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Economist**

New rules for globalisation

Crypto and sanction-dodging

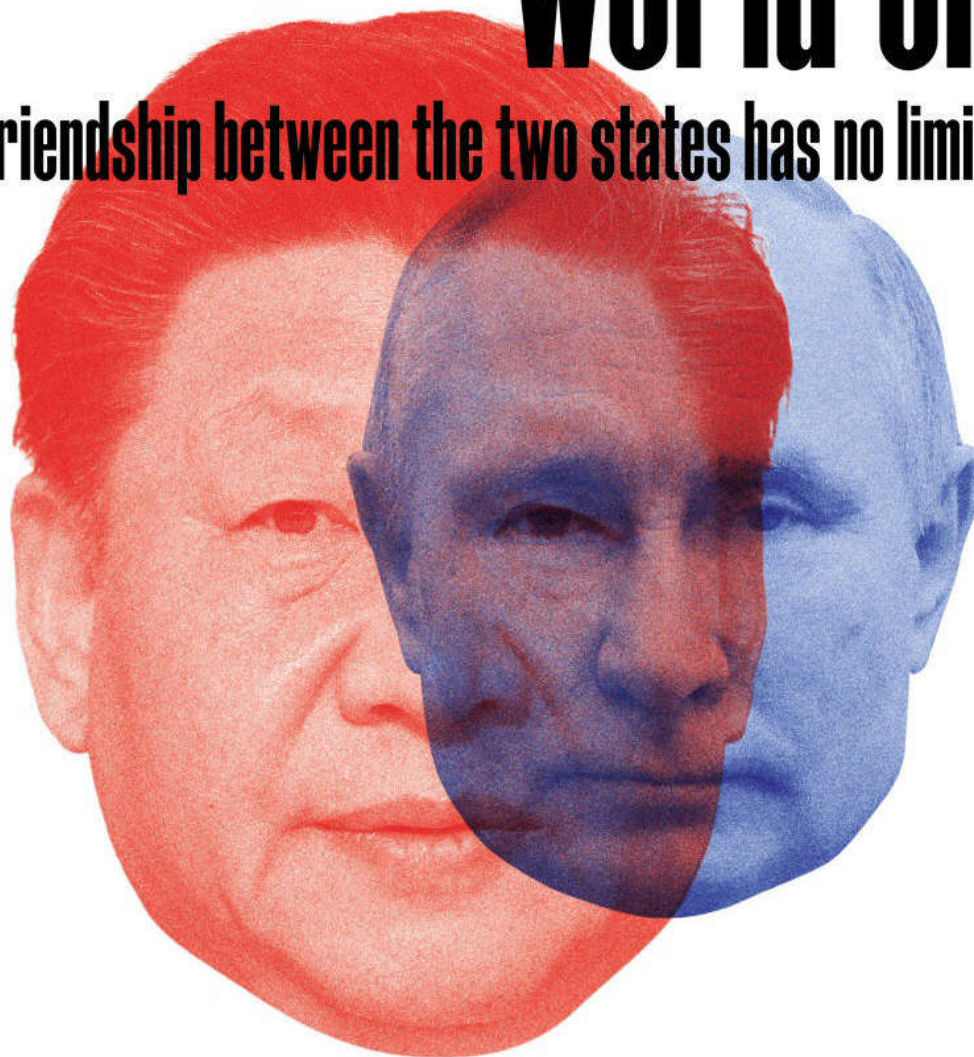
Why windfall taxes are a bad idea

A war interview with Boris Johnson

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The alternative world order

“Friendship between the two states has no limits”



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Russia's invasion of **Ukraine** appeared to have stalled, with Russian forces making few territorial advances. The invaders continued to bombard Ukrainian cities indiscriminately, leading to increasing reports of civilian casualties. The International Committee of the Red Cross warned of a "devastating humanitarian crisis", although some non-combatants did manage to escape the port of Mariupol and other besieged locations.

In **peace talks** between Russia and Ukraine, both sides suggested that there had been some progress. Ukraine's president, Volodymyr Zelenskyy, implied that Ukraine might have to give up its ambition to join NATO, but said that his country would seek strong alternative security guarantees. Vladimir Putin, his Russian counterpart, continued to rail against the "Nazis" and "criminals" running Ukraine, calling into question the sincerity of the negotiations.

In a show of solidarity the prime ministers of the Czech Republic, Poland and Slovenia travelled by train to **Kyiv** to meet Mr Zelenskyy. America's **Congress** approved a further \$1bn in humanitarian and military assistance for Ukraine. Mr Zelenskyy gave an impassioned speech to Congress, pleading for even more help. Afterwards the American authorities said they would send armed drones to Ukraine for the first time. Joe Biden called Mr Putin a war criminal.

A few days earlier Russia launched air strikes on a military base in western Ukraine, near the Polish border, which NATO had used before the

invasion to train Ukrainian forces. Russia said the base was a hub for Western **weapons** flowing into Ukraine and warned that convoys carrying Western arms were "legitimate" targets.

America warned **China** that any effort to aid Russia or help it evade sanctions would be met with serious but unspecified consequences. Officials in Washington said that Russia had asked China for weapons, including drones, and that China appeared open to providing military and economic support. The Chinese foreign ministry accused America of spreading "disinformation".

The number of **refugees** fleeing the fighting passed 3m, almost 2m of whom have gone to Poland. The mayor of Warsaw said he was struggling to find accommodation for the new arrivals; the city's population has risen by a fifth in less than three weeks. Britain, which had been accused of turning away refugees, announced a scheme whereby people could volunteer to host Ukrainians in their homes.

America backed away from an initiative to improve relations with **Venezuela**. The White House had sent its top adviser for Latin America to meet Venezuela's president, Nicolás Maduro, in what many saw as an attempt to loosen his ties to Russia and boost oil production. But a political backlash in America against talks with the leftist dictatorship apparently prompted the Biden administration to reconsider.

Gabriel Boric took office as **Chile's** president. The 36-year-old "libertarian socialist" is a departure from the centrist politicians who had governed since democracy was restored in 1990. In his inaugural speech he paid tribute to Salvador Allende, the socialist president deposed by a military coup in 1973.

Gustavo Petro, a left-wing senator and former member of the M-19 guerrilla movement,

affirmed his position as front-runner in **Colombia's** presidential election, scheduled for May, by winning more votes than any other candidate in primaries.

Following an international backlash, **Guatemala's** Congress rescinded a recent bill that would have seen women imprisoned for up to ten years for having an abortion.

Mexico's government captured Juan Gerardo Treviño "El Huevo" (The Egg), the alleged leader of the Northeast Cartel, a drug gang, and Troops of Hell, a band of assassins. He was extradited to America.

Russian mercenaries working for the government of **Mali** were accused by the UN of participating in the torture and killing of at least 30 people, including children. The government had hired the mercenaries to help the army keep Islamist insurgents at bay.

Armed men believed to be jihadists have killed more than 60 people in eastern **Congo** over the past week. Last year Uganda sent more than 1,000 troops across the border into Congo to fight jihadists belonging to a group calling itself the Allied Democratic Forces.

Iran fired a dozen missiles at Erbil, the capital of the **Kurdish** region of Iraq, accusing the authorities there of conniving with Israel. No one was reported to have been killed.

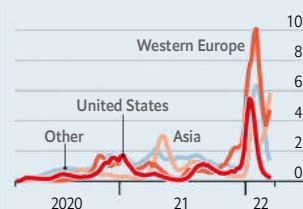
Eighty-one men were executed in **Saudi Arabia**, mainly for supposed acts of terrorism. Shortly afterwards Britain's prime minister, Boris Johnson, visited the kingdom to try to persuade Prince Muhammad bin Salman, its de facto ruler, to pump more oil in an effort to lower prices.

A missile test by **North Korea**—the tenth this year—ended in failure when the rocket exploded in the skies above Pyongyang, causing debris to rain down on the city. Analysts think that Kim Jong

Coronavirus data

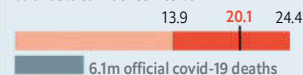
To 6am GMT March 17th 2022

Weekly confirmed cases by area, m



Estimated global excess deaths, m

With 95% confidence interval



Vaccine doses given per 100 people

By country-income group



Sources: Johns Hopkins University CSSE; Our World in Data; UN; World Bank; The Economist's excess-deaths model

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Un, the country's dictator, is preparing to test-launch an intercontinental ballistic missile while America is distracted by the war in Ukraine.

Serdar Berdimukhamedov won a sham presidential election in **Turkmenistan** with 73% of the vote. The new president is the son of the outgoing one, Gurbanguly Berdimukhamedov, who won the previous election with 98% of the vote.

There is no escape

Cases of **COVID-19** continued to surge in China, where millions of people in more than a dozen cities were put into lockdowns. Businesses closed in the worst-affected areas. The outbreak is straining China's zero-covid policy, which aims to stamp out the virus before it can spread widely. With vaccines that offer limited protection against the Omicron variant, the country is ill-prepared for a large wave.

The **Federal Reserve** raised its benchmark interest rate by a quarter of a percentage point, lifting it to a target range of 0.25-0.50%, the first increase since 2018. America's central bank also said that it expects to lift the rate at its six remaining meetings in 2022 with more to come next year, eventually bringing it to 2.8%. Despite the financial volatility caused by the war in Ukraine, the Fed felt it had to act to tame surging inflation; the conflict will only add to price pressures.

Sarah Bloom Raskin withdrew her nomination as Joe Biden's choice to head **financial regulation** at the Fed. Ms Raskin, a former deputy secretary at the Treasury, came under attack from Republicans for her tough approach to financial risk posed by climate change. She withdrew after Joe Manchin, a Democratic senator from coal-loving West Virginia, said he would not vote for her.

Oil prices retreated rapidly from their recent highs. Brent crude fell below \$100 a barrel, less than a week after it had hurtled towards \$140. The International Energy Agency warned of a "global oil-supply shock" caused by the effect of sanctions on Russian production, observing that new trades on Russian oil have "all but dried up". Only Saudi Arabia and the United Arab Emirates have the capacity to make up the shortfall, it said.

EDF raised its forecast of the cost it will bear from the French government's cap on household energy increases, to €10.2bn (\$11.2bn). The French utility also upped the estimate of the further hit it will take from reduced output at its nuclear power plants because of technical issues, to €16bn.

The **G7** said it was working collectively to stop Russia obtaining financing from the IMF, World Bank and European Bank for Reconstruction and Development and that Russia would no longer be treated as a normal trading partner.

The Russian government moved to designate **Meta** as an "extremist organisation", after reports that the parent company of Facebook and Instagram would allow Ukrainians to call for violence against Russian soldiers on its sites. Meta said there was no change to its policies on hate speech "as far as the Russian people are concerned". The row does raise questions about Meta's role in selecting just when it thinks support for violence is suitable across its platforms.

Don't fly with me

Vladimir Putin signed a bill enabling **Russia's airlines** to transfer planes they have leased from foreign entities to a domestic register. That complicates moves by foreign lessors to repossess their aircraft because of sanctions. Earlier the aviation authority in Bermuda, where most of the foreign jets are registered, suspended safety certifications for the jets.

The Chinese government promised that it would bring in "policies that are favourable to the market" in an attempt to shore up confidence after a rout in **China's stockmarkets**. Several factors, including the war in Ukraine and surging

covid-19 infections in China, have rattled investors. The CSI 300 index of share prices listed in Shanghai and Shenzhen fell sharply, as did Hong Kong's Hang Seng, which dropped to a six-year low. After the government's intervention the Hang Seng rebounded and had its best day since 2008.

Uncertainty about the future of China's tech companies is another cause of investors' jitters. The price of **Didi Global's** depository shares in America plummeted by 44% after the ride-hailing company suspended plans to delist from New York and float on the Hong Kong exchange. This came after the Chinese government told Didi that it had not made progress in plugging supposed data-security leaks.

In Indonesia **GoTo**, the country's biggest startup, said it would list on the Jakarta stock exchange in an IPO that could value the company at \$29bn. GoTo was formed last year by the merger of Gojek, a ride-hailing platform, and Tokopedia, an e-commerce firm.

Intel announced plans to invest €33bn (\$36bn) making and designing chips in Europe. At least €17bn will be spent on establishing a "Silicon Junc-

tion" in Germany for advanced chipmaking. Another €12bn will be ploughed into expanding its operations in Ireland, including building up its foundry business of making chips for other firms. The company could invest up to €80bn over the next decade in Europe, though this will rely on state subsidies.

It no longer suits you, sir



Britain's statistics office rejigged the basket of goods that make up its **consumer-price index**. Out go men's suits (because of remote working), single doughnuts (people now scoff them in packs, presumably because of remote working and probably why men cannot fit into suits) and coal (no one likes it). In come sports bras (covid's effect on fashion) and antibacterial wipes (because of sticky fingers after all those doughnuts).



The alternative world order

The war in Ukraine will determine how China sees the West—and how threatening it becomes

EACH DAY brings new horrors to Ukraine, where Russian artillery fire echoes like thunder across cities and towns. The metropolis of Kharkiv lies in ruins, victim of two weeks of bombardment. Mariupol, on the coast, has been destroyed.

It is too soon to know if a winner will emerge from the fighting (see Briefing). But, on the other side of the planet, the world's emerging superpower is weighing its options. Some argue that China will build on a pre-war friendship with Russia that knows "no limits", to create an axis of autocracy. Others counter that America can shame China into breaking with Russia, isolating Vladimir Putin, its president. Our reporting suggests that neither scenario is likely (see China section). The deepening of ties with Russia will be guided by cautious self-interest, as China exploits the war in Ukraine to hasten what it sees as America's inevitable decline. The focus at all times is its own dream of establishing an alternative to the Western, liberal world order.

Both China's president, Xi Jinping, and Mr Putin want to carve up the world into spheres of influence dominated by a few big countries. China would run East Asia, Russia would have a veto over European security and America would be forced back home. This alternative order would not feature universal values or human rights, which Mr Xi and Mr Putin see as a trick to justify Western subversion of their regimes. They appear to reckon that such ideas will soon be relics of a liberal system that is racist and unstable, replaced by hierarchies in which each country knows its place within the overall balance of power.

Hence Mr Xi would like Russia's invasion to show up the West's impotence. If the sanctions on Russia's financial system and high-tech industry fail, China will have less to fear from such weapons. If Mr Putin lost power because of his miscalculation in Ukraine, it could shock China. It would certainly embarrass Mr Xi, who would be seen to have miscalculated too, by allying with him—a setback when he is seeking a third term as Communist Party leader, violating recent norms.

For all that, however, Chinese support has its limits. The Russian market is small. Chinese banks and companies do not want to risk losing much more valuable business elsewhere by flouting sanctions. A weak Russia suits China because it would have little choice but to be pliant. Mr Putin would be more likely to give Mr Xi access to northerly Russian ports, to accommodate China's growing interests in, say, Central Asia, and to supply it with cheap oil and gas and sensitive military technology, including perhaps the designs for advanced nuclear weapons.

Furthermore, Mr Xi seems to believe that Mr Putin does not need to win a crushing victory for China to come out ahead: survival will do. Chinese officials confidently tell foreign diplomats that Western unity over Russia will splinter as the war drags on, and as costs to Western voters mount. China is already trying to prise apart Europe and America, claiming that the United States is propping up its power while getting Europeans to foot the bill for high energy prices, larger armies and the burden of hosting over 3m Ukrainian refugees.

China's approach to the Russo-Ukraine war is born out of Mr

Xi's conviction that the great contest in the 21st century will be between China and America—one he likes to suggest that China is destined to win. For China, what happens in Ukraine's shelled cities is a skirmish in this contest. It follows that the success of the West in dealing with Mr Putin will help determine China's view of the world—and how it later has to deal with Mr Xi.

The first task is for NATO to defy Chinese predictions by sticking together. As the weeks turn into months that may become hard. Imagine that the fighting in Ukraine settles into a grim pattern of urban warfare, in which neither side is clearly winning. Peace talks could lead to ceasefires that break down. Suppose that winter draws near and energy prices remain high. Ukraine's example early in the war inspired support across Europe that stiffened governments' sinews. The time may come when political leaders will have to find the resolve within themselves.

Willpower can be linked to reform. Having defended democracy, Western countries need to reinforce it. Germany has decided to deal with Russia by confronting it, not trading with it (see leader). The European Union will need to corral its Russia sympathisers, including Italy and Hungary. The British-led Joint Expeditionary Force, a group of ten northern European countries, is evolving into a first responder to Russian aggression (see Britain section). In Asia, America can work with its allies to improve defences and plan for contingencies, many of which will involve China. The joined-up action that shocked Russia should not come as a surprise to China if it invaded Taiwan.

And the West needs to exploit the big difference between China and Russia. Three decades ago their two economies were the same size; now China's is ten times larger than Russia's. For all Mr Xi's frustration, China has thrived under today's order, whereas Russia has only undermined it. Obviously, Mr Xi wants to revise the rules to serve his own interests better, but he is not like Mr Putin, who has no other way of exerting Russian influence than disruptive threats and the force of arms. Russia under Mr Putin is a pariah. Given its economic ties to America and Europe, China has a stake in stability.

Shanghai on the Dnieper

Rather than also push China "outside the family of nations, there to nurture its fantasies, cherish its hates and threaten its neighbours"—as Richard Nixon wrote years before his famous trip to Beijing five decades ago—America and its allies should show that they see the rising superpower differently. The aim should be to persuade Mr Xi that the West and China can thrive by agreeing where possible and agreeing to differ where not. That requires working out where engagement helps and where it threatens national security (see next leader).

Might China yet start down this path by helping bring the war in Ukraine to a swift end? Alas, barring the Russian use of chemical or nuclear weapons, that looks unlikely—for China sees Russia as a partner in dismantling the liberal world order. Diplomatic pleading will influence Chinese calculations less than Western resolve to make Mr Putin pay for his crimes. ■



The world economy

Trading with the enemy

Confrontation with Russia highlights a growing tension between free trade and freedom

THE INVASION of Ukraine is the third big blow to globalisation in a decade. First came President Donald Trump's trade wars. Next was a pandemic in which cross-border flows of capital, goods and people almost stopped. Now armed conflict in Europe's breadbasket, besieged Black Sea ports and sanctions on Russia have triggered a supply shock that is ripping through the world economy. Wheat prices have risen by 40%, Europeans may face gas shortages later this year, and there is a squeeze on nickel, used in batteries, including for electric cars. Around the world many firms and consumers are grappling with supply chains that have proved too fragile to depend on—yet again.

If you look beyond the chaos, Vladimir Putin's warmongering also raises a question about globalisation that is uncomfortable for free-traders such as *The Economist* (see Finance & economics section). Is it prudent for open societies to conduct normal economic relations with autocratic ones, such as Russia and China, that abuse human rights, endanger security and grow more threatening the richer they get? In principle, the answer is simple: democracies should seek to maximise trade without compromising national security. In practice, that is a hard line to draw. Russia's war shows that a surgical redesign of supply chains is needed to prevent autocratic countries from bullying liberal ones. What the world does not need is a dangerous lurch towards self-sufficiency.

For most of the past few decades, it has been clear how to trade with the enemy. In the cold war the West and the totalitarian Soviet bloc conducted trade in energy and grain but had a low overall level of interlinking. After the Berlin Wall fell, it was widely assumed that free trade and freedom would conquer the world together, reinforcing each other. And for a while they did. In the 1990s the share of countries with democratic rule rose as tariffs fell and more container ships crossed the oceans. Russians got their first taste of Big Macs and the ballot box within an 18-month spell. Bill Clinton welcomed China's entry into the global trading system in 2000, predicting that it would have "a profound impact on human rights and political liberty" there.

But in the past decade and a half liberty has retreated, with the share of people living in democracies falling below 50%. In many autocratic places, including China and the Middle East, political reform appears unlikely. The result is a globalised economy in which autocracies account for 31% of GDP, or 14% excluding China. Unlike the USSR, these autocracies are economically intertwined with liberal societies. A third of democracies' goods imports are from them, and a third of multinational investment in autocracies is from democracies. Open societies trade over \$15bn a day with closed ones, buying Chinese-made PCs and Saudi oil, and selling Bulgari and Boeings.

Russia's invasion has shown the West the perils of trading with adversaries. One concern is moral. All those deals for Urals crude and Black Sea wheat bankrolled Mr Putin's repression and his rapidly increasing military spending. Another is security, with Europe addicted to Russian gas and many industries reliant on inputs including fertilisers and metals. Such dependency

may make autocracies stronger, weaken democracies' resolve and expose them to retaliation in a war. No country embodies this Faustian pact more than gas-dependent Germany.

This tension between the logic of free trade and support for political liberalism will create deeper fissures. Already the world has faced years of what *The Economist* has called slowbalisation, with trade and capital flows falling relative to GDP. Some autocracies may now seek to decouple further from the West. China views the collapse of Russia's fortress economy in the face of Western sanctions as a botched experiment from which to learn before it considers going to war over Taiwan. Saudi Arabia is cosy up to China. The world's autocracies have too little in common to form a cohesive economic bloc, but they are united in their desire to reduce the influence the West has over them, in areas from tech to currency reserves (see Buttonwood).

The temptation in the West, meanwhile, is to pivot towards a more limited kind of trade with military allies, or even to outright self-reliance. Consider President Joe Biden's recent state-of-the-union address which included a promise that "everything from the deck of an aircraft-carrier to the steel on highway guardrails is made in America from beginning to end. All of it."

