5 programme, launched in 1990. Mr Wang says it is top of the list for eight out of every ten of his clients—America's universities being the biggest pull.

EB-5 visas require investment of at least \$1m, or half that if it goes into a "targeted" area of high unemployment. About 10,000 EB-5 visas are issued every year. A maximum of 7% can go to any single nationality—ie, just 700 Chinese, and the waiting-list for their compatriots is now 15 years long. A bill before Congress would abolish country caps. But so popular is the scheme worldwide that analysts reckon this would cut the waiting time for Chinese applicants by only three to five years. A group of more than 450 Chinese EB-5 investors is suing the American government, arguing that it is wrong to interpret the 10,000 annual limit as covering visas, rather than investors, whose dependents should then also be granted residency.

For educational migrants, the obvious alternative to America would be another English-speaking country. But Canada closed its federal programme in 2014 (some provincial schemes, such as Quebec's, continue). And in other countries the required investment is much bigger—A\$5m in Australia (\$3.5m); £2m in Britain (\$2.5m) and NZ\$3m (\$2m) in New Zealand. So there is ▶▶

→ Also in this section

37 Safety in drag

— Chaguan is away

▶ an opening for other countries keen to attract Chinese money, including a number in Europe, such as Greece, Portugal and Malta (which also offers citizenship). These programmes offer the attraction of visa-free travel around the 26-country Schengen area of the European Union.

The European Commission and the OECD, a rich-country think-tank, worry that such schemes might provide cover for money-laundering and tax evasion. They have indeed been prone to scandal. The EB-5 scheme has been dogged by allegations of fraud, typically involving the embezzlement of Chinese investors' money. And in Greece last year Chinese investors were accused of complicity in a scam in which a Greek developer bought properties at market value and sold them at a big mark-up to would-be investment migrants in China (and partially reimbursed them).

There is another big problem for Chinese investment migrants: Chinese exchange controls. These limit citizens to sending \$50,000 a year overseas—far less than the investment demanded by most RCBI programmes. So almost all Chinese investment migrants are probably breaking Chinese law. The Greek developer dodged the restrictions by the simple expedient of using point-of-sale machines linked to Greek banks to take money from the credit cards of Chinese in China—a breach both of Chinese law and the rules of Greece's golden-visa scheme.

The fuss this caused makes it unlikely others will get away with it. But plenty of shady avenues remain, such as pooling \$50,000 allowances with others; making an arrangement with a Hong Kong resident or foreigner in China; inflating invoices for overseas payments; and cryptocurrencies. RCBI professionals say they do not advise their customers how to navigate China's exchange controls. They even deny knowledge of how this is done. But they say clients do seem to be finding it more difficult.

Oddly, China has recently liberalised the RCBI market. Last November it lifted a requirement that RCBI firms obtain a licence from the police. So competition has become more intense. Some of this comes from new entrants. But there may be a more serious threat to incumbents, says Christian Nesheim, editor of *Investment Migration Insider*, a trade journal. Banks and other wealth managers might be tempted to poach RCBI professionals to offer clients a fuller service, he says.

There is no sign of any slackening in demand for such business. More people now find golden-visa schemes affordable. Ever since Deng Xiaoping a generation ago decreed (perhaps apocryphally) that to get rich is glorious, those who have succeeded in doing so have deemed it even more glorious to get out—or at least to be able to. Mr Tang has his eyes on Ireland. ■

Dolled up for the party

Politically correct cross-dressing

BEIJING

Drag artists are tolerated if they look like Chinese opera stars

THE FIRST time Wang Zhi performed in drag, 17 years ago, it was in a seedy gay bar three hours' drive from his university dorm. Today Mr Wang (pictured) says he can make a tidy 2m yuan (\$290,000) a year from his cross-dressing routines. Remarkably, they have the Communist Party's blessing. He regularly appears on nationally televised variety shows. Officials often invite him to entertain people in poor areas. In Xinjiang and Tibet, he boasts, he has enraptured his ethnic-minority audiences.

Mr Wang's success may seem surprising. In recent years the party has been trying to sanitise or suppress any kind of culture that it does not regard as wholesome—including art that challenges conventional gender roles. Last September Xinhua, a state-run news agency, condemned some male performers simply for looking too feminine. Unusually, the party's main mouthpiece, *People's Daily*, retorted that men should be judged by their character, not appearance. But Xinhua's views reflected a conservative turn since Xi Jinping became China's leader in 2012.

Mr Xi, however, has allowed Mr Wang's style of drag to flourish. That is because it has a long and respected history in traditional Chinese opera, an art form which Mr Xi has been trying to promote. It used to be that female operatic roles, or *dan*, were always played by men. Such acting requires

considerable skill as well as the wearing of elaborate make-up and full-length traditional costume that leaves no skin showing from the neck down.

The rigours that *dan* specialists historically endured in training were featured in "Farewell My Concubine", an award-winning Chinese film released in 1993 (and withdrawn two weeks later by prudish censors who allowed its re-release only after some references to homosexuality were cut). The film portrayed the ordeal of a *dan* performer, from the 1920s when boys were often selected for such roles at an early age, to the puritanical era of Mao Zedong. The protagonist finds himself confused by the reality of his biological sex and the feelings he harbours for his male co-star.

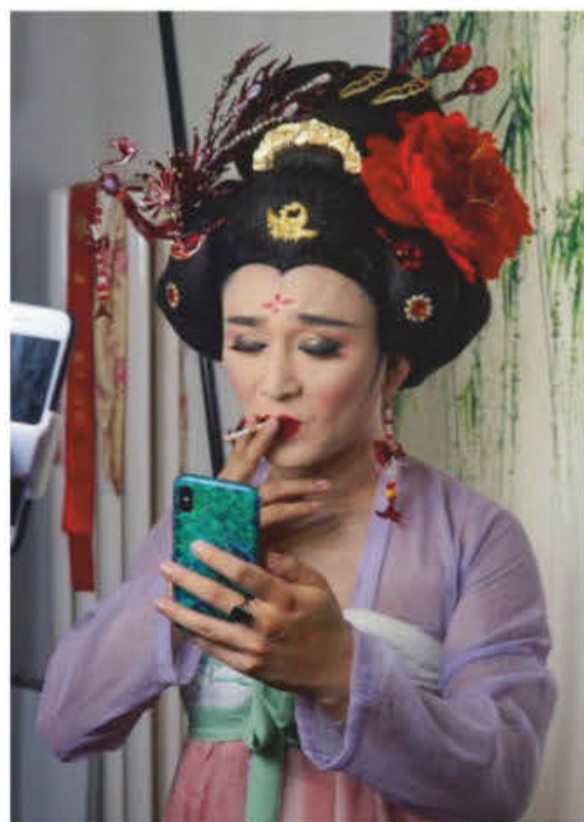
In Mr Xi's China it is hard to imagine such a film being made, let alone shown. *Dan* acting is fine, but art that explores gender identity or sexual orientation is not. Mr Wang says he is straight and asserts that most Chinese men who earn money from cross-dressing simply want to "beat women at their own game". On WeChat, a Chinese messaging service, Mr Wang maintains a chat-group for *dan* enthusiasts. He often tells them to keep their "private inclinations" a secret. "Our society still doesn't accept two men holding hands and kissing in public, so you shouldn't do it," he says.

But Mr Wang and his internet followers are not actors in traditional opera. They are drag artists who merely don elaborate *dan* costumes for effect—a nod to tradition that seems enough to keep the party happy. Some go further and undergo plastic surgery to acquire features associated with feminine beauty, such as wide eyes, a sharp jawline or a high-bridged nose.

In his shows, Mr Wang often aims to shock. A typical routine involves luring his audience into thinking he is a woman, then delivering a punchline in a manly voice. Mr Wang is dismissive of men who still look male in drag: they are simply *yizhuangpi*, or transvestites, he says pejoratively.

Such views help Mr Wang to thrive in the cultural chill. His female persona, Wang Shangrong, has over 670,000 fans on TikTok, a popular live-streaming platform. Many of them are female. He says there may be thousands of drag performers in China who engage in his type of politically correct cross-dressing.

Risks attend those who wear risqué garb. Last year a video went viral of three men in revealing drag being accosted by police in the eastern city of Suzhou. Many online comments on it supported the cross-dressers, but Mr Wang says the police were justified since the men were still identifiable as male. "If I'm mocked, it's because my feminine beauty isn't convincing enough," he says. "Once we raise the standards of our performance, nobody will dare to bully us." ■



Standing up for traditional values



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Social media and politics

What's up with WhatsApp?

ABUJA AND JOHANNESBURG

The uses and misuses of Africa's most popular messaging platform

“WHEN I OPEN my phone, I am swamped by news,” says Matthew Stanley, a driver in Abuja, Nigeria’s capital. He scrolls through WhatsApp, a messaging service, bringing up a slick video forwarded into his church group. In a tone befitting a trailer for a horror film, the narrator falsely claims that Muhammadu Buhari, Nigeria’s Muslim president, is plotting to kill Christians. Mr Stanley squints at the tiny screen. “I think it’s fake news,” he says. “I need to check the source.”

If only everyone were so sceptical. WhatsApp, which has 1.5bn users globally, is especially influential in Africa. It is the most popular social platform in countries such as Nigeria, Ghana, Kenya and South Africa. In the West it is common for people to use multiple platforms such as Facebook and Twitter (see Graphic detail) but in African countries, where money is tighter and internet connections patchy, WhatsApp is an efficient one-stop-shop. The ability to leave audio notes makes it popular among illiterate people. But WhatsApp’s ubiquity also makes it a political tool.

That much is clear from Nigerian presidential and state elections in February and March. As recent research by Nic Cheeseman, Jamie Hitchen, Jonathan Fisher and Idayat Hassan indicates, Nigerians’ use of WhatsApp both reflects and exploits the country’s social structures.

For example, Nigerians belong to much

larger WhatsApp groups than Westerners do. A survey by Mr Hitchen and Ms Hassan in Kano, a northern city, found that locals are typically in groups of at least 50 people. These may be made up of school acquaintances, work colleagues or fellow worshippers. The larger the group, the more quickly information can spread. And since these groups often comprise friends and community leaders, recipients are inclined to trust what they read.

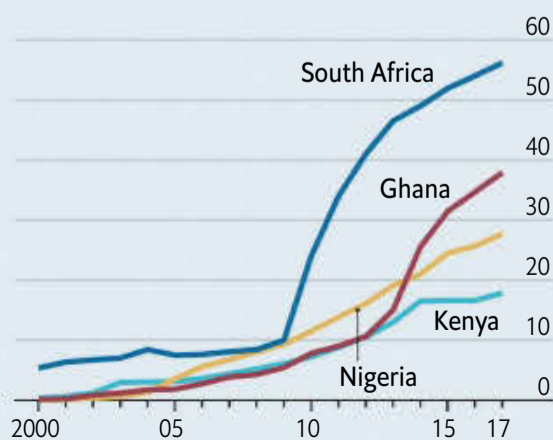
Nigeria’s use of WhatsApp reflects its political culture as well. Nigerian elections may not be clean, but they are competitive, points out Matthew Page of Chatham House, a think-tank. “Big man” politicians try to win through patronage rather than policy. Both of the two main presidential candidates, Mr Buhari, the eventual victor, and Atiku Abubakar, had large social-media teams. They had dedicated WhatsApp groups for supporters in every one of Nigeria’s 36 states and 774 municipalities.

The parties deny that they spread lies. But they need not do so themselves. Being close to a politician is often the surest way to a steady income in Nigeria. That has led to a cottage industry of social-media entrepreneurs seeking to please. These “propaganda secretaries”, as they are known, produce videos, tendentiously caption photographs and disseminate memes for ad hoc payments of up to \$84 per month.

The aim is for a meme to go viral. That way an ally of a political boss will notice and perhaps slip the creator a bonus, a job ▶▶

Only connect

Internet use, % of population



or a contract. Popular fake stories include one in which Mr Abubakar had been “endorsed” by the Association of Nigerian Gay Men, a fictional entity. Some of the most popular play on existing beliefs. The hilarious idea that Mr Buhari had died and been replaced by a Sudanese man named Jubril seemed credible for many reasons. The president is old and sickly, and one of his predecessors died in office.

Do the fibs get through? Researchers find it hard enough to know how many people see fake news, let alone how many believe it. What is certain, though, is that the truth takes longer to get its boots on. During the elections the Centre for Democracy and Development, a think-tank run by Ms Hassan, employed five fact-checkers who tried to refute dodgy stories. But they were soon overwhelmed by the volume of misinformation. “I don’t think fact-checking makes any difference,” she sighs.

Nigeria is not the only place where WhatsApp is influencing political culture. Mr Hitchen notes that during elections in Sierra Leone in 2018, stories spread by an urban minority on WhatsApp would find their way onto popular radio talk shows. In Kenyan elections in 2017 “keyboard warriors” used the platform to collect the phone numbers of group members and allegedly sell them to political parties.

Such chicanery has been found elsewhere in the world. In Brazil supporters of Jair Bolsonaro used WhatsApp to deliver “an onslaught of daily misinformation”, says Luca Belli, a law professor at Fundação Getulio Vargas, a university in Rio de Janeiro. Partly in response WhatsApp, which was bought by Facebook in 2014, limited to five the number of times a user could forward a message. Previous concerns over its misuse in India prompted WhatsApp to label messages as having been forwarded.

These changes will only have limited effect. “You can make it harder to share misinformation,” says Mr Cheeseman. “But that just means that it takes longer to share—it doesn’t make it impossible.” As long as WhatsApp allows the sharing of information in groups, it will be used to share lies as well as truths. The only resilient defence is savvier, more sceptical users.

There are some efforts to use WhatsApp to encourage those. Several were set up ahead of the elections in South Africa on May 8th. One was “What’s Crap on WhatsApp”, an initiative by Africa Check, an NGO with offices in four African countries. It invited South Africans to forward them potential cases of misinformation, which it tried to debunk through one of its WhatsApp channels.

Another is the creation of Sizwe Mpofu-Walsh, a 30-year-old activist and writer. Eager to produce a political show for young people, he first considered YouTube and radio, but instead launched one via Whats-

App. Mr Mpofu-Walsh uses WhatsApp for Business, the platform’s commercial arm, which makes it possible to broadcast to more than the 256-person limit in an ordinary group. It is a format that has proved successful in China (via an app called WeChat) but is rare in Africa (or anywhere, really). He produces five shows every week. They have about 10,000 viewers, not far off what a cable news show gets in South Africa. “There is an intimacy to WhatsApp that makes people ready to listen to a message,” says Mr Mpofu-Walsh. That is why the platform is popular. But it is also what can make it dangerous. ■

Ebola in Congo

The virus spreads

GOMA

Ebola is declared an international public health emergency

EBOLA SHOULD never have made it to Goma, the second biggest city in the east of the Democratic Republic of Congo. It did because a pastor, who had been in Butembo apparently trying to cure patients by laying hands on them, then travelled back. At each of the three health checkpoints he passed through, he gave a fake name, keeping his temperature down with heavy doses of paracetamol. On arriving in the city, he checked into a clinic where he tested positive for the disease; he died in an ambulance some hours later while being taken to a treatment centre back in Butembo.

Such are the difficulties health workers face when trying to stop the spread of Ebola, the latest outbreak of which has now



Washing their hands of it

killed almost 1,700 people in Congo. It is the second biggest outbreak ever, after the one in west Africa in 2014-2016, and the first to happen in a war zone, where doctors have to worry about guerrillas with machetes, not just the virus. On the evening of July 17th, Tedros Adhanom Ghebreyesus, the director-general of the World Health Organisation (WHO), announced he had been advised by the WHO’s emergency committee to declare the disease a “public health emergency of international concern”, only the fifth in history.

Officials long dreaded the moment the virus makes it to Goma. The city has a population of 2m people, cramped between Lake Kivu and Mount Nyiragongo, an active volcano. It directly abuts the Rwandan city of Gisenyi, and thousands cross the border each day. Until now the virus has been contained in regions with lousy roads that are hard to access. In a densely populated urban area, it could be much harder to keep track of those whom patients might have touched.

So far, however, the situation seems to be under control. No other cases have been reported in the city and the Congolese ministry of health and the WHO have been busy vaccinating anyone who could possibly have touched the pastor. Outside the scruffy clinic where he turned himself in, rows of fidgeting children and their mothers sit around on plastic chairs, waiting for nurses to prick their arms. Roughly 200 people have been vaccinated in Goma.

Dr Tedros’s declaration came as a surprise to many aid workers. “[Ebola] really becomes a problem when a chain of transmission is launched,” says Tariq Riebl of the International Rescue Committee, an NGO. Declaring an emergency will not change the nature of the response, says Oly Ilunga, the Congolese minister of health. Previously, doctors had worried that declaring an emergency might lead other countries to close their borders. In west Africa, that hampered the response, as sick people avoided checkpoints. Now the WHO says that more international co-ordination is needed, especially given the threat of a spread to Rwanda, which is thought to be less well prepared than Congo and Uganda.

But the response is also running desperately low on funds. The next phase will need roughly \$233m, says the WHO, and donor countries have so far not contributed enough. Some suspect that declaring an emergency is an attempt to unlock some cash. That sets an awkward precedent, says David Heyman of the London School of Hygiene and Tropical Medicine.

In Goma, buckets of chlorinated water alongside health workers armed with thermometers are stationed throughout the city. Residents greet one another coolly, with nods and fist bumps instead of effusive Congolese handshakes and kisses. ■



Chad

Hanging Chad

N'DJAMENA

Idriss Déby, president for almost thirty years, is running out of patronage

YUSUF NUHAN, a 65-year-old Chadian villager, remembers when he could sail across Lake Chad to visit markets and relatives. His village used to be rich with thousands of cattle, he says. But three years ago, jihadists from Boko Haram attacked and took everything. “They just killed people. We don’t know why,” he says, fiddling with his prayer beads. “The government has done nothing to help us.”

He and his family fled to Baga Sola, a small, dry market town a few kilometres away. They set up camp outside the walls of a United Nations base and prayed that one day they could return to their land. But over the past few months, there has been a resurgence of Boko Haram attacks, killing dozens of soldiers. In theory Mr Nuhan could walk to his childhood home in two hours, but he has given up hope of ever seeing his land again.

Chad is at the heart of Africa’s most ungovernable region. Landlocked, it shares borders with conflict-ridden Libya, Sudan, the Central African Republic and Boko Haram’s strongholds in Nigeria, Niger and Cameroon. Many Western military officials see the president, Idriss Déby, as a bulwark against that insecurity. Through brutality and military cunning he has managed to hold on to power for almost three decades. But the state he leads is rotten and his rule precarious.

In February three columns of Toyota pickup trucks packed with Chadian rebels sped out of the desert from Libya towards N’Djamena, Chad’s capital. The rebels were led by Mr Déby’s cousin and were largely disgruntled members of the president’s ethnic group, the Zaghawa. At Chad’s re-

A COUNTRY THAT draws 39m foreign tourists each year is on the brink of anarchy, if you believe the Saudi media. “Turkey is not safe for travel,” blared a recent headline in a Saudi newspaper. The kingdom’s embassy in Ankara has warned of rising petty crime aimed at Saudi citizens. Another story claimed that 2,187 people were killed in gun violence in Turkey in 2017. (There are no such warnings about America, where gun deaths are far more common.)

It is true that one Saudi visitor in Turkey last year was murdered and dismembered. However, his killers were not locals but a 15-member Saudi hit squad and the murder took place inside a Saudi consulate. The victim was a journalist, Jamal Khashoggi, who had upset the Saudi regime. His death made tense relations between the two countries much worse. Hence the campaign by Saudi officials to discourage their citizens from travelling to Turkey. It seems to be working: Saudi tourist arrivals were down by 31% in the first five months of this year compared with last.

Many Arab regimes restrict where their citizens may travel. In 1989 a Thai labourer stole jewellery from the palace of a Saudi prince, a caper known as the



quest, French warplanes from Barkhane, France’s anti-jihadist force in the Sahel, strafed the rebels for three days. France, the former colonial power, had intervened to help out Mr Déby before, but never with such a show of force.

Since the 1960s Lake Chad, on which farmers and fisherfolk depend, has shrunk by half. Almost all of the country’s 16m people are poor. Chadians joke: “We are all go-

Travel bans

Boycotts of summer

CAIRO

In the Middle East, even your holidays are political

“blue diamond affair”. Three Saudi diplomats were then murdered in Bangkok in murky incidents that may or may not have been connected with the theft. The kingdom promptly banned its nationals from visiting Thailand. Most of the jewels were returned. But the prohibition remains in force. Last year Thailand saw just 28,000 Saudi visitors, compared with 75,000 from much smaller Kuwait.

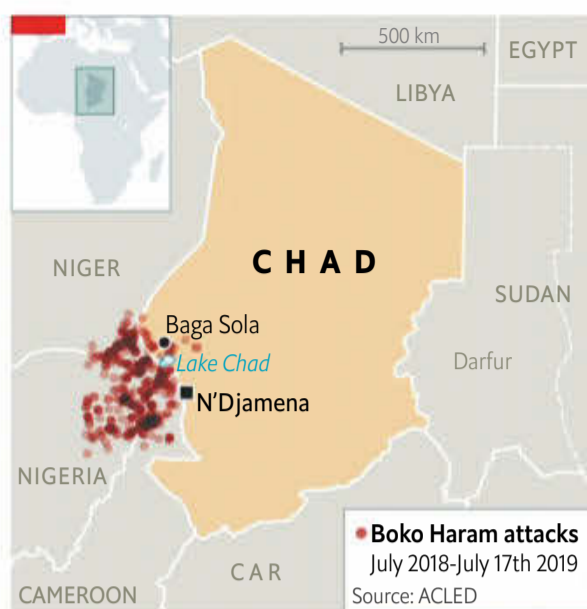
Cheap, Arabic-speaking and comparatively clement, Egypt has always been a popular destination for Gulf tourists. But Qataris now avoid it because of politics: Egypt was one of four countries to impose an embargo on the emirate in 2017. The embargo has even turned the *hajj*, the pilgrimage to Mecca, into a political spat: Saudi Arabia and Qatar accuse each other of obstructing travel for Qatari pilgrims. The United Arab Emirates has forbidden travel to Lebanon since 2012, supposedly because of kidnapping risks. In 2011 some 32,000 Emiratis flew to Beirut. Last year fewer than 1,800 did.

In Egypt, citizens aged under 40 need state-security approval before flying to Turkey. The ban was imposed in 2014 to stop Egyptians from crossing into Syria to join Islamic State. That is no longer a worry. Yet the rule remains in place, as one woman recently discovered while trying to spend a long weekend in Istanbul with her foreign partner. (Airport police helpfully encouraged him to take the holiday solo.) Permits are also sometimes required for notorious hotbeds of Islamism like Georgia and South Korea.

By discouraging travel to Turkey, the Saudi government may hope to keep tourist rials at home. King Salman has set an example the past two summers. Instead of his usual visit to a palace in Morocco, he has taken staycations at Neom, a planned \$500bn city on the kingdom’s north-western coast. The summer heat is no doubt unbearable, but on the bright side, there are no crowds at the beach: the city has no residents yet.

ing to heaven as we’ve already experienced hell on earth.” The president regularly imprisons opponents. But his real source of power is the ability to distribute patronage paid for by Chad’s main export, oil.

There has been less of that available since the sharp decline in oil prices in 2014. Big international debts give the government little room for manoeuvre. Civil-servant and army salaries have been cut. In- ▶▶



▶ come per person fell from \$1,200 in 2014 to \$810 in 2017, according to the IMF. “Life is much harder now. Outside the capital, lots of people are struggling and there is serious discontent,” says Marielle Debos, the author of “Living by the Gun in Chad”.

Mr Déby commands a small but professional army formed mainly of Zaghawa soldiers. They are well armed, often trained by the French, and can be an effective force. Despite military spending that is only a ninth that of Nigeria, Chad has been better at fighting Boko Haram. In 2015 Chadian soldiers helped push the jihadists out of big towns in northern Nigeria.

But today Mr Déby’s army is overstretched. A new wave of attacks by Boko Haram and Islamic State of West Africa (a Boko Haram offshoot) has hit the Lake Chad Basin. Analysts say the new attackers are better trained and better armed than they were in the past. And while the Chadian army is good at fighting outside the country, inside it is less effective. According to Ms Debos, the need for France’s intervention showed that some high-ranking officers were unwilling to fight their kith and kin among the rebels.

Relations with neighbouring Sudan are also a problem. Mr Déby backed fighters in Sudan’s rebellious Darfur region. In response the government in Khartoum sponsored Chadian opponents who almost killed the president in 2008. Now that his rival dictator in Sudan, Omar al-Bashir, has been ousted Mr Déby will fear meeting the same fate. Chad does not have a professional middle class like the one that spearheaded Sudan’s revolution, but protests erupted last year at Mr Déby’s promotion of a law that could allow him to stay as president until 2033, when he will be 81. In response the government banned social media for over a year, only reallowing it on July 14th.

France and America have several thousand troops between them stationed in N’Djamena. These soldiers give the president no small amount of comfort. But Mr Déby’s foreign patrons cannot protect him from everything. ■

Women in Saudi Arabia

Changing the guard

CAIRO

The kingdom may let women travel freely. Some may never come back

NICKI MINAJ spoke, and Saudi Arabia listened. That is not quite what happened with the scantily clad feminist rapper from New York—though recent events make it a tempting theory. This month Saudi officials disclosed that they want to loosen “guardianship” rules that force women to seek a male relative’s permission to marry, travel abroad or accept many jobs. The proposed change would end the travel restriction, which also applies to men under the age of 21. The idea leaked on the same day that Ms Minaj (pictured) cancelled a gig in Saudi Arabia, citing its oppression of women and gay people.