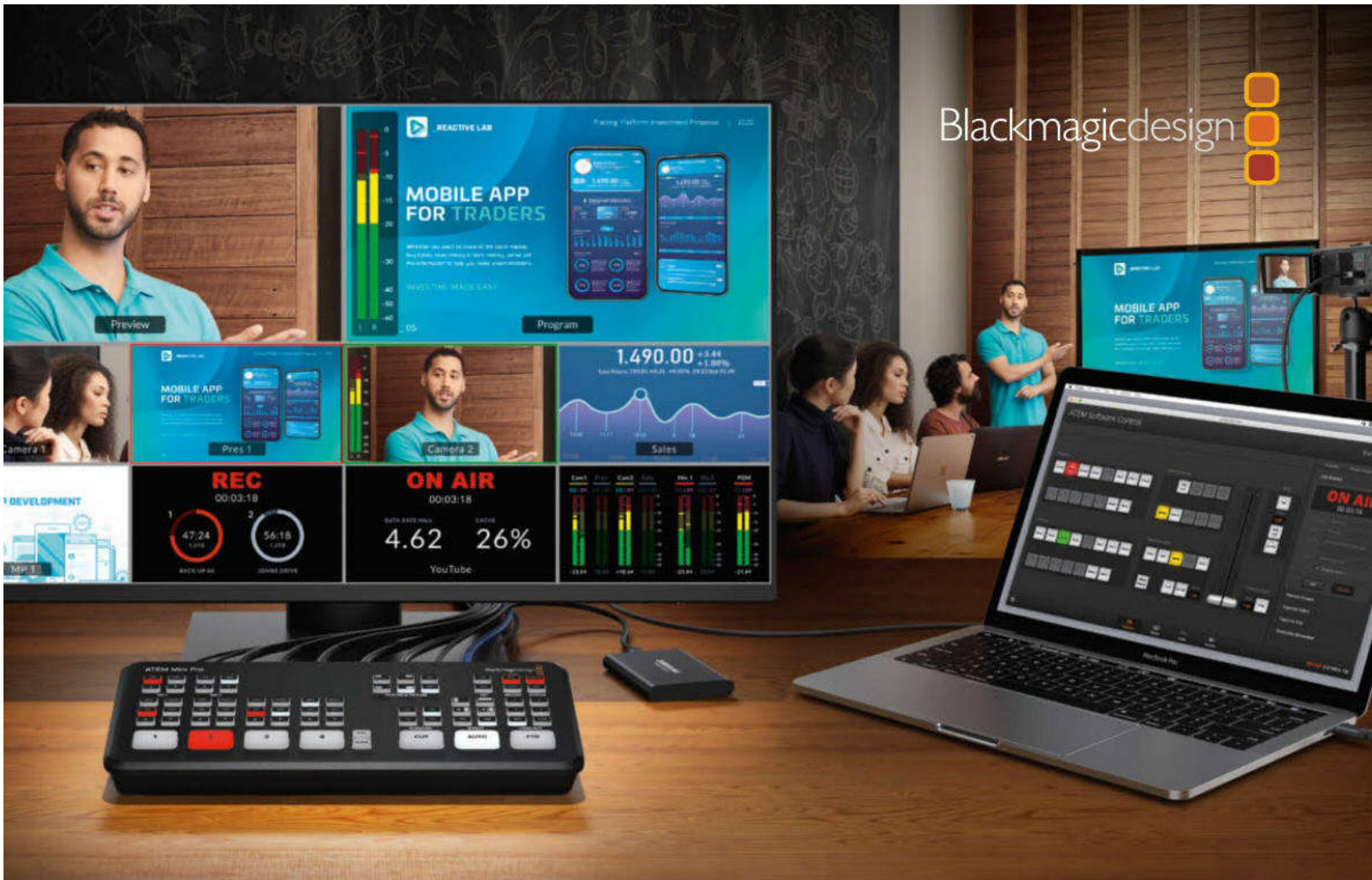
A retreat by the West to cold-war spheres of influence or self-reliance would be a mistake. The costs would be vast. Roughly \$3trn of investment would be written off for less efficient production that fuels inflation and hurts living standards. It would be morally dubious: globalisation has helped over a billion people raise themselves from poverty, and trade and information links with the middle classes in autocracies sustain the cause of liberalism. It would not even boost democracies' security. Supply chains get stronger through diversification, not concentration. And by walling themselves off, rich democracies would alienate countries that do not want to pick sides between the West, Russia and China—countries that account for a fifth of world GDP and two-thirds of its people.

How then should globalisation be reconfigured? In war, severing economic relations makes sense. In peace the goal should be to limit exports of only the most sensitive technologies to illiberal regimes. When autocracies have the power to intimidate, as Russia has with gas, the aim should not be national self-sufficiency, but rather to require firms to diversify their suppliers, in turn stimulating investment in new sources of supply from energy to electronics. These choke-points make up about a tenth of global trade, based on the export earnings of authoritarian powers from goods where they have a leading market share of over 10% and where it is hard to find substitutes.

Interdependence day

Mr Putin has given a harsh lesson that in these areas democracies must change their posture. The war is a tragedy, but it is also a moment of clarity. The vision of the 1990s, that free trade and freedom would go hand in hand, has fractured. Liberal governments need to find a new path that combines openness and security, and prevents the dream of globalisation turning sour. ■





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Germany Pacifist no more

The giant at the heart of Europe has woken up at last

GERMANY'S POST-WAR pacifism was once comforting to its neighbours and to Germans themselves. Yet, with the passing of the generations, attitudes have shifted. Sensible Europeans long ago stopped seeing Germany as a threat. On the contrary, the passivity of its foreign policy has in recent years posed more of a danger, by encouraging aggressors such as Vladimir Putin. At last Mr Putin's unprovoked invasion of Ukraine has convinced Germans to take security seriously. As Olaf Scholz's first budget makes clear, Germany is preparing to pull its weight. The task for Germany's new chancellor is to make sure that the effort is sustained, effective and encompasses risk-sharing as well as just cash-splurging.

The budget presented to Germany's coalition cabinet on March 16th was accompanied by a proposed law creating a special defence fund worth €100bn (\$110bn). This will be used to boost German defence spending from around 1.5% of GDP to at least 2%, the level that NATO members are supposed to meet but Germany has consistently missed. The cash should be enough to bridge the gap for the next four or five years if officials decide to spend it that quickly. It would have been better to increase the regular defence budget, rather than relying on a one-off top-up fund, so that the change would be harder to reverse. But still, Germany will for now become the world's third-biggest military spender.

Just as significant was the decision, announced on February 26th, two days after the war began, to allow the export of German weapons to Ukraine. Previously, Germany had not only refused to send arms into war zones, but insisted on stopping third-country buyers of German kit from re-exporting it to such places, even to help the victims of aggression defend themselves.

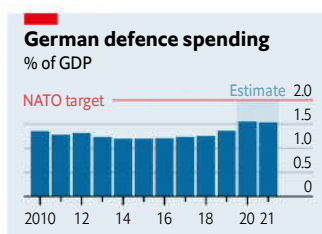
Germany's boosted defence spending will achieve more if the money is used shrewdly. But its record is poor in this regard (see Europe section). Too much goes on fat pensions and plush offic-

es, not enough on planes and submarines. On the day the war began, the head of the German army complained that his army had been left "more or less bare". NATO is not directly engaged in Ukraine, and rightly so: if it were to shoot down Russian planes, the war might spill well beyond Ukraine. But the NATO countries that border Russia need to be defended, and this task should not fall so heavily on America. Europe must step up, and Germany should play its part with properly equipped combat forces.

Russia is the biggest threat to Europe and will be for years to come. But there are other security challenges. The Balkans may one day reignite. To Europe's south is an arc of instability across the Sahel, in which Russian mercenaries now meddle. France and Britain have often sent troops to help stabilise trouble spots, with mixed success. They would appreciate more help. Given its size and wealth, Germany should play a leading role.

Mr Scholz's transformation of German foreign policy goes beyond defence. The war in Ukraine has exposed the folly of the energy strategy he inherited from Angela Merkel and her predecessor, Gerhard Schröder, who disgracefully still sits on the board of Rosneft, Russia's state oil giant. By scrapping nuclear power and smiling on east-west pipelines, they allowed Germany to become dependent on Russian hydrocarbons, and therefore on the goodwill of Mr Putin. Mr Scholz, with the support of his Green partners, is hugely increasing the share of renewables in Germany's energy mix and diversifying its supplies of gas away from Russia, in part by building new terminals to handle liquefied natural gas from farther afield. The details, though, are still lacking. A supplementary budget is expected, and the transition will be judged on that.

A new, more assertive Germany is just what Europe needs to help it face down the menace in Moscow. It is a shame it took a war to wake Europe's sleeping giant. But better late than never. ■



Energy markets

Tilting at windfalls

Governments should not seize energy companies' profits

WHENEVER OIL and gas are expensive, politicians' eyes turn greedily to the profits of energy firms. Since energy prices began to surge last year Bulgaria, Italy, Romania and Spain have introduced new taxes on the industry. On March 8th the European Commission recommended that governments try to "capture a part of the returns" made by electricity generators. And in America 12 Democratic senators including Elizabeth Warren, a one-time presidential candidate, have proposed a tax on every barrel of oil big firms produce or import, equal to half the difference between the current oil price and the 2015-19 average.

The impulse to levy "windfall taxes" is particularly strong to-

day because Russia's invasion of Ukraine has caused oil and natural-gas prices to rocket and then to gyrate wildly, giving the perception that firms are profiting from bloodshed (see Finance & economics section). Governments, having run up enormous debts during the pandemic, must now find more cash to protect poor consumers from soaring energy bills and to boost defence spending. And the typical argument against windfall taxes—even when they are retroactive, they risk deterring future investment—has become less powerful now that most of the world is trying to phase out the burning of fossil fuels.

Imposing windfall taxes is nevertheless a mistake. Start with ►►

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▶ the fact that energy markets go through cycles of boom and bust. The years Ms Warren has chosen as a benchmark were not good ones: in two of them, 2015 and 2016, the net operating margin of the global listed energy industry was negative. There was another year of operating losses in 2020, during which the oil price briefly fell below zero owing to the pandemic. If companies must endure the bad times but find chunks of their profits are seized when prices rise, their businesses lose viability.

That may sound appealing to those climate activists who want to drive out of business firms like BP, whose boss recently said that high prices had turned the firm into a “cash machine”. But today’s energy crisis shows that the world needs a carefully managed phase-out of carbon emissions, not a sudden halt in fossil-fuel investment, especially if Europe is to wean itself off Russian gas. Renewable energy cannot immediately replace gas for some tasks, such as heating homes with gas boilers. Even if the infrastructure to run entire economies on electricity were in place, battery storage remains unable to plug gaps when the wind does not blow and the sun does not shine. Nuclear power plants provide a constant supply but take years to build.

The European Commission says that renewable producers, which are also benefiting from high prices, should pay up too.

This is doubly misguided. If even clean-energy companies have their profits seized during periods of shortages then the incentive to solve renewables’ intermittency problem, for example by making batteries better or by storing energy as hydrogen, will be blunted. And it is not just power shortages that need to be plugged as economies move to net zero. The private sector will need to find ways around shortages of everything from the minerals used in electric cars to the balsa wood used in wind turbines. It is a fantasy to think that the vast investments that are necessary will happen if the most innovative firms worry that their profits could be seized when their bets pay off.

The thorniest argument is that companies are benefiting from war. Windfall taxes live up to their name when firms have profited not from wise decisions, but from unforeseeable events that are unrelated to their investment choices. Yet geopolitics is a top concern of big energy firms, which must lay pipelines that cross borders and anticipate global energy needs far in advance. There is nothing unusual about a conflict affecting their profits, and the risks posed to Europe from Russian gas have been obvious for years. Hiving off the rewards that are on offer for supplying energy during today’s shortage will only make the next supply crunch—even a predictable one—all the worse. ■

Trans women in sport

Facing the facts

Biology must sometimes trump identity. Sport offers the clearest example

LIA THOMAS, a student at the University of Pennsylvania, is an excellent swimmer. She often beats her rivals by tens of seconds, breaking records. Her success is based on three things. One is natural talent. Another is relentless training. And the third is biology.

For although she identifies as a woman, Ms Thomas was born male. Since humans cannot change their sex (unlike their self-identified gender), she remains that way. On the eve of her biggest competition, Ms Thomas finds herself at the centre of the bad-tempered debate about whether trans women—males who identify as women—should compete in women’s sports (see United States section). That, in turn, is part of a broader argument: should brute biological facts sometimes override people’s deeply held feelings about their identities?

This newspaper believes it is almost always unfair to allow transgender women to compete in women’s sports. The advantages bestowed by male puberty are so big that no amount of training or talent can enable female athletes to overcome them. Florence Griffith Joyner’s 100-metres world sprinting record has stood for three decades. A male matching it would not even make it to the Olympics, let alone the final. In 2016, at an American event for high-schoolers, four of the eight boys in the 100-metres final ran faster.

Much of the male advantage is granted by testosterone, a potent anabolic steroid whose levels rise sharply in male puberty. For many years many sporting bodies, following the lead of the International Olympic Committee, hoped to finesse the issue by allowing trans women to compete in women’s events provided they took testosterone-suppressing drugs. But the science

suggests this does not level the playing field. Suppressing testosterone in adults, it seems, does little to undo the advantages granted by a male adolescence.

Sports must therefore choose between inclusion and fairness; and they should choose fair play. That does not mean, as is sometimes alleged, that trans women would be barred from all sport. One way to make that clear would be to replace the “men’s” and “women’s” categories with “open” and “female” ones. The first would be open to all comers. The second would be restricted on the basis of biology.

Sport is public, and results can be measured objectively. That means the argument that the material facts of biology should sometimes outrank a person’s subjective sense of identity is easier to make. But it applies in other areas, too. Several countries, including Britain, Canada and parts of America, allow male prisoners to declare that they are women and be housed in female jails. Scandalously little thought has been given to the risk that predatory males taking advantage of such rules pose to female prisoners. The conflation of sex and gender by well-meaning officials also risks eroding the usefulness of official statistics on everything from pay gaps to crime.

Some of these arguments will be touted or twisted by those who wish trans people ill. Such bigotry exists, as a Republican bill in Florida to restrict “instruction” in schools about gender identity or sexual orientation makes plain. That should be resisted, too. Most of the time, it costs little or nothing to respect people’s choices about how they wish to present themselves. In the rare cases where rights clash, society must weigh the trade-offs sensitively and with open eyes. ■



PIOB

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Applications are invited to serve as Board members of the International Auditing and Assurance Standards Board (IAASB) and the International Ethics Standards Board for Accountants (IESBA), commencing on 1 January 2023. Up to five appointments will be made for the IAASB and four for the IESBA.

The invitations for membership are managed by the Standard Setting Boards' Nominations Committee (SSB Nom Co), established by the Public Interest Oversight Board (PIOB).

Candidates are encouraged to apply by 30 March 2022.

Whilst the invitations for membership are open to all individuals, the SSB Nom Co would be particularly interested in candidates with the skills and backgrounds as set out in the invitations as part of the broad governance reforms to achieve multi-stakeholder Standard-Setting Boards.

For details on vacancies and application process, please see:

<https://ipiob.org/what-ssbnominations>

INTERNATIONAL FUND FOR PUBLIC INTEREST MEDIA

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The International Fund for Public Interest Media (IFPIM) is designed to scale up financial support to independent media, especially in resource-poor countries. The Executive Board is the principal independent governing authority over strategy and decision-making. It is independent of government and all other interests.

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Views on the war

I want to thank *The Economist* for making a clear distinction between Vladimir Putin's regime and common Russians ("A tragedy and a catastrophe", March 5th). Many Russians don't believe that the government is capable of saving the economy when they see queues growing at cash machines. Thousands of Russians have been buying drugs and other medication to cope with the stress. I know five people who have started using antidepressants. Thousands more leave the country every day.

For others, accepting the war as a "special military operation" is a coping mechanism. Many Russians are confused and shocked. Some accept the truth, others hide behind government propaganda. "Ukrainians deserved it", "We had no choice"; these words are used by some to accept events they have no control over. No one supports this war wholeheartedly, except for the *siloviks* (strongmen).

It is painful to see Ukrainians, not Russians, fighting for Russia's future. One day that should change, hopefully sooner rather than later.

EGOR (LAST NAME WITHHELD)
St Petersburg

By removing Mr Putin "Russia will get a fresh start" ("The horror ahead", March 5th). This would clearly be the best scenario. The increased repression in Russia is a sign that his support is weakening. Therefore it is time to give Russia a hope for normality without Mr Putin by offering a path to membership in the European Union and NATO. A Russia that is truly free, democratic and prosperous would make Russia, Europe and the rest of the world a safer and better place.

With a normal Russia there would be no war in Ukraine. There would be no dictator in Belarus. There would be no conflict in Georgia. Other neighbouring countries (the "stans") and farther apart (Syria) would also gain a path to democracy and prosperity. It could also prevent a much

larger confrontation in the strait of Taiwan.

Besides all the sticks of sanctions and delivering weapons to Ukraine we should do all we can to encourage a palace coup, rid the Kremlin of its leadership and provide a route to prosperity for all Russians. We need to bring an end to Russian aggression. The time is now.

JORGE RIBEIRO
Mechelen, Belgium

One can only suspect that the Church of England has a tick-off sheet of increasingly evil acts ("Economic warpath", March 5th) and that Russian state poisoning on foreign soil, shooting down a civilian airliner, annexing part of a country (Crimea), invading another (Georgia), and arresting and torturing protesters are not quite evil enough to disinvest.

The question is at what point will the church decide to disinvest in China, or any of the other despotic dictatorships lacking human rights. After all this is not any ordinary investor, it is a religiously inspired one, supposedly driven by human kindness.

JEREMY WELTMAN
Northwich, Cheshire

"Where will he stop?" (February 26th) portrayed the Russia-Ukraine crisis as totally unprovoked. An alternative question could be "Where will NATO stop?" After the Warsaw Treaty Organisation (Warsaw Pact) was dissolved in 1991, NATO, an American-led military organisation, expanded eastward four times, inching closer and closer to Russia's border.

In 1999 NATO invited the Czech Republic, Hungary and Poland to join, which they did two months later. In 2004 the Baltic states, Romania and three other eastern European countries joined NATO. At a summit in 2008 NATO invited Albania and Croatia to start accession procedures; the two countries joined in 2009. At the same meeting NATO welcomed the aspirations of Ukraine and Georgia to join. At its invitation, Montenegro and North Macedonia joined in

2017 and 2020, over Russia's strong expression of security reservations.

To further stoke Russian insecurity, in June 2021 a British destroyer, *HMS Defender*, conducted a freedom of navigation patrol in disputed Crimean waters, apparently in a calculated move to show support for Ukraine. The display of force was followed in October by a pair of American strategic bombers flying over the Black Sea. They had to be escorted away from the Russian border by Russian jets.

Is it really fair to say that the Russia-Ukraine conflict was totally unprovoked, and NATO played no part in fuelling Russian aggression?

REGINA IP
Member of the Legislative Council
Hong Kong

Pepsi was not the "first Western product made and sold behind the Iron Curtain" in 1974 ("The exodus", March 5th). In 1965 Coca-Cola was bottled and sold in Bulgaria in co-operation with Texim, a Bulgarian conglomerate founded by my grandfather, Georgi Naydenov, that worked under market principles in 1960s communist Bulgaria.

Texim thrived using the market as its model, becoming superior to companies working under the planned economy. Unfortunately, it became too successful, leading to the jailing and repression of the innocent people involved and the eventual destruction of the company itself. A valuable lesson akin to Russia's aggression in Ukraine. And Coca-Cola beat Pepsi.

GEORGI DANTCHEV-NAYDENOVA
Executive director
Texim Holding
Sofia

You wrote about New York's population of Ukrainian descent ("Togetherness", March 5th). Actually, Canada is home to 1.4m people of Ukrainian heritage, the largest number outside Ukraine and Russia. Canadians have contributed generously to humanitarian relief in the war. Canada will

also benefit from sanctions on the Russian economy. We are reliable alternative suppliers for many Russian exports, such as aluminium, nickel, wheat, potash, petroleum, cobalt, liquid cooking oils and wood products.

We even produce vodka, including popular brands such as Stolichnaya, Smirnoff and Absolut. Mixologists of the world need not fear.

PETER BURSZTYN
Barrie, Canada

What it means to be bald

The bald eagle "is not bald" you say, "its head is covered with white feathers" ("A wing and a prayer", March 5th). One old, less-used alternative meaning of "bald" is "marked with white", which "the symbol of America" most certainly is. This old meaning is still seen in connection with horses, mountains, and yes, eagles.

HENRY SPENCER
Toronto

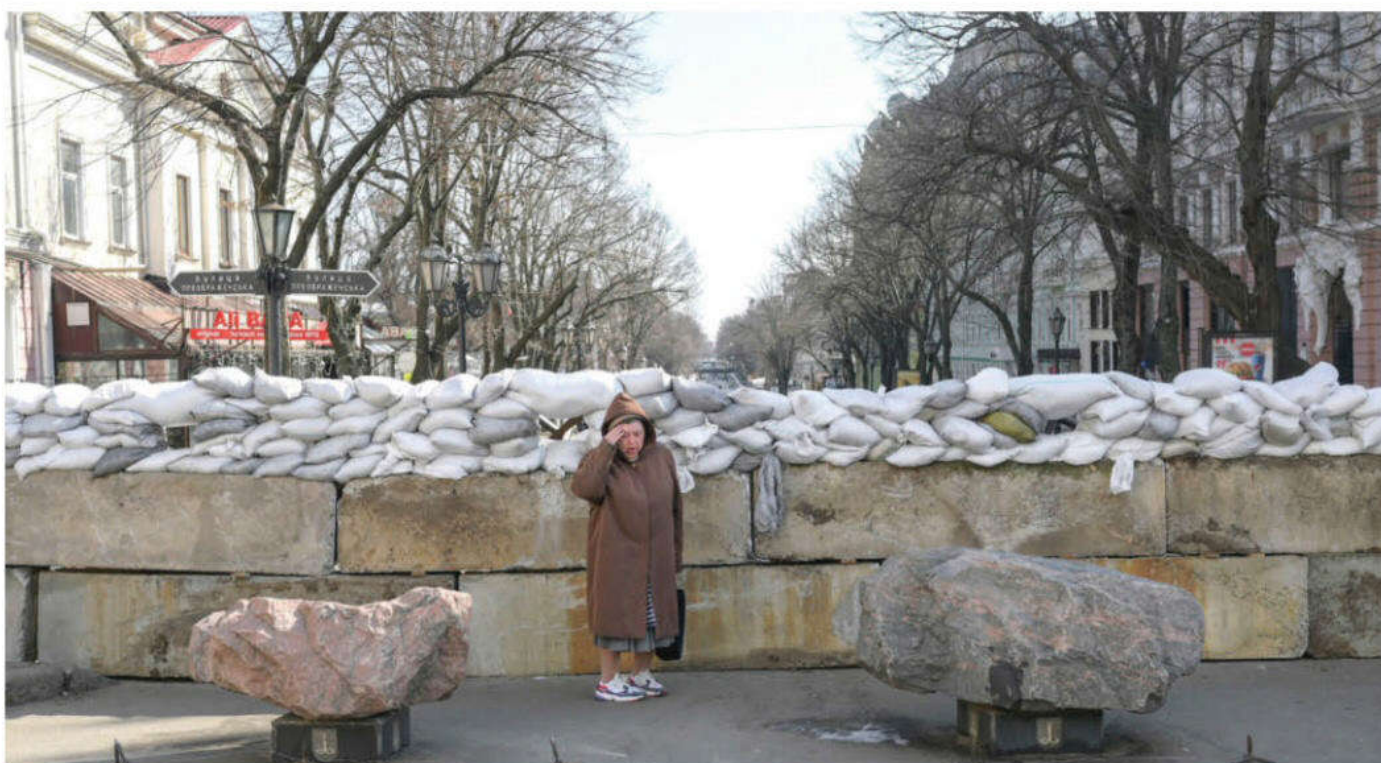
Management advice

Bartleby's guide for wannabe leadership gurus (February 19th) reminded me of my early days as a company leader. I apologise unreservedly for the group hugs, customary high fives and chants of inspirational quotes. In my defence that was over 30 years ago. Things have changed since then, haven't they?

A quick search on the web for "leadership in 30 minutes" or "leadership from the comfort of your loo" provides some excellent advice. Once leadership has been mastered there is also team-building, but I have no time to comment on that, as I need to finish writing "Raft-building For Resilience" and "Spaghetti Towers To Success".

NICK FEWINGS
Bournemouth, Dorset

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No end in sight

KYIV AND MYKOLAIV

The war is not at an impasse, but it may be moving that way

“REMEMBER PEARL HARBOR,” Volodymyr Zelensky, Ukraine’s president, entreated America’s Congress. “Remember September 11th...Every night for three weeks, in various Ukrainian cities, Russia has turned the Ukrainian sky into a source of death.” Mr Zelensky was not asking for pity. He was asking for a no-fly zone or, failing that, for arms. “I have a dream. I have a need. I need to protect our skies,” he pleaded—surely the first man to invoke Martin Luther King Jr in pursuit of surface-to-air missiles.