If the new rules take effect later this year, as planned, both sexes will be free to leave the country once they reach 18. Such a shift would be controversial, and raise awkward questions about the broader cultural changes desired by the crown prince, Muhammad bin Salman.

These changes would have been difficult to imagine five years ago. Last June Saudi Arabia lifted a decades-long ban on women driving. In 2017 King Salman decreed that women could seek government services, such as education and health care, without a man’s consent. The rules on segregating the sexes have been unofficially relaxed, and Prince Muhammad has suggested that women need not wear flowing *abayas* (full-length gowns) in public.

All of this has passed without much public brouhaha, in part because anyone who might complain is in prison. Police have arrested both clerics who oppose the changes and liberal activists who want more. Though the driving decision had its detractors, hidebound husbands and fathers can still coerce their charges into staying at home. A recent YouGov poll found that of the vast majority of Saudi women who have not applied for a driving licence, 16% refrained because of objections from a male relative.

Changing the guardianship laws would prove more controversial, particularly in conservative areas outside the big cities. Some fear it could lead to more cases like that of Rahaf Mohammed, a Saudi teenager who fled to Thailand in January to escape her family. Relatives unsuccessfully tried to bring her back (she received asylum in Canada). Other young women followed her lead. Hence the cautious manner of the announcement. While the driving ban was lifted by official decree, news of the guard-

ianship change was leaked as a trial balloon—first to the Saudi newspaper *Okaz* and then to foreign outlets.

Prince Muhammad has not yet had much luck overhauling the Saudi economy. Unemployment remains high and the private sector is not creating jobs. His cultural changes have gone further, but they too have been uneven. In June a firm based in the United Arab Emirates tried to open an alcohol-free nightclub in Jeddah, the most cosmopolitan Saudi city. Officials shut it down on opening night, though it has since reopened as a “lounge” (same venue, less dancing).

Or there is the case of Ms Minaj, who was due to perform at a music festival in Jeddah this month. She seemed an odd fit for a puritanical theocracy, given her raunchy outfits and lyrics. (“He toss my salad like his name Romaine” is one of her milder lines.) Days before the concert she backed out. Hoping to save face, the Saudis claimed it was in fact they who disinvited her. The episode provoked wry commentary on social media. In one widely shared video, a young Saudi woman asked why she had to wear an *abaya* while Ms Minaj was free to come “shake her ass”.

It is a fair question. The prince’s behaviour is idiosyncratic: he jails reformers even as he decrees reforms. He justifies some social reforms as economic necessities (if Saudis can go to concerts at home, they won’t spend their money abroad). The public have no say. Some young Saudis are enjoying this moment of relative openness; others flee into exile, for reasons both personal and political. Ironically, by letting women travel, Prince Muhammad may allow some to leave and never return. ■



A bit too liberated for Saudi Arabia



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Germany's AfD

Too far

DRESDEN

The Alternative for Germany's strength in east Germany is hurting it in the west

IT IS AN ordinary Monday evening in Dresden. Around 1,000 people have gathered, under gunmetal skies and German flags, for the fortnightly demonstration organised by Pegida ("Patriotic Europeans Against the Islamisation of the Occident"). It is a peculiar blend of the convivial and the hateful. The crowd laughs and cheers as speakers rail against immigrants, politicians and the media. Later they march through the city centre, swapping insults with balaclava-clad counter-protesters. There are arrests for violence and Holocaust denial. Your correspondent's attempts to interview participants are foiled by a ponytailed protester screaming "*Lügenpresse!*" ("Lying press"), a slur with Nazi overtones revived by Pegida.

Far-right politics has long found a home in Saxony, the east German state of which Dresden is the capital. The NPD, a neo-Nazi outfit, had seats in Saxony's parliament from 2004 to 2014. But in a state election on September 1st the Alternative for Germany (AfD), a far-right party, has a chance of com-

ing first. It will also do well in two other eastern elections: in Brandenburg, on the same day, and Thuringia, in October. It polls much better in the states of the old East Germany than in the (far larger) West. But that difference has become a source of division inside the party.

In the past five years the AfD has transformed itself from a tweedy set of Eurosceptics worried about euro-zone bail-outs into a populist-xenophobic outfit in the vein of Austria's Freedom Party or the National Rally in France. It has proved a successful strategy. The party has won seats in all 16 state parliaments and, amid dismay over Angela Merkel's open-door refugee policy, took third place in the general election of 2017, earning 13% of the vote and 94 seats. Yet this success has always rested on an uneasy coalition of disillusioned conservatives, nationalist populists and radicals on the fringes of democracy. Hostility to Mrs Merkel has helped unite these tribes. But they are a fractious lot.

In Germany's east the AfD has acquired a

distinctive voice as it puts down local roots. Where radical groups like Pegida and the AfD once sought to prove their mutual independence, now east German AfD stars such as Björn Höcke, the party's leader in Thuringia, make inflammatory speeches at Pegida demos. Pegida's marches are much smaller than at their peak of 2015, when the group could draw up to 30,000 protesters. But the hard core that remains is more coherent, uniting strands of the radical right, explains Johannes Filous, co-founder of Strassengezwitscher, a journalistic group that monitors Saxony's far right. Many demonstrators in Dresden now proudly wave the AfD flag.

Right turn

Mr Höcke, a race-baiting extremist in the charismatic strongman mould, sits at the heart of the Flügel ("Wing"), an ultra-right grouping inside the AfD whose influence far outstrips its support, thought to comprise perhaps one-third of party members. Disciplined and hierarchical, it is dominant in east Germany; it is also gaining strength in the west. That has occasioned drama in several AfD state associations. In North Rhine-Westphalia, Germany's most populous state, earlier this month most of the party leadership quit in protest at the growing influence of the Flügel, which has left those loyal to Mr Höcke in charge. On July 10th over 100 AfD officials wrote an open letter vowing that they would strive to protect the party from the cult of perso- ▶▶



► nality surrounding Mr Höcke.

Tellingly, none of the AfD's national leaders was among them. The leadership "needs to keep both wings together, and that gives the advantage to the radicals," says Werner Patzelt, a political scientist in Dresden. But should Mr Höcke become the voice of the party, conservative AfD voters in the west may be scared off. One party figure has said the AfD may lose ten votes in the west for each one it gains in the east. Paradoxically, success for the AfD in the autumn elections could intensify the party's problems by vindicating the eastern ultras. Some internal differences are "difficult to reconcile," acknowledges Tino Chrupalla, an AfD MP from eastern Saxony. All this comes at an awkward time for the party which is sagging in national polls.

It has also been stung by suggestions that its rhetoric encourages violence. Anngret Kramp-Karrenbauer, the CDU's leader, has said that anyone in her party who is considering working with the AfD should "close their eyes and imagine Walter Lübcke", a reference to a CDU politician who was murdered recently, allegedly by a neo-Nazi fanatic.

But the AfD's success in the east creates a real problem for mainstream parties who must form governments from a fragmented vote. In Saxony the AfD and the CDU both poll around 25%. Michael Kretschmer, the state's premier and CDU leader, rules out a coalition with the AfD after the election. But others in his party seem less sure. In neighbouring Saxony-Anhalt, where the CDU leads a fractious three-way coalition, some party figures want to open the debate. At municipal level there are signs of informal CDU-AfD co-operation. And even in Saxony, a minority CDU government open to working with all parties, including the AfD, may ultimately look more attractive

than the unwieldy three- or four-party coalition that may be the only alternative.

In the long term, the prospects for such deals may depend on the AfD itself. And in the east the party is making itself harder to work with. It has started to foster a nascent "Ossi" nationalism, hinting that easterners' experience of dictatorship renders them cannier than west Germans, corrupted as westerners are by Merkel, migrants and the *Lügenpresse*—and, perhaps, well placed to bring about the necessary revolution. At the Pegida event a speaker attacks the domestic intelligence agency that has declared the Flügel a target for surveillance, triggering cries of "Stasi!" from the crowd. An east Berlin branch of the AfD recently circulated a meme depicting west Germany as an Islamic caliphate, with the national flag reserved for the east.

Needless to say, the audience for this sort of thing in western Germany is limited. Hoping for a showdown, some of the AfD's less radical politicians want the easterners to put themselves up for election to the party's executive board, which is dominated by westerners, later this year. Mr Höcke has vowed that the board will change, but may not stand himself. That makes him a coward, snorts one of his internal opponents. But it is increasingly clear who has the upper hand. ■

Spain

Stumbling towards a government

MADRID

Either a leftist coalition that dare not speak its name, or a new election

IT IS ALMOST three months since an election gave Pedro Sánchez, the Socialist prime minister, victory but left him well short of a majority in a fragmented parliament. Spaniards have watched Danes and Greeks swiftly form new governments after more recent votes. No such luck for them. After weeks of stasis and then haggling, only in a debate starting on July 22nd will Mr Sánchez seek the approval of parliament to form a government.

His clearest route involves hooking up his Socialists (with 123 of the 350 seats in parliament) in a coalition of some sort with

Podemos (42), a further-left party. Parliamentary backing from Basque nationalists and two small regional parties would take the total to 173. Esquerra, a Catalan separatist party, will probably abstain, which would get Mr Sánchez over the line. "This is the agreement that could happen," says Pablo Simón, a political scientist at Carlos III University. "But I don't know if it will."

There is much bridge-building to do. Little took place in the first month after the election because a vote for mayors and 12 of Spain's 17 regional administrations followed on May 26th. Then Mr Sánchez threw himself into the horse-trading over EU jobs, securing the post of foreign-relations supremo for Josep Borrell, his foreign minister. At home, Mr Sánchez's possibilities are limited, mainly because Albert Rivera, the leader of Ciudadanos, a formerly liberal party that has swerved right, ruled out any agreement even before the election. Mr Sánchez has urged Ciudadanos and the conservative People's Party (PP) to abstain to allow him to form a government. His case is weakened because he scorned a similar request from Mariano Rajoy, then prime minister, in 2016.

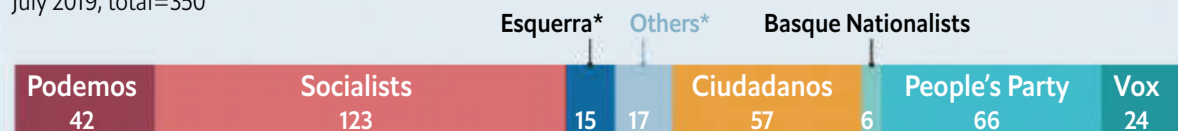
That leaves two options: reach a deal with Podemos or call a fresh election in the autumn, which would be Spain's fourth in as many years. Amid mounting acrimony, on July 15th Mr Sánchez said his talks with Pablo Iglesias, leader of Podemos, had broken down. The crux of their disagreement is over how much power Podemos would have in the government. Mr Sánchez at first hoped to form a Portuguese-style administration, in which the Socialists govern alone but with parliamentary support from two further-left parties. Unlike his Portuguese counterparts Mr Iglesias has insisted on a formal coalition.

Mr Sánchez has successively offered a "government of co-operation" in which Podemos would have second-tier jobs, and then a couple of ministries for technocratic sympathisers. Officials rule out inviting Mr Iglesias himself or Irene Montero, his political and life partner, into senior cabinet posts. "They don't trust them," says Mr Simón. There are big policy disagreements, ranging from the economy to Catalonia, where Mr Iglesias supports a referendum on self-determination.

If the investiture fails this month, in theory Mr Sánchez could try again in September. But it would be no easier then. His ►►

Not much to work with

Spain, seats in the Chamber of Deputies by parliamentary group
July 2019, total=350



Source: El País

*One Esquerra and three other Catalan separatist MPs suspended

► bet is that Mr Iglesias will come back to the table rather than risk another election. In April Podemos lost 29 seats and over a quarter of its vote, mainly to the Socialists. Polls suggest it would now do even worse. But another election is risky for the prime minister too. Voters might blame him for political paralysis. So the betting in Madrid is that a deal will be struck for a low-level coalition. Mr Sánchez is “a good negotiator” and he has the initiative, says Eduardo Serra, a former minister. After ousting Mr Rajoy in a censure motion in June 2018, he managed to govern for 11 months with just 84 seats.

To consolidate Spain’s slowly fading economic recovery, tackle the social scars of its previous slump and contain Catalan separatism will be hard. It would require

reforms of the labour market, education and training and regional financing, as well as deficit-cutting. The first task is to approve a budget. Mr Sánchez envisages some tax increases but also the gradual implementation of a public-spending review. On many of these issues Podemos would be an awkward partner.

Spain’s politicians are still struggling to adapt to change. Since democracy was restored in 1977 it has never had a coalition government. But under the strain of slump and separatism, the old two-party system has splintered. The top dogs are all young and inexperienced; at 47, Mr Sánchez is the oldest of the national leaders. Nevertheless, Spaniards will be fed up if they fail to give the country a government before they head for the beaches next month. ■

Rent controls

A policy that never works

Instead of building more homes, cities try to dictate rents

IN 1953 WORKERS in what was then East Germany protested against their Soviet overlords on Karl-Marx-Allee, a monumental boulevard in Berlin lined with Stalinist apartment blocks. The uprising was crushed. Earlier this year residents of the Allee, now yuppie, again took to the streets—to demand socialist policies. They called for big landlords’ properties to be expropriated and rents to be frozen in the capital. This time, the authorities listened.

On June 18th legislators in Berlin voted to freeze rents for five years, excluding social housing and new-builds. The German capital thus joins a growing club of European cities implementing rent controls. Spain recently limited annual rent hikes, and Barcelona followed up with even stricter rules. Amsterdam is trying to stop investors buying up new-builds to rent them out expensively. On July 1st Paris reintroduced rent caps, which had been scrapped only in 2017.

The proposal in Berlin is the most radical of these. Under new rules, rents that are deemed too high would be lowered. The law would be retroactive from June 18th, so that anyone who attempts to jack up prices before it is passed could be fined €500,000 (\$563,000). Landlords who want to make renovations that would push up prices by more than €0.50 per square metre will have to seek approval. The decision could face challenges from the national government, but may become law early next year.

In recent years cheap borrowing, low unemployment, an influx of foreign investment and population growth have helped to push up demand for houses across European cities. The rise of Airbnb, a home-stay site, and the relocation of companies due to Brexit, particularly to Frankfurt, Paris and Amsterdam, have accelerated the trend. Anger about gentrification and “over-tourism” may also have played a part in the Berlin proposal, as well as practices that have allowed certain rents to rise much faster than wage growth, pricing a lot of people out of the market.

Economists warn that rent caps tend to have perverse effects. Landlords will often be tempted to skimp on repairs or may simply seek to sell their properties, as happened in Britain, where rent caps existed until the 1980s. Controls tend to deter investment in the housing market, thus aggravating the shortages that prompted them in the first place. The head of the Ger- ►►

Women and work

Ladies of the lab

BRUSSELS

In much of eastern Europe, half the scientists are women

SCIENCE IS STILL a man’s world. Since 1903, when Marie Curie first won the Nobel Prize, almost 600 blokes but only 19 women have taken home the coveted award in physics, chemistry or medicine. In the realms of more ordinary talent, just 28% of the world’s researchers are women. Even in the EU, where the sexes are more equal than in other parts of the world, a mere two-fifths of scientists and engineers are women. In Germany and Finland, it is less than one in three.

Eastern Europe bucks the global trend, according to a recent report from Leiden University in the Netherlands. In Lithuania, 57% of scientists and engineers are women. Bulgaria and Latvia follow close behind, at 52%. Universities in Poland and Serbia were ranked among the best in the world for sexual equality in research publications. South-east Europe is roughly at parity: 49% of scientific researchers in the region are women. Some of this is a legacy of Soviet times, when communist regimes pressed both men and women into scientific careers and did not always give them a choice about it. The coercion has gone, but the habit of women working in labs has remained.

In Europe today, campaigners to get more women into top boffin jobs complain of a “leaky pipeline”: many women end their involvement with STEM subjects (science, technology, engineering and maths) after finishing college. However, a study by Microsoft finds that female role models strongly increase girls’ interest in these subjects.

According to the European Institute



Move over

for Gender Equality, closing the gap between men and women in STEM would lead to an increase in the EU’s GDP per capita by at least 3% by 2050 and create over 1.2m jobs. Over the past decade, employment in Europe’s tech sector has grown four times faster than overall employment. But the European Commission predicts that by 2020, the region’s growth could be hampered by a shortage of 500,000 information and communications technology (ICT) workers.

In 2017 more than half of EU businesses that tried to recruit ICT specialists had trouble filling the vacancies. Lithuania, which has Europe’s narrowest employment gap between the sexes, and Bulgaria, which has the highest proportion of women in ICT specialised jobs in the region, found it easier.

▶ man national housing association has already warned that member companies will build 50,000 fewer apartments over the next five years if the law is enacted. Shares in the company that is Germany's biggest landlord tumbled on the day of the vote. In San Francisco, caps sharply decreased the supply of rental housing, driving up prices citywide by 5% after they were expanded in 1994. They encouraged landlords to demolish properties and build pricey new ones, since these were exempted, as would happen in Berlin.

Critics argue that instead of trying to fix prices, cities should allow more homes to be built. Sebastian Czaja, an MP for the Free Democratic Party in Germany, says Berlin needs "a construction offensive". The city has grown by about 50,000 people a year since 2011, but added only 10,000 new apartments per year. Berliners are not helping themselves: they have voted against de-

veloping a field the size of Monaco near the city centre, and halted plans to build on a huge patch of farmland nearby. Amsterdam is struggling to meet supply, too. It aims to build 1m new homes by 2030, but issued fewer than 10,000 permits last year.

Rents in German new-builds are high partly because building regulations have become extremely stringent, says Michael Voigtländer of the German Economic Institute. Frédéric Cherbonnier of the Toulouse School of Economics says that in Paris large rent subsidies, which total 1% of GDP in France, have helped to push up prices and should be cut, since the benefits largely accrue to landlords, not renters.

High rents are unlikely to come down soon. The European Central Bank is maintaining ultra-low interest rates, and urban migration will continue. If politicians really want to help renters, they should favour concrete-mixing, not price-fixing. ■

far from being alone. Across the EU, between 1990 and 2015, the total forested and wooded area grew by 90,000 square kilometres—an area roughly the size of Portugal. Almost every country has seen its forests grow over the period.

In the minds of city-dwellers and green voters, this is self-evidently a good thing. Certainly, the mass planting of trees on a global scale has the potential to help absorb the carbon-dioxide emissions that drive global warming. Deep within the Baronnies Provençales natural park, where rare species such as the black vulture can now occasionally be spotted above higher peaks, things are not quite that simple.

Some of the 34,000 people who live inside the park see species such as the black pine, a drought-resistant conifer that encroaches on pastureland, as a pest. During the dry summer months, there are also worries that unmanaged forest growth increases the risk of fire. "The fact that forests are growing here can be problematic," says Audrey Matt, in charge of forests at the park. "It all depends which way round you look at it."

Indeed, when the park was first created, local opposition groups were vocal. There were (unfounded) fears, recalls one local resident, that it would mean an end to hunting and would bring stricter environmental rules. An association calling itself "Free Baronnies, No Park" denounced a "steamroller" approach to its creation. It took nearly two decades of planning to set up the park and, even then, 44 of the 130 communes that lie within its boundaries initially refused to join in. A dozen or so have since changed their minds.

Managing the forest is complex. The park covers a web of local governments. Most of the trees grow on private land, beyond the reach of rangers, and are therefore usually left untended. Competing demands, between those seeking to protect nature at all costs and others with jobs in logging or related industries, are not easy to reconcile. Paradoxically, France is a net importer of wood, something the French government wants to change. Yet last October employees of France's National Forestry Office marched in the nearby town of Valence to protest against the increasing commercial exploitation of forests, as well as job and budget cuts.

The French have a long and ambiguous link to their forests, a source of conflict during the revolution in the eighteenth century between nobles and peasants seeking firewood and land for grazing. The first serious attempt to protect them, a decree passed in 1669 under the *ancien régime*, was in reality designed to secure timber for Louis XIV's naval ships. Then, as now, those with a long-term interest in exploiting forests have a powerful incentive to conserve and replenish them. ■

France

Into the trees

BUIS-LES-BARONNIES

France's forests are getting bigger

ON THE NORTHERN edge of Provence, a mountain pass winds its way out of a valley of apricot orchards and olive groves into a startling landscape of emerald forest and limestone ridges. This is part of one of France's newest regional natural parks, the Baronnies Provençales, set up four years ago and spreading across 1,800 square kilometres (700 square miles) of the Drôme and Hautes-Alpes. With a mix of pine, oak and beech, fully 79% of the park is covered

by forest, and this share is growing. In fact, as the world worries about deforestation, the total area of forests in France is actually on the rise.

Forests now cover 31% of France. In terms of area, it is the fourth most forested country in the EU, after Sweden, Finland and Spain. Since 1990, thanks to better protection as well as to a decline in farming, France's overall wooded or forested areas have increased by nearly 7%. And France is



Nature is winning

Charlemagne | Knuckle-dusters and pearls

Does Ursula von der Leyen have the right skills for the European Commission presidency?



IT IS HARD to imagine a biography less suited to the mood of today's Europe than that of Ursula von der Leyen, the German incoming president of the European Commission. Insurgent parties are sweeping the continent, cracks are forming between and within the EU's member states and new threats are looming in the wider world. Mrs von der Leyen is the posh daughter of a Christian Democrat (CDU) minister-president of Lower Saxony. She rose through various government roles as an ally of Angela Merkel, glides multilingually through the world's foreign-policy salons and can seem rather prim. Many consider her spell as German defence minister a debacle. Just what the old continent needs, one might groan: a slick, over-promoted scion of Europe's unloved political establishment.

The manner of Mrs von der Leyen's election supports that gloomy gloss. She was never a favourite to run the EU's executive but rather a last-ditch candidate stumbled upon by sleep-deprived leaders at the conclusion of a three-day summit two weeks ago. In a speech before the European Parliament ahead of a binding approval vote on July 16th she issued a screed of mostly familiar albeit sensible policy proposals designed to secure a centrist majority, including faster progress towards carbon-emissions targets, enabling the EU to take some foreign-policy decisions without reaching unanimity, more capital-markets integration and a 50% female commission. She had hoped to win over socialists, liberals and greens as well as members of her own centre-right bloc—together the four hold 518 of the 751 seats in the parliament. But she failed to persuade parts of the centre-left and won her tiny nine-seat majority with the support of some opportunistic MEPs from populist groups.

Appearances can be deceptive, however. Where Mrs Merkel is more straightforward than she sometimes seems, her erstwhile protégée is more enigmatic. And that is grounds for open-mindedness about her prospects as the first woman to be commission president goes about building her team of commissioners with national governments, who formally propose its members.

For one thing, her background is not as smooth as it sounds. Her father was once an outsider in his own party. He took on the right-wingers who dominated his state branch and transformed it

into one of the party's most liberal outposts. "There was the Lower Saxon CDU before Ernst Albrecht and there was the Lower Saxon CDU after Ernst Albrecht," notes Alexander Clarkson of King's College London. Far from being a teacher's pet, Mrs von der Leyen drifted for periods of her youth and spent a liberating spell as a student in London that, she says, gave her an "inner freedom". She was never truly a creature of the CDU and was plucked from relative obscurity by Mrs Merkel, who admired her no-nonsense style, to become families minister in 2005. In that job Mrs von der Leyen appalled traditionalists by bringing in a swathe of social reforms, such as extending paternity leave and expanding child-care provision. As labour minister she tried but failed to bring in quotas for women in boardrooms.

Her toughest assignment came when in 2013 she moved into the Bendlerblock, the grand complex housing Germany's defence ministry and long considered the ejector seat of German ministerial careers. Her record there is at best mixed—Germany's armed forces remain woefully under-equipped—but better than it looks. Mrs von der Leyen inherited a department scarred by decades of hierarchical conservatism, strategic sluggishness and underfunding and has led it during a period when pacifist, cautious Germany has undertaken recently unimaginable foreign military commitments in places like Mali, Iraq and Lithuania. She has championed a networked, active German role in the world ("leadership from the centre" she calls it) and has fought doughtily for budget increases. Her attempt to take on the brass and the bureaucrats by using outside experts, most notably appointing a management consultant to a senior job, ruffled feathers and prompted a still-ongoing parliamentary inquiry into the allocation of lucrative contracts to consultancies. Annegret Kramp-Karrenbauer, Mrs Merkel's favoured successor as chancellor, takes over from Mrs von der Leyen in the ejector seat.

Judgment reserved

Peter Dausend and Elisabeth Niejahr, Mrs von der Leyen's biographers, compare her to a school pupil who takes on the strongest child in the playground. It seems reckless, but has advantages. Failure is assumed; victory carries big rewards. A certain gutsiness also marks her manner of working. She prefers to hold meetings not sitting down but on foot, and works next to trusted aides with laptops adjacent "like duetting pianists at one piano". One military official says she often sleeps in the ministry. Frenetic, driven and a natural troublemaker, the real Mrs von der Leyen belies her smooth public image: less twinset and pearls than knuckle-duster and caffeine pills.