Shortly before Mr Zelensky began his speech on March 16th, Russian television broadcast an address given by Vladimir Putin, his counterpart. Where Mr Zelensky appealed to his listeners in the name of all Ukrainians, Mr Putin set Russian against Russian. “Fifth columnists and traitors,” he snarled, would be spat out “like midges that flew into [the Russian people’s] mouth”. The need for cleansing Russia of such “scum” was evoked with disconcertingly familiar fascist rhetoric. “I am convinced that such natural and necessary self-purification of our society will only strengthen our country [and] cohesion.”

The war, the dictator insisted, was “going to plan”. If that is his opinion then his minions are keeping him from the truth. According to American defence sources, 10% of Russia’s invasion force has been lost, presumably either killed or wounded. It is shy at least 233 tanks, 32 surface-to-air missile launchers and 41 planes, drones and helicopters, according to Oryx, a blog which tracks such weapons using pictures made public on the internet. On top of that which has been destroyed, a fair bit of workable Russian kit has been captured—much of it towed away gleefully, and on video, by farmers with tractors.

These are severe losses of men and materiel. What is more, they seem to have fallen disproportionately on elite units such as the VDV airborne forces, Spetsnaz special forces and the First Guards Tank Army, an armoured force purportedly both well trained and equipped. British defence intelligence says that these losses are so se-

vere that they have left Russia “struggling to conduct offensive operations”. It has been forced to redeploy forces from its eastern military district (which stretches to Vladivostok), from its Pacific fleet and from Armenia; it is also recruiting Russian and Syrian mercenaries.

This is a high price for what are, as yet, relatively scant gains. In the east, Russia is stuck at the outskirts of Kharkiv, a city it tried and failed to take on the war’s first day. In Sumy, north-west of Kharkiv, Russian tanks have been spotted lodged in the mud—a problem that will only grow as Ukraine’s spring thaw gets going.

Russian forces are firmly positioned 15-20km to the north-west of the centre of Kyiv and 20-30km to the east of it, and other suburbs around the capital are being laid waste. More and more rockets and missiles have been hitting the city.

But that fire has been returned. Ukrainian artillery is being dug in around the city and mobile missile-launchers deployed. Supermarket shelves are far from full but food has not run out. The water, electricity and gas utilities are still working. Morale remains high. “I have never so much as ▶▶

→ Also in this section

17 The risks of escalation

▶ killed a chicken,” says Vladislav, a 52-year-old electrician who was watching television when missiles hit the district in which he lives on March 14th. “But now I’d kill that Putin bastard.” Ukrainian control over corridors to the south of the city keep it connected to the rest of country, and thus the world—witness the visit there by the Czech, Polish and Slovenian prime ministers on March 15th.

Such connections are not just symbolic. They can bring supplies. Perhaps Ukraine’s second-biggest advantage is that Western arms are still pouring into the country. On March 15th the Joint Expeditionary Force, a British-led ten-nation bloc of northern European states, agreed to “co-ordinate, fund and supply” more weaponry (see Britain section). On March 16th America announced \$800m in new security assistance to Ukraine. The package includes 800 Stinger anti-aircraft systems and 2,000 Javelin anti-tank missiles. It also contains 100 unspecified drones which are thought to be Switchblades, loitering munitions that can strike tanks from up to 40km away. On a forthcoming trip to Slovakia and Bulgaria, Lloyd Austin, America’s defence secretary, is expected to ask both allies to provide Ukraine with longer-range Russian-made air-defence systems from their arsenals, such as the S-300.

The only thing which may be more important to Ukraine’s defence than these supplies is the morale they help keep up. Ukrainian troops are defiant, confident and buoyed—not to say surprised—by

their success not just in holding out for three weeks when many Western experts thought the war would be over in days, but in imposing serious losses on enemy forces which have, in some places, come close to a standstill.

There ain’t no easy way out

Russian forces advancing north out of Crimea have, by and large, made more progress than those coming south from Belarus and Russia. But there, too, some assaults have become bogged down. In the south-west, Russian forces appear to be stuck at Mykolaiv, a port which guards the road to Odessa. They have been unable to assault it, capture it from the sea or bypass it. Their response, as is often the case with Russia’s army, has been to shell it. Rockets have landed in the city’s zoo on at least three occasions. The tail of one Smerch rocket is stuck inside the bird enclosure; the peacocks have not been the same since, say staff. “After three weeks of this idiot’s genocidal war,” says a deputy zookeeper, “It really would be the icing on the cake; to see lions, tigers and leopards free to roam.”

But Russia’s military dysfunction and Ukraine’s thumping victory in the information war may have obscured some of the country’s vulnerabilities, especially those which are some way away from the besieged, battered but defiant cities. Stymied though Russia may be at Mykolaiv, it has been advancing quite quickly towards Kryvyi Rih, a city around 150km (90 miles) to the north-east. If that manoeuvre pans out,

it would weaken Ukraine’s hold on Dnipro, a larger city which controls vital crossing points over the Dnieper river.

Should Russian forces also manage to break out past Kharkiv and move south, a pincer movement formed by the two advances could isolate the Ukrainian forces facing the Russian separatists in the east of the country. The Ukrainian forces in this area, known as the Joint Forces Operation, are thought to comprise a sizeable fraction of the regular army. In a letter sent to his officers on March 9th, General Thierry Burkhard, France’s chief of defence staff, warned that Ukraine, “faced with the difficulty of holding a stretched position, without any operational reserve, could experience a sudden collapse”. In the long run, losing its army in the field would bode ill for Ukraine’s chances.

Perhaps mindful of their respective weaknesses and losses—the civilian toll in Ukraine has been hard, especially in Mariupol—Russia and Ukraine seem to have become more seriously engaged in negotiations that could bring about a ceasefire or end the war. Mr Zelensky, who in recent days has acknowledged that Ukraine “will not enter” NATO, insisted that the Russians were sounding “more realistic” about a settlement. Russia’s foreign minister, Sergei Lavrov, said on March 16th that the two sides were “close to agreeing” a deal that would involve a neutral Ukraine receiving guarantees about its security. That said, Jean-Yves Le Drian, France’s foreign minister, has been quoted as saying the Russians ▶▶



Russia hit the west of Ukraine for the first time with a missile strike on a base near Yavoriv. Elsewhere it continued to shell cities without taking them. But advances from the south and east might let it cut off Ukrainian regular forces in the east.

Proven tank losses, to March 16th 2022

	Destroyed	Captured	Abandoned	Damaged
Russia	87	104	39	
Ukraine	22	31	11	3

Mariupol, a besieged port city of 400,000 people, has been under constant bombardment. On March 14th Ukraine’s government said that 2,500 people had died. Some sources put the death toll as high as 10,000.

are only pretending to negotiate.

Likely sticking-points are not limited to the territory at stake (Russia will want to keep its gains in Donbas, including Mariupol, should it succeed in taking the city). What sort of security guarantees are offered, and by whom, will matter as much or more. Mykhailo Podolyak, one of Ukraine's negotiators, told *The Economist* that the only acceptable deal would be one with "specific and legally binding guarantees" under which Ukrainian allies such as America, Britain and Turkey "would be able to actively intervene in case of any aggression". Andriy Yermak, Mr Zelensky's chief of staff, says that the guarantors would have to include not just countries friendly to Ukraine but also all five permanent members of the UN security council.

Mr Yermak also says that, although the two teams of negotiators can prepare the ground, any agreement will ultimately have to be hammered out by the two presidents. How strong their hands are will depend on the fortunes of war between now and then; the negotiations may not reach their level until there is desperation on the part of one or both of them.

Come what may, though, the broadcasts of March 16th showed that Mr Zelensky will bring the goodwill of the world and the fervent expectations of his people to the table: "I would tell him 'Fight until victory!'" says Vladislav, the electrician in Kyiv. Mr Putin's position, meanwhile, will be shaped by a domestic situation, and an attitude to it, which are both far darker. ■

The risks of escalation

Herman's ladder

How things get worse

TO A 16TH-CENTURY siege warrior, the art of the escalade lay in climbing up a city's fortifications without encountering something unpleasantly hot or sharp. To the men who rewrote the rules of strategy for the nuclear age, the art of escalation was the process which, bit by bit, moved a limited war towards an unlimited one. As in sieges of old, the key was a ladder: a conceptual one where each rung both increased the level of the conflict and sent a signal to the other side.

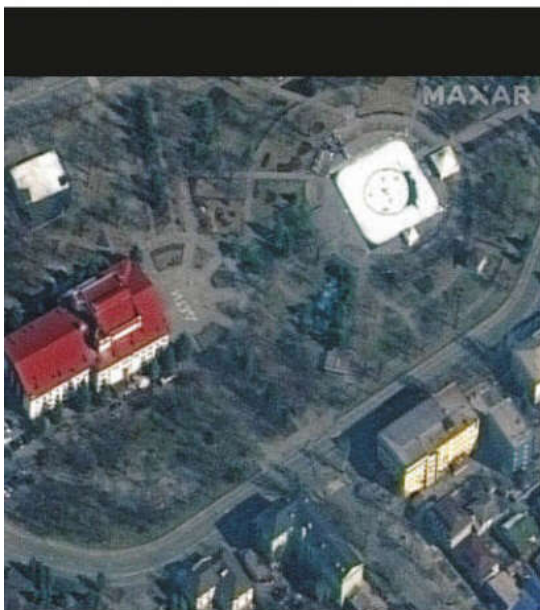
Herman Kahn, one of several inspirations for the title character of Stanley Kubrick's unmatched treatise on deterrence, "Dr Strangelove", devised a 44-rung escalation ladder with which to study and analyse the phenomenon. The step from rung nine ("Dramatic military confrontations") to ten ("Provocative Breaking Off of Diplomatic Relations"), he noted, was the one which marked the point at which nuclear war ceased to be unthinkable.

"Dr Strangelove" is a comedy because Kubrick found the absurdities of such eschatological accountancy and its affectless theorising impossible to put on screen in

any other form. That does not mean the concepts the ladder systemised have no meaning. The invasion of Ukraine (rung 12: "Large Conventional War") has undoubtedly moved the world past the threshold where nuclear war stops being unthinkable; in the words of Antonio Guterres, the secretary-general of the UN, such horrors are "back within the realm of possibility". The chances of a conflict escalating into a nuclear war are greater than they have been for more than half a century.

As it stands, only one side in the war has nuclear weapons; although Ukraine had Soviet ones stationed on its territory until a few years after it became independent in 1991, but they were never under its political control. Nor, Russian propaganda to the contrary, has it any route to acquiring them. But an adversary without nuclear weapons does not guarantee nuclear restraint. And NATO, which is both supplying Ukraine with weapons and building up its forces in the area, has nukes aplenty.

Vladimir Putin, Russia's president, has been keen to remind his adversaries of the nuclear risks. In a televised speech at the ▶▶



↑ On March 16th a bomb struck a theatre in Mariupol where hundreds of people are thought to have been sheltering. An earlier satellite picture shows the word "children" written in Russian at each end of the building.

The fighting around Kyiv



Russia's depleted forces made little progress into Kyiv, but there were fierce battles for its western and eastern suburbs and a spike in rocket fire. Ukraine's army has been fanning out into the forests around the city.



↑ At least one person died after debris from an intercepted missile fell on an apartment block on March 16th.

beginning of the Russian invasion he warned foreign powers who might try to hinder the advance of “consequences that you have never encountered in your history”. On February 27th, after the imposition of unprecedented banking sanctions by Western countries (rung 20: “Peaceful World-Wide Embargo or Blockade”), Mr Putin gave an order that the country’s “deterrence forces” be transferred to a “special mode of combat duty”.

Fasten all the triggers

The simplest nuclear scenario sees Mr Putin, if faced with outright defeat in Ukraine, trying to turn the tide by letting off a nuke (rung 18: “Spectacular Show or Demonstration of Force”). Christopher Chivvis, who served as America’s top intelligence official for Europe between 2018 and 2021, says that in various war games held after Russia’s annexation of Crimea in 2014 the Western experts and military officers playing Russia sometimes chose to conduct nuclear tests or a high-altitude detonation of the sort which interferes with communications over a wide area—“Think of an explosion that makes the lights go out over Oslo.”

A wrinkle on this would be for Russia to use a small nuclear weapon in Ukraine and either justify it as a pre-emptive attack on non-existent Ukrainian weapons of mass destruction or claim Ukraine had done it. That would be followed by demands for an unconditional surrender backed by threats of more of the same.

A small nuclear explosion might seem like a contradiction in terms. But Russia and NATO both field “non-strategic” or “tactical” nuclear weapons which do much less damage than the city-destroying ones mounted on intercontinental ballistic missiles. Those strategic nuclear weapons typically have yields measured in the hundreds of kilotons: their blasts are equivalent to letting off hundreds of thousands of tonnes of high explosive. Tactical nuclear weapons can weigh in at a few kilotons, or less. The yield of a B61, an American weapon with a variable yield, can be “dialed down” as low as 0.3 kilotons if it is to be used as a tactical weapon. The explosion of a few thousand tonnes of badly stored ammonium nitrate in Beirut in August 2020 showed how terrible such blasts can be. But they are far less devastating than those of the weapons used in all-out wars.

Russia is thought to have thousands of non-strategic nuclear weapons; it views them as a way of compensating for NATO’s strength in advanced conventional materials such as precision-guided weapons. There are 100-200 B61s at NATO airbases in Belgium, Germany, Italy, the Netherlands and Turkey, despite America’s armed forces generally thinking such things of little value on the battlefield. Their presence is held to give those European allies a direct stake in America’s nuclear umbrella, thus making it more credible.

The availability of these weapons is part of what makes the second, indirect, route to the use of nuclear arms frightening. This

involves Mr Putin broadening the conflict into one in which NATO forces are directly involved in a way that they have so far resisted—not least because of the nuclear risk inherent in such a confrontation.

One fear is that Russia might directly attack arms depots or shipments on the soil of a NATO member state, such as Romania or Poland. Russian spies have covertly attacked such depots in Bulgaria and the Czech Republic in recent years. On March 12th Sergei Ryabkov, Russia’s deputy foreign minister, said arms convoys were “legitimate targets”. If the country thus attacked called on its allies to treat the aggression as a trigger for Article Five, the alliance’s mutual-defence clause, NATO might decide to respond with reprisals against Russian forces in Ukraine, if not against forces in Russia itself.

The worst fear

Another possibility is that Western countries may act on internal pressure to try to stop the bloodshed, especially if the war in Ukraine escalates—for example with the use of chemical weapons. Spurious Russian allegations that Ukraine has such weapons might set the stage for a false-flag operation that Russia uses to justify yet more harsh retaliation. Such tactics would spread terror among Ukrainian civilians and signal to NATO that Russia intends to stop at nothing. At the same time it would put “immense pressure on NATO to compel Russia by use of force to stop such attacks,” says Oliver Meier of the Institute for Peace ▶▶

The isolation of Russian citizens



Russians unwilling to access foreign media via virtual private networks continue to be poorly informed. On March 14th Marina Ovsyannikova, a television-news producer, made a brave attempt to improve things.

2,088%

Increase in Russian VPN use, mid-February to mid-March. Source: Reuters

Ukraine and the world



Volodymyr Zelensky continued to reach out to governments around the world. In a more pragmatic act of connection, the Ukrainian and Moldovan electric grids were synchronised to the EU’s, helping ensure electricity supplies.

Research and Security Policy in Hamburg. Mr Meier sees “uncontrolled escalation as a result of mishaps, false flags or misunderstood signalling” as the most likely routes to disaster. Mishaps are, after all, a fact of life, and people at or on the edge of a war get nervous. On March 9th, as if to provide a worked example, a mistake during routine maintenance saw a nuclear-capable (but in this case unarmed) Indian missile fired into Pakistan, its nuclear-armed neighbour. India’s sheepish apology on the 11th would have been too little too late if tensions had been high.

Whatever chain of events might bring it about, the irradiation of even a sliver of Ukraine would be a shocking moment for Europe and the world. Western governments would face enormous pressure to respond. Yet to attack Russia in kind (rung 27: “Exemplary Attack on Military”) would be to invite further nuclear use against American and European cities (rung 29: “Exemplary Attacks on Population”). Khan had 15 further rungs in which the adversaries traded forces and cities with ever more abandon. The doctrine of mutually assured destruction suggests that, once cities are being lost, things will quickly get up close to rung 44: “Spasm or Insensate War”.

The alternative of attempting to bring Mr Putin down using only conventional weapons, though, would not necessarily see him abide by the same constraint, especially if the attempt to dislodge him seemed close to success: back to those top-most rungs. But to do nothing might well

prove intolerable; the need to show that nuclear weapons did not allow impunity could prove overwhelming.

A series of war games which took place during the Obama administration hint at the range of possible responses. In “The Bomb: Presidents, Generals, and the Secret History of Nuclear War”, Fred Kaplan, a journalist, describes the war gamers’ response to a scenario in which Russia invaded a Baltic state and fired a tactical nuclear weapon at a German base to halt the NATO fightback.

By the pale afternoon

When one group of generals and senior advisers played out this scenario Colin Kahl, then Vice-president Joe Biden’s national security adviser, argued that it was better to keep fighting conventionally and isolate Russia diplomatically. His advice was taken. When cabinet secretaries and military chiefs played the same game a month later they decided to nuke Belarus, even though it had no involvement in the war.

In all this, it is important to distinguish relative risk from absolute risk. The chances of an escalating confrontation leading to the use of nuclear weapons in Europe are higher than at any time since 1962. That does not mean such a development is likely. For Mr Putin to escalate the war in a way which brings in NATO would be to invite a decisive defeat in Ukraine; to plan on staving off that defeat by nuclear means would be to risk massive retaliation.

But the stakes are higher—perhaps ex-

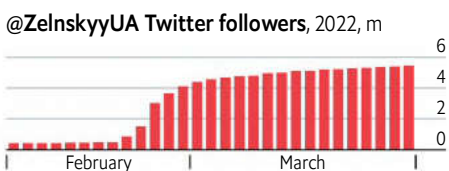
istential—for Mr Putin than for his Western opponents. “Direct confrontation between NATO and Russia is world war three,” warned Joe Biden, America’s president, on March 11th. That made it “something we must strive to prevent”. Mr Putin might think there are rewards to be gained by looking less committed to that prevention.

Thomas Schelling, an economist and nuclear strategist, once observed that deterrent threats were “a matter of resolve, impetuosity, plain obstinacy” (see our Free exchange column). These were not easy qualities to fake, he noted: “It is not easy to change our character; and becoming fanatic or impetuous would be a high price to pay for making our threats convincing.” A man who invades Ukraine without telling most of his ministers or his troops that he is about to do so has already established his character.

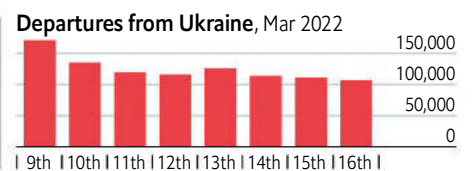
For some Western officials, this asymmetry in character and reward underscores the need for a swift settlement even if it favours the Kremlin. Others note that just saying such things gives Mr Putin an advantage that he will press until he is firmly pressed back against. “NATO’s fear of a nuclear exchange as the inevitable [end of the line]...has been ruthlessly leveraged by Putin,” laments John Raine, a former British diplomat. “He has used it to create a very large space in which he can wage conventional war in Europe without a military response from NATO.” The danger is that Mr Putin tries to enlarge that space further—or misjudges its bounds. ■



The flow of refugees



By the end of Wednesday March 16th over 3m Ukrainians had left their country. The civilian displacement is now the largest such exodus in Europe since the second world war, but still smaller than that from Syria’s civil war.



JOURNEY TO NEW HEIGHTS

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Life locked up

Rotten porridge

CHICAGO

America's prisons were in a poor state before covid-19. Now they are worse

THE INMATES at Logan Correctional Centre, a women's prison in rural Illinois, have to endure a lot. The kitchens are infested with cockroaches. The ceilings are crumbling. Many of the buildings are full of black mould. The showers and toilets often break down, and the plumbing occasionally backs up, pumping sewage onto the floors. According to Lauren Stumblingbear, a 36-year-old former inmate who was released last July after serving nearly a decade for taking part in an armed robbery, perhaps craziest of all were the raccoons. The critters were living in the housing unit of the prison, she says. "They would come down through holes in the ceiling."

From March of 2020, however, even the raccoons seemed mild compared with what prisoners had to cope with. When covid-19 arrived, they were confined to their cells. For the first two weeks they could not shower or make phone calls. They could not use the commissary, because it was run by prisoners who were no longer allowed to move around, and had to eat sandwiches

brought to their cells. "We sat there for months just not doing anything," says Ms Stumblingbear. Covid ripped through the prison anyway. Two years later, the latest lockdown has only just been lifted.

Conditions in America's prisons were terrible even before the pandemic. Like Logan, many have been dilapidated, overcrowded and understaffed for decades. A federal investigation of Alabama prisons in 2019 exposed rape, murder and drug trafficking. Guards not only failed to prevent it but were sometimes implicated.

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28 Lexington: Justice and Mrs Thomas

The pandemic has pushed the system close to collapse. "Inhumane conditions prevail in prisons and jails in the United States at all levels of government, federal, state and local," says Jon Ossoff, a Democratic senator from Georgia, who launched a working group on conditions in federal prisons in February. Even as the virus recedes, chronic staff shortages suggest conditions may not improve much.

According to data from the Department of Justice, in 2018 the number of deaths in state prisons hit the highest level since recording started in 2001. Though illness accounted for the vast majority, homicides and suicides also set records. Preliminary data for 2020 show deaths in state and federal prisons increased by 46% over 2019—unsurprisingly, given how fast covid spread inside. Violence may well have increased too, but it is hard to tell, because state departments of corrections often do not release information about it (local jails, which are usually reserved for suspects awaiting trial, are even worse). So evidence is patchy. A single jail in St Louis had four riots last year, as prisoners protested about delays to their court hearings.

One silver lining is that fewer people are in prison. Data collated by the Prison Policy Initiative, a think-tank, showed that the total number of people in state and federal prisons fell by around 14% from January 2020 to December 2021, to the lowest level in decades. That does not necessarily

mean that the total number of people locked up has fallen by as much, however, since many have ended up serving their sentences in local jails instead, as prison authorities did not want to admit potentially infected people. And though some states promised to release people early to reduce numbers, in reality the entire reduction has come from admitting fewer people in the first place, says John Pfaff, of Fordham University in New York.

Now that the virus is receding, the number of prisoners may rise again, suggests Mr Pfaff, as jury trials resume. Yet many prison officers chose to quit or retire as covid raged. And as wages surge elsewhere, fewer are joining to replace them. Last summer, nearly one-third of positions in federal prisons were vacant.

In September an anonymous guard at Lee Arrendale State prison, a women's facility in Georgia, told state representatives that "on a good day" there might be as few as six or seven officers to guard 1,200 inmates. Hannah Riley, of the Southern Centre for Human Rights, an advocacy group, reckons 70% of positions in the state are unfilled. (The Georgia Department of Corrections did not reply to a request for comment.) Georgia is now under investigation from federal authorities, such is the extent of violence inside.

What does this all add up to? Even with the recent decline, America imprisons more people than any other criminal-justice system. Black and Hispanic people are especially likely to be locked up. In 2018 one in 45 black men was in prison (and more still in jails). Poor conditions are not only egregious human-rights violations. They also make prison less effective. A Department of Justice study from 2018 found that five out of six people released from state prisons were rearrested within nine years. The fact that prisoners are warehoused with limited access to education or mental-health treatment, in a place where drug abuse and gangs are rife, is surely part of the reason.

Worsening conditions are likely to lead to more reoffending. Restrictions on visits mean many prisoners have lost contact with family over the past two years, says Jobi Cates, the founder of Restore Justice, a charity in Illinois which presses for criminal-justice reform. Visits are "everything for our people", she says, but prisons have been slow to bring them back. It is not only family members who have been kept out, but also teachers, therapists and others who help prepare people for release.

Electronic means of keeping in contact got worse, too, because of staff shortages and worries about moving people around. "They made it to where you can only get one phone call a day," says NaJei Webster, who was released from a prison in Illinois in September, and who now works for Ms

Air conditioning in prisons

Cruel and unusual punishment

DALLAS

Staff shortages will fan debate about excessive heat in many prisons

MARCH 20TH marks the official start of spring in the northern hemisphere. Rising temperatures spell hard times for plenty of American prisoners. At least 14 states lack universal air conditioning in their prisons, including many in the South. Florida offers air-conditioned housing units in only 40% of its state-run correctional institutions; Texas provides it in only 30%. None of Louisiana's seven men's prisons provides air con universally where prisoners sleep, although its single women's prison does.

In places where the summer temperature can exceed 100°F (37°C), buildings keep both offenders and heat trapped inside. Prisoners on medications to manage blood pressure or mental problems are especially prone to heat-related illnesses, as are those with asthma. Prisoners have died during heatwaves, prompting lawsuits against the states that held them. Some states allow prisoners a personal fan, but that does little good in extreme heat, as any southerner whose air con has broken down during the summer can attest.

Tough-on-crime attitudes among



Old tech is not cool

politicians are one reason for inaction. No one wants to be portrayed as pampering prisoners, says Mark Jones of Rice University in Houston: "It's not a winning issue politically." Frugality has been another factor. The Texas Department of Criminal Justice estimates that it would cost a whopping \$1bn to add universal air conditioning in the state (though some believe that to be wildly overblown). Last year the Texas House passed a bill that would expand air conditioning in prisons, but without offering any funding, and the Senate never took it up.

Legal challenges are likely to continue. Although some state courts, such as Wisconsin's, have ruled that incarceration in extreme temperatures violates the Eighth Amendment (which offers protections to those accused of a crime), the Supreme Court said in 1981 that the "constitution does not mandate comfortable prisons". This has contributed to a perceived lack of urgency.

Staff shortages may do more to get politicians' attention. High temperatures are a burden not just for prisoners but for guards and other staff, too. Recently James Le Blanc, secretary of Louisiana's Department of Corrections, testified to state lawmakers that the lack of air conditioning is a major reason that his department is short of 12,175 correctional officers, about a quarter of positions. The estimated cost of adding it seems a snip compared with Texas's scary figure: at around \$30m, it is a fraction of Louisiana's \$500m annual corrections budget.

Some think that the federal government could help pick up the tab through a stimulus bill passed by Congress last year. Hope Osborn, a policy analyst with Texas 2036, a non-profit organisation, has argued that spending federal funds on a one-time expansion of air conditioning is shrewder than continuing a heated "loop of litigation" with prisoners and their families.

Cates's charity. Prisoners can get access to email through tablet computers, but these cost money—not only for the machine but also per email sent. Sending money to prisoners to pay for these services comes with exorbitant fees, charged by firms such as Global Tel Link and JPay, which saw its revenues spike in 2020.

The tragedy is that falling prison populations ought to be an opportunity to close some of the worst institutions. And state

budgets are unusually replete with cash. Mr Ossoff says he has found that improving conditions in prisons (unlike releasing people) has bipartisan support. With several Republicans, he is pushing for more congressional oversight of prisons. But prison-guard unions are reluctant to accept changes that make their jobs harder, and, thanks to the staff shortages, they are more powerful than ever. It seems more likely that things will get worse. ■



Women's sport

Swimming in controversy

The issue of transgender women is splitting the sporting world

COLLEGE SWIMMING is far from the most talked-about sport in America. But this year's National Collegiate Athletic Association (NCAA) Women's Swimming and Diving Championships, which take place between March 16th and 19th in Atlanta, have attracted unusual attention. Most of it has been focused on a single athlete: Lia Thomas, from the University of Pennsylvania.

Ms Thomas has already broken records in previous competitions. In December she won a 1,650-yard freestyle race by 38 seconds. On that kind of form, in Atlanta Ms Thomas was expected to win comfortably.

But not without controversy. For although Ms Thomas identifies herself as a woman, biologically she is a male. Her dominant performances have thrust her into the centre of the debate around whether transgender women—males who, like Ms Thomas, identify as women—should be allowed to compete in women's sport. It is an argument that is increasingly splitting sport, in America and beyond.

The argument is playing out inside stadiums, newspapers and state legislatures. At past events, some in the crowd have refused to applaud Ms Thomas's victories, waiting for the second-place swimmer to finish before cheering. In February a letter by 16 of Ms Thomas's team-mates was supportive of her new identity, but said that "biologically Lia holds an unfair advantage...in the women's category." (Citing fears about future employment, none was will-

ing to sign their name.) A broader letter, published on March 15th and signed by more than 5,000 people—including many Olympic athletes—took a similar view.

On March 3rd Iowa became the 11th state to pass a law forbidding trans women from competing in women's sports (others include Texas and Florida). Such rules have, in turn, prompted lawsuits attempting to get them overturned. Big national non-profit organisations, including GLAAD and the American Civil Liberties Union, support Ms Thomas competing in the women's category. (A third letter, this time signed by 300 athletes, likewise supported Ms Thomas.) The argument ranges far beyond swimming, too, covering cycling, high-school athletics and even weightlifting. In 2021 USA Powerlifting, a weightlifting organisation, was sued over its policy that athletes should compete on the basis of their sex, not gender identity.

Testosterone-driven

Ms Thomas is breaking no rules. For many years the NCAA's policy was that trans-women athletes could compete so long as they took medication designed to suppress their testosterone levels. Testosterone is the main male sex hormone and a potent anabolic steroid. Levels surge during puberty, which is the main reason why adult males outperform females in almost every sport. In swimming the women's world record for the 400-metre freestyle, for in-

stance, stands at three minutes and 56 seconds. The men's record is 3:40. In some sports the gap is much larger. The American men's combined powerlifting record is 1,296kg. The women's record is 793kg.

The hope was that suppressing testosterone levels would reduce those advantages, letting female athletes compete with trans women on a reasonably level playing field. The science suggests that the compromise does not work. A pair of review studies, published in 2020 and 2021, concluded that testosterone suppression does not go far in removing the advantage bestowed by male puberty.

America's swimming authorities are split. Having originally said it would follow the lead of USA Swimming, which governs elite swimming in America, the NCAA changed its mind in February when USA Swimming passed new, more restrictive rules that require trans women to prove that "prior physical development" had not given them a competitive advantage.

The issue is just as contentious outside America. In September a group of British sporting bodies concluded that balancing fair competition and the inclusion of trans women in women's sport is impossible; individual sports would have to decide which was more important. Some of them, such as British Triathlon, welcomed the guidance. Others, such as the British Kickboxing Council, seemed less keen. (As with Ms Thomas's teammates, the report found that few elite female athletes were willing to speak publicly about the topic, lest they lose sponsorship deals or team places.)

In 2020 World Rugby decided that trans women would not be allowed into the women's game on grounds of both fairness and safety. But its remit extends only to international matches, and most domestic unions have the opposite policy. In Denmark, sports authorities have recommended that trans women be barred from women's sport at the elite level. The result, says Ross Tucker, a South African sports scientist who was involved with the World Rugby decision, is a patchwork. Male athletes can compete against female ones in some sports, in some countries, and at some levels—but not others.

In the short term, that seems unlikely to change. Many sports take their lead from the International Olympic Committee. Before the Tokyo games last year, it had required trans-women athletes to suppress their testosterone levels. However, in the light of the scientific evidence, it promised new rules. Its new policy, announced in November, was greeted with bafflement. It threw the hot potato back to individual sports, but warned them, despite what the record-books say, that there should be no automatic assumption that males possess any advantage at all. Clarity seems further away than ever. ■



An initiative of
Economist Impact and The Nippon Foundation

THE INVISIBLE WAVE

Getting to zero chemical pollution in the ocean

The Invisible Wave is a new report from Back to Blue, an initiative of Economist Impact and The Nippon Foundation. Its aim is to bring the issue of marine chemical pollution to a wider audience, including policymakers, governments, the chemicals industry, the broader business community, the finance sector, civil society and consumers.

Chemical pollution—of land, air, rivers, watersheds—has been a problem for decades. Chemicals in the form of heavy metals, persistent organic pollutants, pesticides, plastics, sewage, medicines and radioactive materials are being uncovered almost everywhere. Understandably, most of the focus is where humans live, on land. This report seeks to raise awareness of chemical pollution in the ocean, which itself begins mainly on land, as its scale and potential impact are not widely appreciated. Unlike plastic pollution, which is often visible, chemical pollution is largely unseen and more difficult to detect and track.

Among the report's principal findings are:

- **Marine chemical pollution is a growing global problem that requires urgent and co-ordinated action.** Synthetic chemicals are present in the deepest parts of the ocean and in all manner of marine life. Concentrations of the most dangerous chemicals in the marine environment continue to increase, and harms marine life, biodiversity and ecosystems.
- **Marine chemical pollution is predominantly due to human actions, and will get worse.** As many more chemicals are being produced, and in ever-greater volumes, the impact on the marine environment will become more severe. Exacerbating factors include the “greening” of economies (requiring new materials and chemicals) and the expansion of production by the chemicals industry, particularly in Asia and to countries with limited oversight.
- **Chemical pollution in the ocean is linked to tackling both climate change and plastic waste.** Chemicals interact with environmental factors like temperature, acidity and salinity—all of which are affected by climate change: higher water temperatures, for example, can lead to increases in chemical

concentrations in the ocean. Plastics not only contain (and leach) toxic chemicals, but micro- and nanoplastics, that hurt marine life, and which adsorb chemicals and transport them in the marine environment.

- **More research is needed into marine chemical pollution, and more funding.** There are tens of thousands of chemicals in use, with thousands more being added each year, yet in most cases we know little or nothing about their impact on the ocean environment—or on humans. Additional research is needed to determine the scope and extent of chemical pollution in the ocean and the damage on the marine environment. Greater funding should be targeted to the chemicals of greatest concern.

THE COST OF INACTION

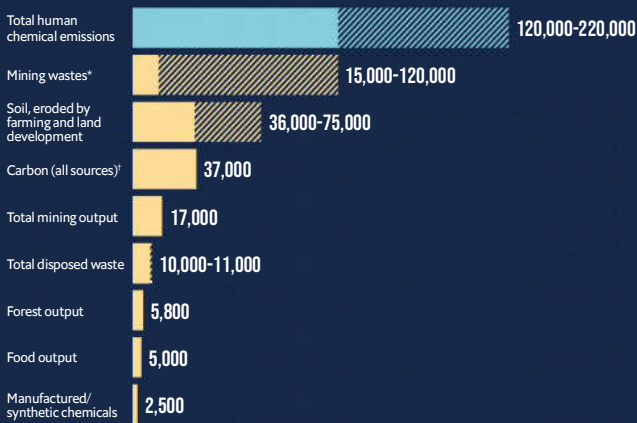
More research is vital, yet even without a complete picture of the scope and dangers of marine chemical pollution, failing to act now poses a huge risk. Trillions of dollars in ocean services, such as climate regulation and food provision, are threatened



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ESTIMATED CHEMICAL POLLUTANTS EMITTED BY HUMAN ACTIVITIES

Millions of tonnes released per year, estimated



*Mining wastes include overburden and tailings

†Carbon (all sources), eg, chlorofluorocarbons, carbon tetrachloride

Sources: Pure Earth and Green Cross Switzerland, 2016

EASTWARD SHIFT

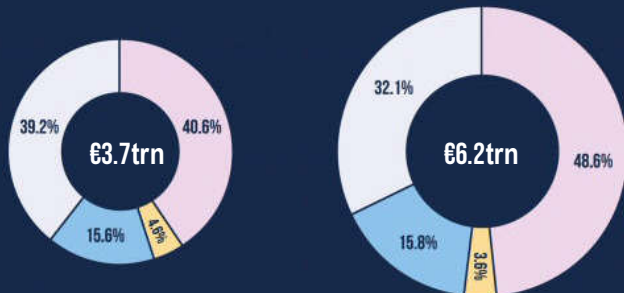
Chemicals industry shifts to Asia



Global chemical sales, projected

2019

2030



Source: Growth and Competitiveness, CEFIC (2020)

from human activities. The real economy is at risk too. An Economist Impact case study on the costs of hypoxic “dead zones” in the Gulf of Mexico, which are caused by excessive nutrient pollution, found that should the issue worsen and contribute to a greatly reduced fish catch, America stands to lose nearly \$838m in annual fisheries revenues.

Failing to act now puts more at risk than can be quantified. A study in 2022 concluded that the world has already crossed the point where chemicals threaten the very ecosystems—including the marine environment—upon which humans and other species depend. Tackling chemical pollution in the ocean requires immediate, co-ordinated action—from the chemicals industry itself to governments, regulators, investors and financiers, as well as civil society and consumers.

Thus, among the report’s other findings and recommendations are:

- **Regulators need to enact and enforce stricter rules on pollution, adopting a more precautionary approach to chemicals**, particularly in Asia, the Middle East and Africa where much of the growth in chemicals production will come, and where oversight is limited. The chemicals industry for decades has been able to externalise its costs—passing these on to society, often to the poorest and most vulnerable.
- **Actions by the chemicals sector present the most compelling opportunity to address marine chemical pollution.** Yet for an industry that is sprawling, capital-intensive and low-margin, change will be a complex, expensive and fraught process, and will coincide with the need to invest in rapid decarbonisation.
- **Momentum is growing for a circular economy and “green” chemistry.** They provide an opportunity to design high-performance products that are less toxic and less polluting.
- **The finance and investment communities remain largely unaware of marine chemical pollution and its risks.** This is a barrier to change, but also an opportunity. Better information about the risks the chemicals sector faces from a transition to a zero-pollution ocean will be critical for any responses by the finance sector, with an appreciation of the early rewards for first movers.
- **Popular awareness of the danger of marine chemical pollution is low compared to plastic pollution or climate change.** Building greater awareness is essential. Consumers, notably, could influence progress on marine chemical pollution through purchasing decisions.

A WAKE-UP CALL

Chemicals are essential to everyday life; virtually every process, product and service of modern life is dependent on them. Yet chemicals are also poisoning the land, the ocean and human health. The challenge posed by chemical pollution is global in scale, and profound. A key goal of *The Invisible Wave* is to focus minds on solutions that prevent, reduce and minimise chemical pollution in the ocean. An aspiration towards zero pollution is gaining currency. The hope is that more will be achieved if the goal is seen to be ambitious. The ocean is fundamental to life on Earth. It is more than possible to prevent chemical pollution from inflicting irreparable harm on the ecosystem. But failing to act now has devastating consequences.

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Reproductive rights

Abort mission

NEW YORK

Some states can't wait to end abortion

LIKE SCHRÖDINGER'S unfortunate cat, *Roe v Wade* is in a quantum state as America awaits word from the Supreme Court on a case that could put an end to the constitutional right to abortion. The justices are expected to open that box—in a case challenging Mississippi's ban on terminating a pregnancy after 15 weeks—by the end of June. But several states are not waiting to see what is revealed. They are forging ahead as if *Roe*, a precedent from 1973 which protects a woman's freedom to choose an abortion, were already dead.

The reckoning has been brewing for a while. Three years ago, highly restrictive abortion laws were enacted in nine states. Alabama's was the most extreme: it banned nearly all abortions, beginning at the point of fertilisation. Most of these laws were promptly blocked in federal courts. The point, however, was to begin to get an increasingly conservative Supreme Court to reconsider *Roe*.

Texas took a different tack last year with Senate Bill 8, an abortion ban from about six weeks enforced not by the state but through private lawsuits. Despite its incompatibility with *Roe*, which protects abortion rights to about the 23rd week of pregnancy, the law was let through by the Supreme Court on September 1st, and the number of abortions in Texas promptly plummeted. The justices held a hearing two months later and, on December 10th, released their ruling: an 8-1 decision offering a narrow path to challenge the bill's constitutionality. Although most potential defendants were out of reach, the majority said, the plaintiffs may sue state officials who have a hand in enforcing the bill.

On March 11th a final roadblock closed that path. Following the Supreme Court's ruling, the Fifth Circuit Court of Appeals declined to let the case move forward in the trial court. Instead, the Fifth Circuit sent a query to the Texas state Supreme Court: do these agency heads in fact play a role in enforcing Senate Bill 8, making them proper targets of a lawsuit challenging the law under *Roe*? The judges' answer was no. The architects of Texas's law—derisively dubbed “some geniuses” by Justice Elena Kagan—prevailed in their quest to craft an abortion ban that would stymie broad legal challenge.

Other states are catching on. Idaho is on the verge of adopting a ban modelled on Texas's. A legislator in Missouri is pushing

W^{HEN THEY} hear snow on the forecast many American children cross their fingers and hope school will close. But “snow days” may soon melt away.

Last year New York City, the country's largest school district with 1m children, announced that families should expect to take part in remote learning on snow days. Alexandria, Virginia, has taken snow days off the school calendar. Thanks to the pandemic, many districts have the tools and experience to turn to remote learning in an emergency.

Most states require 180 days of instruction a year. Remote-learning days do not generally count. If school is cancelled because of snow, hurricane or extreme heat, pupils have to make up for the day in person. Most districts tack on the days at the end of the school year. “The us calendar is already short by international standards,” says Michael Petrilli of the Thomas B. Fordham Institute, an education think-tank, “so we can't afford to lose any of them.” This month New Jersey's Senate unanimously voted to allow those days to count to-



A day to remember

a provision that uses Texas's private-law-suit mechanism to stop women from seeking abortions outside their state. Anyone who helps a Missourian obtain an abortion across state lines—from doctors to appointment schedulers—could be subject to a lawsuit. Another bill in Missouri in effect bans abortions for ectopic pregnancies, nonviable fertilisations outside the uterus that are dangerous if not terminated.

These proposals mark a new, radical

Schools and bad weather

Say it ain't snow

NEW YORK

Some districts are opting for remote learning instead of closing schools

wards the mandatory days of learning. Nicholas Sacco, the bill's author, says it has safeguards to prevent overuse.

The New Jersey Education Association, a teachers' union, is not convinced that remote instruction is a proper substitute. Tafshier Cosby, a New Jersey parent and a member of the National Parents Union, which speaks for working parents, points out that not every child has ready access to a device.

Closing a school is a hard decision. Parents may have to take the day off work, perhaps without pay. Children may miss out on food and crucial therapy. But the danger of children being outdoors and travelling in extreme conditions can outweigh those considerations. “More superintendents have been fired by snow days, either calling it or not calling it, than anything else,” says Dan Domenech, head of the American Association of School Administrators.

Extreme weather has meant that some southern states, which lack the infrastructure to cope with snow, are having to consider snow days and remote learning, and the frequency of such disruption in colder parts of the country may well increase. Rupak Gandhi, superintendent of schools in Fargo, North Dakota, says he has had to cancel instruction because of inclement weather on an unusual five days this winter. If he has to close schools again his district will switch to distance learning.

Some superintendents wish they had the flexibility to make such a call. Mark Benigni, superintendent of Meriden Public Schools in Connecticut, says his district used remote snow days successfully during the pandemic, but this year the state will not approve them. Others remain wary. Matthew Baughman, the superintendent of Wolverine Community Schools in northern Michigan, believes “in preserving the magic of snow days for kids and teachers”.

frontier. They join more conventional 15-week bans under consideration in Arizona, Florida and West Virginia. The comparatively moderate tactics in those states may be designed to test the waters “to see if there is backlash to less sweeping measures”, suggests Mary Ziegler of Florida State University College of Law. But if *Roe* goes, Ms Ziegler predicts, no red states may be “content regulating just what happens inside their own borders”. ■



Puerto Rico

You lovely island

SAN JUAN, PUERTO RICO

With the end of bankruptcy in sight, Puerto Rico has a chance to fix its economy

IT LOOKED LIKE Independence Day in America: dozens of flags with stars and stripes, carried by people marching past banks and fast-food restaurants. But on closer inspection, those flags had an extra star. On March 2nd, celebrating the day 105 years ago when Puerto Ricans were granted American citizenship, Víctor Parés hoped to rally support for statehood. “It’s up to our generation to finish what started with the Jones[–Shafroth] Act in 1917,” said Mr Parés, a politician leading the procession in San Juan, the capital. Only a few passers-by seemed interested. The dark traffic lights dangling above them, a casualty of the island’s recurrent power cuts, were a reminder of more humdrum concerns.

Yet change is coming, even if it falls short of Mr Parés’s dreams. On March 15th a bankruptcy deal came into effect that reduced Puerto Rico’s debt by almost 80%. The resulting new fiscal plan, coupled with an influx of federal dollars, marks the effective end of the island’s debt crisis. Now Puerto Rico has a chance to fix its economy, after years of recession.

The debt crisis that engulfed Puerto Rico in 2014 owes much to its peculiar legal status as an American commonwealth. Not bound by the strictures of a state, lawmakers in San Juan borrowed freely and disastrously. In 2016 Congress passed the Puerto Rico Oversight, Management and Economic Stability Act (PROMESA), giving the island a process to restructure its debt. In exchange, it saddled the place with a fiscal-oversight board. Derisively called *la junta* by locals, the board managed the island’s

finances and led debt negotiations.

The bankruptcy agreement reached in January will relieve Puerto Rico of crushing interest payments, which will now take up 7% of the budget instead of over 25%, with a plan to balance long-term finances. “It is a sound basis for fiscal planning going forward,” says Antonio Weiss, who led the Treasury Department’s negotiation of PROMESA under Barack Obama.

The \$67bn in federal funds allocated to help the island rebuild after Hurricane Maria in 2017 continues to arrive—blue tarps on roofs in poorer parts of San Juan are a testament to a shamefully slow recovery. But it is President Joe Biden’s legislative activity in 2021 that promises a torrent of spending. The American Rescue Plan is expected to deliver at least \$23.5bn to Puerto Rico. The Infrastructure Investment and

Jobs Act will bring yet more.

The oversight board projects that the economy will grow by 0.5% a year on average through 2030. The fact that it will take such a surge of spending just for Puerto Rico to barely escape recession underscores the task ahead. Since 2004 its economy has shrunk by 20% (see chart). Though living standards are still among the highest in Latin America, neighbours such as the Dominican Republic have steadily closed the gap. The island’s poverty rate of 44% remains more than twice that of Mississippi, the poorest American state.