All of which could mean that choosing her for a five-year spell at the Commission's helm is a gamble. The vote on July 16th was deceptive. Mrs von der Leyen's narrow majority said less about her authority than about the strategic feints, procedural grumbles and face-saving measures of MEPs from across the spectrum. Such is today's fragmented and febrile European politics. The question is less what MEPs make of her now than whether she can bridge those gaps with broadly acceptable proposals that respond to Europe's many challenges. That will take an ability to confront people but also to broker deals, so Mrs von der Leyen should appoint experienced commission hands like Margrethe Vestager, the Danish competition supremo, to powerful roles. Smooth and abrasive, established and insurgent, the incoming president may turn out to be the worst of all worlds. But with a strong team around her it is also possible that her contradictions will prove a blessing. ■



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The economy

Weak foundations

The housing market is wobbling. It may be the start of something much worse

JUST OVER a decade ago, in an obscure corner of the economy, there was an early warning sign that Britain was about to fall into recession. Months before the downturn had been confirmed, the maker of Dulux paints reported that sales of its decorative range were down. Faced with global economic uncertainty and a weakening labour market, Britons were cutting back on refurbishment. At the same time, lower demand for new houses meant that builders needed fewer materials.

What was first seen in the market for paints eventually spread to other parts of the property sector—and from there to the rest of the economy. Over a fifth of Britain's building firms ultimately went under. Surveyors, estate agents and solicitors suffered. In all, falling housing investment accounted for a quarter of the drop in GDP in 2008-09. It played an even bigger role in the recessions of 1975, 1980-81 and 1990-91.

So it is ominous that the housing market is again looking weak. In the past two years real house prices in London have fallen by a tenth (and by 5% in nominal terms). The rest of the country is now following suit; for the first time since 2013 real prices are falling year-on-year (see chart). There is

Where you lead, I will follow

Britain, house prices, September 2007=100
2019 prices



growing evidence that, as in 2008, weakness in the housing market is dragging down overall economic growth.

A few factors explain the slowdown. One is a tax reform in 2016 that subjected buy-to-let investors to higher stamp duty, a tax on property purchases. Another is the fact that foreign buyers, who snap up London flats as investments and status symbols, are giving Brexit Britain a wider berth. Tighter monetary policy is also playing a

role. Since November 2017 the Bank of England has raised interest rates from 0.25% to 0.75%. That has pushed up average mortgage rates, meaning Britons cannot borrow as much. (It also means that, despite falling prices, for most people housing is no more affordable than it was before.)

As prices have dropped, so has the number of transactions. In May the number of properties changing hands was 10% lower than a year earlier. A measure of buyers' inquiries fell for ten consecutive months to May, before rallying slightly in June. Boris Johnson, the probable next prime minister, has floated the idea of reducing stamp duty, which could gee up the market—but buyers may be putting off their purchases until such a cut happens.

The supply side of the market is also taking a hit. In recent decades the housing market has often seemed like a one-way bet, with real house prices rising faster than in any other G7 country. Now, confronted by falling prices, sellers of land are putting their plans on hold. A land-buyer for one of the big housebuilding companies complains that finding plots for sale has become more difficult.

Even when developers have land, they seem increasingly reluctant to build on it. Not long ago they were firing on all cylinders, putting up 140,000 private homes in England in 2018, the most since before the ▶▶

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financial crisis. Yet many now complain that in parts of the country, especially the south-east, there is an oversupply of properties. (This may in fact mean simply that they are not making quite such fat profits per house as they once did. Most economists believe Britain continues to need far more homes to bring down what are still sky-high prices.) The Bank of England's "agents", who speak to firms across the country, report that housebuilders have scaled back some large projects. Data from Glenigan, a consultancy, suggest that the number of residential projects acquiring planning permission fell during 2018.

A weak housing market comes at a bad time. Survey data suggest that GDP did not grow in the second quarter of 2019, one reason why sterling has been sliding (see Finance section). Some economists believe the second-quarter readings are misleadingly low, because firms brought forward purchases of components to stockpile ahead of March 29th, the original Brexit date, and so spent the second quarter using them up. But it would not take much for growth to slip into negative territory. On July 18th the official Office for Budget Responsibility warned that a no-deal Brexit would tip Britain into recession.

One worry is that declining house prices will dent consumer confidence, which is already low. Research on the American market finds that homeowners feel poorer if the value of their house is falling, which in turn leads them to reduce their spending. Yet studies by the Bank of England suggest that in Britain the vagaries of the property market have only a small effect on consumption. Household spending is holding up fairly well so far.

The current weakness of the British economy is really a story about investment, which has stagnated since 2017. Capital spending on transport equipment and computers is dropping. The decline in housing transactions explains why investment in homes, which accounts for a quarter of the total, is also looking weak. Builders report that it is easier to find workers and materials than it was a few months ago, suggesting that they have plenty of spare capacity. And the market for paint is again flashing red: last year British firms' sales of the stuff dropped by 2.4%.

The housing market could well get worse before it gets better. Help to Buy, a government lending initiative which has boosted house prices and transactions, will start to be wound down in 2021. Yet this is but a gentle gust in comparison with the tornado of a no-deal Brexit, which could strike on October 31st. The Bank of England recently outlined a possible scenario in which no-deal was associated with a one-third drop in house prices. Another recession which starts in the housing market may not be far away. ■

Seaside property

Trimming the main sale

ST IVES

The unintended consequences of a crackdown on second homes

OUT-OF-TOWNERS have long flocked to St Ives. Artists such as J.M.W. Turner and Barbara Hepworth were drawn to the town's clear light. Others come for the seafood and sandy beaches. Even the town's notoriously aggressive seagulls, who dive-bomb unsuspecting tourists and steal their Cornish pasties, are not enough to put off outsiders. But St Ives's popularity has a downside: visitors dominate the local housing market.

Locals worry that the town is becoming a playground for rich Londoners, who in the summer months whizz down on the sleeper train from Paddington. At the last count, a quarter of the dwellings in St Ives were second homes or holiday lets. So in May 2016 locals decided to do something about it, voting in a referendum to introduce a "principal-residence policy", which stops newly built houses in the town from being used as second homes. The thinking went that by stopping holidaymakers from snapping up new-builds, housing would become more affordable to people who live in St Ives all year round.

Building firms and DIY shops, for whom second-homers are prized customers, opposed the plan. One property firm even challenged the policy in the High Court. But the legal challenge failed and the second-home ban went ahead. Since then a few other Cornish towns have introduced their own versions of the policy.

Those involved in designing the plan say that, three years on, it is too early to assess its impact. But official statistics suggest that excluding second-home buyers from the new-build market has removed a big source of demand. The



Don't feed the Londoners

price of new homes in the town is 13% below what it might have been if the previous growth rate had continued.

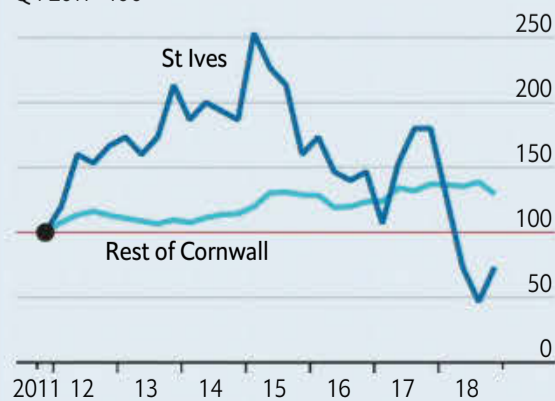
Locals struggling to afford a property may like the sound of this. But it has had an unwelcome side-effect: housebuilding has slumped (see chart). Developers who bought land when it was pricier can in some cases no longer sell homes at a profit. Others may be holding off from breaking ground in the hope that the policy is scrapped. In 2015 Acorn Property Group, a local firm, was about to buy a site for 34 homes, 14 of them "affordable" (ie, sold or let at below-market rates). But the policy made the scheme unviable because the open-market dwellings could no longer subsidise the affordable ones, the company says.

Construction elsewhere in Cornwall has held up, suggesting that broader factors, such as Brexit-related uncertainty and a national levy on second homes introduced in 2016, are not to blame.

Meanwhile, second-home buyers in St Ives seem to be shifting their attention to existing buildings, which are not covered by the policy. Data from Hampsons International, a property firm, suggest that in St Ives second-homers form a larger share of transactions than before the policy came into force. Excluding new-builds, prices have continued to climb. That represents a windfall to locals who already own their homes—and may eventually persuade even more of them to cash in and move out.

Off a cliff

Britain, sales of newly built homes*
Q4 2011=100



Sources: Land Registry;
ONS; Resi Analysts

*Year ending

Bagehot | The end of history

The decline of the study of the past bodes ill for the future



WHATEVER YOU think about recent events in Britain, you cannot deny that they qualify as historic. The country is trying to make a fundamental change in its relationship with the continent. The Conservative Party is in danger of splitting asunder and handing power to a far-left Labour Party. All this is taking place against the backdrop of a fracturing of the Western alliance and a resurgence of authoritarian populism.

Yet even as history's chariot thunders at a furious pace, the study of history in British universities is in trouble. The subject used to hold a central position in national life. A scholarship to read history at one of the ancient universities was both a rite of passage for established members of the elite and a ticket into the elite for clever provincial boys, as Alan Bennett documented so touchingly in his play "The History Boys". Prominent historians such as A.J.P. Taylor and Hugh Trevor-Roper were public figures who spoke to the nation about both historical and contemporary events. The *Sunday Times* had Trevor-Roper on retainer to write special reports on big news stories and Taylor's televised lectures attracted millions of viewers.

This was as it should be. Britain is a small island with a gigantic history, and history connects it with the wisdom of the ages. But something has gone badly wrong of late. Even as history itself has become more dramatic, the study of history has shrivelled. The number reading it at university has declined by about a tenth in the past decade. The number studying languages, which often have a historical component, has fallen by a fifth—hardly an auspicious start for "global Britain". Students have instead been stampeding into overtly practical subjects such as medicine, veterinary sciences and business studies.

At the same time, the historical profession has turned in on itself. Historians spend their lives learning more and more about less and less, producing narrow PhDs and turning them into monographs and academic articles, in the hamster-wheel pursuit of tenure and promotion. The need to fill endless forms to access government funding adds the nightmare of official bureaucracy to the nightmare of hyper-specialisation. And historians increasingly devote themselves to subjects other than great matters of state: the history of the marginal rather than the powerful, the poor rath-

er than the rich, everyday life rather than Parliament. These fashions were a valuable corrective to an old-school history that focused almost exclusively on the deeds of white men, particularly politicians. But they have gone too far. Indeed, some historians almost seem to be engaged in a race to discover the most marginalised subject imaginable. What were once lively new ideas have degenerated into tired orthodoxies, while vital areas of the past, such as constitutional and military affairs, are all but ignored.

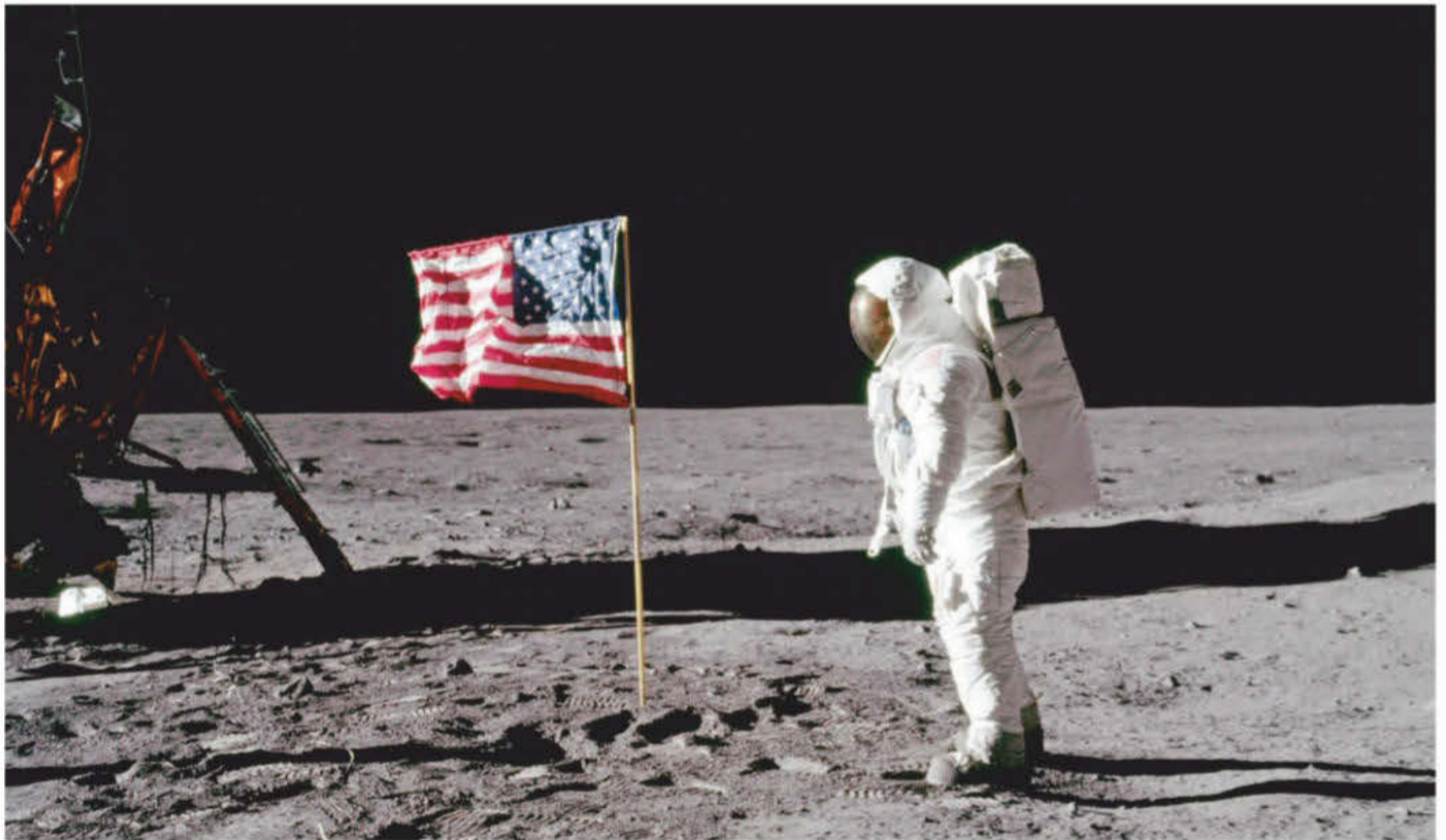
The people who pay the heaviest price for this are the students who choose to spend several years of their lives, and many thousands of pounds, studying history. Under the old dispensation, students at least acquired a general sense of the history of their own country. Today, they often study a mish-mash of special subjects that don't have much to hold them together, let alone provide a sense of broad historical development. The general public is also short-changed. Senior historians used to think that their job included talking to the nation and setting current events in their historical context. For the most part today's historians remain isolated in their professional cocoons, spending more time fiddling with their footnotes than bringing the past to light for a broader audience. Who outside academia has heard of Lyndal Roper, the current Regius professor of history at Oxford?

The obvious reason to worry about this is that there is more than a little truth in the old adage that those who don't learn from history are condemned to repeat it. The world seems to be determined to copy the mistakes of the 1930s and '40s, with Donald Trump recycling the isolationist rhetoric of America Firsters and Jeremy Corbyn embracing a failed socialist ideology. History is a safeguard against this kind of Utopianism. One of the reasons the world is in such a mess is that neoliberals became carried away with their own ideology. They made all sorts of unrealistic promises, about abolishing the boom-bust cycle or bringing democracy to the Middle East, that a moment's reflection on history would have exploded.

The study of history is also a safeguard against myopia. Modernity shrinks time as well as space; people live in an eternal present of short-term stimuli and instant gratification. History teaches them to broaden their horizons and shift their perspectives. On a more mundane level, history can be a safeguard against outright idiocy. The Northern Ireland secretary, Karen Bradley, might not have expressed surprise that Protestants and Catholics in the province vote along sectarian lines if she had spent, say, an hour studying the history of the province over which she presides.

What's past is prologue

There are glimmers of hope. Britain still has historians with a genius for bringing their subject alive, such as Tom Holland, Sir Simon Schama and Dame Mary Beard. History festivals are booming. The decline in the number of students reading the subject has not been as precipitous as in America. But these are no more than glimmers. A striking number of Britain's bestselling historians either don't have academic jobs (like Mr Holland) or face brickbats and backbiting from their fellow professionals (as Dame Mary does). The public's voracious appetite for military history, so clearly demonstrated during the D-day celebrations, is catered for almost entirely by non-academics such as Sir Max Hastings and Sir Antony Beevor. Historians need to escape from their intellectual caves and start paying more attention to big subjects such as the history of politics, power and nation-states. The extraordinary times that we are living through demand nothing less. ■



Outer space

Star laws

Space is commercialising. The legal system needs to catch up

IN MAY JEFF BEZOS gave an hour-long presentation on his vision for humanity's future in space: a series of artificial settlements in orbit that would be home to as many as 1m people each. Mr Bezos was talking in his role as founder of Blue Origin, a privately held rocket-launch firm. But he also referred to the company for which he is better known, Amazon.

Amazon would never have existed, he said, without pre-existing infrastructure: postal services to deliver packages; home computers to order goods; credit cards to make payments. The job of the current generation would be to build an equivalent "infrastructure" for space. Mr Bezos identified two elements of this: much lower launch costs and the exploitation of resources in space. But he might have mentioned another, more basic requirement for enterprise: a proper legal environment.

What rules there are largely date from the cold-war era. The Outer Space Treaty of 1967 is the foundational space-law text. It sets out some basic principles, among them that space is free for exploration and

use by all states, and that no claims of sovereignty can be made. Later agreements assign liability for damage caused by space objects and require states to help rescue astronauts in distress.

A common thread runs through these texts. They all assume that space is a realm dominated by states, not by companies, let alone individual billionaires. As space industrialises, the gaps in the law are becoming clearer. Two areas of concern stand out: debris and resource extraction.

Debris is much the more pressing issue. NASA, America's space agency, already tracks more than 500,000 pieces of space junk in orbit around Earth. Items that are smaller than a marble are not yet tracked but NASA reckons there are millions; and at velocities of more than 27,000km per hour, even a fleck of paint can cause damage. Systems are in place to reduce the risk of collisions ("conjunction risk" in the understated argot of the satellite industry). Firms that launch objects into space need licences from the relevant national authorities. These regulators are meant to vet pro-

posed orbits and set end-of-life rules for old satellites either to re-enter Earth's atmosphere, where they burn up, or to be propelled into "graveyard slots" where there is no risk of collision.

International guidelines, based on American standards, specify best practices for mitigating the risk of debris. America's Space Surveillance Network shares some data on the trajectory of larger bits of space junk. The International Telecommunication Union (ITU), a UN agency, responsible among other things for allocating radio frequencies in space, acts as a clearing-house for information on satellites in orbit.

Put your helmet on

But the current system is, in the words of Alexandre Vallet of the ITU, less a binding framework than "a gentlemen's agreement". End-of-life rules vary between regulators. The guidelines on debris mitigation are not enforceable internationally. When satellites are on a crash course, demanding large changes in orbit, as happens perhaps once or twice a year, common sense is what stops a collision. States themselves are free to ignore norms of good behaviour. India caused both outrage and a fresh debris field in March by conducting an anti-satellite missile test; China increased the amount of trackable debris then in space by 25% with a single such test in 2007 (see chart on the next page, which covers bigger objects, with a diameter of more than about 10cms). This system has worked well enough so far. ▶▶

► But the problems are becoming more complex. First, launch capabilities are spreading. Last year an American startup called Swarm Technologies paid a footling \$900,000 fine for sending four tiny satellites into orbit on an Indian rocket, having been denied permission to do so by the US Federal Communications Commission.

Second, the number of objects in the heavens is about to rocket. The UN's Office for Outer Space Affairs says about 8,650 objects have been launched into space since Sputnik went up in 1957. SpaceX, a rocketry firm, alone has plans to launch more than 12,000 in a constellation of small satellites known as Starlink. Other constellations are planned. Space tourism may well add to the amount of traffic to be managed.

These constellations are needed because the satellites will be in low-Earth orbit (LEO). The bulk of satellite communications today comes through objects in a geostationary orbit, some 36,000km above the Earth. At that altitude a satellite takes a day to travel around the planet, seeming to hover in the same place. At a lower orbit, lots of satellites are needed to maintain coverage of a specific area; constellations will criss-cross each other as they whizz around the world.

Floating in a most peculiar way

The rules are clear for objects that stay in the same location, says Ruth Pritchard-Kelly of OneWeb, an operator which has six LEO satellites in orbit already and plans eventually to launch at a rate of 30 a month until its constellation is complete. "But there are an infinite number of ways for an object to be non-geostationary. We have to come up with rules on how to share space." An ITU conference in Egypt in October and November will try to do just that.

Liability rules also need refreshing. A 1972 regime assigns liability for damage caused by a space object based on who launched it. That made more sense in an era when governments launched their own objects from their own territory. Take the collision in 2009 between a defunct Russian military satellite called Kosmos-2251 and an operational commercial satellite called Iridium 33. Iridium 33 was owned by an American firm but it was launched from a Russian-owned spaceport. Had there been a claim for compensation, Iridium would have had to call in the State Department to approach the Russian Ministry of Foreign Affairs. The Russians could have argued that, since Iridium 33 launched from Russia, it was in effect Russian and this was an internal affair.

Iridium, which ended up not making a claim, would have faced another argument, too: that responsibility for a collision lies with the party which had the last opportunity to avoid it. Working that out is not always easy, and becomes well-nigh

impossible if both objects are defunct. "If you have two drivers on a road with no traffic lights, no steering wheels and no brakes, who's at fault if they crash?" asks Dara Panahy of Milbank, a law firm.

In these circumstances, mitigating the risk of future collisions is not enough; it is also necessary to be able to remove debris from space. A range of technologies, from harpoons to tethers to nets, are being developed to do that. But the practice would require a change in the rules. International law states, for example, that an object belongs in perpetuity to the country that launched it. James Vedda of the Centre for Space Policy and Strategy, a research group, argues for an equivalent of a maritime-salvage regime, so that it is possible either to recover an object without permission or to get such permission very quickly.

Compared with the problem of space debris, the legal questions raised by space mining are less urgent. The technological and financial hurdles to success are immense: companies like Planetary Resources and Deep Space Industries, formed in a blaze of publicity to prospect for minerals on asteroids, have already stumbled. But the ambition remains, focused clearly on Earth's nearest neighbour.

"If we can utilise resources to keep a community on the Moon," says Michelle Hanlon of the Air and Space Law Programme at the University of Mississippi School of Law, "that is our best way to find out how to keep humans in space for the long term." At his presentation in May, Mr Bezos envisaged using ice in the shadowed craters of the Moon to generate fuel, and targeted a lunar landing by Blue Origin by 2024. NASA plans a space station in lunar orbit, from where astronauts would operate robotic probes on the surface that could harvest minerals. China and India both have lunar programmes and, doubtless, similar thoughts.

Some question whether resource extraction would be legal. The Outer Space Treaty prohibits national appropriation in space. To the question "who owns the

Moon?", the unambiguous answer is "no one". In practice, however, the question is not so much whether mining can happen, but in what circumstances.

International lawyers point to two, admittedly imperfect, analogies on Earth as ways to think about space mining. One is the high seas: no nation has sovereignty but you don't need international permission to extract resources (ie, fish). The other template is provided by seabed mining, an activity subject to strict licensing and regulation by an organisation called the International Seabed Authority (ISA).

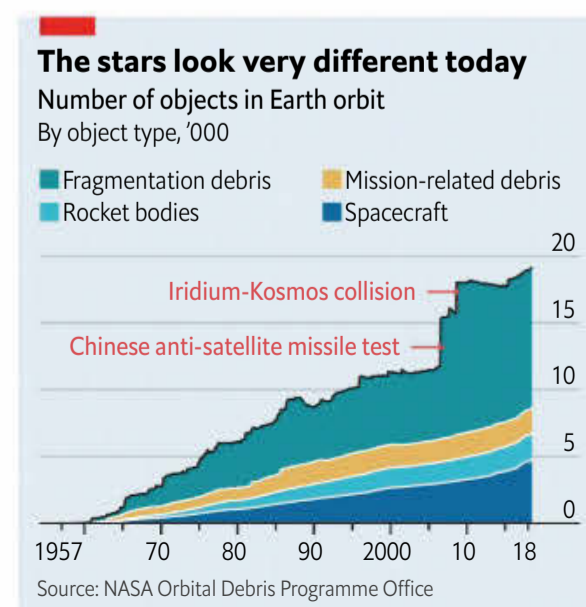
Planet Earth is blue

An attempt to set up a space equivalent of the seabed-mining regime has already been tried, however, and failed to gain traction. The Moon Agreement came into force in 1984. It calls for an international regime to administer any exploitation of lunar resources. But the agreement has only been ratified by 18 countries. "Spacefaring states like voluntary standards and non-spacefarers like the idea of international obligations," says Patrick Slomski of Clyde & Co, a law firm. These divergent interests weaken the chances either of the Moon Agreement gaining fresh momentum or of a big, new international space treaty.

Instead, the high-seas model is the one that looks likely to prevail. Both America and Luxembourg, which has long punched above its weight in the satellite and aerospace industries, have passed legislation that explicitly allow firms incorporated on their territories to carry out space mining; the United Arab Emirates is about to follow suit. Proponents of the high-seas approach like the fact that it allows commercial firms to act fast. But unbridled competition for resources is also a recipe for trouble. If a Chinese miner and an American one were to set up shop next door to each other on the lunar surface, say, domestic laws would be no help in resolving any conflict that might result.

That argues for co-ordination and common standards. The award of licences by national authorities could be notified to an international body modelled on the ITU's radio-frequency regime for satellites. Rules could usefully be set for the duration of mining licences, for the placement of buffer zones around mining sites and for dispute-resolution processes.

Ms Hanlon, who also runs an NGO called For All Moonkind, suggests an even narrower goal: an agreement on common lunar landing-pads in order to protect historic sites such as the landing area of *Apollo 11* in 1969. "We are not going to agree a treaty in the next five years, but we can take baby steps," she says. Mr Bezos would approve of that. His talk ended with a picture of him alone at a desk in the early days of Amazon and the caption "Big things start small". ■





Corporate earnings

Earnings reprieve

NEW YORK

Profits are down in America Inc. Is it time to worry?

“IT’S NOT that bad,” remarked Jamie Dimon, boss of JP Morgan Chase, of the global economy on July 16th. But, Wall Street’s favourite banker had to concede, business sentiment “is a little bit worse”. Prospects for American companies have indeed dimmed. Analysts expect earnings of the biggest among them, which have just begun reporting their latest set of results, to have declined in the second quarter. This would mark two consecutive quarters of falling profits, the first such “earnings recession” since 2016. Coming just as the current economic expansion makes history as America’s longest ever, it raises the prospect of a long boom running out of steam. Bosses are getting twitchy.

America Inc has enjoyed an extraordinarily good run since the country rebounded from the global financial crisis of 2008-09. The economy has grown, inflation has been low and interest rates rock-bottom. Despite unemployment hovering below 5% wage pressures have been modest. All told, annualised corporate profits

exceeded \$2trn last quarter, nearly double the level a decade ago. President Donald Trump’s tax reform cut the corporate tax rate from 35% to 21%. This and his deregulatory efforts have freed up capital. Companies have used the windfall to buy back shares—reducing the amount of stock and superficially boosting earnings per share. The s&p 500, Dow Jones Industrial Average and Nasdaq Composite, three leading share indices, hit record highs on July 15th.

Today the mood in boardrooms is less ebullient. The latest survey by the Business

Roundtable, a conclave of bosses (chaired by Mr Dimon), put confidence higher than the historical average and well above the level which would signal a recession. But it has slipped. The National Federation of Independent Business observes a similar decline in optimism among bosses of small and medium-size enterprises. Nearly four-fifths of s&p 500 firms that have issued guidance on financial performance for the latest quarter have indicated that earnings per share will fall year on year.

Analysts’ forecasts reflect these sentiments. Profits in six out of eleven big industries may have declined from April to June compared with a year earlier (see chart on later page). FactSet, a research firm, estimates an average drop of 2.8% for s&p 500 earnings, on top of a 0.3% dip the quarter before. Observers—and executives themselves—see three reasons for the darkening outlook.

The most prominent is Mr Trump’s trade war with China. Doug McMillon, boss of Walmart, has warned that tariffs will lead to higher costs for the retail giant, which sells plenty of Chinese-made goods. David Herring, head of the National Pork Producers Council, this week told Congress that the lobby group’s members were suffering from Chinese retaliatory tariffs on American pork. Despite his friendly encounter with China’s president, Xi Jinping, at a G20 summit in late June, Mr Trump threatened this week to impose fresh ta- ▶▶

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► riffs on \$325bn of Chinese imports. According to JP Morgan Chase, the new levies could tip the economy into a contraction.

A survey of companies by the Institute for Supply Management (ISM) echoes such worries. A manager at a chemicals firm told ISM that the levies were increasing costs. Another at a metals company worried they would weaken global demand for its products. Trade frictions are “wreaking havoc with supply chains and costs”, according to an executive at electronics manufacturer. “The situation is crazy.”

The second reason for falling profits—

rising labour costs—is good for workers but worrying for firms and investors. Amazon raised wages to \$15 an hour in late 2018, as the labour market tightened. Costco and other retailers are doing the same. If pork tariffs weren't enough, Mr Herring also reckons that farms and packing plants may shut down for lack of workers. Michael McDonald, president of the Sewn Products Equipment & Suppliers of the Americas, a trade group, says that clothesmakers face a “sizeable labour shortage”.

David Kostin of Goldman Sachs, an investment bank, calculates that total com-

pensation, which includes wages and all benefits, represents 13% of sales for a typical American firm. Wages and benefits are now rising at roughly 3% a year, up from 2% in 2018 and just 1% earlier in the business cycle. Michael Wilson of Morgan Stanley, another investment bank, reckons the official figures conceal much higher rises in such industries as retail, hotels and commercial services.

The final explanation for the earnings crunch has to do with technology companies. Patrick Palfrey of Credit Suisse, one more investment bank, notes that the list ►►

Bartleby Academy rewards

Helping people with learning disabilities into jobs

CHRIS JENKINSON has posters of wrestling stars on his walls, likes to cook burgers and is about to start work in the kitchens of a Hilton hotel in Surrey, England. Emily Martin likes to cook Victoria sponge, is doing work experience at the Hinkley Point nuclear station, and eventually wants to work in a “front of house” role in hospitality.

These may look like typical life ambitions. What makes them remarkable is that Chris has Down's syndrome and Emily has learning difficulties. Only 6% of the 1.5m British adults with learning disabilities are in paid employment. Chris and Emily are students at the Foxes Academy in the seaside resort of Minehead, which specialises in helping young people with these conditions.

In recent years, eight out of ten graduates from the academy have taken jobs in hospitality. Students take a three-year course which allows them to learn how to live independently and develop the skills needed to hold down a job. Bartleby was given a tour of the facilities by Cameron Corrick, a student who has cerebral palsy and is starting as a commis chef (doing food preparation work) in Devon in August. The academy has its own hotel, as well as a teaching centre and a number of hostels in the town centre.

Early teaching focuses on basic skills. Cameron took Bartleby to a session on communication, where students learned the conversation skills that will be necessary when dealing with the public. In a hostel three girls were learning how to prepare a shopping list, buy the ingredients from a local supermarket and then cook it for lunch. They had just returned from their trip and were planning on making pasta carbonara and stuffed tacos. The students have rotas for shopping, washing and cleaning. Eventually,

they will learn how to use PowerPoint to make a presentation, understand the food-hygiene laws (meat, vegetables, etc, are prepared on chopping boards in different colours) and pass exams known as national vocational qualifications.

The students start off by doing two shifts a week at the hotel. Later on they do work experience in the local community. Fifty businesses offer placements that involve up to 16 hours a week. Other job placements occur by happenstance. J.J. Goodman, a founder of the London Cocktail Club chain, gave a talk at the academy. That inspired Tom Hawkins, a 22-year-old with Down's syndrome, to ask Mr Goodman to help him pursue his dream of being a barman. Tom has been undergoing training and the chain hopes to offer him a permanent job, where he will be mixing piña colodas with the best of them.

The education offered by the academy clearly has enormous benefits for the students themselves. Emily says she was bullied at school but found lots of friends when she came to the academy, and gained much confidence as a result. It was easy to

see how excited the students were at the prospect of having a job.

Employers benefit, too. One of the academy's main supporters is the Hilton group, which has offered 21 work placements and hired nine staff. Through its charitable foundation, it has recently invested \$40,000 to improve the academy's training facilities. Steve Cassidy, Hilton's managing director in Britain and Ireland says the scheme has gone extremely well, with benefits for the students in terms of training, and benefits for the culture and environment of the hotels themselves. He hopes the group's hotels in other parts of the world will follow Britain's lead.

Lastly, getting the likes of Chris, Emily and Tom into work rather than residential care, where they would otherwise end up, saves the government a lot of money. Foxes cites estimates from Britain's Department of Education which shows that the cumulative cost of supporting a person with a moderate learning disability throughout their adult life (from 16 to 64) is up to £3m (\$3.8m). Teaching them the skills to live semi-independently and take a job reduces the bill by around a third.

Those savings require some upfront investment. Each student is funded by their local council but local-authority budgets have been squeezed under the austerity programme of the current Conservative government. Clare Walsh, the academy's marketing manager, says that councils are finding it more and more of a struggle to send students.

That is a shame. Anyone who visits the academy is bound to be inspired and impressed. Chris, Emily and Cameron deserve all the support they can get.



► of top ten contributors to the second quarter's profit crunch includes representatives of Big Tech. Hardware and semiconductor goliaths such as Apple and Intel are facing a cyclical downturn in demand for their products. Trade spats exacerbate it. So too has Mr Trump's decision on national-security grounds to impose sanctions on Huawei, China's tech champion, which has upended global supply chains. Some internet firms are sputtering. Netflix's share price lost 12% in after-hours trading on July 17th, when the streaming giant reported the first drop in American subscribers since 2011.

Big trouble at a few massive—and massively profitable—tech firms may be dragging down average earnings. As Mr Kostin points out, some tech titans may see profits squeezed by 10% whereas the median technology firm can expect a rise in earnings per share of perhaps 3%. Some big firms, like Microsoft and Amazon, continue to thrive. Similarly, the aggregate decline in second-quarter earnings hides the fact that the median American company should see profit growth of 4%.

The good times, on this view, are not quite over. "The headwinds will abate by 2020," predicts Mr Palfrey. Many American bosses agree. Unless the Sino-American tariff tiffs turn into a full-blown trade war, they think, companies can handle the challenges. The Federal Reserve has recently turned dovish, partly in response to Mr Trump's hawkishness on trade. It may cut interest rates, which could extend the eco-

nomical expansion further.

Not everyone accepts this view. Morgan Stanley expects profits across the metals and mining industries to decline, for example. The bank is also bearish on tech, where the "breadth of the expected negative results is stunning". Mr Wilson, who was among the first to foresee the current decline in profits, believes that earnings have not yet hit the bottom. "The picture is getting worse, not better," he warns.

Unless America's expansion enters Australia's territory of 20-plus years of continuous GDP growth, the boost to profits from Mr Trump's tax cuts came nearer the end than the beginning. That may have created excesses. As a share of GDP, corporate debt is nearly where it was before the subprime bubble burst in 2008. Inventories are building up across the economy. Firms must absorb higher depreciation costs from a tax-fuelled splurge of capital spending. All this can weigh on profitability.

The quarterly financial results unveiled this week by several big banks bolster the case for cautious optimism. A boom in credit cards and mortgages pushed profits up at JPMorgan Chase, Citigroup and Wells Fargo. This implies that, as Mr Dimon also said this week, "the consumer in the United States is doing fine." This will be cold comfort to industrial firms and other business-facing companies whose margins are shrinking. Given the sheer length of America's record economic expansion, however, it really is not that bad. ■

Facebook

Volte-face

The social network says it will behave better from now on. Promise

THE SCENE is becoming familiar: a Facebook executive is hauled before Congress in Washington, DC; a public grilling ensues. At least on July 16th and 17th American lawmakers looked better prepared than they were a year ago when they displayed little idea of Facebook's business during hearings over its failure to stop a rogue consultancy from harvesting data on 50m users without permission. This time David Marcus fielded mostly sensible questions about the social network's nascent cryptocurrency project, Libra, which he heads. Would transaction data be mined for valuable spending patterns? How will Facebook make money from Libra, which is to be governed by an independent body based in Switzerland?

Mr Marcus offered reasonable answers. User consent will be required to mine transaction data; money will come from advertisers, happy to pay to gain access to consumers more willing to part with their money thanks to easier online payments. The big question on everybody's mind was different, however: why on Earth would scandal-plagued Facebook launch a global financial instrument at all?

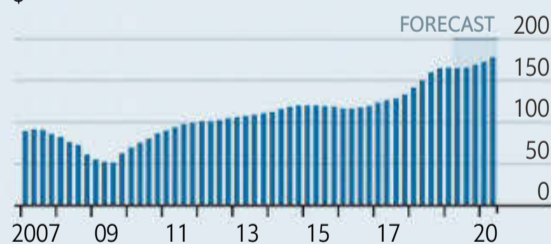
The query is all the more relevant in light of a decision days earlier by the Federal Trade Commission to fine the company \$5bn for its recent misuse of user data. If approved by the Department of Justice, as looks likely, the penalty will be the largest that the American government has ever meted out to a technology company (the EU has been harsher, see chart on next page).

Facebook seems eager to convince governments that, despite piles of evidence to the contrary, it can be trusted. Mark Zuckerberg, Facebook's boss, has called for more regulation of Big Tech, including his firm. On Capitol Hill Mr Marcus promised that Libra, and the division of Facebook which is meant to monetise it, Calibra, would not launch until the concerns of American lawmakers have been allayed. It now asks for permission rather than forgiveness, Mr Marcus appeared to be saying, not the other way around as in its youth.

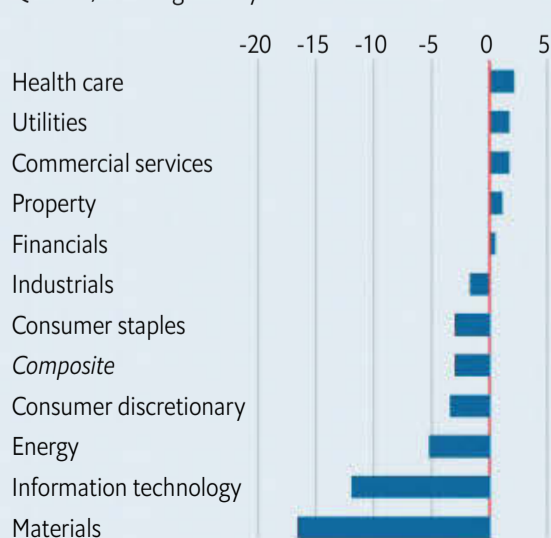
Facebook's new, mature face plays well with investors. After a year of scandal and abysmal press, its share price is just shy of record highs. It gained more than 1% on the news of the latest fine, which had already been priced in thanks to astute telegraphing earlier this year—a sign, perhaps, of a good working relationship with the Ameri- ►

Boom-time blues

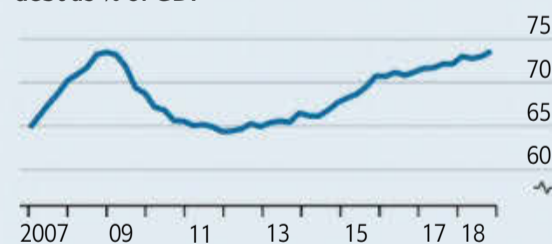
S&P 500 aggregate annual earnings per share \$



S&P 500 estimated earnings by sector Q2 2019, % change on a year earlier



United States, private non-financial corporate debt as % of GDP



S&P 500 stockmarket indices January 1st 2018=100



Sources: Bloomberg; Bank of England; FactSet; Datastream from Refinitiv

▶ can regulator. A Facebook which works with governments rather than around them appeals to shareholders.

So does Facebook's ability to rake in money. The growth of its core social network is slowing down (see Graphic detail). But revenues from Instagram, its popular photo-sharing app, are growing apace. It has yet to realise the money-spinning potential of WhatsApp, its messaging service. Analysts expect Facebook's second-quarter results, due out on July 24th, to show revenues up by 25% from last year, to \$16.3bn. Unlike profits at some other technology firms (see previous article), its net income is expected to rise, by 6% to \$5.4bn—more than enough to cover the fine.

Facebook is not out of the woods. Other regulators and politicians are lining up to take a swipe at Big Tech, and not just in America. Financial authorities are leery of Libra, worrying that it could become a vehicle for fraud and money laundering, as happened with some other cryptocurrencies. Central bankers fear that if adopted widely enough it could threaten financial stability. On July 16th Ursula von der Leyen, president-elect of the European Commis-

Fine and dandy

Selected tech-company fines, US and EU

Reason for fine: Tax Antitrust Privacy

Company (year)	Fine, \$bn	As % of operating profit*
Apple (2016)	14.6	20.1
Google (2018)	5.1	19.4
Facebook (2019)	5.0 [†]	20.1
Google (2016)	2.7	11.4
Google (2019)	1.7	5.5
Intel (2009)	1.4	16.2
Microsoft (2008)	1.3	6.8
Qualcomm (2018)	1.2	46.5
Microsoft (2013)	0.7	3.3

Sources: Press reports; company reports

*Preceding year
†Reported

sion, the EU's executive arm, said she wants the tech giants to pay more taxes. The next day the bloc's competition chief, Margrethe Vestager, announced a probe into Amazon's use of merchant data. In some countries data-protection regulators want to order non-compliant companies to stop processing data altogether. That would hurt considerably more than a fine. ■

Homeopathy

Watered down

PARIS

Bitter news for makers of sugar pills

FOR A NATION that regards itself as the cradle of reason, the French display a peculiar fondness for homeopathy. More than half of them have ingested homeopathic cures, based on the notion, debunked by numerous scientific studies, that water retains "memory" of active ingredients, whose healing power rises as their concentrations fall to a few molecules per dose. Now homeopaths' profits risk being watered down after France's health ministry ruled earlier this month that their products would no longer be refunded by social security.

France has recognised homeopathic remedies as akin to medicine since the 1960s. In 1984 it made them eligible for partial reimbursement from the public purse. Patients there guzzle \$700m-worth of the stuff a year, out of global sales of perhaps \$4bn. The favourable treatment owes a lot to a vocal homeopathic-pharmaceutical lobby. The world's biggest maker of such cures is Boiron, based outside Lyon, with total sales of €600m (\$674m) last year.

Many doctors practise homeopathy, but put its supposed benefits down to the placebo effect (which is real). At first the health minister, Agnès Buzyn, seemed to accept the case that patients who pop

sugar pills might cut down on antibiotics and other pharmacology, which the French notoriously overconsume. But the advice of scientists—and the prospect of saving over €100m a year—prevailed. Reimbursement rates will decline from 30% today to nothing by 2021.

Boiron's bosses have described the cuts as shocking and unfair. They must fear for the health of its operating margins. At 18% these rival those of big drug-makers such as Novartis and Pfizer. Homeopaths do not command the high prices of advanced drugs but can scrimp on science. Boiron employs just 13 people in research, in a workforce of 3,700, and spends €3.8m a year, or 0.6% of sales, on innovation. By contrast, one in six employees at many big pharmaceutical firms is a researcher and drugmakers spend an average of 16% of revenue on developing new treatments (they also charge a lot more for many medicines than homeopaths do).

Boiron's shares have lost nearly half their value in the past year as investors priced in the health ministry's decision. The boss of Weleda France, a rival, worried what it could mean for homeopathy in places like India and South America. Hopefully, a dilution of influence.

Agribusiness

Bayer's remorse

BERLIN

Weedkiller woes prompt calls to split up a drugs-and-chemicals giant

BAYER COULD do with a few Aspirin these days. On July 16th a judge in California rejected a request by the German chemicals giant (which makes the painkiller) for a retrial of a case in which jurors awarded the plaintiff \$80m after concluding that Roundup, Bayer's bestselling herbicide, caused his cancer. The judge's decision to reduce damages to \$25m offered only marginal analgesic relief. The verdict could open the floodgates to 13,400 other plaintiffs around the world who claim to have been harmed by Roundup. It comes on top of another headache caused by Austria's lower house of parliament, which voted this month to ban glyphosate, Roundup's active ingredient, from November.

The glyphosate lawsuits—and the political backlash—stem from a finding by a division of the World Health Organisation, which said in 2015 that the chemical was "probably carcinogenic". The study, controversial among scientists, has dogged Bayer ever since it bought Monsanto, Roundup's American inventor, in 2018. Bayer's market capitalisation has nearly halved since the takeover, to €55.5bn (\$62.4bn), a little less than the \$63bn it paid for the American agrochemicals giant.

The uncertainty over the toll of glyphosate litigation explains much of the fall. It nevertheless looks like an overreaction. The lawsuits could certainly be painful but look unlikely to prove fatal. Markus Mayer of Baader Bank, an investment bank, estimates that they could cost between €5bn and €20bn—a fair bit less than the drop in Bayer's share price would imply. Bayer plans to appeal against the verdict in California. At the end of June it signalled that it might be open to a settlement to end its legal battles once and for all. It set up a special committee to examine its legal strategy and appointed John Beisner, a combative lawyer, to advise on trial tactics.

Losing Roundup altogether would similarly hurt but not kill the German firm. The weedkiller accounts for 12-15% of sales at Bayer's crop-business and perhaps €1bn, or around a quarter, of Bayer's operating profit. Despite talk of prohibitions around the world, many farmers fear that losing Roundup will reduce their yields—and have made their concerns known to their political representatives. The Austrian ban must still be approved by the upper house of parliament. It may be incompatible with the EU's decision in 2017 to renew glypho- ▶▶

▶ sate's licence for use until 2023.

In the longer term the picture is blurrier still. Counterintuitively, bans may end up benefiting Bayer. Last month the company announced that it will spend €5bn to research alternatives to glyphosate-based weedkillers. That could position it ahead of rivals when the popular weedkiller is eventually phased out.

If, that is, Bayer survives that long. Some investors, including Elliott, a feisty American hedge fund, have called for the company to excise the toxic agribusiness from a healthy drugmaker (Bayer's original operation). To reassure investors the com-

pany's management is cutting 12,000 jobs and has considered selling its animal-health, sun-cream and foot-care businesses. But it has resisted a full split, having fought hard to combine the two firms.

A separation would contain the legal risk to a smaller unit. Analysts at AB Bernstein, a research firm, who recommend a split, point out that research overlap and technology transfer between the health and crop businesses are minimal. Bayer's valuation is so low that a willing buyer may come forward. Many shareholders may pounce on the opportunity to rid themselves of the migraine. ■

Some businesses fall foul of demonstrations through no clear fault of their own. Sun Hung Kai Properties is facing calls for a boycott of its 24 big shopping centres after some accused the developer, Hong Kong's largest, of letting the police clash with protesters on its premises on July 14th. The company says it did not call the police and was unaware of the deployment.

Firms with a presence on the mainland as well as in Hong Kong face the most delicate balancing act. Seeming to back protests may play well with Hong Kongers but backfires among mainland influencers. Last month Nike pulled a line of limited-edition trainers from being released in China after its Japanese designer's opposition to the extradition bill prompted calls for a boycott on Chinese social media.

Many brands are studiously trying to stay neutral. On July 10th Pizza Hut, which had stopped advertising on TVB days earlier, issued a statement to explain that its promotion had simply ended as scheduled. Three days later Tempo, which makes toilet paper, posted on Facebook, which is popular in Hong Kong, and on Weibo, the mainland's biggest microblogging site, that it would carry on advertising with TVB, earning it plaudits from the *Global Times*, a Communist Party newspaper.

Fearing a backlash Pocari's mainland offices in Tianjin and Guangdong disassociated themselves from the Hong Kong branch. "We are two completely different entities," they said in a statement. Headquarters in Japan has not weighed in publicly. On July 10th the Hong Kong arm posted a short statement on its Facebook page in which it apologised for any "inconvenience" caused by the conversation on July 9th. Marchers thirsting for undiluted political electrolytes may feel they are the ones who have been inconvenienced. ■

Brands and protests

Pocarious position

HONG KONG

Taking sides in political disputes carries opportunities for companies—and risks

"SWEAT IS FUN!" insists Pocari Sweat, a Japanese soft drink loved by active types across Asia. This summer millions of Hong Kongers have taken up a new sport: marching, originally against a controversial extradition bill and increasingly in opposition to their territory's pro-Beijing government. Many do so clutching bottles of the isotonic beverage.

Pocari went from a source of hydration to a symbol of political resistance after a Facebook exchange on July 9th between Pocari Sweat Hong Kong and a customer revealed that it was withdrawing adverts from TVB, a local television network that pro-democracy activists say has portrayed them unfairly. In the statement Pocari Sweat said that it had taken a "proactive step" to urge TVB "to respond to public concern". Pocari cans have since starred in dozens of revolutionary memes.

Around the world consumer-facing companies have embraced progressive causes dear to the coveted demographic group of 20- and 30-somethings. In Hong Kong, however, corporate activism is complicated by consumer attitudes on the mainland, where anti-Beijing sentiment is often viewed as treasonous.

Some companies side more or less openly with the protesters. Wonder Life, a Hong Kong maker of condoms, posted on Facebook that consumers' objections about TVB had led it not to advertise on the channel. Others are more oblique. The Hong Kong arm of Cigna, an American insurer, said it would stop advertising on TVB and explained in a social-media post that "we are constantly reviewing our media planning strategies to promote our brand and our mission to be your health and well-

being partner." In June Ztore, a local e-commerce startup, tried to avert a boycott by distancing itself from a founder who backed the extradition bill.

Just as appearing to stand up to the authorities can burnish corporate reputations, seeming to kowtow to them can do harm. Yoshinoya, a chain of Japanese restaurants which endeared itself with protesters after running a Facebook ad that seemed to mock heavy-handed Hong Kong policemen, faced a backlash when it deleted the ad and the boss of its Hong Kong franchise-owner told two newspapers that he had taken part in pro-police rallies. Online maps shared by protesters tag the chain as unfriendly to the cause.



Thirsting for change

Schumpeter | Firefox and friends

What open-source ways of the web can teach the tech titans—and their critics



THE GREATEST fear of an ambitious technology firm is to be condemned to “legacy”, tech speak for irrelevance. Its products may still be used, but out of inertia. The damning judgment could apply to Mozilla, the maker of the Firefox browser. Even on personal computers, where it used to excel, its market share has dropped steeply over the past ten years, from 30% to 10%, at a time when browsers have been losing ground to apps on smartphones. You could argue that Mozilla is kept alive by its main competitor, Google, whose Chrome browser accounts for 60% of the market and which provides most of Mozilla’s revenue in exchange for the privilege of being Firefox’s default search engine.