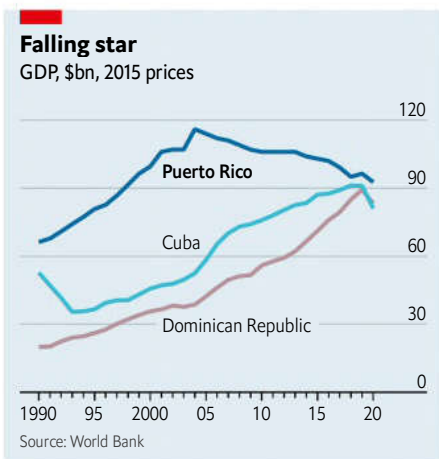
The causes are no mystery. American firms flocked to Puerto Rico because profits earned there were exempted at one time from federal taxes. Loss of this perk in 2006 drove many to leave or cut their workforces. Infrastructure is patchy—blackouts and potholes are common. Even where there is growth, jobs are scarce. Manufacturing output has risen by 35% since 2006, but employment has fallen by 32%.

Fixing the island’s economy will hinge on reversing its population decline. Higher wages on the mainland have drawn people away for decades, but many would return, explains Jorge Duany of Florida International University. “Puerto Ricans come and go freely, *vaivén*.” The money sent back boosted the economy, and emigration was never enough to dent the island’s population growth. No longer. From a peak of 3.8m in 2004, the population has declined by 16.5%; the median age has risen from 33 to 45 since 2005 as younger people have left. That shrinks the tax base and saps Puerto Rico of its most dynamic talent.

OK by me in America

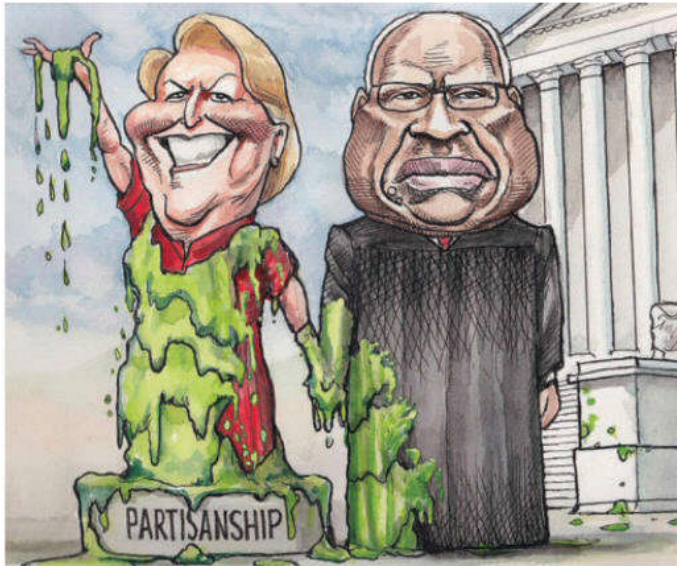
Policymakers still struggle with fully transparent budget-making and reforms. Voters have noticed. The two main parties, the Popular Democratic Party, which favours the status quo, and the New Progressive Party, which backs statehood, have seen their share of the vote wane. Protests in front of *La Fortaleza*, the governor’s 16th-century residence in San Juan, are common. Mr Weiss argues that the oversight board should now be retired, and fiscal control returned to local elected representatives. Voters seem to crave both sound management and accountability.

The federal government could do more for Puerto Rico, for example by funding Medicaid as much as it does for states. But no policy would have as dramatic an effect as changing the island’s status, through statehood or independence. None of the three referendums over the past decade (all yielding a majority for statehood) came with a commitment from Congress to respect the outcome. Mr Parés hopes the end of bankruptcy can prompt change. “The Jones Act was a law of transition, a transition that must ultimately end.” ■



Lexington | Courting trouble

There is no conflict between Justice Clarence Thomas and his wife's unhinged activism. That is the problem



VIRGINIA THOMAS made headlines this week when she confirmed that she had attended Donald Trump's pre-insurrection protest in Washington, DC, on January 6th 2021. Frankly, it would have been surprising if she hadn't.

A well-connected activist, at the paranoid edge of the conservative establishment, Mrs Thomas was known for her fierce culture-warring long before Mr Trump made it Republican orthodoxy. The 65-year-old Omahan abhors feminism and affirmative action, and believes "America is in a vicious battle for its founding principles" against the "deep state" and a "fascist left" in which "transsexual fascists" are prominent. Schooled in such views by Steve Bannon, a former comrade of Mrs Thomas's, Mr Trump was happy to promote them. Mrs Thomas was allegedly known in the Trump White House as the "wrecking-ball" (which by its standards was saying something) for her persistence in lobbying the president.

Yet what sets Mrs Thomas apart is not only her activism but also the fact that she is married to a Supreme Court justice, Clarence Thomas. No other SCOTUS spouse has played such an active political role. And given that Justice Thomas often appears at her work dos and fulsomely lauds her "24/7...defence of liberty", perhaps no SCOTUS couple has, either. In the light of Mrs Thomas's efforts to spread Mr Trump's lie that the 2020 election was stolen, this has become newly contentious.

"LOVE MAGA people!!" she wrote on social media as they gathered on insurrection day. "GOD BLESS EACH OF YOU STANDING UP OR PRAYING." She later distanced herself from the violence that ensued (she says she went home early, because it got chilly). She has also downplayed it—including by signing a petition excoriating a House investigation into the riot, for which nearly 800 people have so far been charged with crimes, as a partisan witch-hunt against "private citizens who have done nothing wrong".

Recent exposés of Mrs Thomas's activities have focused on the potential conflict they represent for her husband. The *New York Times* suggests Mr Trump patronised her only to cultivate Justice Thomas. The *New Yorker* warns that the court's conservative majority is shortly expected to rule on significant affirmative-action, gun-rights and abortion cases in favour of activists associated with Mrs Thomas. Many note that Justice Thomas was the only

dissenter from a Supreme Court decision that forced Mr Trump to comply with the January 6th inquiry.

In Justice Thomas's defence, none of that looks like a clear breach of conflict-of-interest rules. His jurisprudence, it should also be noted, is in theory sufficient to explain most of his judgments without recourse to his politics. A committed originalist, he is one of the more intellectually consistent jurists on the bench, as well as the most conservative. Yet, in a divided country, appearances matter. Public trust in the court is plummeting precisely because it is viewed as too political. That makes Justice Thomas's cheerleading for his wife's activism reckless at best.

It is also at odds with his concern to avoid appearances troubling to conservatives. Justice Thomas was a lone dissenter on the court against the recent expansion of postal voting on the basis that, even if it were not—as Republicans claimed—fraudulent, he feared it might seem to be. While ignoring a real, if exaggerated, liberal concern about his wife's activism, in other words, he took care to mollify a baseless conservative gripe.

He is hardly the first justice to reveal his partisan colours. Ahead of the general election in 2016 the late Ruth Bader Ginsburg lambasted Mr Trump. Two years later Brett Kavanaugh delivered a seething partisan rant at his Senate confirmation hearing. He claimed that Democratic opposition to his nomination to the Supreme Court was not in response to the allegation of sexual impropriety he faced, but rather "pent-up anger about President Trump" and "revenge on behalf of the Clintons". However, Justice Kavanaugh's partisanship has been somewhat muffled by his institutionalism, which urges restraint. Justice Thomas's jurisprudence, by contrast, appears to amplify his politics.

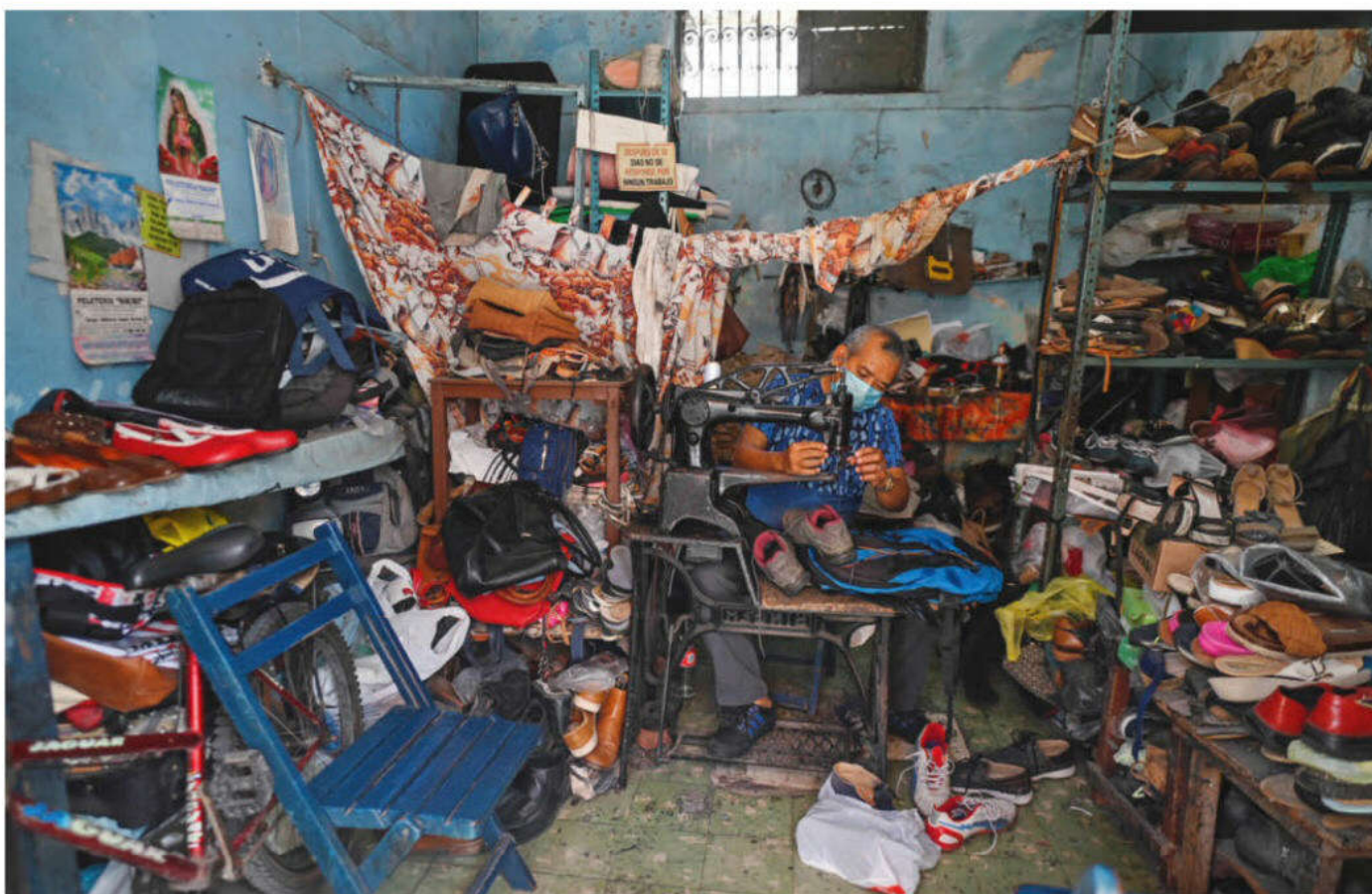
His take on the constitution's original meaning not only leads him to be unerringly supportive of conservative causes, from gun rights to Mr Trump. It has also made him unusually dismissive of opposing views, even when enshrined in legal precedent. When a past judgment is "demonstrably erroneous", he wrote in 2019, "we should not follow it." Not even the late Antonin Scalia, his fellow originalist and hero, so presumed to overthrow settled law. "I'm an originalist and a textualist, not a nut," Scalia once explained.

Originalist sin

Scholars have long admired the cogency of Justice Thomas's legal philosophy. It is nonetheless hard to reconcile with the Supreme Court's claim to be politically neutral or, given the outsize mediating role that politicians have foisted upon it, a healthy democracy. And yet the growing bullishness and impatience with precedent among the court's dominant conservatives suggest Justice Thomas's view, which was once an outlier, is becoming dominant. "One can be both an admirer of Thomas's jurisprudence and deeply fearful of what it portends," says Steve Vladeck, a legal scholar.

By contrast, it is hard to admire Mrs Thomas's grievance-peddling in almost any way. Whatever laudable aims she once held, she encapsulates the many Republicans whose exaggerated fears of the left drove them to justify whatever new low Mr Trump had in store. And yet, unfortunately for Justice Thomas, an admirably self-made man, her activism and his judging are comparable.

In politics and the law, both Thomases are too intolerant of opposing views—even when they represent the settled opinion of most Americans and, in Justice Thomas's case, legal tradition. This equivalence is the most troubling significance of Mrs Thomas's political activities. They are not in conflict with her husband. But rather the opposite. ■



Mexico's economy

Can't grow, won't grow

MEXICO CITY

Red tape, taxes and gangsters keep small firms small

RAMÓN RUNS a successful business in Mexico City moulding plastics for blister packaging. When the pandemic dented demand he found a new opportunity in making facial visors. Despite his acumen, Ramón (not his real name) does not want to expand his business. At his factory there is no sign and no window advertising his wares. "I don't want to grow because I will be worse off," he says. Not only will his tax rates jump from 2% of profits to 30%, he says, but he will attract attention from both trade unions and organised crime, which will charge *derecho de piso*—extortion.

Ramón's story helps explain something that would otherwise be baffling: why the Mexican economy grows so slowly. Given its advantages, Mexico should be an engine of growth for Latin America. It shares a long land border with the United States. It is part of a free-trade area that lets Mexican industry integrate into North American supply chains. Thanks to abstemious fiscal

policies, it has avoided the high inflation and debt that afflict South American economies like Argentina and Brazil. And yet over the quarter-century before the pandemic Mexico managed annual average growth in GDP per person, on a purchasing-power-parity basis, of just 2.8% (see chart on next page). That was little better than Brazil, worse than Argentina and well short of the performance of stars like Chile and Panama.

This disappointing record looms larger after the brutal experience of the pandemic. In 2020 Mexico suffered its worst economic contraction since the great depression. Aggregate output shrank by 8.5%. Between 2018 and 2020 at least 3.8m people

fell into poverty (according to a measure that takes into account access to services as well as income). That brought the poverty rate to almost 44%. The recovery is looking equally disappointing. Mexico's economy contracted in the last two quarters of 2021. The IMF and Mexico's central bank have revised down sharply their forecasts for growth in 2022 relative to earlier estimates, back to the usual 2-3% range.

No single factor explains Mexico's underperformance. "It's like a good *mole* [a traditional sauce], with many ingredients," quips Gordon Hanson of Harvard University. His work suggests that Mexico's doldrums are at least partly due to bad luck. Although it experienced some success in building a manufacturing sector in the 1980s and 1990s—an effort that received a boost from the North American Free Trade Agreement starting in 1994—Mexico's fortunes shifted after China joined the World Trade Organisation in 2001.

Thereafter, Mexico's share of American imports dropped while China's soared. China offered a much larger workforce at lower wages, making goods that were substitutes for those made in Mexican factories. Nonetheless, Mexico's close economic ties to the United States meant that the latter's housing bust and lacklustre recovery sapped Mexican growth. In 2009, for example, output across emerging mar- ➤

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kets as a whole rose by 2.8%, but in Mexico GDP contracted by 5.3%.

Yet even had Mexico been more fortunate, internal economic problems would probably have weighed on growth. Criminal groups can obstruct businesses or force them to pay for “security”, as Ramón’s experience shows. More mundane difficulties abound. Mexico ranked 60th of 190 countries in the World Bank’s ease-of-doing-business index (which ceased publication after 2020). It can be a struggle to get electricity. Paying taxes takes a whopping 241 hours per year on average for firms in the formal sector. More and better infrastructure is needed, especially in the poorer southern states that are disconnected from the global economy, says Valeria Moy, an economist who heads IMCO, a think-tank in Mexico City.

Formal businesses face red tape and high taxes in exchange for poor public services. That is why so many firms and employees stay informal. Almost 60% of the labour force and an even greater proportion of businesses do not pay the required taxes and social-insurance contributions. Often informal enterprises do not obey labour rules. Despite the large number who toil in it, the informal economy accounts for only about a quarter of Mexican GDP. That is because productivity in informal firms is well below that in the formal sector, and it may well be falling. “It is like the Middle Ages with no technical change,” says Santiago Levy, a former deputy finance minister now at the Brookings Institution, a think-tank in Washington.

Life for workers with informal jobs is not easy. In Nápoles, a neighbourhood of the capital, Iván Jiménez runs a fruit-and-vegetable stand. The hours are long. To open the stall for ten hours a day he works for 17 hours from 4am, when he buys stock. (Mexicans work more hours per year than citizens of any other member of the OECD, a club mainly of rich nations, bar Colombia.) Mr Jiménez says the buying power of his earnings has not risen in recent years.

Yet work in the formal sector is not nec-

essarily more attractive. Salvador Trejo, who runs a produce stall in another part of the city, says he can’t afford the taxes that he would have to pay if he moved to the formal sector. Formal employment can mean gaining health insurance, but its benefits are often little better than those provided by health care that can be obtained for nothing. Public pensions do not always sweeten the deal, either. To earn one, until recently a labourer had to work in the formal sector for 25 years, an unachievable feat for anyone over a certain age. The current administration has reduced that requirement to around 15 years, but it has dulled the incentive by introducing grants for older people regardless of their income or employment status.

Although past reforms have improved the growth climate in many respects, few administrations have done much to shrink the informal sector, despite potential gains in the form of higher productivity and tax revenue. Even so, the economy has a strong foundation on which to build.

Mexico has long been an attractive destination for foreign direct investment. Although recent supply-chain problems have affected important industries, such as car-making, the economy could benefit over the long run from a lack of confidence in global supply chains, as American firms move production closer to home. Indeed, in the northern states, which are closely integrated with the United States, industries like aerospace manufacturing are booming. Mexico could enjoy annual growth of around 4%, reckons Mr Levy, if it became more business-friendly and invested in infrastructure. Parts of Mexico do grow at good rates. In 2018 and 2019, for example, the northern state of Baja California Sur grew at an average annual rate of 3.5%.

Opportunity knocked back

But the government of Andrés Manuel López Obrador is squandering the opportunity. In some ways it is making things worse than they were before the pandemic. A recent move to hand control of the country’s electricity market to the Comisión Federal de Electricidad, a state-owned utility, has discouraged foreign investment. The president has portrayed the private sector as greedy and rattled businesspeople by cancelling construction of an airport (see next story). “Currently, it is predominantly domestic issues holding back investment,” says Jonathan Heath, a deputy governor of Mexico’s central bank.

That is a shame. “Mexico is a country of opportunities, whether you sell tacos or something else,” reckons José, who runs a carpet-cleaning business. The biggest opportunity would come from boosting the highly productive formal sector. Unless the government does that, Mexico’s growth will remain mediocre. ■



Mexico’s megaprojects

Planes, a train and automobile fuel

FELIPE ÁNGELES INTERNATIONAL AIRPORT

The president’s infrastructure plans may do more harm than good

MEXICO’S ARMED FORCES are proud of the toilets at the Felipe Ángeles International Airport. The army built the airport near Mexico City, which is due to open on March 21st, and will run it, but it is a commercial facility. Each bathroom has a theme, explains a sergeant providing a tour. Among them are *lucha libre* (wrestling) and the Day of the Dead. From loos to lounges the terminal sparkles—but that does not make it a good investment.

The airport is one of President Andrés Manuel López Obrador’s three signature infrastructure projects. The others are an oil refinery in Tabasco, his home state, and a train around the Yucatán peninsula. The trio have provoked even more controversy than most big public works. No one doubts that Mexico needs more investment. At 1.3% of GDP, government investment is the lowest in the OECD, a club mainly of rich countries. But Mexico “needs projects with a high return, whether social or economic”, says Sofia Ramírez of México, ¿Cómo Vamos?, a think-tank.

It is hard to say whether Mr López Obrador’s projects will deliver that, since the planning documents give no analysis of costs and benefits. In November the president decreed that the projects were a matter of national security, ostensibly to speed up permits. But the decision also made related documents secret (and is being challenged in the courts).

The capital needs a new airport. But does it need Felipe Ángeles? In 2018 Mr López Obrador cancelled construction of an-

Tortilla flat

GDP per person at PPP*, \$’000



▶ other airport that was half built, costing the government at least 185bn pesos (\$9bn). That airport had problems, but there are also worries about the new one. It has a capacity of just 19.5m passengers a year, about 40% of the number served by Mexico City's current airport in 2019. So the two will operate in tandem, complicating management of the airspace around the city. Road and rail links to the new airport are unfinished, which means it will be under-used. Just four airlines have said they will fly from Felipe Ángeles. The only international route is to Venezuela.

The case for the refinery is weaker still. It is intended to make Mexico self-sufficient in fuel, but it will not arrest the fall in the amount of oil produced by Pemex, the debt-laden state-owned energy giant. It is a big bet on fossil fuels at a time when many governments are promoting renewables. The refinery is unlikely to open this year as scheduled and is expected to cost at least 40% more than the planned \$8.9bn.

Roads and electricity would probably provide bigger benefits to the poor south-east than the "Maya train", which is to transport tourists, locals and cargo around

the Yucatán. It will bypass the centres of two of the region's biggest cities, Campeche and Mérida. It is damaging forests and threatening the area's famous cenotes (flooded caves).

The final verdict on Mr López Obrador's pet projects, when it comes, is unlikely to be positive. They appear to have been chosen by presidential whim. Many of the jobs they create will be temporary. The opportunity cost is what bothers Ms Ramírez most. In a country with so much poverty, she fears the government is pouring money into the wrong things. ■

Bello The heart and head of Gabriel Boric



Chile's new president won from the left. Can he govern like that?

"WE ARE HERE today but we don't forget where we came from," Gabriel Boric told several thousand supporters in the square behind the Moneda palace on his first evening as president of Chile on March 11th. "We wouldn't be here without your mobilisation," he said, referring to the large and sometimes violent demonstrations in 2019 that shook what had widely been seen as one of Latin America's most successful countries. The upshot was the swift replacement of the political class, the election victory of Mr Boric, who at 36 is the world's youngest president, and the arrival in power of Chile's most left-wing government since Salvador Allende, the radical socialist ousted by Augusto Pinochet in a coup in 1973.

Mr Boric quoted Allende in his speech and had earlier paid homage to his statue in the square. His own destiny may be different. Allende nationalised hundreds of businesses and presided over strikes and hyperinflation. Mr Boric wants to set up a state development bank and a lithium company but has promised fiscal responsibility and wants broad agreements, including with the private sector. To win a run-off election, he heeded the advice of centre-left economists to lower expectations and recognise that change would have to be gradual.

His job will be tough. His left-wing coalition, even after allying with the centre-left, lacks a majority in Congress. Chile's economy has more than recovered from the pandemic thanks to big subsidies, which lasted too long, and irresponsible laws to allow people to withdraw early 30% of their pension savings—both approved to assuage an angry country. As these measures cease, the economy is cooling and may enter recession. The outgoing government's

budget, which Mr Boric says he will implement, cuts spending by 22%. Inflation is eating into living standards. People in the north are upset about immigrants. In the south a low-level insurgency by some Mapuches, an indigenous people, is mixed with organised crime. The new interior minister was greeted with gunfire when she visited this week. Hanging over Chile's immediate future is a constituent convention set up to calm the protests, which is drafting a new constitution. It includes a large group from the hard left.