Put all this to Mitchell Baker, Mozilla’s intense but approachable chairwoman and spiritual leader, and she is unfazed. Quite the opposite: more than ever, she counters, the digital realm needs an organisation that “puts people first and doesn’t squeeze every last penny out of the system”—unlike most of today’s tech giants. Is Ms Baker right? And if she is, what does the 20-year Mozilla experiment mean for the penny-squeezing parts of Big Tech?

Mozilla has always been a strange beast. It began life in 1998 after the “browser war” of the first dotcom boom, between Microsoft’s Internet Explorer and Netscape’s Navigator. Even though the fight got Microsoft into deep trouble with competition authorities, which nearly broke it up, Netscape, an internet pioneer, had to capitulate. But as a parting shot it released the Navigator’s source code, so that an alliance of volunteer developers could keep the browser alive—and fight the “borg”, as Microsoft was called then, referring to a universe-conquering alien group from “Star Trek”.

Even compared with other such open-source projects, Mozilla remains an unusual hybrid. It boasts a volunteer workforce of nearly 23,000 that contributes about half of the company’s computer code in exchange for little more than recognition from their peers and the satisfaction of chipping in to a project they believe in. But it also has 1,100 paid employees, two-thirds of them programmers. It chiefly develops software, but offers services, too, including things like file transfer. And it is two organisations in one: the Mozilla Foundation and the Mozilla Corporation, both based in Silicon Valley. The first is a charity, which owns the second and makes sure that it does not stray from its mission. The corporate

arm is in charge of products and gets the cash that search engines pay for appearing on Firefox’s start page. Together Google, China’s Baidu, Russia’s Yandex and a host of smaller firms forked out \$542m for the traffic they got from Firefox in 2017, the last year for which data are available, more than Mozilla’s expenses of \$422m.

The set-up is less than optimal. Firefox’s falling market share is partly down to slow decision-making, which must involve the volunteers. It took years to begin collecting data about how its software is used, which helps improve it but raised privacy concerns that were only allayed recently. Mozilla was slow to kill an ill-fated mobile operating system, which cost it hundreds of millions of dollars. It has yet to find sources of revenue beyond the browser; details of plans to charge for add-on services, such as secure storage or virtual private networks, are scarce. And, in an echo of founder-dominated tech firms, too much responsibility rests on Ms Baker, who chairs both the foundation and the corporation.

Yet Mozilla turns out to be much more consequential than its mixed record and middling numbers would have you believe. There are three reasons for this.

For one thing, Mozilla has shown that the open-source approach can work in consumer software, which even its champions doubted when the outfit got going. Some studies have shown that Firefox now beats Chrome in terms of speed, for instance. Second, an oversight board that looks beyond the narrow business can help tech firms live up to Google’s original credo, abandoned last year, of “Don’t be evil”—potentially useful when the likes of Google and Facebook stand accused of monopolising markets, playing fast and loose with user data, even undermining democracy.

Lastly, like Linux, an open-source operating system, and to an extent Android, Google’s semi-open software that powers mobile devices, Mozilla has demonstrated that a non-commercial alternative minded to defend users’ interests is good for consumers in digital markets. Although Mozilla is not solely responsible for the widespread adoption of open standards for browsers, even rival firms concede that it helped to chivy them along. Firefox was the first browser to block pop-up ads and allow users to surf anonymously, prompting commercial browsers to offer similar features. Google’s plans to make it harder for other firms to track Chrome users on the web may have been precipitated by Firefox’s decision last month to turn on anti-tracking features as the default setting.

Don’t expect Silicon Valley to transform itself into an agglomeration of Mozillas anytime soon. But tech giants are toying with some Mozilla-esque ideas. Last month Facebook announced another step towards an independent “oversight board”—not unlike the board of the Mozilla Foundation—to make the tough calls on what content should be allowed on the site. Earlier this year Google convened an expert group to ponder the ethics of its artificial-intelligence endeavours (it was disbanded after employee protests over its composition).

Outfoxing Big Tech

To rivals and critics of dominant tech firms Mozilla shows a way to keep them honest. Hints of what it has done to browsers can be discerned in other corners of cyberspace, from open-source wallets where people can keep their digital identities to social networks that are not controlled by one company. Mozilla itself is working on Common Voice, a rival to digital assistants like Amazon’s Echo and Apple’s Siri. Breaking up the tech giants is a satisfying war cry—but probably futile. Perhaps it would be better to breed more Firefoxes instead. ■



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Innovation in insurance

Run for cover

BIRMINGHAM, ZURICH AND LONDON

The insurance industry is stuck in the 20th century. That leaves swathes of the economy dangerously unprotected

EVERY MORNING, from a room in Birmingham, some of the world's largest firms are briefed by phone on the weather in store. As continents, arrows and weather fronts flicker across their screens, meteorologists at The Weather Company (TWC) help British grocers decide whether to stock soups or salads, and Chinese energy firms when to operate wind turbines. Yet such sessions are getting rarer. Computed by 172 models crunching 400 terabytes of data—33 times the amount Twitter stores every 24 hours—most of TWC's 25bn daily forecasts now feed directly into customers' computer systems.

Big data has turned weather into a big business. TWC, which was bought by IBM in 2016, serves governments, media channels and 40% of the world's airlines. But many property insurers, whose fortunes rely on forecasting climate-induced losses, are still learning how to use the information, says Leon Brown of TWC. Their cluelessness is symptomatic of a problem for all insurance lines, including casualty, life and health. Reinsurance firms (which insure the insurers) and Asian insurance champi-

ons are almost the only innovators in an industry that is moving at a glacial pace.

Meanwhile the risks insurers are meant to cover are becoming more severe and unpredictable. Since the 1980s average annual losses from natural disasters have more than sextupled in real terms (see chart on next page). Other risks are variations on old themes, such as pandemics or the fallout from increasing protectionism. And new ones have emerged. Ageing populations push up health-care costs. Cyber-attacks can shut power plants, paralyse firms and siphon fortunes from banks' coffers.

Insurable assets are becoming harder to value and protect, too. In 2018 "tangibles", such as buildings and equipment, accounted for just 16% of the value of the S&P 500. "Intangibles", such as intellectual property and reputation, accounted for the other 84%. Meanwhile insurers' products and processes are losing touch with 21st-century life, from the way populations work to the way they drive. A generation born digital expects speed and style, which do not come naturally to the centuries-old trade.

Insurers say they have read the memo.

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AXA, the world's second-largest by premiums written, has earmarked millions for tech upgrades and designing services that complement its policies, says Guillaume Borie, its innovation chief. But the sector comes second to last in an innovation ranking by BCG, a consultancy. No insurer ranks among the world's top 1,000 public companies by amount invested in research and development. Insurers allocate an average of 3.6% of their revenue to computing technology—about half the share that is typical for banks. In a study of 500 innovation topics across 250 firms Ninety, a consultancy, finds that many insurers are working on the same narrow set of ideas. Some of the noisiest, such as blockchain, are the least productive.

Digital entrepreneurs have spied an opening. The first quarter of 2019 saw a record 85 "insurtech" deals totalling \$1.42bn, according to Willis Towers Watson, a broker. Some focus on the consumer, aiming to simplify quotations, make policies clearer and develop snazzy apps. Some seek to make internal processes cheaper, faster and fairer, from pricing risks to paying compensation. The most ambitious craft policies that insure against new threats, match modern lifestyles or do more than just make payouts.

Slice, a startup in New York, offers policies to flat- or ride-sharers that cover single items for a few days. Brooklyn-based Trupo provides disability insurance to "gig" workers, from makeup artists to Uber drivers. Bought by Many, a British startup, caters to ▶▶

▶ people with niche possessions, for example model railways or exotic pets.

Small and specialist incumbents are seeking to insure businesses against new risks, such as environmental liability or terrorism. In April a group led by Beazley, a 33-year-old British firm, launched a policy covering reputational damage. Using share-price drops as the trigger, it provides compensation and a crisis-management package. It prices risk by scraping information from social media and analysing the impact of past meltdowns. On June 25th a group of underwriters at Lloyd's of London launched a £53m (\$66m) facility designed to speed up product development.

But spotty innovation does not make up for a stagnating core. In theory, startups should provide valuable additions to insurers' toolbox. Yet incumbents often dismiss insurtechs as "cute" little things that fail to grasp complexities, says Heidi Lawson of Cooley, a law firm. Administrative costs absorb 20-50% of incumbents' premiums. A quote for home coverage is often a multiple-choice hell, with cascading options depending on such matters as whether you own a shed or keep bees. Businesses can wait months for a policy's final wording. "It's just so depressing," says an industry veteran.

The growing abundance of data means customers increasingly think they can do without insurance altogether. The portion of the economy that is covered is shrinking. In developed countries total non-life insurance premiums have grown by 1.2% a year on average since 2008; life has seen an average decline of 0.5%. Despite increased take-up by rising middle classes in emerging markets, global premiums grew in real terms by only 1.3% annually over the period, to \$5.2trn. The world economy managed twice that.

The result is a "protection gap". On average, over the past ten years, only 30% of catastrophe losses were covered by insurance, according to Swiss Re, a reinsurer. The balance, worth some \$1.3trn, was borne by individuals, firms and governments. According to Capgemini, a consultancy, less than a quarter of businesses feel their insurance coverage is adequate. That fell below 15% for personal lines, and even further for health, cyber- and political risks.

A central reason for insurers' caution is the fear that regulators will punish them for unwittingly taking on bad risks—or because some new, AI-powered underwriting method is found to be rejecting or overcharging consumers from certain ethnic groups or neighbourhoods. That creates a culture of "trying not to change anything, not to break things", says Dan White of Ninety. Moreover, waves of consolidation mean insurers have disconnected datasets and computer systems, making it hard to innovate or to absorb successful startups.

Other weaknesses are less excusable. Mr White describes a typical sequence. Starting from the premise that innovation is good, insurers try to make it "part of the DNA". Facing internal resistance, those pressing for change shift to an "arm's-length model". Many insurers have set up innovation "labs", "studios" or "garages" where pricey data scientists are told to come up with cool new pilots. Located separately, they operate under different rules: they have beer fridges and pool tables, and staff wear jeans and commute on scooters.

Then staff at the parent firm get disgruntled with their rule-breaking peers—who, for their part, have not been given the budget to build anything sizeable. So the parent firm's return on investment is poor. Eventually the labs are closed or mothballed. Firms then give their money to venture-capital funds, run internally or by third parties. But these are designed to bet on startups, not to perfect processes at lumbering giants. Three of Europe's top six insurers have recently frozen or shrunk their main technology-investment arms.

Insurers' apathy is energising reinsurers to innovate in their stead. As the primary insurers that do their distribution lose touch with the market, the reinsurers feel cut off. Reinsurers are also less strangled in red tape. Munich Re, the world's largest, is in front. It has hired 200 data scientists and trained over 100 experts internally, and crowdsources ideas from staff. Good ideas are fast-tracked; duds are killed quickly, says Tom Van den Brulle, its innovation

chief. Last year it paid \$250m for relayr, a startup in Berlin that uses sensors to extract data from industrial machinery.

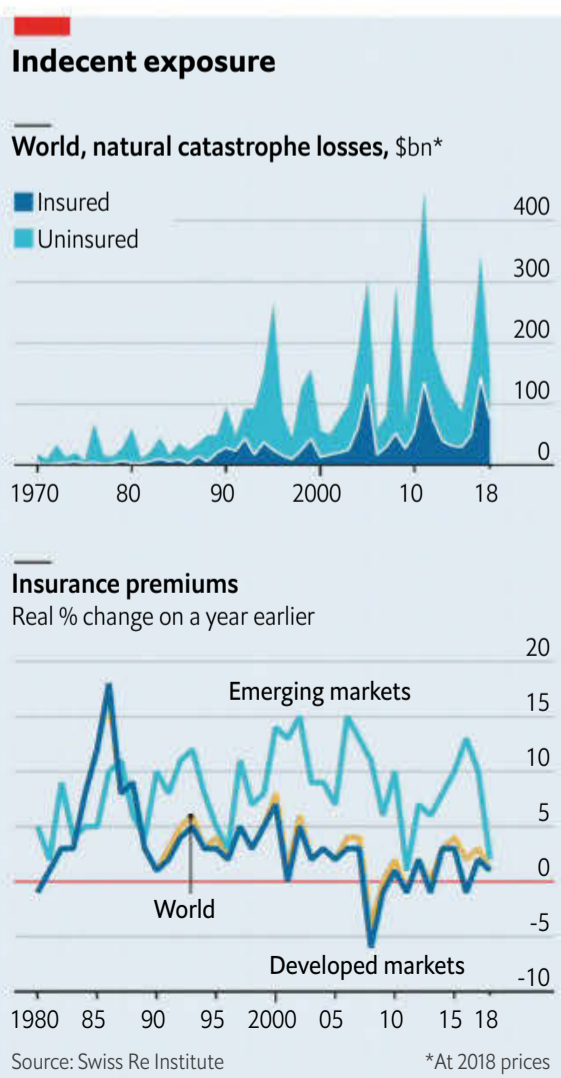
Reinsurers' greatest breakthrough so far is probably "parametric insurance". Rather than compensating for losses reported ex-post, such policies pay out a pre-agreed sum when a clearly defined parameter, such as rainfall or seismic magnitude, reaches a pre-agreed threshold. Since debuting in the 1990s, parametric insurance has mostly been confined to the reinsurance of catastrophic events. But the spread of internet-connected objects creates the potential for it to be applied to previously uninsurable risks. Gerry Lemcke of Swiss Re, which offers parametric insurance against pandemics, flight delays and hurricane damage to coral reefs, sees it as working rather like derivatives in finance, which have a strike price. Customers receive their payouts straight away; insurers save the time and cost of adjusting claims.

The best policy

Reinsurers could soon shake up the market further. In recent years third-party capital providers such as pension and sovereign-wealth funds have sought to deploy vast sums in reinsurance markets. That has prompted reinsurers to set up money-management platforms, akin to betting interfaces, where investors can punt on various classes of risk. As a result reinsurers are keen to take on a broadening range of risks directly, by seeking to work with insurtechs and cutting primary insurers out altogether. "They're calling us," says Ms Lawson. "They're looking for deals."

Asian giants are also pulling ahead of Western peers. Pia Tischhauser of BCG reckons they are "15 years ahead" on innovative ways to price risk. In China Ping An, which in the 30 years since its founding has become the world's most valuable insurer, employs 23,000 researchers, spends 1% of revenue on innovation and has over 12,000 patent applications. Its average underwriting time has fallen from five days to 15 minutes; it uses AI to recruit and train its 1.5m-strong army of agents, who are 50% more efficient than the competition. Yet in November its chief executive ruled out major international acquisitions, preferring to focus on domestic expansion.

For Western incumbents, the greater risk may lie closer to home. Rumours are growing that Big Tech is gearing up to enter insurance. Amazon, Apple and Google have troves of data and idle capital; they lack underwriting skills but can easily lure talent. And they can hope for handsome profits: BCG calculates that the top quarter of insurance firms returned a median 24% to shareholders in 2018. Scaremongering, sceptics say. But an adviser to tech titans is adamant. "We're seeing what's happening behind the scenes. They're on the path." ■



China's slowing economy

Get used to it

SHANGHAI

The trade war with America hurts, but the government is wary of stimulus

CHINA'S ECONOMY is slowing, again. After a good start to the year annual growth slipped to 6.2% in the second quarter, the weakest in nearly three decades. That is hardly cause for panic: for an economy now worth nearly \$14trn, such a growth rate is impressive. As the trade war with America hurts exporters, it also underlines the extent to which China's economy is now fuelled by domestic demand. The question for the coming months is whether that domestic strength will remain sufficient to offset the trade turmoil.

The export picture has clearly worsened. Last year, even as America's president, Donald Trump, first levied tariffs on China, the country still managed to increase its exports by 10%. But this year Chinese exports have all but stopped growing.

In May Mr Trump ratcheted up tariffs on Chinese goods, and he has threatened to hit China with yet more duties if trade negotiators fail to resolve an impasse. China, for its part, appears to be in no rush to reach a deal: Zhong Shan, the hard-nosed commerce minister, recently joined the Chinese negotiating team. In published comments this week he blamed America for the trade war, calling it "a classic example of unilateralism and protectionism".

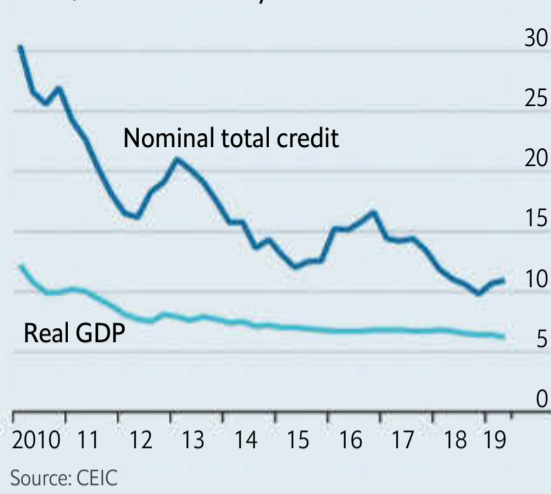
China's willingness to take a more unyielding stance partly reflects confidence in its own economy. Activity accelerated towards the end of the second quarter. Investment in factories, roads and other fixed assets increased by 6.3% in June compared with a year earlier, up from 4.3% year-on-year in May. Retail sales were also robust, rising 9.8% in June compared with a year earlier, up from 8.6% in May.

Yet there are doubts about how long this resilience will last. Some of the apparent strength is transient. Car sales, which had been in the doldrums, surged in June to double-digit growth, pushing up retail sales more broadly. But that was largely because dealers had slashed prices to run down inventories before tough new emission standards were imposed in July. The property sector, a bellwether for the economy, also seems set to soften after sales were down in the second quarter. Uncertainty from the trade war may take a toll, too. Foreign companies have started to shift more operations away from China.

The government has started to spend more on infrastructure, a tried-and-tested method in China for revving up growth. In

Shifting down a gear

China, % increase on a year earlier



Source: CEIC

recent months it has made it easier for municipal officials to raise funds for building railways and highways. With the central bank injecting cash into the financial system, nominal credit growth has also edged up since the end of 2018 (see chart).

But there are limits to how far the government will go. China's president, Xi Jinping, has declared that containing financial risks is a matter of national security. The likelihood of another giant stimulus, routine in the past whenever growth slowed, is lower this time. And the government has less money to work with, having already racked up so much debt over the past decade. It also wants to conserve its fiscal firepower in case the trade war turns uglier. In the meantime, get used to headlines about Chinese growth at multi-decade lows. They are likely to appear again in three months and, again, three months after that. ■

The European Central Bank

Space exploration

To revive Europe's ailing economies, the bank must break its own rules

THE EUROPEAN CENTRAL BANK'S firepower is sadly depleted. The interest rate on the reserves that banks hold with it is sub-zero; its quantitative-easing (QE) scheme has hoovered up assets worth €2.6trn (\$2.9trn)—equivalent to over a fifth of the euro area's GDP. Even so, in June Mario Draghi, the bank's boss, promised further stimulus if the economy does not buck up. Statistics published since then suggest little recovery. Cue much speculation about another attempt to revive growth.

Many expect an announcement at the bank's meeting in September, along with updated economic forecasts. But its next gathering on July 25th could still surprise, or at least lay the groundwork for stimulus.

With individual instruments nearing limits, it is expected to deploy a combination.

Of late its weapon of choice has been guidance on the path of interest rates. It has promised to keep rates steady for longer, at least until mid-2020. But markets expect rates not merely to stay on hold, but to fall—by a tenth of a percentage point, from -0.4%, in coming months.

Banks complain that negative interest rates shrink their margins: they have to pay the central bank to hold their deposits, but fear that if they pass negative rates on, their depositors will withdraw their cash. Profits and lending both fall, preventing the rate from transmitting to the real economy. For now, the ECB reckons it has not reached the "effective lower bound"—the point at which the expansionary effects of negative interest rates stop outweighing any costs. But unwanted side-effects may appear as rates go lower.

Some economists therefore expect attempts to mitigate the negative impact of rate cuts by excusing banks from negative rates on some excess reserves. Even then rates may be not far off the lower bound. Analysts at BNP Paribas, a bank, think they can fall by at most 0.4 percentage points before that moment comes.

That limited space is why some economists also expect the bank to restart QE later in the year. Daniele Antonucci of Morgan Stanley, a Wall Street firm, expects the bank to announce monthly purchases of government and corporate debt of €45bn. But the bank's self-imposed limit on the share of a country's sovereign debt it can own, of 33%, means this pace probably cannot be sustained beyond a year.

This ceiling would need to be lifted if any expansion of QE is to seem credible to investors, reckons Spyros Andreopoulos of BNP Paribas. Though QE's legality is questioned in Germany, in December the European Court of Justice ruled that the ECB was acting legally, appearing to give it room to raise its limit up to 50%. (The case returns to German courts at the end of the month, but judges are expected to bow to the ECJ.) In any case the bank would need to rethink another self-imposed rule, says Mr Andreopoulos: that it avoid holding shares of individual securities large enough that it can sway the outcome of investor votes on any future debt restructuring.

Even with all this, the ECB's ability to cope alone with a serious downturn would be limited. Even as Mr Draghi assured markets he had the firepower, he warned that without fiscal support monetary easing risked being slow to boost the economy, with possible unwanted side-effects. Negative borrowing costs across many member states make the case for dusting off fiscal tools even more obvious. But Europe's governments guard their ammunition more jealously than central bankers do. ■

Sterling

Global Britain

The pound's slide is about more than just Brexit

IN THE WEE hours of June 24th 2016 the pound plunged. The unexpected victory of the Leave campaign in the Brexit referendum meant sterling lost 7% in a single day. Three years later the pound is falling once again. It is now at a two-year low, having fallen by 5% against the dollar since April—and 1% in the past month, the worst performance of any big currency (see chart). Many Britons ascribe any movement in the pound to the twists and turns of the Brexit saga. The cause of its recent slide is, however, more complicated.

Sterling has been weaker since the referendum because the prospect of Brexit has led economists to cut their forecasts for economic growth. It reached a low in October 2016 when Theresa May, the prime minister, promised a “hard” Brexit. Yet it appreciated fairly steadily in 2017 and 2018.

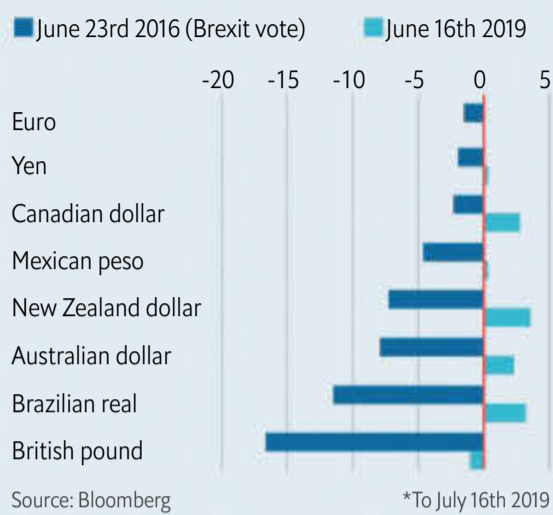
This was in part because the economy was surprisingly strong. GDP grew only slightly more slowly in 2016-18 than before the referendum. Unemployment fell to multi-decade lows. Despite Mrs May's best efforts, traders came to believe that the most likely outcome was a “soft” Brexit—that is, a customs union with the European Union and membership of the single market—and thus less economic harm.

The pound's recent fall started in April, shortly after the EU agreed to delay Brexit to October 31st. Some traders worried that it would brook no further delay. Yet global factors played a greater role. Around May traders began to panic about the effect of a trade war between America and China on global economic growth. That prompted “derisking”—moving assets out of countries highly reliant on inflows of foreign capital. Britain, which runs a large current-account deficit, saw its currency depreciate. But so did Australia and New Zealand, points out Kamal Sharma of Bank of America Merrill Lynch. Both countries also run large current-account deficits.

Since then worries about the trade war have eased—to be replaced by a fresh concern, the health of Britain's economy. In June the statistics office alarmed analysts by revealing that GDP had fallen in April by 0.4%, although May was better. Other survey data suggest that Britain registered no economic growth in the second quarter of the year (see Britain section). Together with a series of data releases showing that measures of domestically generated inflation are soft, that makes it less likely that the

Brexit means ditch it

Currencies against the dollar*, % change since



Bank of England will raise interest rates.

Sterling's fall has accelerated in the past week, as the two contenders to replace Mrs May have vied to sound more macho on the need to leave the EU on October 31st, with or without a withdrawal deal. Even now, few if any analysts believe that a no-deal exit is the most likely outcome. But many are on the brink of changing their mind. If no-deal starts to be priced in, the pound will have much further to fall. ■

Microfinance

One brick at a time

KAMPALA

Borrowing to build, not to buy

WHENEVER MICHAEL JJOGA earns some money from his welding business, he buys a bag of cement. Brick by brick he has built a two-roomed house for his family on land he cleared himself in Wakiso district, in central Uganda. Another house stands half-finished nearby until he collects enough iron sheets to make a roof. Across the glade a chorus of bleats drifts from a crumbling hut, shaped from thatch and earth. He used to live in it; now it shelters his goats.