"These are circumstances that would test any government," says Giorgio Jackson, Mr Boric's top aide. "The first challenge is to show we are capable of governing." The new team has three other priorities. The first is a reform to raise the tax take from 21% of GDP to 26% in four years. This will involve cracking down on tax evasion and avoidance, which is rife among the rich, and raising personal income tax and mining royalties, according to Mario Marcel, the new finance minister. He hopes to get at least part of this through Congress this year. The mon-

ey will be spent mainly on improving health care and pensions and on reducing the burden of student debt, a big issue for Mr Boric's followers.

A second priority is pension reform. Once widely praised abroad, Chile's system of individual accounts run by private funds failed to provide decent pensions. Last month the outgoing Congress approved a taxpayer-funded universal minimum pension worth \$230 per month. Mr Boric has pledged to abolish the private funds and to pay extra contributions into a new public fund. He may end up being less radical.

The third priority is to influence the convention, which is independent, so that the proposed constitution commands enough support to be approved in a referendum due in October. Rejection would gravely weaken the government. The new charter is certain to add social and environmental rights, decentralise government and give more autonomy to indigenous peoples. It is not yet clear whether it will establish an effective political system or provide enough certainty for businesses to invest. "The business mood is one of wait and see," admits Mr Marcel. Investors are sceptical, too, as to whether the government will resist pressures to spend recklessly.

Mr Boric's heart is with the memory of Allende. His inauguration guests were luminaries of the hard left, such as Jeremy Corbyn, Britain's former Labour leader, people from Spain's Podemos and Álvaro García Linera, the brains behind Evo Morales, Bolivia's former leader. But the new president is also an instinctive politician. To succeed he will have to disappoint some of the people in the square. The trick will be to satisfy as many as possible while reassuring the rest of the country.



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Malaysian politics

The resurrection of Najib Razak

JOHOR BAHRU

A disgraced former prime minister is making a surprising comeback

NAJIB RAZAK smiled beatifically as he strode through a crowd of adoring fans. It was the evening of March 12th, soon after polls closed in a snap election in Johor, a state at the tip of the Malaysian peninsula. Supporters of Mr Najib and his party, the United Malays National Organisation (UMNO), had massed at its office in the state capital, Johor Bahru. The air was electric with the promise of victory.

Mr Najib, a disgraced former prime minister, had thrown himself into the campaign, spending weeks on the ground stumping for local candidates and whipping up enormous crowds. Many prominent national politicians might not bother to campaign so assiduously in a state election, but for him the stakes were high. If UMNO lost it would damage his political career, perhaps fatally. If it won, it could pave the way for a spectacular comeback.

Lucky for Mr Najib, then, that his efforts paid off. Barisan Nasional (BN), a coalition of parties of which UMNO is the biggest, won 40 out of 56 seats in the state legislature. Johor is a bellwether for peninsular Malaysia, the seat of UMNO's power. Victo-

ry there bodes well for the party's chances at the national level. At an event held by the party leadership that night, acolytes chanted "Bossku!" ("My boss!"), their nickname for Mr Najib. As James Chin of the University of Tasmania puts it, the biggest winner of the night was Mr Najib—and he wasn't even a candidate.

It is a dizzying reversal of fortunes. On Mr Najib's watch UMNO's alliance was voted out of government in 2018 for the first time since Malaysia won independence more than 60 years before. That was in large part because Mr Najib was embroiled in a corruption scandal of epic proportions. Some \$700m appeared in his bank account shortly after \$4.5bn had been looted from 1MDB, a state investment fund.

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Mr Najib maintains the money was a gift and was intended for UMNO, rather than his personal use. Authorities in America, among others, concluded otherwise. It was difficult to ignore the extraordinary collection of tiaras and Hermes handbags amassed by Mr Najib's wife, to say nothing of his own many flashy sports cars. Last year, in the first of five trials, he was convicted of several charges of abuse of power and money-laundering and sentenced to 12 years in prison. A judge who dismissed Mr Najib's appeal in December called him a "national embarrassment".

Such scandal should have been enough to end his career. Yet Mr Najib, who remains out on bail while his appeal is heard by a higher court, has a talent for resurrection. He remains the most influential member of his party thanks to a combination of political nous, oratorical skills and the loyalty of party cadres whom he has spent decades cultivating.

Mr Najib's talents as a political operator were on full display in August, when he helped engineer the fall of a tottering national government led by a rival party. As a result UMNO joined the ruling coalition and appointed its own man, a grey apparatchik named Ismail Sabri Yaakob, to serve as prime minister.

Having flexed his muscle in parliament, Mr Najib then proved that there are reservoirs of support for him among the public. UMNO's victory in a state election in Melaka in November was credited to Mr Najib, who was the face of the campaign. ▶▶

▶ This month he repeated the trick in Johor, drawing such adulation that it bordered on “cultlike”, in the words of Serina Abdul Rahman, a researcher at the ISEAS Yusof-Ishak Institute, a think-tank in Singapore.

The string of victories at the provincial level—a BN ally won an election in the state of Sarawak in December—will pile pressure on the prime minister to call an early general election to capitalise on the momentum. If the party wins a strong majority, Mr Najib may yet weasel his way out of his prison sentence, perhaps by securing a pardon from the *Yang di-Pertuan Agong*, the head of state, or by convincing the attorney-general to drop the remaining charges against him, or both.

Mr Najib now styles himself a man of the people, claiming that he has donated his wealth to the party. It is true that the stench of corruption still clings to his person. Yet many Malaysians did not mind the smell in the first place. In power, he rewarded supporters with cash handouts and aid. Later governments were not as generous. Politicians “are all corrupt anyway but at least during Najib’s time, we got aid, we got help,” says Ms Serina, summing up the attitude of many voters. Mr Najib is still the country’s “biggest patron”, says Bridget Welsh of the University of Nottingham Malaysia.

Many voters look back on his premiership with nostalgia, as a time of stability and prosperity (and not just for Mr Najib). Since 2018 Malaysia has been roiled by the pandemic and interminable political crises, with three governments in four years. Johorians especially are worried about the economy; many commuted to next-door Singapore for work. The closure of the border for nearly two years has hurt.

Moreover, Malaysian politicians routinely stoke the grievances of the Malay majority against ethnic minorities. Mr Najib, who is not above such tactics, is regarded as the protector of Malay tradition. Many voters thus seem inclined to forgive him. His conviction does bother Mansur Sapari, a 33-year-old doctor in Johor who voted for BN in this week’s election. But, he adds, “nobody’s perfect.”

As Mr Najib basked in his victory in Johor, supporters at UMNO headquarters roared, “Dissolve parliament.” That may not happen any time soon. Mr Ismail Sabri is in no hurry to call elections. He lacks a strong base within UMNO and knows he is likely to lose his job as prime minister in a new parliament. But it will be increasingly difficult for him to resist the pressure mounting within the party.

Yet UMNO’s performance in Johor was not as strong as the headlines suggest. Politicians failed to fire up voters: turnout, at 55%, was low. Many Johorians have tired of politics, according to Ms Serina. And Perikatan Nasional (PN), a newish coalition of

Malay parties which flailed during its short spell in government in 2020-21, has surprisingly emerged as a serious rival. Though it won just three seats in the legislature, it received 24% of the vote. The Malay voters whom UMNO lost in 2018 have switched their allegiance to PN, reckons Hamidin Abd Hamid of Universiti Malaya in Kuala Lumpur, the capital.

Still, UMNO’s successes at the state level suggest the country may be “returning to old-style politics”, says Mr Chin, where one party clings onto power by amplifying tensions between Malays and minorities, and rewards supporters with cash, further entrenching patronage in the political system. That would be good news for Mr Najib and bad news for Malaysia—nobody does the old style better than Bossku. ■

Climate change

Heat island

MUMBAI

Mumbai plans for net-zero 20 years before the rest of India

ON MARCH 13TH, as commuters streamed out of Chhatrapati Shivaji Terminus, a gothic revival masterpiece in Mumbai, India’s commercial capital, they were confronted with temperatures approaching 40°C, nearly 7°C above normal for the time of year. The city is in the midst of a debilitating heatwave, its 13th in the past five decades, nearly half of which occurred in the past 15 years. Mumbai’s average temperature has increased by over 1°C in that period (see chart).

Had those commuters crossed the street from the station and entered the city’s (equally grand) municipal headquarters that day, they might have found cause for optimism. That afternoon bigwigs from the municipality and the state of Maharashtra, of which Mumbai is the capital,

had gathered to unveil a “climate action plan”. The city aims to reach net-zero emissions by 2050, two decades earlier than the target set by the national government.

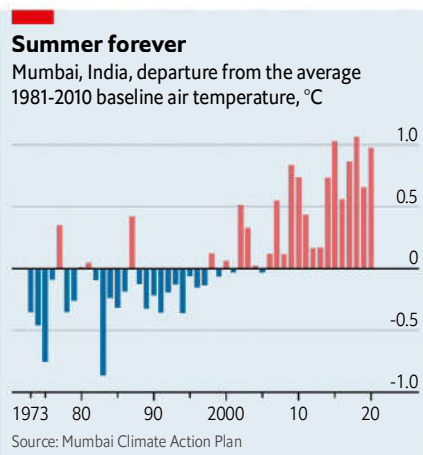
Mumbai is extremely vulnerable to climate change. A narrow and densely populated island, made up mostly of reclaimed land and surrounded on three sides by the Arabian Sea, it is battered by monsoon rains for four months a year and routinely subject to biblical flooding, especially during high tide. That is bad enough for the city’s apartment-dwellers. But it is even worse for the 42% of the population who live in slums, which are liable to be washed away or buried by landslides.

The backbone of the plan is a proposal to decarbonise Mumbai’s energy. Generating the city’s electricity, which produces nearly two-thirds of the city’s emissions, relies mostly on burning fossil fuels, particularly coal. The city wants to increase the share of renewables. It is looking, for instance, into installing solar panels on rooftops. Another priority is to improve the quality and efficiency of the city’s buildings. Slums, especially, are heat islands. Made of whatever materials are at hand or cheaply available, including tarpaulin and tin, they are five or six degrees hotter than pukka structures, making them, as the report puts it, “uninhabitable” on hot days. Moreover, the heat, damp and cramped conditions make slum residents more vulnerable to disease—a less obvious risk of climate change.

The plan is, alas, skimpy on details of how to achieve its ambitions. Still, in publishing one at all Mumbai has led the way among South Asian metropolises. Other cities are keen to follow suit, says Shruti Narayan of C40, a club of megacities, who helped with the report. Chennai and Bangalore in the south have started work on their plans. Others, including Delhi and Kolkata in India, Dhaka in Bangladesh and Karachi in Pakistan have expressed interest in doing something similar.

There is plenty in Mumbai’s 240-page document to inspire them. One is the fact that it does not rely on using technologies that do not yet exist, a criticism levelled at many countries’ national proposals. Another is the attention given to adaptation (coping with all the bad things already happening) and not just mitigation (reducing future emissions).

Specifics may anyway be beside the point. The real value of Mumbai’s plan is as a signalling device that “focuses the attention of policymakers”, reckons Abhas Jha, a climate specialist at the World Bank. The Paris Agreement, which committed the world to the goal of keeping the rise in temperatures to less than 2°C above pre-industrial levels, worked in much the same way, leaving countries to hash out details later. Time, though, is getting ever shorter. ■



Vaccine scepticism in Japan Side-effects

TOKYO

Covid-19 jabs are making other inoculations less contentious

NATSUME AKI had a promising career as a J-pop star. By the time she turned 23, in 2014, she had become the poster girl of a trendy new *anime*. Yet as her fame grew, so did a tumour inside her womb. A cervical-cancer diagnosis knocked her off stage and plunged her into despair. She lost her fertility. "It's not like I was already thinking of having kids at the time, but the fact that I no longer had a choice crushed me," Ms Natsume says.

Similar misfortune befalls many Japanese women, mostly in their late 20s to 30s. Every year some 10,000 contract cervical cancer, and 3,000 die from it. Many survivors suffer infertility and other complications, such as early menopause. Yet all of this is avoidable. The human papillomavirus (HPV) vaccine, first approved by America's Food and Drug Administration in 2006, makes cervical cancer preventable. It is widely used in the rich world. Australia, where inoculation rates are 80%, may eliminate the disease as a public-health burden by 2035.

In Japan, however, few women have had the jab. The government approved the vaccine in 2009. In 2013 it included it in its routine immunisation programme, making it free for girls aged 12-16. But just a few months after that, spurious allegations of side-effects such as paralysis and seizures led the government to drop its recommendation. Vaccination rates plummeted from some 70% of the target age-group to less than 1%. A study by Hokkaido University reckons this will cause 5,000 additional deaths among women born between 1994 and 2007. "It's a public-health tragedy," says Michael Reich of Harvard University.

Ms Natsume became a vocal proponent of vaccination. In 2019 she decided to enter politics herself as an assemblywoman in Arakawa, a district in Tokyo. Mihara Junko, a former deputy health minister who became a politician in 2010 after surviving cervical cancer and a hysterectomy, served as a role model. Arakawa's local government sent out brochures about the vaccine and held seminars and events. Such efforts helped: a survey suggested uptake of the vaccine rose from under 2% of eligible girls in 2018 to over 25% two years later. Ms Mihara persuaded more local authorities to inform residents about the vaccine. Some 60% of municipalities sent out notices.

Yet the national government still refrained from recommending the vaccine.



Japan has among the highest rates of vaccine scepticism in the world. Surveys from 2015-19 reported by the *Lancet*, a medical journal, found that only 9% of Japanese believed vaccines were safe, and just 15% thought them effective. But, confounding the fears of many public-health experts, Japan has embraced the covid-19 jab: 80% of the adult population is fully vaccinated.

As inoculations became routine, resistance to the HPV vaccine also weakened. That has nudged the national government to change its stance. Lawmakers could "no longer uphold their claim" about the vaccine's dangers, says Jimi Hanako, an upper-house member from the ruling Liberal Democratic Party, who has pushed for the health ministry to resume recommending the vaccine. It will do so from April.

The policy reversal highlights an awkward truth. "It was always about politics, not science," says Shibuya Kenji, an epidemiologist at the Tokyo Foundation for Policy Research, a think-tank. Sensational media reports focused on teenage girls' suffering. Patriarchal attitudes warped discussion. Since HPV is transmitted sexually, conservative politicians said protection was unnecessary—women should be reserving themselves for marriage. A handful of political heavyweights sided with the vaccine's alleged victims, so policymakers shied away from the topic.

All municipalities will now have to send out notices to target households. Older women who missed out during the period when the vaccine was not officially recommended will get free jabs. Yet advocates reckon that a more forceful public-information campaign is needed to restore inoculation levels to what they were. Vaccination requires parental consent in Japan, and a survey in 2021 revealed that only 13% of parents are willing to get their daughters inoculated. Many hurdles remain, but, as Ms Natsume puts it, "All we can do is continue raising our voices." ■

SRI LANKA'S ECONOMY

Into the ground

COLOMBO

Sri Lankans are paying a heavy price for the president's mismanagement

WHEN GOTABAYA RAJAPAKSA became president of Sri Lanka in 2019, he inherited an economy in bad shape. Terrorist attacks and political crises had hit the country hard. Growth was at its lowest since 2001. Tourist arrivals—a big source of foreign currency—were down by nearly a fifth after steadily rising for a decade.

The new president quickly got to work. He and his ministers—the most influential ones are his brothers and nephews—cut taxes and started printing money. Inflation duly rose, tax collections plummeted and the budget deficit widened.

In the meantime tourism was hit by an even bigger shock than terrorism, in the form of covid-19. Even as foreign-currency receipts plunged, import bills were climbing, thanks to the global rise in commodity prices. A man of action, Mr Rajapaksa responded forcefully, albeit quixotically, prohibiting the import of motor vehicles in 2020. Last year he banned (imported) chemical fertilisers, ostensibly for public-health reasons, before the impending collapse of farming forced a reversal.

With inflation already high and the government's prestige on the line, the central bank resisted a devaluation, instead burning through its foreign-exchange reserves. Dollars became hard to come by, impeding imports. That, in turn, led to shortages of diesel and cooking gas. The lack of fuel also crippled electricity generation which, because of a drought that has diminished output from hydropower plants, is increasingly dependent on oil and coal. The electricity board initiated rolling blackouts in February of up to seven-and-a-half hours a day. Many small businesses stopped work, unable to cope with gas shortages, power cuts and rising prices.

On March 7th the central bank gave up: having maintained a rate of 200 rupees to the dollar for five months, it devalued by 15%. A few days later it allowed the rupee to float. The currency slumped by a further 15%, to 265 rupees to the dollar.

By raising the cost of imports, the devaluation will exacerbate the main way in which this fiasco impinges on the lives of ordinary Sri Lankans: inflation. As it was, prices rose by more than 15% year-on-year in February, a 13-year high. Food prices leapt by more than 25%, double the rate six months earlier.

The cost of everything has shot up, including basics such as lentils, milk pow- ▶▶

der, sugar and wheat flour. Fares on planes, trains, buses and even autorickshaws have surged. State-mandated prices of dozens of medicines, including paracetamol, have been raised by 29%. The most shocking increases are for fuel. On March 12th the state-run oil-and-gas body pushed up the price of petrol by 43.5% and that of diesel by 45.5%. "I don't blame the rulers. I blame the people who voted for them," says Gayan Prasad, who works as a driver.

Further upheaval is inevitable. Sri Lanka's dollar reserves shrank to just \$734m at the end of February. Yet it is supposed to

come up with \$6.6bn, mostly denominated in dollars, in debt and interest payments this year. Multiple credit-rating downgrades have left it unable to borrow. After months of resistance, the government is seeking the IMF's help. A debt restructuring looms.

Anger is mounting. Candlelit vigils demanding "Gota go home" have taken place in several towns. "How come we are the only country in South Asia to show negative growth?" asks Sahan Wiratunga, a social worker who organised one of them. "It is because of economic mismanagement

and corruption." On March 15th thousands attended a protest rally in Colombo. On social media people are railing at Mr Rajapaksa and his government in all three of the country's languages.

Many Sri Lankans are trying to leave. Perched outside the immigration and emigration department, M. Perera, a 57-year-old mason, waited for his wife to return with her new passport. She will go to Saudi Arabia to toil as a domestic worker because it is "impossible to survive on our earnings". He voted for "Gota", he says, then shrugs. "What to say now?" ■

Banyan Behind the shoji screen

An uncomfortable debate about nuclear weapons resurfaces in East Asia

WELL BEFORE Russia's invasion of Ukraine, doubts were growing in Asia about the durability of the American-led order that has largely kept the peace since the Vietnam war. One set of doubts concerns China's bullying, mercantilist approach to economic relations, and its aggressive conduct in the South China Sea, the East China Sea, the Taiwan Strait and along the Himalayas.

The other set had to do with the staying power of America. Its friends were unnerved by then-President Donald Trump's "America First" rhetoric, his disparaging of allies and his love-in with North Korea's nuclear-armed despot, Kim Jong Un. President Joe Biden has charted a much more reassuring course, reminding friends of America's commitment to Asia. But can it last?

Vladimir Putin's war has turbo-charged both sets of doubts. Despite welcome reassurances from the Biden administration, some in Asia still worry. At the same time, China grows only more dangerous. President Xi Jinping declared a friendship with "no limits" with Mr Putin (see China section), while recently reaffirming co-operation with Mr Kim. To Asian democrats, it looks like a new axis of authoritarianism. Japan's once-convivial relations with Russia have all but ruptured since Mr Putin attacked Ukraine. Meanwhile, North Korea may have resumed testing long-range, nuclear-capable missiles.

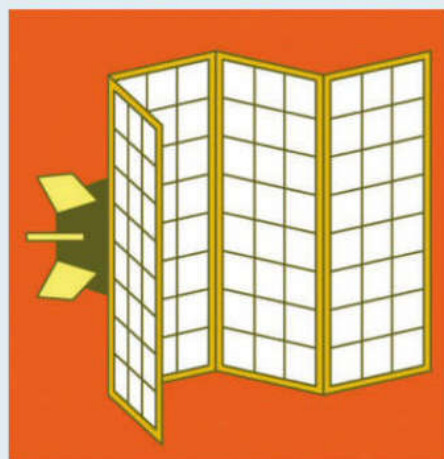
East Asians are debating America's nuclear umbrella. This formally shields Japan and South Korea. It is the least visible way in which America protects its Asian allies: its intercontinental ballistic missile bases are far away in Wyoming and Montana; its nuclear-armed submarines and bombers are out of sight.

Japan's is the only country ever to

have suffered nuclear attacks. That experience informs its pacifism. Its government has long been committed to three "no's": Japan will not own, make or allow on its territory any nuclear weapons. In this context, the umbrella is rarely acknowledged. Discussions about nuclear strategy occurred behind the *shoji* screen.

That, though, has suddenly changed. Soon after Mr Putin's invasion began, a former prime minister, Abe Shinzo, suggested that Japan should discuss hosting American nukes, as some countries do in Europe. Mr Abe noted that Ukraine gave up its Soviet-era nuclear weapons in 1994, and that this perhaps made it more vulnerable to its predatory neighbour today. What he left unsaid is that if Japan hosted weapons, it would remove all doubt about its ability to deter an invader or a nuclear aggressor. But in saying as much as he did, he punched a hole through the *shoji*.

Past attempts by Japanese politicians to raise the topic have been slapped down by establishment security experts. This time, notes Richard Samuels, a political scientist at MIT, the debate is more substantive.

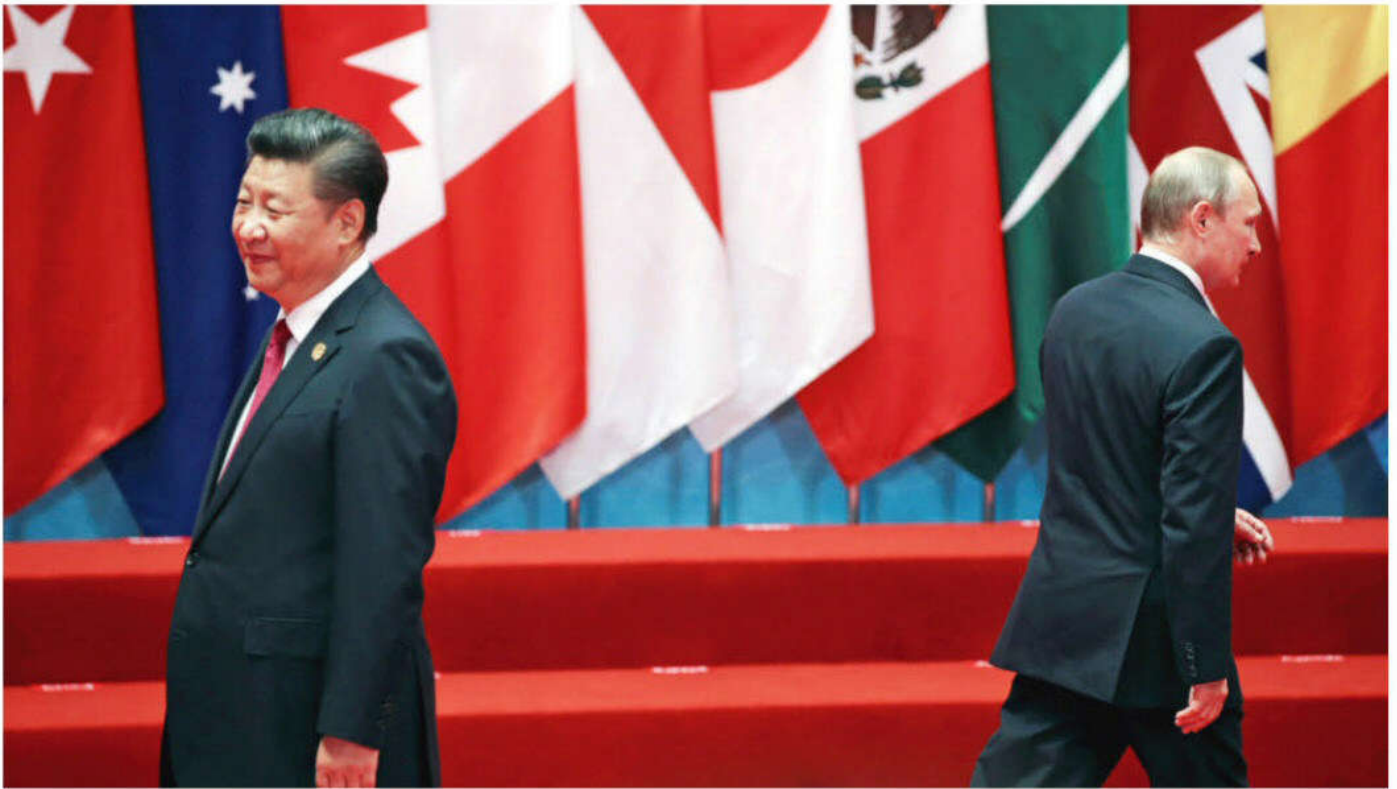


The prime minister, Kishida Fumio, who hails from Hiroshima, has dismissed the idea. Yet this week his Liberal Democratic Party said it would begin internal discussions on nuclear deterrence.

Japan still has loads of nuclear inhibitions—and Mr Abe raised a non-starter in part to drive a hard bargain within the ruling coalition to accept other forms of American defence, such as (non-nuclear) missiles, notes Ankit Panda at the Carnegie Endowment for International Peace, a think-tank. Neighbouring South Korea's nuclear inhibitions are fewer. The hawkish president-elect, Yoon Suk-yeol, promised during his campaign to ask for the redeployment of American battlefield nukes, removed in 1991, in the event of a crisis on the Korean peninsula. A report last month by the Chicago Council on Global Affairs, another think-tank, found that 56% of South Koreans polled supported hosting American nuclear weapons. Even more—71%—favoured South Korea having its own capability.

Both Japan and South Korea could swiftly make their own nuclear weapons if they wanted to. They have the technology, materials and expertise. Easier and less controversial would be to let America station its nukes on their territory. Neither outcome is likely, for now. America insists its nuclear and non-nuclear assurances are cast-iron.

That is all right so long as America keeps providing the political solidarity, the emphasis on shared interests and the constant reassurance that matter more to its Asian allies than missiles on their soil. Mr Biden understands this. But Mr Trump or someone like him could win in 2024. So the debate will not go away. The possibility of a nuclear "cascade" in which Asian powers develop their own nukes cannot be discounted.



China and Russia

Testing the “limitless”

BEIJING

Despite what their rulers say, the friendship between China and Russia has boundaries

TIME IS NOT on the side of most of those involved in Ukraine’s horrors. Every hour brings new agonies for the Ukrainian people and government. Each passing day exposes, with greater clarity, the miscalculation of Russia’s leader, Vladimir Putin, in launching a war of choice against a country he underestimated. For America and its allies, admiration for Ukraine’s resistance is tempered by fears that it cannot last for ever, as Mr Putin escalates the killing.

In contrast, one great power, China, is a study in patience. Privately, its officials project confidence that time will deliver a post-war settlement that is greatly to China’s advantage. Since the invasion on February 24th, China has rebuffed repeated pleas from foreign governments that it work more actively to persuade Russia—its “rock-solid” friend—to put a swift end to the mayhem. It has gone no further than boilerplate calls for restraint by all parties in the conflict. Western impatience is showing, with foreign ministers from Spain to Singapore calling on China to exert its “enormous influence” on Russia.

China likes to present itself as a peace-

loving giant opposed to foreign incursions. In Beijing and at the UN, its envoys were left visibly squirming in the immediate aftermath of the invasion, having dismissed American warnings of war as lies. Startled by Russia’s subsequent ineptitude on the battlefield, they peppered foreign interlocutors with questions about the fighting. Meanwhile, China maintained a stance of pro-Russian pseudo-neutrality, murmuring about the need for peace while echoing Mr Putin’s arguments that he is defending Russia against America and its expanding NATO alliance.

Now Western governments fear that China may have decided to “sit back and watch the disaster”, as a diplomat puts it. In their analysis, China expects Russian brute force to prevail within weeks. They worry that the plan of Chinese leaders is to be more assertive in pushing for a ceasefire only once Mr Putin has avoided humilia-

tion, perhaps by taking the Ukrainian capital, Kyiv, which is being shelled. Then China may offer to rebuild Ukraine’s shattered cities, hoping that its economic heft will oblige other countries to forget weeks of Chinese indifference to Russian crimes.

China has good reason to wish for an outcome that will satisfy Mr Putin. Humiliation for Russia’s leader—or worse still, his overthrow—would leave China’s president, Xi Jinping, personally exposed. Mr Xi signed a joint statement with Mr Putin less than a month before the invasion, declaring that “friendship between the two states has no limits.” It also expressed opposition to any further expansion of NATO and to American alliance-building in Asia. It described their own political systems as “genuine democracy” and portrayed efforts to promote the West’s version of it as a “serious” threat to global peace. It is a high-stakes year for Mr Xi, who hopes to secure a third term as Communist Party chief late in 2022, violating recent retirement norms. He can ill afford to be seen backing a loser.

But no matter how the war unfolds, China will treat its relationship with the Kremlin as a means of boosting Chinese power, not Russia’s. America has reportedly shared intelligence with allied governments showing that Russia has asked China for drones, surface-to-air missiles and other military aid. China’s foreign ministry has called the reports “disinformation”. Mr Xi has no desire to share the blame for Mr Putin’s war, “best friend” though he may be. Nor are there signs of China hastening ▶▶

→ Also in this section

40 Chaguan: China’s battle with Omicron

▶ to take advantage of a distracted West by attacking Taiwan, the island democracy of 24m people that China claims as its own. Unlike Mr Putin, who seems happy to stage dramatic challenges to the global order, Mr Xi appears more cautious.

One reason is economic. Bosses at China's state-owned companies are watching the war with unease. Many have substantial businesses not just in Russia but also in Ukraine. COFCO, a government-owned food giant, counts Ukraine as an important base. China Merchants Group, a state firm, owns port terminals in Odessa, a Ukrainian city on the Black Sea coast that is on high alert for a Russian attack. In 2020 Kharkiv, a city in north-eastern Ukraine, agreed to buy 40 coaches for its metro system from China's state-owned rail group, CRRC. With Kharkiv's metro stations now filling with families sheltering from Russian attacks, the contract is in jeopardy.

Russia likes to tout its business links with China. On February 4th, while visiting Beijing, Mr Putin unveiled an oil-and-gas deal worth \$118bn over many years, heralding it as part of a "pivot to the East". China denounces Western sanctions against Russia. But its economic ties with Russia will become increasingly constrained.

Oil and gas dominate the trade relationship. Russia is China's third-largest supplier of gas, and China bought nearly one-third of Russian exports of crude oil in 2020. But the recent energy deals between the two countries will hardly be a quick fix for Russia's economic misery. China imported only 10bn cubic metres of natural gas from Russia in 2021 via the Power of Siberia, the sole pipeline that links the two countries—far short of the 175bn cubic metres imported by Europe. Even if China has appetite for the fossil-fuel exports cancelled by Europe, the relevant fields are not linked to China by a pipeline, making it hard to replace sales lost elsewhere, note analysts at Gavekal, a research firm.

For most other Russian products, Chinese demand is minuscule (see chart 1). Europe and America sold about \$490bn in goods to China last year, six times what Russia sells to China. Weapons are the only Russian manufactured products that have strong appeal in China. After the Soviet Union collapsed in 1991, a cash-strapped Russia saw benefit in maintaining close

ties with China. It began selling its former cold-war adversary tens of billions of dollars' worth of surplus weaponry, including fighter jets, submarines, helicopters, destroyers and missiles.

Those sales dropped off after 2006, in part because Russia objected to Chinese cloning and in part because China wanted more advanced kit, which the Kremlin was loth to sell. But Russia swallowed its misgivings when the West imposed sanctions on Russia to punish it for seizing Crimea in 2014. It agreed to sell China higher-quality equipment, including missile systems and fighters, on condition that China buy in bulk to allow Russia to make a decent profit before the stuff was inevitably copied. In the nuclear realm, the countries have co-operated an early-warning system.

China may now demand more rapid transfers of advanced Russian equipment, especially submarine and air-defence technology. It may take advantage of Russia's economic plight to press the Kremlin to withhold such weaponry from India and Vietnam. Both of those countries are China's rivals, but hitherto this has not deterred Russia from selling them arms.

Prepare for descent

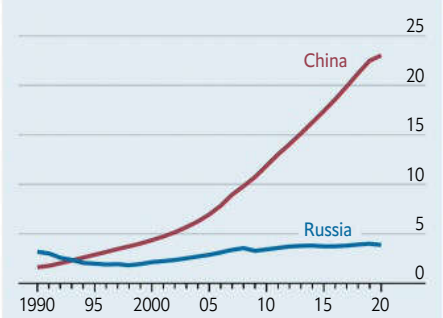
Western sanctions are making it difficult for Russia to buy technology. But it is doubtful whether China will make up the shortfall. Take, for example, the aviation industry: Russia is in desperate need of gear to keep it working. America alone sold Russia more than \$880m-worth of aircraft, engines and parts in 2021. Hopes in Moscow that China would step in were dashed on March 10th when a Russian aviation official told local media that Chinese firms were now refusing to sell aircraft parts to the country. The aviation official was then fired for making the disclosure.

The decision by Chinese firms to steer clear of Russia suggests a fear of penalties that America might impose on them should they do business with Russian firms or individuals being targeted by Western sanctions. China's aviation industry is almost completely reliant on American technology to produce parts, says Richard Aboulaifa of Teal, an aerospace consulting firm. Other potential tech suppliers in China are likely to share this anxiety about America's possible response.

Russia may hope for greater Chinese involvement in its oil industry following the decision by Shell and BP, two Western oil majors, to pull out because of the invasion. Chinese firms would bring powerful financial backing, but they would not be able to match the Western firms' technological expertise, says Ben Cahill of the Centre for Strategic and International Studies, a think-tank in Washington. And reliance on Chinese companies would give China "a lot of leverage over Russia", says Mr Cahill.

Growing apart

GDP, \$trn
2017 prices, at purchasing-power parity



Source: World Bank

"They'll probably drive a hard bargain."

State media in China have touted the departure of Western multinationals from Russia as a business opportunity for Chinese firms. For some, it may be. Xiaomi, a Chinese handset-maker, already has nearly 40% of the smartphone market in Russia. It will probably benefit from the halt to Apple's operations there. But Xiaomi's sales in the country contribute just 3% of its global sales. The parlous state of Russia's economy could discourage it from making new investments.

Chinese state-owned groups are said to be looking at possible acquisitions as Russian asset prices fall. Chinese banks could bolster the financing of yuan-denominated trade with Russia using CIPS, China's home-grown cross-border payments system. But Chinese firms are mindful of the risk to their reputations in other, more important markets should they pile into Russia. And Chinese lenders run the risk of being hit with sanctions.

Even so, China's Communist Party does see political benefits at home from the war: it has helped fuel nationalist sentiment of a kind the party likes. Chinese officials have been fanning this with anti-American rhetoric, and by endorsing Mr Putin's claims that Ukraine is a Nazi-infested puppet of the West. Official media and nationalist websites describe Russia as a victim of the same Western bullying that China has long endured. State television and China's foreign ministry have repeated and amplified Russian disinformation, notably around Ukrainian laboratories alleged to be sinister Pentagon-controlled centres for bio-weapons research. Online, expressions of sympathy for Ukraine are often deleted by censors. They include a friendly interview with Ukrainian athletes at the Beijing Paralympics, which vanished after attracting too many views. ▶▶

Find the limited partner

China's trading partners, share of total trade
February 2022, %



Source: Haver Analytics

We're hiring: *The Economist* is looking for a data journalist with strong coding skills and proficiency in Mandarin. This is a full-time position with a focus on China. For details, see: economist.com/chinadatajob

Asked to describe China's strategic goal, diplomats at more than a dozen embassies in Beijing are in near unanimity. They say China wants a world order built around spheres of influence, with China in control of Asia, Russia wielding a veto over security arrangements in Europe and America pushed back to its own shores. If such an order is helped into existence by Russia's war in Ukraine, so be it. But China's overwhelming interest is in its own rise, and whether it will be blocked by America. In China's view, the main global contest is between it and a declining America that is too racist and vicious to allow an Asian giant to become a peer.

Officials in Beijing respond to foreign horror at China's stance on Ukraine with a mixture of swaggering bluster and blandishments. America is the object of bluster, with scholars and government advisers declaring that the war has exposed President Joe Biden's weakness and his fear of Mr Putin's nuclear arsenal. They predict that sanctions will fail to break Russia's will—a point of keen interest to China, which knows it would face similar punishment were it to invade Taiwan.

In contrast, European governments with markets and technologies to which China wants access, notably Germany and France, are being targeted with a charm offensive. Europeans are being told that America wants to profit from the war, while Europe pays the price in soaring oil and gas prices and a flood of Ukrainian refugees. It is time for Europeans to seek more autonomy from America and deepen ties with China, runs the message from Chinese officials and academics.

In reality, China stands to gain more than any other country from Russia's isolation. Mr Xi and Mr Putin may share a bond as nationalist strongmen, who both feel under siege from America. Both are obsessed with the threat from democratic opposition movements, denouncing protests from Hong Kong to Moscow as American-controlled colour revolutions. But it is not so long since Russian leaders were wary of growing dependent on China, a neighbour with an economy and population ten times larger than Russia's (see chart 2).

Over the past 20 years Alexei Venediktov, the founder of Ekho Moskv, an independent radio station recently closed by the Russian authorities, has conducted an informal but informative survey. Every time he saw Mr Putin, or one of his security advisers, he would name three threats—China, Islamic terrorism and NATO—and ask them to rank them. In Mr Putin's first two presidential terms from 2000 to 2008, Islamic terrorism came at the top, followed by China then NATO. After 2008, the order changed: China was seen as the biggest threat, followed by NATO then Islamic terrorism. After Russia's annexation of Cri-

mea and pivot towards China, the order changed again: NATO, then Islamic terrorism, then China. For Mr Putin, the invasion of Ukraine is not just a bid to regain historic Russian territory. It is a war on the West, and China is the most powerful partner that Russia can see.

If Mr Putin is willing to strengthen China as a champion against America, Chinese experts see opportunities. "Before, the Russians just talked and talked about co-operation" in places such as the former Soviet republics of Central Asia, says Wang Yiwei of Renmin University. Russia still dominates this region, including through a trade zone controlled from Moscow, the Eurasian Economic Union. But maybe, says Mr Wang, Russia "will have to think about looking east now, and not worrying too much about Chinese influence."

Cold calculations

Russia may also have to give more leeway to China in the Arctic, suggests a diplomat in Beijing. China sees that region as a new strategic frontier. It wants access to natural resources there, including fishing grounds. It would like to lay digital cables across it to connect Asia and Europe. There may be opportunities for Chinese firms to build ports along Russia's northern coasts, as climate change opens new shipping lanes. "A weakened Russia will be more malleable," predicts the diplomat.

China will retain close military ties with Russia. These have been central to their relationship in the post-Soviet era, with the two countries often staging exercises together. To the consternation of some NATO countries, their navies have held manoeuvres in the Mediterranean and the Baltic. An exercise involving some 10,000 Russian and Chinese troops in north-west China last year was the first to

feature a joint command-and-control centre and Russians using Chinese weapons.

But as the balance of power shifts ever further in China's favour, many analysts expect that military exchanges will become increasingly attuned to China's needs. America and its allies worry that Russia could help China modernise and expand its nuclear arsenal. "Nuclear weapons are one area where China thinks that Russia still possesses superior capabilities in certain areas, and possesses richer operational and training experience," says Zhao Tong of the Carnegie Endowment for International Peace in Beijing.

Still, the two sides are far from establishing the kind of interoperability that America and its allies have built over decades. Their weapons systems aren't widely compatible. Language differences are an obstacle, too: few on either side speak both Chinese and Russian. They have no mutual defence treaty. Russia supports China's position on Taiwan, but would probably look the other way if it attacks. Neither country wants to get involved in the other's conflicts. Nor are they operationally ready for more than a joint counter-terrorist, humanitarian or evacuation mission.

One question facing Chinese leaders now is whether the benefits of such drills are worth the political costs, not just in the West, but among developing countries, many of which also exercise with China but have denounced Russia's invasion of Ukraine. China may prefer to postpone or scale down drills with Russia rather than suspend them completely. Russian preoccupation with Ukraine may provide a convenient hiatus. Based on the timetable of recent years, the next big combined exercise should take place this summer or autumn. It is not clear whether it will.

As rockets rain down on Ukrainian cities, China's diplomats have busied themselves managing the tricky optics of their wait-and-see approach to Mr Putin's war. On March 16th Qin Gang, the Chinese ambassador to America, wrote in the *Washington Post* that: "Conflict between Russia and Ukraine does no good for China. Had China known about the imminent crisis, we would have tried our best to prevent it."

Alas, diplomats note, there are no signs of his words being matched by Chinese actions, involving pressure on Mr Putin to stop the killing. Russian savagery may be awkward for China, but a humiliating end to Mr Putin's invasion would be even less welcome if it vindicates America and the West. Meanwhile, China has begun lobbying against sanctions intended to make Mr Putin pay for his crime, especially if they might ensnare Chinese firms. "Neither war nor sanctions can deliver peace," Mr Qin argued. While much of the world seeks an urgent end to Ukraine's agonies, China is biding its time and thinking ahead. ■



His new exercise routine

Chaguan | China tweaks its covid strategy

Beating the Omicron variant will require more vaccinations and less fear



FOR MOST of the covid-19 pandemic, a bargain based on tough love has bonded China's rulers and people. Leaders have imposed tight controls on an unlucky minority—meaning anyone hapless enough to cross paths or live near someone with covid, or even to be a close contact of these close contacts. Such unfortunates face being quarantined for days or weeks. Right now mainland China is enduring its first big outbreak of the Omicron variant, and the ranks of the unlucky have grown rapidly. At least 40m people are under some form of lockdown, including an entire province, Jilin. The southern metropolis of Shenzhen confined most residents to their homes except for trips to buy food, though it prefers the term “life on pause” to “lockdown”. Some border cities have spent months cut off from the rest of China.

In return for those sacrifices by the unlucky, a majority of China's 1.4bn people have spent most of the pandemic leading relatively normal lives. As a result, it is common to hear ordinary folk praise strict covid controls. Even now, reported case numbers remain low by global standards, with about 3,000 new infections detected nationwide on March 15th, compared with 26,000 found on the same day in America. Keeping China mostly covid-free has cost residents a good deal of privacy. Those with smartphones must scan QR codes to enter public buildings or catch a taxi, train or domestic flight. The simplest walk in the park is logged by movement-tracking public-health apps installed on those same phones. The costs also include isolation from the world, for China has all but closed its borders for nearly two years.

Still, Chinese leaders are not shy about proclaiming this strategy, which they call their “dynamic zero-covid” policy, an act of love. They say it is proof that the Communist Party cares for all its people. They contrast China with countries such as America that have chosen to “live with covid” in the name of individual liberties, amid horrifying numbers of deaths. The party's love has a paternalist edge. Because officials risk the sack for cases found on their watch, they compete to invent ever-stricter rules. Like over-protective parents, authorities have treated suspected cases as medical emergencies. Anyone who develops a fever, for any reason, is meant to head to a fever clinic for hours of covid-detecting nasal swabs, chest scans and blood tests.

With the party's governing legitimacy bound up with keeping China covid-free and death numbers very low, leaders have to date rejected suggestions that they will have to change course, especially if that advice comes from foreigners. After inspecting pop-up quarantine clinics in Jilin, Sun Chunlan, a deputy prime minister, told officials to grit their teeth and “win the battle of epidemic prevention, control and eradication”. For all the defiant talk, there are signs that the authorities are ready to adjust their methods. Success in this endeavour comes with preconditions. Most important, to avoid a political crisis at home China will have to avoid the high death rates currently seen in its semi-autonomous territory of Hong Kong. The virus has exacted a grim toll on the city's unvaccinated old people, a category that is also dangerously large in the mainland. Even if China can avoid mass fatalities, the whole population is going to experience the pandemic differently. If China's covid bargain is to survive the Omicron strain, the public will have to accept a version that feels more tough and less loving.

Many Chinese are strikingly frightened of catching covid, after so many months of reports about pandemic deaths in the selfish, decadent West. The disease carries a stigma that extends beyond its impact on health. People who test positive know that many neighbours and work colleagues, and perhaps their child's school-mates, too, will be quarantined on their account.

Yet Omicron spreads so fast that tracking systems are flagging too many close contacts to fit into hospitals. New guidelines from the National Health Commission duly state that patients with mild symptoms will be monitored in isolation sites, rather than in clinics or hospitals. In the name of treatment rather than prevention, China has approved an antiviral medicine, Paxlovid, made by an American firm, Pfizer. Netizens have responded with panic, tinged with nationalism. An alarmist blog post by a student at Jilin Agricultural Science and Technology University declared that youngsters were “waiting to die” after being told to quarantine together amid a covid scare. It was viewed hundreds of millions of times. Reports of Paxlovid's approval drew angry comments about its foreign origins, such as one asking: “900,000 Americans died from covid, is this medicine any good?”

When the party's scare tactics work too well

Officials are not becoming less strict. During recent lockdowns, some people faced quarantine for receiving a package sent from a city with cases, for instance. But officials are sounding less tolerant of some fears. Health chiefs have called for greater efforts to get the elderly vaccinated, noting that two-thirds of Chinese with severe covid are aged over 60, and two-thirds of those sick mature folk have not had jabs. Anti-Western propaganda does not help: official media have repeatedly cast doubt on the safety of mRNA shots used abroad. To date only Chinese-made vaccines have been approved in the country. Although they offer decent protection against severe disease and death, they do not prevent infection—and thus do little to stop the virus spreading.

Public fear has suited officials, helping to drive compliance with disruptive controls. Omicron poses a new test, being more contagious but less lethal than earlier variants. If authorities are not ready to open the country, they will need millions of Chinese to feel safe if told to isolate while mildly ill but not in a hospital. To achieve an exit strategy one day, they will need the public to trust potent, imported treatments. After shamefully concealing the start of this pandemic, Chinese officials acted like stern parents for two years. Now, they need to treat their people like adults. ■



Trade and diplomacy in the Gulf

The dhow usually wins

KHASAB

With or without a nuclear deal, the Gulf states are vital to Iran's economy

IN DAYLIGHT HOURS the boats leaving Khasab's port motor off to fish, or ferry tourists to isolated fjords. After nightfall the traffic turns north. Just 100km separate this Omani town from the port of Bandar Abbas in Iran (see map on next page), an hour or two's journey by chugging dhow. This has made it a long-standing hub for smuggling—although that term suggests a level of skulduggery hardly apparent in Khasab's sleepy port (pictured above). Authorities tolerate the trade, so long as it happens after dark.