By 2025 some 1.6bn city dwellers will be living without decent, affordable housing, according to consultants at McKinsey. Many more people lack adequate shelter in the countryside. While governments and private developers fall short, people like Mr Jjoga are building houses themselves. They construct in stages, over years or even decades, preferring to buy a stack of bricks than to put money in a bank. Some move in well before completion. Lenders long overlooked this self-help model, but financed it unwittingly: perhaps a fifth of microloans to businesses are thought to be diverted

into housing.

Now some lenders are starting to target this market directly. Conventional mortgages are rare in developing countries: in Uganda, which has 40m people, there are only 5,000. Instead, banks and microlenders offer smaller housing loans, paid back over shorter periods of 1-3 years. A family might borrow for a cement floor, and then for an extra room. Two-thirds of the firms offering housing microfinance entered the sector in the past decade, according to a global survey in 2017 by Habitat for Humanity, a non-profit organisation.

Many borrowers lack land titles to use as collateral. Swarna Pragati, an Indian microlender, gets around the problem by establishing de facto ownership through village meetings. Select Africa, which operates in east and southern Africa, offers unsecured housing loans to salaried workers, deducting repayments from their pay cheques. Centenary Bank in Uganda accepts untitled land as security. Robert Canwat, its microfinance manager, says attachment to home makes the whole family monitor repayment. “Everybody becomes your recovery officer,” he smiles. Most lenders report that housing loans are paid back more reliably than other products in their portfolio.

Houses built incrementally by local artisans are often shoddy. Some lenders try to improve them by providing technical support, such as sample plans or an engineer's advice. Others help borrowers buy appliances such as solar panels and water filters. One promising innovation is iBuild, an Uber-like app in parts of Africa and Asia. It connects households to builders and suppliers, allowing them to compare quality and price as well as to apply for loans.

Finance also comes directly from suppliers. CEMEX, a Mexican cement giant, offers credit through its Patrimonio Hoy programme. Customers pay a weekly fee. In return they get technical advice and ad- ▶▶



In on the ground floor

► vance delivery of building materials. The scheme has reached 600,000 households and extended more than \$300m of loans since 1998.

Unlike business loans, which can be paid back out of greater profits, lending for housing creates no obvious income stream. But home ownership frees borrowers from paying rent. And some borrowers use loans to build rental units, shops or even schools. “Think of the house as a place from where the household earns money,” says Kecia Rust of the Centre for Affordable Housing Finance in Africa, a think-tank.

Habitat for Humanity recently commissioned two evaluations of microfinance products it had developed with lenders in east Africa. In Uganda, the likelihood that a household had a separate kitchen rose by 22% after taking out a loan. In Kenya, borrowers upgraded their roofs and walls. In both cases satisfaction with housing rose, though stress levels and school attendance were unchanged. Repayment rates have been high. “We’ve proved there’s a business case,” says Kevin Chetty of Habitat.

Microcredit is expensive, because lenders must assess risk and monitor repay-

ment on even the tiniest amount. Housing loans are usually larger than business ones, so processing them is proportionally cheaper. But they also have longer maturities, which means lenders must chase scarce long-term funding. Throw in ponderous law courts and weak competition, and annual interest rates typically reach 20-35%. Some homebuilders are certainly eager for credit. But until such structural problems are addressed, others will keep doing things the old way—even if that means waiting longer to put a decent roof over their heads. ■

Buttonwood The factor fear

What if investors can learn from their mistakes?

THE FINAL of the European Football Championship in 1976 was settled by a penalty shoot-out. The winning kick, scored by Antonin Panenka of Czechoslovakia, was a thing of beauty. From Panenka’s long run-up and body shape, the West German goalkeeper, Sepp Maier, guessed that the kick would go hard to his left. He dived in anticipation. But Panenka did something novel. He calmly chipped the ball down the centre of the goal, which Maier had just vacated.

Armed with this story, we come scrambling back to the present to contemplate another game of fine margins: investment. Here too success often depends on the ability to outwit others. Indeed proponents of factor investing—buying baskets of stocks with characteristics that have been shown to beat the market averages—say it works by exploiting the enduring weaknesses of investors. If the dumb money keeps shooting for the corners, you profit by going down the middle. Just hold your nerve.

This requires a faith that the future will be like the past. And where there is faith, there is always doubt. The world of investing evolves, just as football has. As more players adopted the Panenka, goalkeepers cottoned on. A new category emerged: the failed Panenka. A consideration of this begs a scary thought for factor investors: what if returns will be hurt by the ubiquity of the strategy itself?

The roots of factor investing go back at least as far as a canonical paper in 1992 by Eugene Fama, a Nobel-prizewinning economist, and Kenneth French. They found that listed companies that were relatively small, or whose stock price was low compared with the value of assets, had higher-than-average returns. They proposed that **size** and **value** were factors that justified a reward over and



above that for bearing market risk, known as beta. Subsequent research identified other winning factors for companies with strong dividends (the **yield** factor) or high profitability (**quality**); or with share prices that have risen a lot (**momentum**) or that fluctuate only a little (**low-volatility**).

Investors took notice. Trillions of dollars are now invested in factor-based or “smart-beta” strategies. A new paper by James White and Victor Haghani of Elm Partners, a fund-management firm, sets out the reasons to be sceptical about their continued success. A first problem is the muddle over why factor premiums exist at all. One view says it is all about risk. Small or lowly valued firms are riskier because they might go bankrupt in a really deep downturn. You may buy that. But it is harder to dream up a compelling risk story about, say, momentum or low volatility.

The alternative view is that factors exist because of the shortcomings of others. So momentum works because investors in general tend to react too slowly to good news about a company’s prospects. Other factor premiums are put down to industry

frictions. If, say, pension funds have demanding targets, but are not allowed to use leverage to boost returns, a second-best strategy is to tilt the portfolio towards high-volatility stocks. Low-volatility stocks are thus unduly cheap.

The big question is whether we should expect these quirks to endure. Once a way to make above-market returns is identified, it ought to be harder to exploit. “Large pools of opportunistic capital tend to move the market toward greater efficiency,” say Messrs White and Haghani. For all their flaws and behavioural quirks, people might be capable of learning from their costliest mistakes. The rapid growth of index funds, in which investors settle for an average return by holding all the market’s leading stocks, suggests as much.

Part of the appeal of index investing is that it is cheap. Factor investing, by contrast, involves a lot of churn—and thus expense. A detailed study by AQR Capital Management, one of the big beasts of factor investing, finds that trading costs were around 40% of gross factor returns. The costs are mostly down to the weight of money moving stock prices unfavourably. This figure is high enough to warrant concern, say the Elm duo. It may go higher as more money piles in. If factor premiums are also slimmer in future, trading costs will eat up a larger share of the extra returns.

What worked in the past cannot always be relied on to work in future. Penalty shoot-outs used to be seen as lotteries; they are now exercises in data-mining. Every goalkeeper and kicker knows what his opponent has done in the past. The best penalty-takers still hope to induce the goalkeeper to move first. But goalies are not as easily fooled. They can hold their nerve, too.

Free exchange | Terminal degrees

The meaning of a debate about the cost of higher education

IN MANY WAYS the flood of bold, progressive policy proposals coursing across America's political landscape began in 2015, when Bernie Sanders, an independent senator from Vermont, put a plan to make higher education at public universities free at the centre of his upstart campaign for the presidency. Then the idea seemed radical, even gimmicky. Now it is noteworthy when leading Democrats oppose the notion. Yet some do, for example Pete Buttigieg, the mayor of South Bend, and their arguments still pack a punch. Why indeed should taxpayers' money be spent on the children of the rich rather than more generous financial aid for the poor? The Democratic debate over free college is in fact part of a deeper disagreement about how best to structure a welfare state.

Across much of the rich world, a public-university education is free or nearly free, apart from the cost of books and living expenses. (Danish students even receive a stipend to help pay for such things.) But those in America and Britain pay tuition fees which are high and growing higher. In Britain, a change in the law in 1998 allowed public universities to begin charging. The average tuition fee at four-year public universities in America has roughly tripled over the past three decades after adjusting for inflation. Rising fees represent an evolution towards a means-tested approach to covering the rising cost of higher education, which has gone up steadily all around the world. Places like America and Britain pass some of this increase on to students in the form of higher fees, with the understanding that poorer students will receive financial aid while richer ones will bear the full tuition bill.

To many politicians in these places, this seems just. Unlike primary or secondary education, university is a minority pursuit in most advanced economies. Across the OECD, a club of mostly rich countries, only about 45% of adults aged 25 to 34 have some post-secondary education. Those people tend to come from richer families and to earn more than the population as a whole. A universal programme that mostly benefits a well-off not-quite-half of the country would seem a strange aspiration for egalitarian-minded politicians (though less strange for those desiring young people's votes). Better to target aid at those from poorer families.

An economic approach points in a similar direction. A post-secondary education represents an investment in a person's future earning power, thanks to the skills obtained in school, the connections and credentials gathered along the way, and the signal a tertiary degree provides to employers. Since students reap

most of the benefit, they should bear the cost (borrowing against future earnings if need be), lest subsidies encourage people to spend years at university that might be better allocated elsewhere.

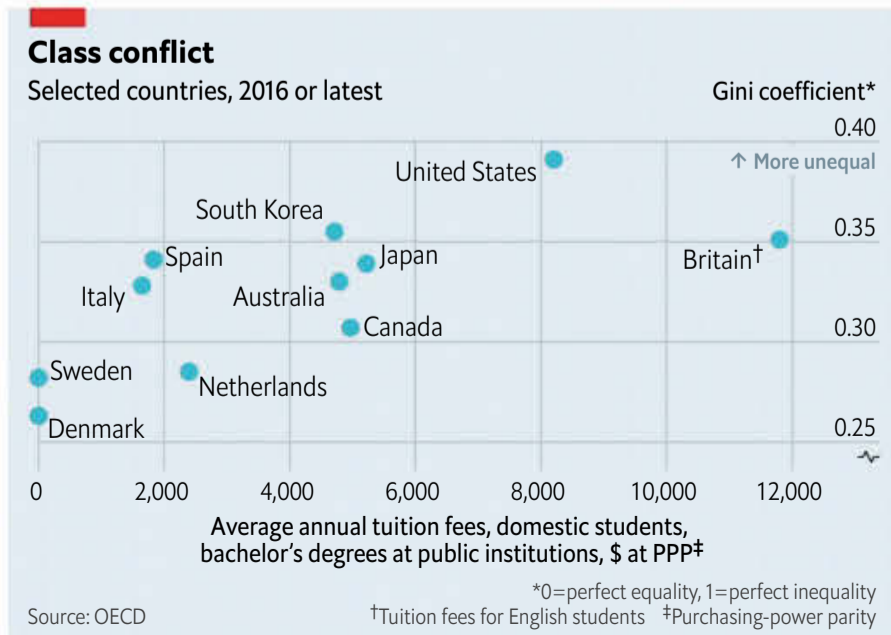
Against this, supporters of free university marshal a number of practical arguments. University attendees are more likely to come from wealthier families precisely because university is not free, they say. There is something to this. Higher tuition charges do push some people away from post-secondary education. Several analyses of the introduction of tuition fees in Britain found a negative effect on university attendance. A report produced by the Institute for Fiscal Studies, a think-tank, estimated that an increase of £1,000 (\$1,243) in tuition fees is associated with a decline of 3.9 percentage points in the rate at which recent school-leavers choose to go on to university. Work by Thomas Kane of Harvard University found a response of similar magnitude in America. And research by Susan Dynarski of the University of Michigan and Judith Scott-Clayton of Columbia University concludes that both attendance and completion rates are higher when education is more affordable. Their work also suggests that the tangle of eligibility rules and application processes students must navigate to get financial aid can lessen its benefits.

Free tuition, by contrast, is simple to administer and easy to understand. The rich, furthermore, can pay for their privilege later in life through systems of progressive taxation. (Mr Sanders would pay for his plan through a tax on financial transactions; his Democratic rival, Senator Elizabeth Warren, would fund a free-college programme with a tax on multi-millionaires.) In any case, many young people from well-off households will attend pricey private universities rather than free public ones.

Wolves and sheepskins

But the most powerful arguments for free university are about values rather than economic efficiency. To politicians like Mr Sanders, a post-secondary education is a part of the basic package of services society owes its members. There are broad social benefits to a well-educated citizenry, because new ideas allow society as a whole to prosper and cultivating an informed population in an increasingly complex world probably takes more than 12 or so years of schooling. Amid constant technological change, a standing offer of free higher education may represent an important component of the social safety-net. Universality reinforces the idea that free education is not an expedient form of redistribution, but part of a system of collective insurance underpinning an egalitarian society. To progressive politicians, means-tested services send the message that government programmes are for those who cannot help themselves, whereas universal programmes are a means by which society co-operates to help everyone.

Ironically, such values-based arguments, however one feels about them, are undercut by rising inequality. As the rich pull away from the rest, their increased political power may stymie tax rises needed to fund universal public services. Meanwhile for progressive politicians the need to target available funds at the worst-off in society grows more urgent; in America, the argument that the children of billionaires should not receive a government-funded education takes on greater moral as well as practical weight. It is probably no coincidence that tuition fees are lowest in places with the most equal income distributions (see chart). Strong safety-nets compress the income distribution. But inequality may also make the sorts of comprehensive public services that underpin egalitarian societies ever harder to sustain. ■





Lunar exploration

Apollo's sister

There is renewed interest in returning people to the Moon. This time it might actually happen

ON MARCH 26TH Mike Pence, America's vice-president, gave a speech at the US Space & Rocket Centre in Huntsville, Alabama, in which he told his audience that he was bringing forward, "by any means necessary", the target date for America to send astronauts back to the Moon. The previous deadline had been 2028. It was now 2024. Then, on May 13th, NASA's administrator Jim Bridenstine gave the reinvigorated project a name. It will be called "Artemis", after Apollo's twin sister, the ancient Greek goddess of the Moon. Following this, on July 10th, Mr Bridenstine moved two long-standing managers of NASA's human space flight programme to other duties, writing in his memo, "In an effort to meet this challenge, I have decided to make leadership changes to the Human Exploration and Operations (HEO) Mission Directorate."

The timing of all this is surely no coincidence. On July 21st it will be exactly 50 years since Neil Armstrong fluffed his lines at the culmination of the original Moon programme—his "small step" off Apollo 11's lunar module, *Eagle*, onto the regolith of the Sea of Tranquility. America abandoned

Moon shots 41 months later, and attempts to revive them have never appeared convincing. But Artemis looks not unlike the real deal. For one thing, its arrival on the Moon will now fall conveniently within the second term of office of Mr Pence and his boss, Donald Trump, should they be re-elected in 2020. It also helps that Artemis is recycling ideas salvaged from those previous attempts, notably the Constellation programme, unveiled in 2005 by George W. Bush and cancelled five years later by Barack Obama.

Village people

Nor will Artemis be alone. In matters lunar, something is stirring. China's space agency, though in less of a hurry than Mr Pence, also plans to land people on the Moon. Its target date is 2035. Other agencies, European, Indian, Japanese and Russian, intend

to bombard the place with robot probes. And private enterprise is also seeking a share of the glory. In the mind of Johann-Dietrich Wörner, head of the European Space Agency, there is a sense of community among these ventures, giving rise to what he calls a "Moon village".

Some, indeed, would go further, and convert this village from a metaphor into a reality. People like Robert Zubrin, a prominent American evangelist for manned space flight, think that this time around there should be no namby-pamby messing about with tip-and-run missions like Apollo. A Moon base should be the objective from the beginning.

It could be built quickly, according to a blueprint Dr Zubrin, an aerospace engineer, published in a book called "The Case for Space". It would be at one of the lunar poles, where mountain tops in near-perpetual sunlight could house solar-energy farms, and craters in everlasting shadow contain ice from billions of years of comet impacts. This ice could supply drinking water. It could also, if its molecules were split by electricity from the mountain tops, provide oxygen for breathing, and hydrogen and further oxygen for rocket fuel.

Dr Zubrin's back-of-the-envelope calculations suggest his base would cost about \$7bn, and take seven years to develop and build. Thereafter, it would need \$250m a year to sustain it. NASA, however, has other plans. Though Artemis does require a base of sorts, that base will not be on the Moon. Instead, it will be an intermittently crewed ▶

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▶ space station, the *Lunar Orbital Platform—Gateway* (depicted, about to dock with a supply vessel, in an artist's impression on the previous page) that is in orbit around the Moon.

Artemis will work like this. Its crewed vehicle, Orion, is a version of a craft originally designed for the now-abandoned Constellation project. Similarly, the rocket which will lift Orion, the Space Launch System (SLS), is a cut-down version of Constellation's heavy lifter, Ares V. Orion's destination will be *Gateway*. Two of its four crew will stay on the station while the others descend to the surface in a special lunar shuttle, do their stuff, then return to *Gateway* and thence to Earth, leaving the station uncrewed until the next mission arrives.

If Congress approves the additional \$20bn-30bn for NASA's budget that Mr Bridenstine says the project will require over the next five years—a big “if”—Orion, the SLS and the lunar shuttle could all be ready and tested within Mr Pence's timetable. There is, however, the small matter of *Gateway* itself, for which existing plans involve all the partners of the International Space Station (ISS)—Europe, Russia, Japan and Canada, as well as America.

The first *Gateway* module is intended for launch in 2022 and subsequent components would go up in a series of missions using both commercial and SLS launches, until 2028. This means that, when Orion arrives at *Gateway* in 2024 with its Moon-bound astronauts, it will dock with a partially completed space station. There is no official cost for the *Gateway* project but, given the \$150bn price tag of the ISS, it would be a surprise if the lunar space station cost less than several tens of billions of dollars. In light of all this, Dr Zubrin's approach starts to look attractive.

Look East

As with the ISS, currently in orbit around Earth at an altitude of 400km, China is pointedly excluded from involvement in building *Gateway*. American law prevents NASA collaborating with the Chinese—something regretted by Wu Ji, a former director-general of China's National Space Science Centre who is now an adviser to the government.

In fact, says Dr Wu, China's main goal in space over the next decade is to build a space station of its own in orbit around Earth. Development of a crewed Moon programme will probably begin in the mid-2020s. “By 2035, there will be a Chinese person landing on the Moon,” he says. But there is no rush. “We are not in competition with anybody. So we go step by step. So even if we land Chinese on the surface of the Moon by 2035, it's still great.”

China has, however, already landed unmanned probes there. Its most recent mission, *Chang'e 4*, touched down on the lunar



Yesterday's version of tomorrow

far side (the part never visible from Earth) in January. The next two probes in the series will be sample-return missions, and further craft will explore the Moon's poles.

The launch of India's second lunar mission, *Chandrayaan 2*, which will put a lander and a rover down near the south pole, has been delayed, but should happen soon. India is also working with Japan's space agency, JAXA, to develop a joint robotic mission. Russia, too, has plans. *Luna 25*, scheduled for 2021, will be another visitor to the south pole. And six more *Luna* missions—orbiters and landers—are intended to follow before the end of the decade.

From a scientific point of view, the Moon is not only of interest in its own right. It is also a museum of the solar system's past. Its surface will probably be strewn with terrestrial rocks older than anything now preserved on Earth that were blasted into space aeons ago by asteroids colliding with that planet. It will also preserve clues about the sun's history, the galactic environments that the solar system has encountered on its journey through space since its formation 4.6bn years ago, and the abundance in the early solar system of objects so large that their impact might have interfered with the emergence of life on Earth or elsewhere.

The Moon (or rather its far side) is also a good place to hide radio telescopes from the deluge of radio waves coming from Earth's surface. There, they will be able to pick up signals that are otherwise swamped—particularly, radiation from the earliest days of the universe, which may encode details of the origin of everything.

As to the Moon village's non-governmental members, these are led by the usual suspects of private space flight, Elon Musk (SpaceX) and Jeff Bezos (Blue Origin), both

billionaires who hope that the Moon might one day be made to pay its way, but who would probably admit that the whole, giddy adventure of it, rather than the prospect of profit, is what truly drives them on.

Space invaders

SpaceX already has a contract for lunar tourism. Yusaku Maezawa, founder of Zozotown, Japan's largest online clothing retailer, wants to take a group of artists with him for a project he calls #dearMoon. This is a free-return-trajectory trip around the Moon (there and back again, passing behind the far side, but without going into orbit) that SpaceX says could happen as early as 2023 using the Starship spacecraft the firm is developing. If the SLS does not measure up, the Starship system might take on its job, too.

Blue Origin, meanwhile, recently unveiled a mock-up of its Blue Moon lunar lander. The company claims this would be able to deliver 3.6 tonnes of cargo to the Moon's surface. That is just the sort of thing Dr Zubrin would need to help construct his Moon base, but a more likely first mission for it would be as Artemis's lunar shuttle.

Besides the two behemoths, smaller fry are also involved in the Moon village's commercial side. One of these, Astrobotic, a firm in Pittsburgh, is developing an unmanned lunar lander it calls Peregrine. This will carry the Mexican Space Agency's first lunar payload. Astrobotic is also one of three firms awarded contracts by NASA as part of its Commercial Lunar Payload Services programme. The other two are Intuitive Machines of Houston, Texas and OrbitBeyond of Edison, New Jersey. NASA wants these companies to help it survey various places on the Moon's surface that might be suitable for building bases.

Even if Dr Zubrin does not get his way, then, there are likely, within decades, to be permanent human outposts on the Moon, frequented by scientists and tourists from many countries. The place will thus become something like Antarctica is today—hard to get to, but not impossible if you have the money or the right government backing. And, just as Antarctica is no longer enough in the eyes of those who look to explore new frontiers, so, in the minds of some, the residents of these actual Moon villages will be testing human endurance, psychology and technology with a view to constructing an even more remote hamlet: on Mars. ■

Science correspondent's job

The Economist is looking for a new Science and Technology correspondent. Knowledge of the field, an ability to write informatively, succinctly and wittily, and an insatiable curiosity are more important attributes than prior journalistic experience. Please send a CV, a brief letter introducing yourself, and an article of 600 words suitable for publication to scijob@economist.com. The closing date for applications is August 23rd.

Brain-machine interfaces

A scent of Musk

SAN FRANCISCO

The boss of Tesla and SpaceX wants to link brains directly to machines

ELON MUSK, perhaps the world's most famous entrepreneur, is sometimes referred to as "the Trump of technology"—not for political reasons, but because of his habit of making, at short notice, spectacular pronouncements that stretch the bounds of credibility. On July 16th he was at it again, unveiling a new type of brain-machine interface (BMI). If human beings do not enter a symbiosis with artificial intelligence (AI), he declared, they are sure to be left behind. And he, the announcement implied, was going to be the man who stopped that happening.

Connecting brains directly to machines is a long-standing aspiration. And it is already happening, albeit in a crude way. In deep-brain stimulation, for example, neurosurgeons implant a few electrodes into a patient's brain in order to treat Parkinson's disease. Utah arrays, collections of 100 conductive silicon needles, are now employed experimentally to record brain waves. A team at the University of Washington has built a "brain-to-brain network" that allows people to play games with each other using just their thoughts. And researchers at the University of California, San Francisco, have captured neural signals from people as they talk, and have then turned that information, via a computer, into intelligible speech.

As with all things Musk-related, Neuralink is much more ambitious. The firm does not just want to develop a better BMI. Its aim is to create a "neural lace", a mesh of ultra-thin electrodes that capture as much information from the brain as possible. Unsurprisingly, hurdles abound. The electrodes needed to do this must be flexible, so that they do not damage brain tissue and will also last for a long time. They have to number at least in the thousands, to provide sufficient bandwidth. And to make the implantation of so many electrodes safe, painless and effective, the process has to be automated, much like LASIK surgery, which uses lasers to correct eyesight.

Neuralink does indeed seem to have made progress towards these goals. Its presentation, at the California Academy of Sciences, in San Francisco, included videos of a neurosurgical robot that is best described as a sewing machine. This robot grabs "threads" (films, containing electrodes, that measure less than a quarter of the diameter of a human hair), and shoots them deep into the brain through a hole in the

skull. It is capable of inserting six threads, each carrying 32 electrodes, per minute. The firm has also designed a chip that can handle signals from as many as 3,072 electrodes—30 times more than current systems—and transmit them wirelessly.

The real magic, however, kicks in only when the output is analysed—which happens in real time. Looked at superficially, neurons in the brain seem to fire at random. Software can, though, detect patterns when the individual those neurons are in does certain things. Stick enough electrodes into someone's motor cortex, for instance, and it is possible to record what happens in the brain when he types on a keyboard or moves a mouse around. Those data can then be used to control a computer directly. Conversely, the electrodes can be employed to stimulate neurons, perhaps to give the person in question the feeling of touching something.

Neuralink has already tested its system successfully on rats and monkeys. These

were, it says, able to move cursors on screens with it. The firm now hopes to work with human volunteers, perhaps as early as next year should America's Food and Drug Administration play along.

The first goal is to use the technology to help people overcome such ailments as blindness and paralysis. Neuralink is, however, clearly aiming for a bigger market than this. It has also designed a small device that would sit behind someone's ear, picking up signals from the implanted chip and passing them on as appropriate. In a few years, using a brain implant to control your devices may be as *de rigueur* among San Francisco's techno-chics as wearing wireless earbuds is today. Ultimately, Mr Musk predicts, neural lace will allow humans to merge with AI systems, thus enabling the species to survive.

Though, as this announcement shows, Mr Musk does have a habit of presenting himself as the saviour of the human race (his desire to settle Mars seems motivated partly by fear of what might, in the future, happen to Earth), the idea that some machines at least will come under the direct control of human brains seems plausible. The biggest obstruction to this happening will probably not be writing the software needed to interpret brainwaves, but rather persuading people that the necessary surgery, whether by sewing machine or otherwise, is actually a good idea. ■



Due credit

At the moment, Bank of England £50 notes feature James Watt, whose steam engines powered the Industrial Revolution, and his business partner Matthew Boulton. On July 15th, however, the bank announced that from 2021 fifties will instead depict Alan Turing, the man who built Colossus, the world's first programmable, electronic, digital computer and who also developed much of the theory of computer science, especially the idea of algorithms. Colossus was used to break German codes during the second world war, shortening hostilities considerably. That won Turing scant recognition though, partly because of the project's secrecy and partly because he was gay, and homosexual activity was then illegal in Britain. Which changed the world more, steam engines or computers, is debatable. But Watt died in his 80s, rich and lauded by his fellows. Turing died of cyanide poisoning, possibly self-inflicted, at the age of 41.



Literary posterity

Call him Ishmael

Herman Melville, who was born 200 years ago, was globalisation's first great bard

STRIKING MATCHES on their rope-roughened palms, the burly whalers who chase Moby Dick seem unlikely avatars for modernity. But in an important, even prophetic way, that is what they are. The crew of the *Pequod* are a wondrous deputation “from all the isles of the sea, and all the ends of the earth”. Sailors of at least 13 nationalities are “federated along one keel” with Captain Ahab: Chinese and Tahitian, Icelandic and Portuguese. Their creator, Herman Melville—who was born 200 years ago, on August 1st 1819—was the first great writer of the age of globalisation.

The 19th century witnessed an unprecedented international circulation of people, goods and ideas. Sailors were at the forefront of this exchange, crossing and re-crossing oceans in a “devious zig-zag world-circle”, as Melville put it, constantly exposed to exotic lands and strange customs. A shortage of manpower and the dangers of the sea meant captains often cared little who shipped with them, provided they were able mariners. This was a cosmopolitanism of necessity rather than ideology, a grassroots phenomenon largely

overlooked by contemporary authors.

But not by Melville. As a Jack-Tar of 19, he sailed the New York-to-Liverpool circuit in 1839, an experience he recalled ten years later in his novel “Redburn”. He saw the awful conditions endured by Irish immigrants below decks and the hostility they encountered upon arrival in America. “If they can get here,” Melville thought, “they have God’s right to come.” The docking of an Indian vessel in Liverpool was an opportunity to swap stories with a Lascar sailor. “It is a God-send to fall in with a fellow like this,” Melville later wrote. “His experiences are like a man from the moon—wholly strange, a new revelation.”

He took his education on the ground—and on the water—having been withdrawn from formal schooling at 12 on the death of

his bankrupt father. In January 1841 he shipped from New Bedford as a whaler; over the next four years he was briefly imprisoned in Tahiti for taking part in a mutiny and hitched across the Pacific. He worked as a farmhand and as a pin-setter in a Hawaiian bowling alley. This journey, too, became material for his stories.

In them, rigid land-based axioms give way to social and moral fluidity. In the “watery part of the world”, categories of class, nation and race dissolve; the company includes “renegades, and castaways, and cannibals”. In “Moby Dick”, the masterpiece Melville published in 1851, Queequeg, an expert harpooner (and reputed man-eater) from the South Seas, earns more than Ishmael, the inexperienced white narrator. In his early book “Omoo” (1847), a workhouse foundling becomes a Pacific warlord. The late novella “Billy Budd” mentions African-Americans fighting under the British flag at the Battle of Trafalgar.

Or, The Whale

Travel led Melville to question the concepts of “savagery” and “civilisation”. “I call a savage a something highly desirable to be civilised off the face of the earth,” said his more parochial contemporary, Charles Dickens. For his part, Melville jumped ship at Nuku Hiva, in the Marquesas Islands, and spent a month with a tribe untouched by Western influence. That led to the radical defence of cannibalism in “Typee” (1846), his first book, as a form of justice no more barbaric than Britain’s erstwhile habit of displaying ▶▶

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▶ hung, drawn and quartered bodies.

Since everyone saw the world through the prism of their own culture, Melville believed, no society could claim moral superiority over another. In “White-Jacket” (1850), a Polynesian aboard an American frigate bound for New England has never before ventured beyond his home. “His tastes were our abominations: ours his,” the narrator observes. “Our creed he rejected: his we.” The upshot is that “neither was wrong, but both right.” In lectures the author gave about his experiences, he advocated travel as a way to dispel bigotry. The racist, he said, “finds several hundred millions of people of all shades of colour...And learns to give up his foolish prejudice.”

If differences are respected in Melville’s globalised world, commonalities emerge, too. Sailors learn each other’s languages and develop hybrid dialects. In moments of leisure, the crew of the *Pequod* lie in the forecabin swapping tales of women and wandering, singing shanties and dancing jigs. Prejudice and nationalism are too ingrained to vanish entirely; but, through mutual dependence on the high seas, interracial bonds are forged. “You sink your clan; down goes your nation; you speak a world’s language, jovially jabbering in the Lingua-Franca of the forecabin.”

After “Moby Dick”, a succession of Melville’s novels failed. Many contemporaries were surprised to learn he had died in 1891: they assumed he was dead already. But since its rediscovery in the early 20th century, the tale of Ahab’s hubristic vendetta against the whale has become an all-purpose political fable. In the 1950s C.L.R. James, a Trinidadian writer, described the book as “the biography of the last days of Adolf Hitler.” It has been deployed to decry the Vietnam war, George W. Bush’s crusade against the “axis of evil”, Osama bin Laden’s *jihad* against the West, Vladimir Putin’s hatred of NATO, Donald Trump’s pursuit of a border wall and Theresa May’s quest for a Brexit withdrawal agreement.

Today the white whale spouts across the globe. In Arabic the famous first line is “Call me Isma’il”; in Japanese it is “Call me Ishumeeru”. Melville’s leviathan has become a mirror for preoccupations everywhere. Iranian scholars debate the book’s Zoroastrian and Islamic elements; Melville, some argue, believed fate trumped morality as the ancient Sasanians did. During the Cultural Revolution Chinese pedagogues claimed Melville was a rare anti-capitalist American author. Germans note the influence of Goethe; Japanese academics think Ahab’s harpooner, the mysterious Fedallah, is one of their own. On the Antarctic Peninsula, meanwhile, huddle Mount Ahab, Tashtego Point and a glacier named *Pequod*. Two centuries after his birth, Melville continues to federate the world along one keel. ■

Sex in America

What women want

Three Women. By Lisa Taddeo. *Simon & Schuster*; 320 pages; \$27. *Bloomsbury Circus*; £16.99

IN THE EARLY 1970s Gay Talese set out to record the evolution of America’s sexual mores. Nine years of immersive research led to “Thy Neighbour’s Wife”, in which he wove histories of pornography and obscenity law with lurid tales of sex gurus and swingers. The book was a sensation even before its publication in 1981.

Much has changed since. The AIDS crisis led to discussions of safe sex; a new wave of feminism decried discrimination. Americans have become more accepting of premarital and same-sex relationships. After reporting on “halfway-hookers” in VIP nightclubs for *New York Magazine* in 2010, Lisa Taddeo decided to write an updated “Thy Neighbour’s Wife”, only “from a woman’s perspective”. Mr Talese focused on male fantasies and needs; Ms Taddeo spent eight years with three women in Rhode Island, Indiana and North Dakota. She intends them to “stand for the whole of what longing in America looks like”.

The subjects of “Three Women” contradict Mr Talese’s claim that “the initiators were nearly always men and the inhibitors were nearly always women”. Sloane (not her real name), a glamorous restaurateur, has always enjoyed “messing around” with men and women; that her husband likes to watch is the talk of their small town. Lina, a stay-at-home mother of two young children, longs for her husband’s touch: “it’s as though [she] is living with a room-mate.” Her passion finds an outlet in roadside rendezvous with Aidan, an old boyfriend she re-encounters on Facebook. At 16 Maggie fell in love with her high-school teacher, Aaron. They stole illicit moments after class or in cars, until his wife found a compromising text message.

Ms Taddeo spent time in these women’s home towns to better grasp their lives, and she writes about them with sensitivity. She has a novelist’s interest in small details: how the whiff of Aidan’s preferred beer is associated by Lina with “pure passion”; Maggie’s raddled copy of “Twilight”, her favourite book, which is sprayed with her teacher’s cologne and filled with his notes. Rather than dealing in cheap titillation, the author crafts engaging narratives. The reader first meets Maggie in court—years after the event, she has reported Aaron for corrupting her as a minor. Sloane’s cool adult demeanour is juxtaposed with her

adolescent eating disorders and her emotionally stifled upbringing.

“Three Women” captures the pain and powerlessness of desire as well as its heady joys. Still, the abiding impression is not of the subjects’ candour, nor their lust, nor even of the abuse that, one way or another, all three have suffered. Rather it is a sense that, for all the freedoms women have won, female desire is often still considered unruly and unacceptable, even repulsive.

The sort of names some women call Sloane behind her back—slut, tart, whore—they say to Maggie’s face. Lina’s acquaintances are sympathetic about her failing marriage but scornful of her affair. “I set out to register the heat and sting of female want,” Ms Taddeo reflects, “so that men and other women might more easily comprehend before they condemn.” ■



Conflict and vandalism

Dust to dust

An exhibition explores the cultural costs of war

“**I**WENT TO Exmouth,” wrote Margaret Tomlinson in February 1942, “and found they had dropped their eight bombs along the back of the one good Georgian terrace.” Tomlinson was part of the National Buildings Record (NBR), a small team of investigator-photographers hurriedly assembled during the Blitz to memorialise Britain’s bombed-out buildings. Today her negatives—often the only records of crumbled landmarks—repose in the archive of Historic England, a heritage agency.

The story of the NBR is told at a new exhibition at the Imperial War Museum in London. “What Remains”, put on with Historic England, explores the targeting of cultural treasures in war. The NBR, it explains, was a reaction to a brutal new trend in conflict. Aerial bombing had expanded the pa- ▶

rameters of the battlefield; techniques had been developed to target civilian architecture, along with theories that made such bombardments seem morally permissible, and militarily desirable.

Giulio Douhet, an Italian general, had argued in 1921 that bombing distant civilian settlements could swiftly ruin a country's morale. Hugh Trenchard, head of Britain's nascent Royal Air Force, likewise maintained that aerial bombing could be the key to winning entire wars. He put these conjectures into practice in Iraq, where villages that rebelled against colonial rule

were bombed by RAF aircraft. "Within 45 minutes", observed a squadron leader called Arthur Harris in 1924, "a full sized village...can be practically wiped out." As head of RAF Bomber Command, Harris oversaw devastating raids on Hamburg and Dresden during the second world war.

As the exhibition shows, however, such carnage provokes defiance as often as it wrecks morale. "What Remains" includes displays and propaganda videos depicting the ravages inflicted by Islamic State (IS) in Mosul and Palmyra. In the end the videos rallied opposition to IS; several projects are

now restoring what was lost. In 1942 Joseph Goebbels scrambled to present the Baedeker raids, in which Nazi planes attacked historic British towns, as legitimate retaliation rather than gratuitous vandalism.

When historic buildings are destroyed, says Eyal Weizman of Forensic Architecture, a group that has documented Yazidi towns and villages that is tried to raze, "you also destroy the culture—you destroy the communities." Gruesome as they are, the theories that led to the creation of the NBR continue to have adherents: war is still in part an architectural endeavour. ■

Johnson The poetry of emoji

The internet is revealing the nature of language more than changing it

WHAT IS TECHNOLOGY doing to language? Many assume the answer is simple: ruining it. Kids can no longer write except in text-speak. Grammar is going to the dogs. The ability to compose thoughts longer than a tweet is waning.

Language experts tend to resist that gloom, noting that there is little proof that speech is really degenerating: kids may say "LOL" out loud sometimes, but this is a marginal phenomenon. Nor is formal writing falling apart. Sentences like "OMG WTF William teh Conqueror pwned Harold at Hastings in 1066!" tend to be written by middle-aged columnists trying to imitate children's supposed habits. A study by Cambridge Assessment, a British exam-setter, found almost no evidence for text-speak in students' writing.

Fortunately, the story of language and the internet has attracted more serious analysts, too. Now Gretchen McCulloch, a prolific language blogger and journalist—and herself of the generation that grew up with the internet—joins them with a new book, "Because Internet". Rather than obsessing about what the internet is doing to language, it largely focuses on what can be learned about language from the internet. Biologists grow bacteria in a Petri dish partly because of those organisms' short life-spans: they are born and reproduce so quickly that studies over many generations can be done in a reasonably short period. Studying language online is a bit like that: trends appear and disappear, platforms rise and fall, and these let linguists observe dynamics that would otherwise take too much time.

For example, why do languages change? A thousand years ago, early versions of English and Icelandic were closely related, possibly even mutually

intelligible. English has since evolved hugely, and Icelandic, far less. Linguists have studied the relative effects of strong ties (friends, family) and weaker acquaintanceships in such patterns, hypothesising that small communities would host more stable languages. A computer simulation proved that a mix of strong and weak ties—close-knit groups existing in a larger sea—allowed language-change "leaders" to disseminate updates to the wider population. Twitter combines strong and weak ties—and sure enough, drives more language change than Facebook, which is more dominated by strong ties. That, in turn, helps explain the conservatism of Icelandic (more like Facebook) and the mutability of English (more like Twitter).

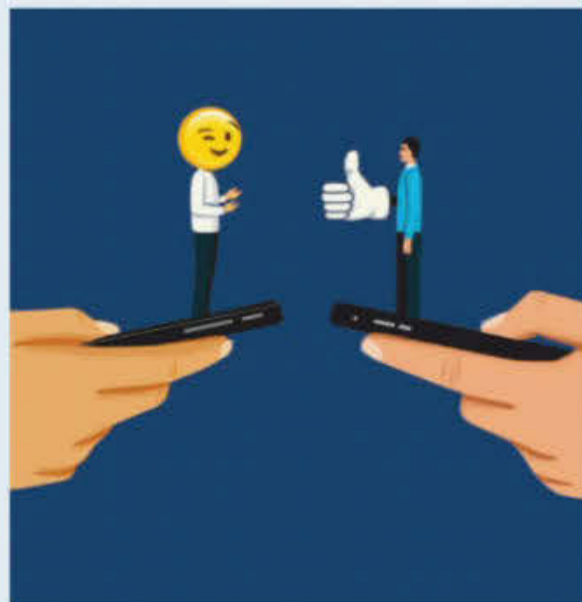
Emoji, odd as they may look, also reflect something universal. They are not a language (try telling a complex story in emoji to someone who doesn't know it already). They are, Ms McCulloch argues, the digital equivalent of gestures. Those come in two types. "Emblems", like a thumbs-up or a wink, have a fixed meaning and form. But "co-speech" gestures—


wincing, gesticulating, pointing—are spontaneous and more variable. And emoji come in these same flavours. People randomly combine many co-speech-style emoji, but are more restrained in mixing emblems. Just as it would make no sense to give someone the finger while shaking your head to negate it, emblematic emoji often stand alone rather than in expressive chains.

Other online "innovations" are not really new, either. Philosophers have previously tried to invent a marker for irony—a backwards question-mark or an upside-down exclamation point, for example—before online types succeeded with the sarcastic ~tilde~. The first use of OMG long preceded computers. Those who worry about teens speaking "hashtag" aloud ("Good for you—hashtag sarcasm!") might consider the last time they punctuated an utterance by saying "full stop" or "period".

In the end, Ms McCulloch's book is about the birth of a new medium rather than a new language. For millennia, speech was all there was. For most of "recorded" history, nearly everyone was illiterate. Then, in the age of the printing press and mass literacy, writing acquired a kind of primacy, seen as prestigious, a standard to be learned and imitated (often even in speech).

Future historians may regard that epoch of reverence as unusual. Mass reading has now been joined by mass writing: frequent, error-filled and evanescent—like speech. Little surprise that internet users have created tools to give their writing the gesture, playfulness and even meaninglessness of chitchat. Mistaking it for the downfall of "real" writing is a category error. Anything that helps people enjoy each other's company can only be a good thing.





Invitation for Bids
Disposal of URC's Disused Marine Vessels
PUSRP/DISP/19-20/00001/03

Under the Public Enterprises Reform and Divestiture Programme, the Government of the Republic of Uganda, through the **Privatisation & Utility Sector Reform Project (PUSRP)**, intends to sell the disused marine vessels, as part of the divestiture of URC on "AS IS, WHERE IS" basis and the PUSRP will have no further liability after sale. MV Barbus is partially submerged at Port Bell pier whereas MV Kabalega sunk in 2005 and is estimated to be at a depth of 80 meters deep under water South West of Port Bell at position 000034.5485'S; 033003.7500'E. The details of the marine vessels are shown below:-

Lot No.	Name of Vessel	Year of construction	Type of Vessel	Estimated Weight (Tons)	Construction
1	MV Barbus	1940	Passenger, Single Screw	120	Riveted steel
2	MV Kabalega	1984	Railway Wagon Ferry, Twin-Screw	1,121	Welded steel

Bidding will be conducted in accordance with the Public Enterprises Reform and Divestiture Act, Cap 98 of the Government of Uganda and is open to all Interested Eligible Bidders. The bidder may bid for more than one vessel. Interested Eligible Bidders may obtain further information from PUSRP and inspect the Bidding Documents at the Security Registry, PUSRP located at address below from 9:00 am – 4.00 pm (Mondays – Fridays). The Bidding Documents are in the English language and may be purchased by Interested Eligible Bidders starting on Monday, 15 July 2019 upon payment of a non-refundable fee of **UGX 100,000/= Uganda Shillings One Hundred Thousand only**, or its equivalent in **United States Dollars** in cash to the Privatisation & Utility Sector Reform Project, Accounts Department located at 2nd Floor Communications House, Colville Street, Kampala. **Bidders shall be required to submit a Bid Security, together with the bid, in favour of "PURSP Min. of Finance – Divestiture Account"**, in the form of a certified Banker's cheque/draft issued by a bank acceptable to PUSRP. Bidders shall be required to submit a separate bid security for each Lot as indicated below:

Lot No.	Name of vessel	USD	Ugx
1.	MV Barbus	3,000	11,400,000/=
2.	MV Kabalega	28,025	106,495,000/=

Inspection of the vessels shall be carried out on Tuesday, 30 July 2019 starting at 10:00 am at the Bidder's own cost. The Inspection shall begin at the PUSRP Boardroom on 2nd Floor, Communications House, Plot 1 Colville Street, Kampala. Bids clearly marked "**Bid for the purchase of URC's Disused Marine Vessels, MV Barbus or Kabalega, Lot 1 or 2 respectively**" must be delivered to the address below **before 3.00 pm on Wednesday, 18 September 2019**. Late bids shall be rejected. **The Security Registry, Privatisation & Utility Sector Reform Project, Ministry of Finance, Planning and Economic Development, 2nd Floor, Communications House, Plot 1 Colville Street, P.O. Box 10944, Kampala, Uganda.**
Telephone: (+256 41) 4705600/20. Facsimile: (+256 41) 4342403/342404



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A restricted procedure is launched for the awarding of a concession contract for services related to the release of Entry visas in Italy – tender number: 7474358 – with 3 lots. Amount: € 63.732.650,00 excluding VAT. Deadline for receiving participation requests: 06/09/2019 at 12:30 am. Opening of participation requests: 09/09/2019 12:00 am. Tender Documents on: www.consmosca.esteri.it. This notice is sent to the G.U.U.E.: 04/07/2019.

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Economic data

	Gross domestic product				Consumer prices		Unemployment		Current-account	Budget	Interest rates		Currency units			
	% change on year ago				% change on year ago		rate		balance	balance	10-yr gov't bonds	change on	per \$	% change		
	latest	quarter*	2019†		latest	2019†	%		% of GDP, 2019†	% of GDP, 2019†	latest,%	year ago, bp	Jul 17th	on year ago		
United States	3.2	Q1	3.1	2.2	1.6	Jun	2.0	3.7	Jun	-2.4	-4.7	2.1	-80.0	-		
China	6.2	Q2	6.6	6.2	2.7	Jun	2.9	3.7	Q1\$	0.2	-4.5	3.0	\$§	-25.0	6.88	-2.9
Japan	0.9	Q1	2.2	1.0	0.8	May	1.1	2.4	May	3.8	-2.9	-0.1	-14.0	108	4.4	
Britain	1.8	Q1	2.0	1.3	2.0	Jun	1.8	3.8	Apr††	-4.1	-1.6	0.9	-52.0	0.80	-5.0	
Canada	1.3	Q1	0.4	1.6	2.0	Jun	1.8	5.5	Jun	-2.7	-1.0	1.5	-59.0	1.31	0.8	
Euro area	1.2	Q1	1.6	1.2	1.3	Jun	1.4	7.5	May	3.5	-1.2	-0.3	-64.0	0.89	-3.4	
Austria	1.4	Q1	3.8	1.3	1.6	Jun	1.8	4.7	May	2.1	0.1	-0.1	-64.0	0.89	-3.4	
Belgium	1.2	Q1	1.1	1.2	1.7	Jun	1.9	5.5	May	0.1	-1.0	nil	-61.0	0.89	-3.4	
France	1.2	Q1	1.4	1.2	1.2	Jun	1.2	8.6	May	-0.9	-3.3	nil	-61.0	0.89	-3.4	
Germany	0.7	Q1	1.7	0.8	1.6	Jun	1.4	3.1	May	6.5	0.7	-0.3	-64.0	0.89	-3.4	
Greece	0.9	Q1	0.9	1.8	-0.3	Jun	1.3	17.6	Apr	-2.7	nil	2.3	-160	0.89	-3.4	
Italy	-0.1	Q1	0.5	0.1	0.7	Jun	0.9	9.9	May	2.0	-2.9	1.6	-88.0	0.89	-3.4	
Netherlands	1.7	Q1	1.9	1.6	2.7	Jun	2.6	4.1	May	10.1	0.7	-0.1	-60.0	0.89	-3.4	
Spain	2.4	Q1	2.7	2.2	0.4	Jun	1.2	13.6	May	0.5	-2.2	0.4	-94.0	0.89	-3.4	
Czech Republic	2.8	Q1	2.6	2.6	2.7	Jun	2.5	2.2	May†	0.2	0.2	1.5	-67.0	22.8	-3.1	
Denmark	2.4	Q1	0.5	1.9	0.6	Jun	1.1	3.7	May	6.8	1.0	-0.3	-59.0	6.65	-4.1	
Norway	2.5	Q1	-0.3	1.6	1.9	Jun	2.6	3.2	Apr††	7.7	6.4	1.5	-22.0	8.58	-5.2	
Poland	4.7	Q1	6.1	4.0	2.6	Jun	2.0	5.3	Jun\$	-0.6	-2.0	2.3	-81.0	3.80	-3.4	
Russia	0.5	Q1	na	1.2	4.7	Jun	4.9	4.4	Jun\$	6.9	2.1	7.5	-28.0	62.9	-0.6	
Sweden	2.0	Q1	2.4	1.7	1.8	Jun	1.9	6.8	May\$	4.9	0.5	nil	-52.0	9.37	-6.0	
Switzerland	1.7	Q1	2.3	1.6	0.6	Jun	0.5	2.3	Jun	9.6	0.5	-0.5	-52.0	0.99	1.0	
Turkey	-2.6	Q1	na	-1.7	15.7	Jun	16.1	13.0	Apr\$	-0.7	-2.3	16.9	-93.0	5.69	-15.8	
Australia	1.8	Q1	1.6	2.2	1.3	Q1	1.7	5.2	Jun	-1.5	0.1	1.4	-124	1.43	-5.6	
Hong Kong	0.6	Q1	5.4	1.8	2.8	May	2.3	2.8	May††	4.5	0.5	1.6	-57.0	7.81	0.5	
India	5.8	Q1	4.1	6.7	3.2	Jun	3.6	7.9	Jun	-1.8	-3.5	6.3	-140	68.8	-0.6	
Indonesia	5.1	Q1	na	5.1	3.3	Jun	3.1	5.0	Q1\$	-2.6	-1.9	7.1	-44.0	13,980	2.8	
Malaysia	4.5	Q1	na	4.5	0.2	May	0.7	3.3	May\$	2.6	-3.5	3.6	-49.0	4.11	-1.5	
Pakistan	3.3	2019**	na	3.1	8.9	Jun	8.4	5.8	2018	-3.8	-7.1	14.2	†††	477	160	-19.9
Philippines	5.6	Q1	4.1	5.7	2.7	Jun	3.6	5.1	Q2\$	-2.0	-2.5	5.0	-146	51.1	4.4	
Singapore	0.1	Q2	-3.4	1.6	0.9	May	0.6	2.2	Q1	15.3	-0.6	2.0	-46.0	1.36	nil	
South Korea	1.6	Q1	-1.5	1.9	0.7	Jun	0.8	4.0	Jun\$	4.2	0.9	1.6	-100	1,181	-4.8	
Taiwan	1.7	Q1	2.3	1.7	0.9	Jun	0.5	3.8	May	13.0	-1.0	0.7	-18.0	31.1	-1.8	
Thailand	2.8	Q1	4.1	3.3	0.9	Jun	1.2	1.1	May\$	7.8	-2.9	1.8	-84.0	30.9	7.6	
Argentina	-5.8	Q1	-0.9	-1.2	55.8	Jun†	48.6	10.1	Q1\$	-2.3	-3.4	11.3	562	42.5	-35.4	
Brazil	0.5	Q1	-0.6	0.8	3.4	Jun	4.0	12.3	May\$	-1.0	-5.8	5.6	-345	3.77	2.4	
Chile	1.6	Q1	-0.1	3.0	2.3	Jun	2.4	7.1	May\$††	-2.6	-1.3	3.3	-135	682	-4.0	
Colombia	2.3	Q1	nil	3.1	3.4	Jun	3.4	10.5	May\$	-4.2	-2.5	5.8	-89.0	3,192	-9.8	
Mexico	1.2	Q1	-0.7	0.8	3.9	Jun	3.9	3.5	May	-1.7	-2.4	7.8	2.0	19.0	-0.9	
Peru	2.3	Q1	-5.3	3.4	2.3	Jun	2.2	7.1	May\$	-1.9	-2.0	5.6	64.0	3.29	-0.6	
Egypt	5.7	Q2	na	5.1	9.4	Jun	13.0	8.1	Q1\$	-0.8	-7.8	na	nil	16.6	7.8	
Israel	3.3	Q1	5.0	3.1	0.8	Jun	1.4	3.6	May	2.8	-4.0	1.4	-49.0	3.54	2.5	
Saudi Arabia	2.4	2018	na	1.9	-1.5	May	-1.1	5.7	Q1	3.3	-5.6	na	nil	3.75	nil	
South Africa	nil	Q1	-3.2	1.0	4.4	May	5.1	27.6	Q1\$	-3.4	-4.2	8.0	-63.0	14.0	-5.4	

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	Index	% change on:	
	Jul 17th	one week	Dec 31st 2018
United States S&P 500	2,984.4	-0.3	19.1
United States NAScomp	8,185.2	-0.2	23.4
China Shanghai Comp	2,931.7	0.6	17.6
China Shenzhen Comp	1,574.4	1.5	24.2
Japan Nikkei 225	21,469.2	-0.3	7.3
Japan Topix	1,567.4	-0.2	4.9
Britain FTSE 100	7,535.5	0.1	12.0
Canada S&P TSX	16,484.2	-0.5	15.1
Euro area EURO STOXX 50	3,501.6	nil	16.7
France CAC 40	5,571.7	0.1	17.8
Germany DAX*	12,341.0	-0.3	16.9
Italy FTSE/MIB	22,079.4	0.2	20.5
Netherlands AEX	572.3	1.2	17.3
Spain IBEX 35	9,284.2	0.3	8.7
Poland WIG	59,975.1	-0.4	4.0
Russia RTS, \$ terms	1,361.6	-3.3	27.7
Switzerland SMI	9,942.0	nil	17.9
Turkey BIST	99,806.1	1.2	9.4
Australia All Ord.	6,764.0	-0.2	18.5
Hong Kong Hang Seng	28,593.2	1.4	10.6
India BSE	39,215.6	1.7	8.7
Indonesia IDX	6,394.6	-0.3	3.2
Malaysia KLSE	1,657.5	-1.3	-2.0

	index	% change on:	
	Jul 17th	one week	Dec 31st 2018
Pakistan KSE	32,982.0	-2.5	-11.0
Singapore STI	3,364.9	0.7	9.6
South Korea KOSPI	2,072.9	0.7	1.6
Taiwan TWI	10,828.5	0.3	11.3
Thailand SET	1,718.9	-1.2	9.9
Argentina MERV	41,451.3	-3.2	36.8
Brazil BVSP	103,855.5	-1.9	18.2
Mexico IPC	42,551.5	-0.6	2.2
Egypt EGX 30	13,641.9	-2.6	4.7
Israel TA-125	1,473.6	-1.0	10.5
Saudi Arabia Tadawul	9,075.6	1.9	16.0
South Africa JSE AS	57,636.0	0.1	9.3
World, dev'd MSCI	2,197.9	-0.1	16.7
Emerging markets MSCI	1,054.9	0.6	9.2

US corporate bonds, spread over Treasuries

	latest	Dec 31st 2018
Basis points		
Investment grade	159	190
High-yield	474	571

Sources: Datastream from Refinitiv; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities**The Economist commodity-price index**

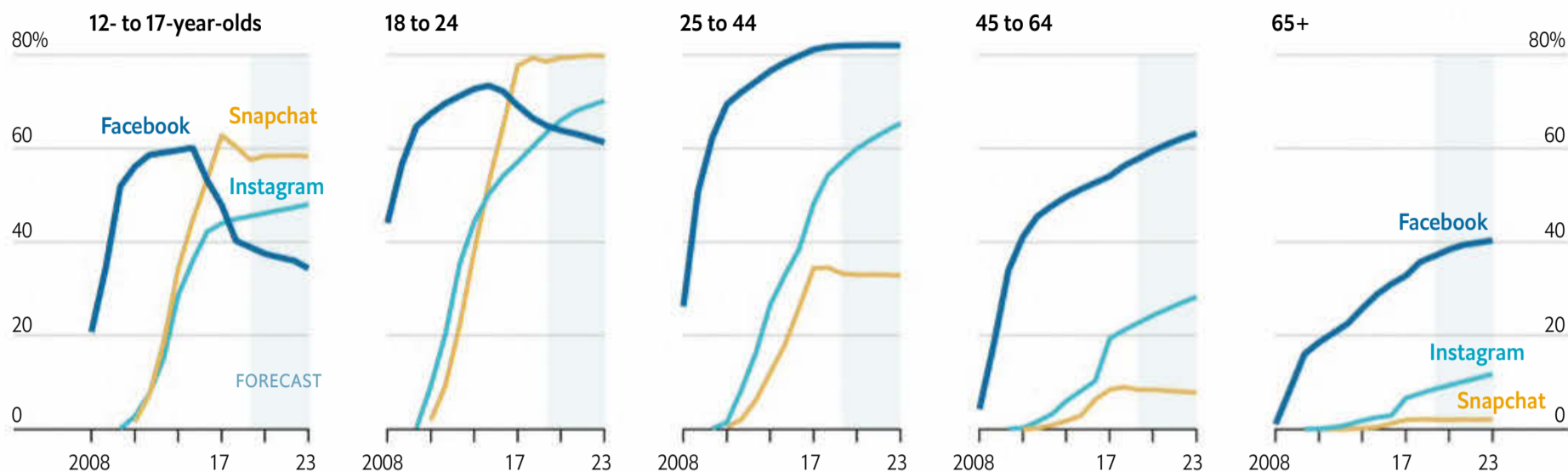
2005=100	% change on			
	Jul 9th	Jul 16th*	month	year
Dollar Index				
All Items	136.7	137.0	-0.9	-3.7
Food	148.4	147.7	-2.0	2.6
Industrials				
All	124.7	125.9	0.6	-10.3
Non-food agriculturals	115.4	113.3	-5.3	-18.9
Metals	128.6	131.4	3.0	-6.7
Sterling Index				
All items	199.5	200.7	0.1	2.1
Euro Index				
All items	151.7	151.8	-1.2	0.3
Gold				
\$ per oz	1,397.1	1,409.6	4.5	14.8
West Texas Intermediate				
\$ per barrel	57.8	57.6	6.9	-15.4

Sources: CME Group; Cotlook; Darmann & Curl; Datastream from Refinitiv; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Urner Barry; WSJ. *Provisional.

For more countries and additional data, visit [Economist.com/indicators](https://www.economist.com/indicators)

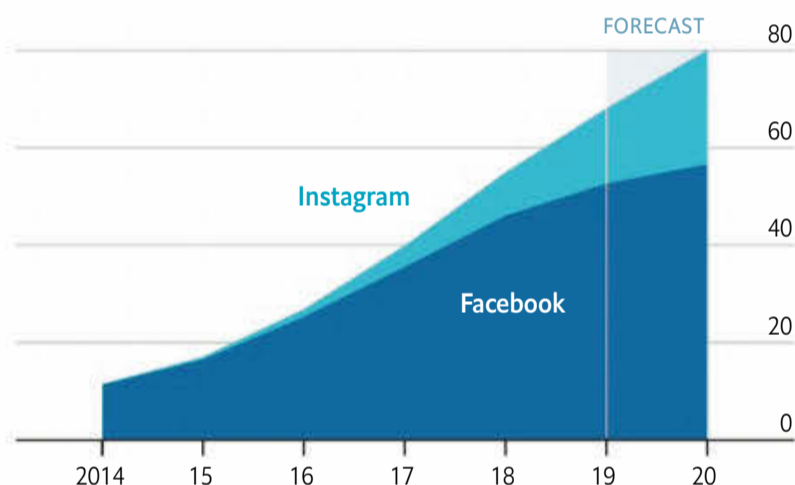
Teenagers are avoiding Facebook, as older users flock to it

Share of Americans using platforms at least once per month, estimate, by age group

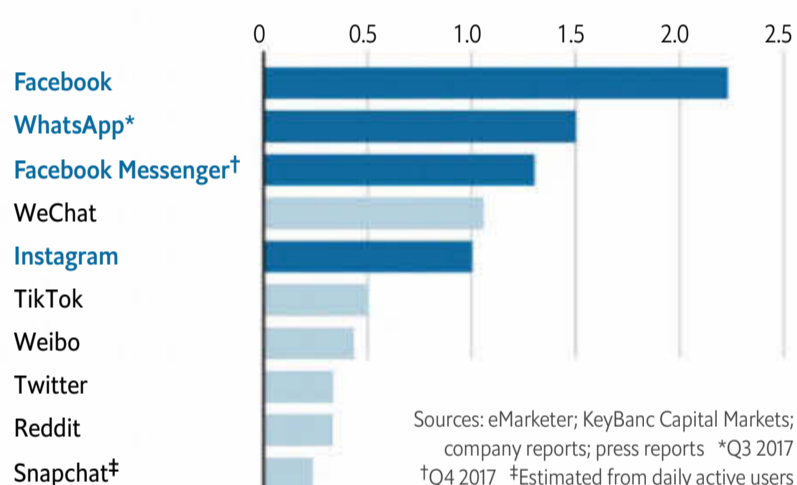


Facebook's acquisitions of Instagram and WhatsApp have compensated for the greying of its core product

Advertising revenue, \$bn
Estimate



Global monthly active users, bn
Selected services, Q2 2018



Teenage wasteland

Youngsters are avoiding the Facebook app—but not the firm's other platforms

IN 2003 MARK ZUCKERBERG built Face-mash.com, a website ranking the attractiveness of his Harvard classmates. The college made him delete it. But the 19-year-old soon launched another site, on which users could create profiles and communicate. TheFacebook.com spread rapidly to other campuses. By 2006, when *The Economist* first wrote a story about the “student networking site”, it had 10m users.

Today, Facebook's youth is a distant memory. Only four public companies are worth more than Mr Zuckerberg's. His dormitory invention boasts over 2bn users. Politicians and businesses use it to sway the public. Now that the social network has grown up, however, teenagers are increasingly avoiding it.

Measuring usage of Facebook is tricky: the firm says it stopped spammers from creating 2bn fake profiles in the first quarter of 2019. But eMarketer, a consultancy that blends Facebook's reported figures with polls, reckons that 16-year-old Americans are less likely to use it than 60-year-olds are. The share of people aged 12-17 who do so at least once per month has fallen from 60% in 2015 to 39% today. The figure for those aged 45-64 is 58%. A similar trend holds in other countries with reliable data.

One cause is youthful rebelliousness: few teens want to share a network with grandma. Another is the type of content the platform offers, explains Mark Mahaney of RBC, a bank. Whereas Snapchat and Instagram, two newer services, let teenagers document every moment with image filters and animated “stories”, Facebook emphasises its news feed and messages. That is helpful for contacting old friends, but not for photographing breakfast.

Luckily for Facebook, competition regulators permitted its acquisitions of Instagram in 2012 and WhatsApp, an instant-messaging app, in 2014. If one counts Face-

book Messenger, a chat app the company carved out from its core site in 2011, Facebook now owns four of the five most used communication apps (excluding email).

Facebook does not break down its revenue by platform, but Andy Hargreaves of KeyBank Capital Markets estimates that 23% of its \$68bn turnover this year will come from Instagram, based on surveys of advertisers. That share will probably keep rising as Instagram offers more ad inventory in the stories format. WhatsApp will introduce ads in 2020—when Facebook plans to launch Libra, a digital currency.

Facebook may soon receive a fine of around \$5bn for leaking private data to Cambridge Analytica (see Business section), but can easily afford that sum. And however unfashionable the company's namesake platform is becoming, it is still adding more users.

Even if the Facebook site and app become moribund, Facebook the company is likely to remain competitive. Such resilience owes as much to regulators' past tolerance for a big incumbent gobbling up challengers as to the firm's deft strategy. ■



Congo's wheels

Pierre Mambele, taxi-driver, died on June 8th, aged 74

SINCE THE best place to pick up a fare in Kinshasa, Congo's capital, was outside the Grand hotel (for a time, the Intercontinental), that was where Pierre Mambele usually parked his car. There he would wait, with a bottle of Sprite, under the trees for shade.

His car was nothing fancy. It was a dark blue 1976 Fiat which had seen service on plenty of bad roads. The side mirrors and windscreen-wipers had long gone, good riddance to them. The front doors could fly open at speed, so sometimes had to be tied to the chassis with plastic bags. The exhaust trailed. This car limped from one criminal mechanic to another, but as long as it ran, and people were willing to pay him for a ride, he wasn't bothered.

His clothes were nothing fancy either. On most days in fashion-proud Kinshasa he wore a greasy T-shirt and dirty jeans. His thick glasses, mended with Sellotape, had never been much use. Yet he drove crazy-fast, pedal to the floor, roaring round the city. He was not a *Kinois* himself, one of that snooty so-sophisticated lot, and the other drivers outside the Grand called him "Kisangani" after the city where he was born, in the east. He spoke Swahili as well as Lingala. But he had been a taxi-driver in the capital for decades, and knew the ramshackle place like the back of his hand. *Kin-labelle*, now *Kin-la-poubelle*, as everyone said.

Driving fast also showed his contempt for any sort of authority. Soldiers toting guns in the road were a joke: *pas sérieux, quel cinéma!* As for the *roulages*, the yellow-helmet traffic cops who would leap out to bang on his windscreen and demand money for some offence he hadn't committed, he would shout and argue with them until it came to fists, and they gave up. A cop got in his way once when he was doing a three-point turn outside a grocery store. He just kept going, with the idiot spreadeagled on the bonnet.

Because he was so audacious, and had good instincts, and would go to places other drivers wouldn't, his taxi became the car of choice for Western journalists. It was good money, \$35 a day in

the 1990s (though the best money came from Western tv crews, if they turned up in town). His regular passengers for years included Michela Wrong and Stephanie Wolters of Reuters, Howard French of the *New York Times*, Dino Mahtani of Reuters (and *The Economist*), on whose office sofa he would take naps, William Wallis of the *Financial Times*. Though he spoke no English and growled thickly in French, often just to himself, they all knew what he was grumbling about. He was the conduit through which they, and their readers, came to grasp what was happening in Congo.

None of it was good. *C'est pas bien, c'est foutu*, finger wagging angrily as he careered along. He had ulcers, his stomach hurt and his wife was divorcing him, but his country pained him more. Everyone was corrupt. Everything was screwed. In his lifetime Congo had gone from brutal Belgian colonialism to brief independence under Patrice Lumumba to dictatorship under Mobutu Sese Seko, before the Kabila clan took over. He had met Lumumba at rallies in Kisangani, and liked him. For Mobutu and his henchmen he had no time at all. Nor for the Kabilas, whose claims to be *rassembleurs*, unifiers, made him laugh out loud. His hopes lay with Etienne Tshisekedi, "the Sphinx", founder of a party for democratic change without violence. But Tshisekedi never made it to president, and his son Félix managed it only by villainy, like all the rest.

There had been one golden moment. It came in 1974, the year he started driving a taxi. Congo, then called Zaire, won the African Soccer Cup and hosted the Rumble in the Jungle, the heavyweight boxing match between George Foreman and Muhammad Ali. Kinshasa was suddenly swarming with Americans, hands full of dollars, needing a cab. Even better, one evening Ali himself, his hero, came out of the hotel. One of the younger drivers tried to spar with him, and he, Pierre, stepped between them like a referee to shout "Break! Dégage-toi!" He saw that fight, which Ali won, and loved ever after to drive his journalists past the May 20th Stadium, remembering it.

He could show them other good things, too. He took many to eat fish and cassava at Maluku on the Congo river, and encouraged some to meet Papa Wendo, the ancient father of the Congolese rumba, or to listen in on meetings of intellectuals who conversed in English. He wanted to display Congo's best side—the really impressive side, not the overweening official villas on the hill in Binza towards which the little Fiat would trundle, then expire, and need to be jump-started while the sharp suits stood and stared.

Some of those officials, the *grosses legumes*, he knew, and they gave him a certain respect, both because he kept turning up with Western journalists and because, clearly, he was fearless. This made him useful as a fixer, though he was a driver first, and ran the same risks the journalists did when he strayed into presidential compounds or, as in the 1990s, into riots. But he and the car, as its bashes showed, would drive through anything. He had to get his journalists, first, to where they wanted to go and, second, safely back again. If bad stuff happened, and they ended up hauled from the car or in jail, he would stay until he had rescued them—sometimes because he knew the right person, often by shoving and shouting. He became their protector and friend. In return they gave him money to buy a better car, but he preferred to get a cheap one and, in his chaotic style, fritter the rest away.

At times he found he was thinking like a journalist himself, pushing his charges to get closer to the action when something newsworthy occurred. He wanted to be there in the sweat of it when history happened. Yet history seemed to have slowed almost to a stop in Congo. Nothing changed, and nothing would. Its leaders were idiots. The economy was bust. Some parts were given over to constant war. Fewer journalists came to cover it, so it was hardly worth waiting even outside the Grand. *Il n'y a rien, il n'y a rien*, he would mutter down the phone to his journalist friends who had gone home. In response they sent him clothes and money for the hospital where eventually he had to go; they had not forgotten Congo. Sadly, it seemed to him that the rest of the world had. ■

THE LUNAR LANDING WAS 50 YEARS AGO. WHAT'S OUR NEXT "GIANT LEAP"?

I AM ADAM JONAS

Global Head of Auto and Shared Mobility
Equity Research

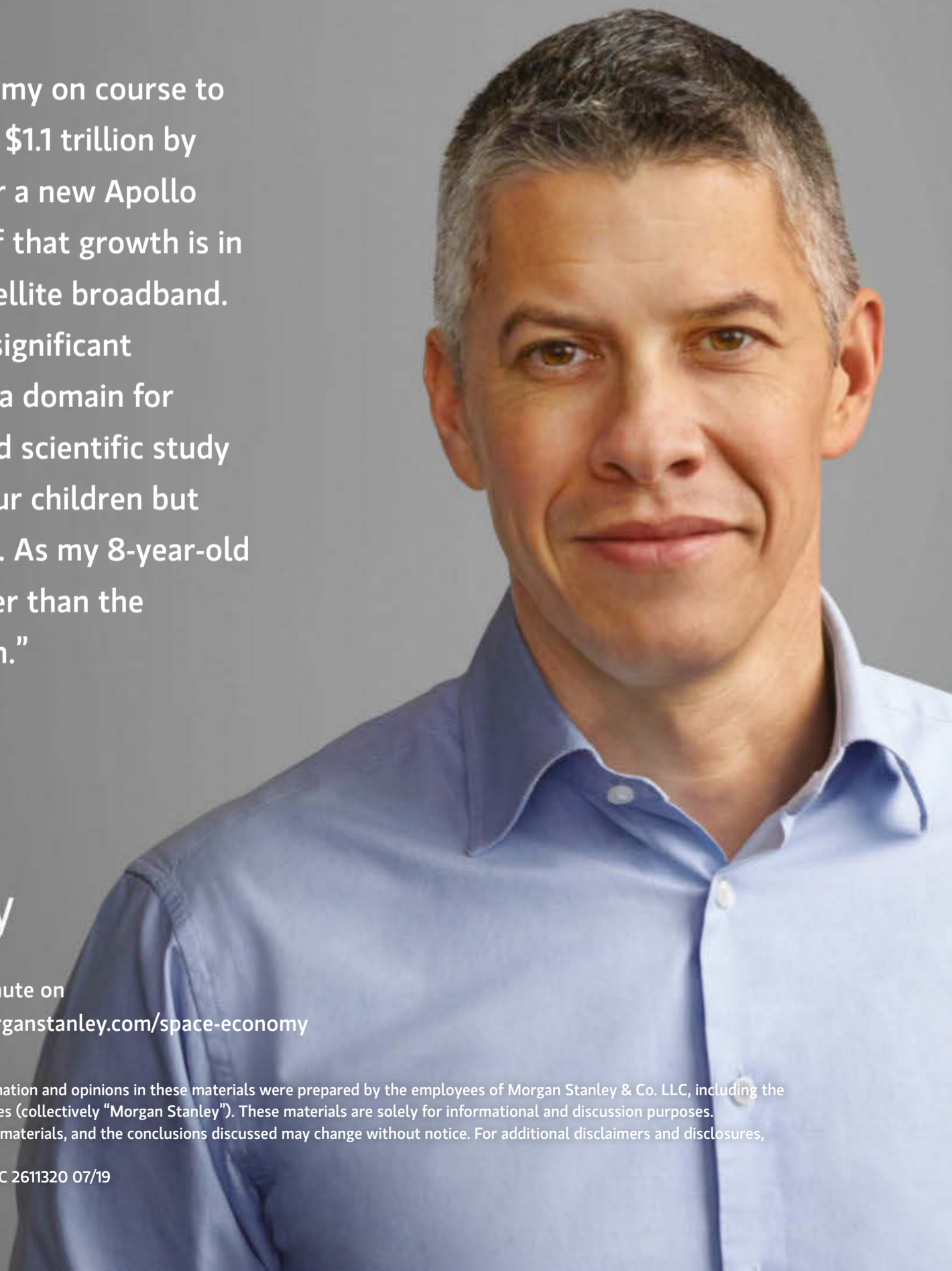
With the new space economy on course to grow from \$350 billion to \$1.1 trillion by 2040, we see potential for a new Apollo effect. The leading edge of that growth is in the tech industry with satellite broadband. In our lifetimes, we'll see significant advancements in space as a domain for exploration, commerce and scientific study that cannot only inspire our children but also improve their futures. As my 8-year-old says, "The only thing bigger than the universe is our imagination."

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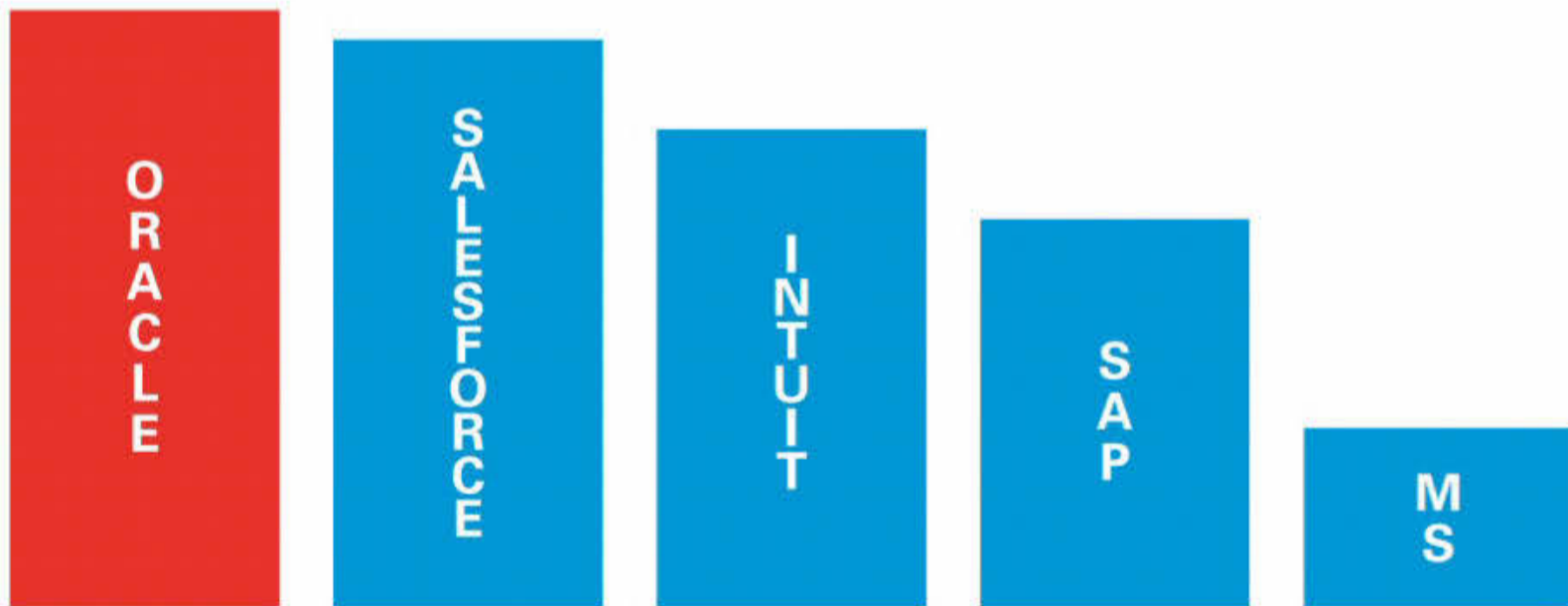
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