A decade ago, as multilateral sanctions piled up on Iran, meant to press it into talks over its nuclear programme, boats headed north stuffed with appliances and luxury cars. On the return journey some carried nervous-looking sheep to be sold in the neighbouring United Arab Emirates (UAE). Business is not quite so good today. Iran has closer trade ties with China and a growing manufacturing sector, both of which diminish the need for refrigerators and televisions lashed to dhows.

Still, places like Khasab illustrate the complicated relationship between Iran

and its neighbours. The six-member Gulf Co-operation Council (GCC) has broadly testy relations with Iran. But political tensions coexist with deep economic ties, which have become increasingly vital as world powers seek to revive the agreement of 2015 that imposed limits on Iran's nuclear work in exchange for easing sanctions.

In 2018 Donald Trump withdrew America from the deal, which is now largely defunct. On March 11th, after almost a year of talks, negotiators in Vienna put their work on "pause". They had been close to an agreement until Russia demanded that its trade with Iran be exempted from Western sanctions. That was a patent ploy to create a way around the tough sanctions imposed on Russia after it invaded Ukraine.

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Russia's demand threatened to derail the whole process—or perhaps not. Russian diplomats now say they never sought loopholes, merely a promise that their obligations under the deal, such as taking custody of Iran's excess enriched uranium, would not be affected by sanctions.

On March 15th Sergei Lavrov, Russia's foreign minister, met Hossein Amirabdollahian, his Iranian counterpart, in Tehran. Both said Russia was no obstacle to a deal. Barring another about-face, that leaves America and Iran to resolve a few glitches, mostly about sanctions relief. Iran's release of two British-Iranians hinted at its desire to mollify Britain. One of them was Nazanin Zaghari-Ratcliffe, who was held for six years in prison and under house arrest. Her case was not connected to the nuclear deal (see Britain section).

An agreement would prompt mixed emotions in the GCC. Oman, on friendly terms with Iran, is an outlier in the bloc. The UAE is closer to the mean. It sees Iran as a threat; they have a territorial dispute over three islands in the Persian Gulf. But they also have the tightest economic ties of any Gulf states, thanks in part to a large community of Iranian émigrés in Dubai. The two countries are big trading partners: Iran takes around 3% of the UAE's annual exports. There is talk of doubling bilateral trade to \$30bn in 2025. Billions of dollars of Iranian assets sit in Emirati banks.

Initially happy with Mr Trump's withdrawal from the nuclear deal, the UAE soon changed its mind. In 2018 and 2019 Iran and

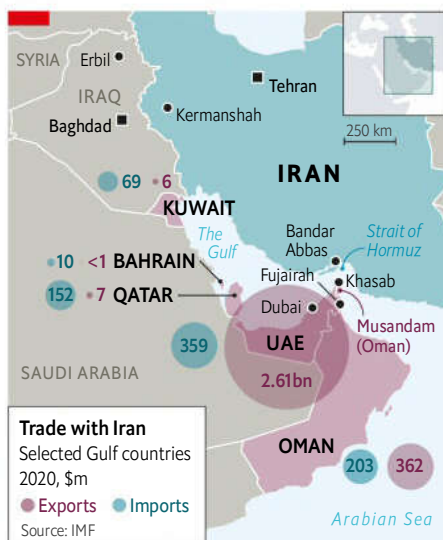
its proxies staged a series of attacks in the GCC, sabotaging oil tankers near Fujairah, a UAE statelet, and hitting Saudi oil facilities with drones and cruise missiles.

That prompted a policy change. Despite American sanctions, Iran has been exporting up to 1m barrels a day of oil, mostly to China. Some of this oil is shipped through third countries to hide its origin. The UAE has become a big part of this trade: Bourse and Bazaar, a think-tank in London, estimates that some \$13bn worth of Iranian crude reached China via the UAE in the first nine months of 2021. Much of that money is spent on imported goods from the UAE.

All of this rankles American officials. In December a delegation from the US Treasury flew to Abu Dhabi, the capital of the UAE, to complain about sanctions-busting. Well before then, the Trump administration was angry with Qatar for undermining its “maximum pressure” campaign against Iran. After three of its Gulf neighbours imposed a blockade on it in 2017, Qatar boosted trade with Iran, with imports climbing five-fold to \$418m within a year.

Economic diplomacy has its limits. The UAE had hoped that trade ties with Iran would help shield it from further attacks. Tahnoun bin Zayed, the Emirates’ powerful national-security adviser, has advocated detente, visiting Tehran last year. Since January, though, Iranian-backed groups in Yemen and Iraq have lobbed a series of drones and missiles at Abu Dhabi, killing three people and denting the country’s reputation for stability.

Still, despite the attacks, Iran’s trade minister led a large delegation to the UAE last month. “They didn’t talk about it much in the media. But they didn’t cancel it either,” observes a Western diplomat. If the nuclear deal is revived, the Emirates can offer billions of dollars of needed trade and investment in exchange for regional calm. If it is not, the dhows in Khasab may find their cargoes piling up once again. ■



Iran v Iraqi Kurds

Message by missile

Iran takes advantage of the crisis in Ukraine to attack Iraq’s Kurds

ERBIL, THE capital of Iraq’s autonomous Kurdish region, has long been the country’s safest haven—and its friendliest to the West. But just after midnight on March 13th Iran hammered the city with 12 cruise missiles. The Islamic Revolutionary Guard Corps, Iran’s most punchy force, claimed responsibility. No one was reported to have been killed, but several buildings (pictured) were clobbered. Iraq’s government in Baghdad was shaken. The Kurds’ Western friends were shocked.

Iran’s generals say the target was a “strategic centre” of Israel’s spy agency, Mossad. Iraq’s Kurds have long had discreet links to Israel. In his younger days, Masoud Barzani, the ruling Kurdish family’s patriarch, once guided Jews escaping from Saddam Hussein’s clutches through Kurdistan’s mountain passes. More worrying for Iran, Kurdistan’s high ridges nowadays offer Israel listening posts into Iran. The ayatollahs say the region is a launchpad for covert Israeli operations. Today’s Kurds sell a lot of their oil to Israel and recently hosted a gathering where Iraq was urged to follow the example of other Arab states by normalising ties to the Jewish one.

In any event, an Israeli-Iranian ding-dong has long persisted. Last month Israel’s air force raided an Iranian base near the city of Kermanshah, destroying much of Iran’s drone fleet. Iran also blamed Israel for killing two senior Revolutionary Guards in a raid on Syria on March 7th.

Iran’s missile riposte sent a message to the Western-leaning Barzani dynasty. Some of the missiles hit a farm belonging to Baz Karim Barzinji, the region’s most

prominent businessman, whose oil operations provide much of Kurdistan’s revenue. Another hit a television station owned by the Barzanis. Since Iraq’s election in October, the ruling Kurdish clan has infuriated Iran by working to exclude Iran’s political allies and their militias from government for the first time since Saddam Hussein was overthrown in 2003. The Kurds have set up a Sunni bloc with Sunni Arabs as a counter to Iran’s hitherto dominant Shia protégés. They have particularly annoyed Iran by allying with Muqtada al-Sadr, a gruff anti-Iranian Shia cleric who emerged as the front-runner after the election. One of his cousins has been tipped to become the next prime minister.

Iran’s men in Baghdad have bitten back. Last month Iraq’s Supreme Court, whose judges are close to Iran, ruled that it is illegal for Kurdistan to export its oil independently of the government in Baghdad. “Iraq is a core Iranian asset. Iran is not going to let the Barzanis prise it away,” says an Iraqi oil analyst.

The missiles had another purpose. Just as Western hopes of reviving the nuclear deal with Iran were waning, the ayatollahs were sending a signal to America: ignore us at your peril. In other times, America might have reacted forcefully. After all, the missiles nearly hit an American building on the edge of Erbil. Iran may reckon that, with Joe Biden’s administration distracted elsewhere, it has a chance to tighten its grip on Iraq. The Barzanis may yet fall back into line with Iran. The message from Iran’s rulers “is that Iraq is theirs”, says Hiwa Osman, a Kurdish analyst. “And neither America nor Israel can protect you.”

Covid-19 vaccination

Behind by a country vial

CAPE TOWN

Why Africa trails in administering jabs

IT IS LITTLE over a year since the first doses of life-saving vaccines were delivered to Africa under the Covid-19 vaccines Global Access Facility (COVAX), a scheme aimed at helping poorer countries get inoculated. Yet what should have been a celebration of the region's fastest-ever vaccine rollout—with 400m doses jabbed into waiting arms—was instead marred by disappointment at how much more could have been achieved.

As of March 15th, no less than 57% of world's population has been fully vaccinated against covid. Yet in Africa that share falls to 13%, according to Africa CDC, the continent's main public-health body. A year ago many African countries rightly complained that they had been pushed to the back of the queue as richer countries bought up most of the world's vaccines and producing countries banned exports.

Now supplies are no longer a constraint. In January COVAX had 436m doses to allocate, but received requests for just 100m doses, the first time that supply has outstripped demand. It has also stepped up its deliveries. According to the World Health Organisation (WHO), the number of doses shipped every month to Africa doubled between November and January.

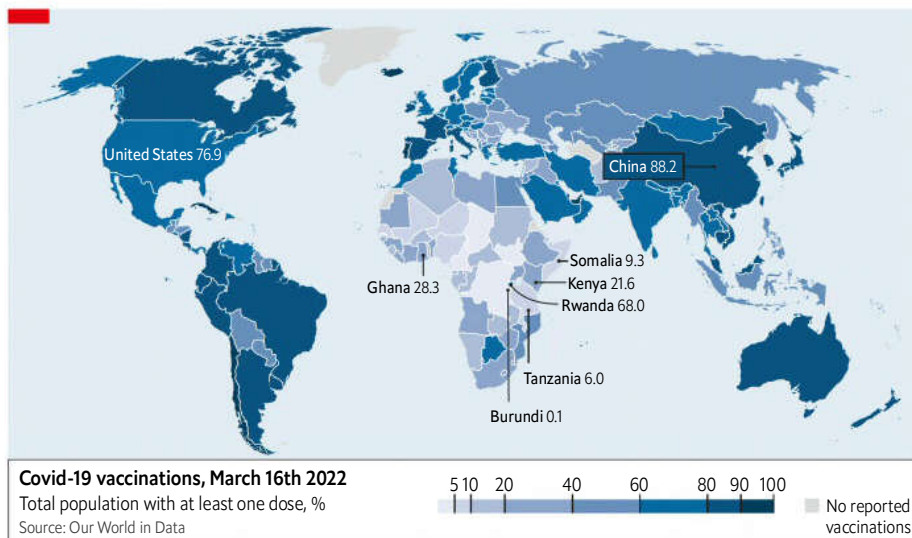
Instead of complaining about not getting vaccines, some countries are now protesting that they are being drowned in a deluge of the stuff and are unable to use it all. Last month Africa CDC appealed to donors to stagger the supply of their shots. "We have not asked them to pause the do-

nations, but to co-ordinate with us so that the new donations arrive in a way so that countries can use them," said John Nkengasong, the director of Africa CDC.

Increased deliveries are exposing logistical defects in distribution within countries, while weak health-care systems have been unable to jab doses into arms as fast as they get them. Across Africa as a whole just 62% of delivered vaccines have been administered and 29 countries have used less than half of their supplies, says the WHO. Among the worst laggards are the Democratic Republic of Congo, which has used 15% of its consignments and jabbed less than 2% of its eligible population, and Burundi, which has used less than 2%.

Also hidden in the averages are big gaps in vaccination rates between cities and the countryside. Although continent-wide data are not available, Githinji Gitahi, the chief executive officer of Amref Health Africa, an NGO, says this trend is clear across many countries, including Ghana, Kenya, Rwanda and Tanzania. In Kenya 51% of adults in Nairobi, the capital, had been fully vaccinated by March 16th. But in Mandera county, a poor semi-arid region next to the border with Somalia, only 10% had been fully jabbed.

Part of the reason is logistical. Freezers for storing vaccines are in short supply. But this should be surmountable. Take Uganda. By November just 14% of its eligible population had received their first dose. But in a push supported by donors including the American government, it bumped that rate up to 47% in just six weeks. In Ivory Coast, where many people were nervous about the jab, the government bumped up the vaccination rate from 22% to 36% in the month of December by running radio campaigns to allay people's fears. These speedy successes suggest that in many places the biggest shortage is not of freezers or nurses, but of zeal on the part of the authorities to go out and get injecting. ■



Paying for sex in Tunisia

Game over

TUNIS

Licensed prostitution is banned

STATE-LICENSED prostitution in Tunisia dates back at least as far as the Ottoman conquest nearly half a millennium ago—and has persisted to the present day. In 2011 at least 300 sex workers were operating legally under the government's auspices. Almost every big city had a licensed brothel, regulated by the interior ministry's bureau of morals. Prostitutes could be registered as *fonctionnaires*—civil servants. The system, however, is being phased out—much to the detriment of the prostitutes.

The first setback was the overthrow of the authoritarian but largely secular government in 2011, since it empowered Islamists with puritanical attitudes. Most brothels were forced to close. Only two well-known ones are thought to have survived the Islamist purge: one in the city of Sfax, the other in Sidi Abdallah Guech, the red-light district of Tunis, the capital.

The sex business was buffeted even more fiercely in 2020 when a wholesale lockdown in the face of covid-19 meant that the remaining brothels had to close. Women who worked in them were forced to ply their trade illicitly, in public parks and hotels. They often became prey to exploitation, extortion and violence at the hands of police, pimps and criminals.

"There were reasons why we preferred working with the government," says a prostitute from Sfax. Even if the pay was less generous in a licensed brothel, where the going rate was 10.5 Tunisian dinars (\$3.60) per client, it was preferable to the 30 dinars you might make on your own, because it was safer. "At least in the brothel I had police protection. They could control the clients and make sure they used condoms," she says.

With state oversight unclear, many Tunisian prostitutes now rely on voluntary associations to safeguard their health and welfare. "Rapes and attacks against women have risen since the brothels closed," says Bouthayna Aoussaoui, who runs an organisation that helps the women. In 2018 a survey found that around 6% of Tunisia's sex workers had HIV. By last year, after the brothels had closed, the figure had risen to 11%, she says. The puritans, predictably enough, had merely made matters worse.

Cash crops and global warming

Hot coffee

NAIROBI

Climate change will hurt one of east Africa's main exports

JEREMIAH LETTING learned about coffee from his father. As a child in the late 1980s, he worked on his family's one-acre (0.4 hectare) coffee farm in the hills of Nandi county, western Kenya. The cycle ran like clockwork: cultivate, plant, ripen, harvest and sell. "Every year was the same," he says. "It was timely."

No longer. As the chairman of a co-operative, he now represents 303 smallholder coffee farmers who are suffering from droughts, unpredictable rains and rising temperatures that bring pests and disease. Warming weather in east Africa, the birthplace of coffee, is already beginning to harm one of the region's most important export crops, which is worth some \$2bn a year (see chart). Overheating coffee shrubs also foreshadow the harm that may befall other vital crops such as tea, Kenya's biggest export. And if coffee becomes more expensive or less tasty, it is not just farmers who will suffer, but the big chunk of humanity who together glug down some 3bn cups of the stuff a day, at a cost of about \$200bn a year.

Some of the world's best *Coffea arabica* is grown on the fertile slopes of Mount Kenya. This variety of the plant, which originated in the highlands of Ethiopia and Sudan, produces beans that are tastier (and more valuable) than those from its poor cousin, *Coffea canephora* (known as robusta), which often ends up in instant coffee granules. *Arabica* is also more finicky.

Global warming may shrink the total area that is most suited to growing *arabica* beans by about half by 2050, according to a recent peer-reviewed paper. Rising temperatures may make some new places suitable for cultivating coffee, because they will raise the maximum altitude at which the crop can be grown, but such spots are relatively small and generally given over to other crops already. Overall "trends are mainly negative," says Roman Grüter, one of the authors of the paper.

Arabica plants, which account for roughly 60% of worldwide coffee production and more than 98% of Kenya's, thrive at altitudes of 1,000-2,000 metres in equatorial regions and at temperatures between 18°C and 21°C. Over the past 60 years average temperatures in some of Kenya's coffee regions have already risen by 1.1°C, reaching daytime highs of 25°C, says Patricia Nyiring'uro, a climate scientist at Kenya's Meteorological Department.



Has-beans?

Rosabella Langat, who owns a six-hectare estate with 15,000 coffee bushes in Nandi, woke one morning last year to find that the entire harvest of her most sought-after variety had turned from ripe red to deathly black from a fungus that festers in high humidity and warm temperatures. "It eats into our profitability," she says. "We don't get money to put back into that crop."

Coughing it up

Although coffee is only Kenya's fourth-largest export, it provides a lifeline in the countryside. The industry directly or indirectly provides an income for about 6m people, according to data from the Kenyan government. That is more than a tenth of the population of 54m. Smallholder farmers grow 65% of Kenya's coffee on tiny plots averaging just 0.16 hectares.

Many barely scrape by as it is. Mr Letting has about 500 coffee plants on his plot. Last year their beans fetched 174,000 Kenyan shillings (\$1,500). "That was a good price," he says, laughing. "It was an im-

provement from the other years." Mr Letting supplements his income by working as an accountant. Most of the farmers in his co-operative cannot to do so because they never went to school. "People are not able to raise enough school fees," he says. "People are not even able to have three meals a day. Sometimes two."

Some farmers are trying to adapt to warming by moving uphill. Yet this pushes them into areas long used for growing tea. Not only is there less space higher up; the move highlights how warming also threatens to harm the tea crop, which brings in export earnings of about \$1.2bn a year, and supports about 10% of Kenya's population. Warmer weather will push tea itself higher up narrowing slopes.

Kenya's government-funded Coffee Research Institute is trying to find other ways of helping farmers adapt, such as encouraging them to plant trees to shade their coffee bushes, or to switch to growing hardier robusta plants. It is also trying to breed a hybrid, Arabusta, which would combine the hardiness of robusta with the flavour of *arabica*. Coffee snobs may turn up their noses at it, but they may have little choice but to swallow it. "What else is left?" asks Efreem Fesaha, the owner of Boon Boona Coffee, an American roaster specialising in African beans. "If *arabica* is going to be gone, it's going to be gone."

In addition to a bitter taste, such adaptation may bring social costs. Many smallholder farmers are at risk of being pushed out of the industry altogether because they cannot afford the investments needed to protect their crops. This may lead to the concentration of production in bigger firms, which can adapt.

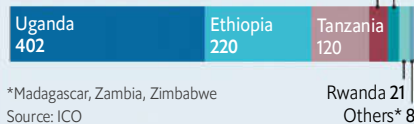
Sasini, one of Kenya's largest publicly listed agricultural businesses, is also one of its biggest coffee-growers. The firm has installed drip-and-sprinkler irrigation on its coffee estates and is reviewing plans to move into new coffee-growing regions, including neighbouring countries. "It is very possible for us to expand our coffee business in a new area where we can start from scratch," says Martin Ochieng, Sasini's group managing director.

Another option may be entirely new varieties. Researchers at the Royal Botanic Gardens in Kew, in London, are investigating a wild type of coffee, *Coffea stenophylla*, first recorded by a Scottish botanist in 1834. It is delicious and can also take the heat. But it produces lower yields than existing commercial varieties and it may be years before it is widely grown. Without a breakthrough of some sort, caffeine addicts may face a future too ghastly to contemplate, warns Vern Long of World Coffee Research, an industry-funded body. "If we don't have the innovation to respond to climate challenges," she says, "we're just going to be drinking synthetic coffee." ■

Come and smell it

East African coffee exports
January 2022, 60kg bags, '000

Total 833



*Madagascar, Zambia, Zimbabwe
Source: ICO



Germany

Ploughshares to swords

BERLIN

A risk-averse Germany reluctantly enters an age of confrontation

Vladimir Putin's war feels close in Berlin. Take the escalator in the *Hauptbahnhof* (main train station) down one level, cross the floor and you find its victims: hundreds of refugees seeking a room for the night or a ticket for onward travel. On some days over 10,000 Ukrainians reach Germany's capital. Reception centres are struggling. But the volunteers swarming the concourse have been heroic. The extent of their organisation is "almost shocking", beams Zeren Yildirim, a volunteer with the International Rescue Committee.

No less shocking has been the foreign-policy switch engineered just across the river Spree in Germany's chancellery. On February 27th Olaf Scholz delivered a speech to the Bundestag that will be recalled as one of the defining moments of his still-young chancellorship. Mr Putin's unprovoked invasion of Ukraine marked a *Zeitenwende* ("turning-point," or "watershed"), Mr Scholz said. The term has come to stand for what may become one of the biggest ruptures in German foreign and security policy since the second world war.

In just under half an hour Mr Scholz reeled off a head-spinning list of announcements. Germany would lift defence spending to the NATO target of 2% of GDP (up from 1.5% in 2021). It would establish a €100bn (\$110bn) fund for the Bundeswehr (the German armed forces) and place it in the constitution to elude Germany's deficit-limiting "debt brake". To reduce dependence on Russian energy it would make good on long-discussed plans to build two liquefied natural gas (LNG) terminals. Mr Scholz vowed to work with France to build combat jets, to equip the Bundeswehr with armed drones and to replace the ageing Tornado planes used to carry American nuclear weapons stationed in Germany.

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— **Charlemagne is away**

If the policies turned heads, so did Mr Scholz's language. Vowing to "defend every square metre of NATO territory", the chancellor linked Germany's investment in military capabilities to its values of freedom and democracy. He said Germany must act for its own sake, rather than just helping allies. He jabbed at his country's instinct to place negotiation above everything else in the diplomatic toolbox. "Not being naive means not talking simply for the sake of talking," he said. Germans are not used to hearing their leaders speak like this.

As so often in German politics, the dam had broken with dizzying speed. A few days before his speech Mr Scholz in effect killed Nord Stream 2, a Russian gas pipeline that allies had long argued would entrench German reliance on the Kremlin. Germany succumbed to partners' entreaties to eject some Russian banks from the SWIFT international-payments system. Most difficult for some, the government swallowed its objections to arming Ukraine, and agreed to send 1,000 anti-tank weapons and 500 surface-to-air missiles, among other things. More is promised.

Mr Scholz had shared the full details of his plans with only a small coterie of advisers. Few expected a chancellor known for caution to react so decisively—and to consult so narrowly. Some MPs were put out. "In my understanding of our constitutional republic, things like this should be discussed in parliament and inside the coalition before being decided," says Sara ▶▶

▶ Nanni, parliamentary spokeswoman on security for the Greens, who govern with Mr Scholz's Social Democrats (SPD).

Yet it was the specific commitments that set Mr Scholz's speech apart. This marked a sharp contrast with Angela Merkel, his predecessor, whose eloquent geopolitical orations typically stopped short of policy prescriptions. Mr Scholz evidently aims to entrench his *Zeitenwende* in German political culture. Whether he can do so depends on three things: successfully implementing his plans; embedding them in a broader strategic philosophy; and sustaining support among German voters.

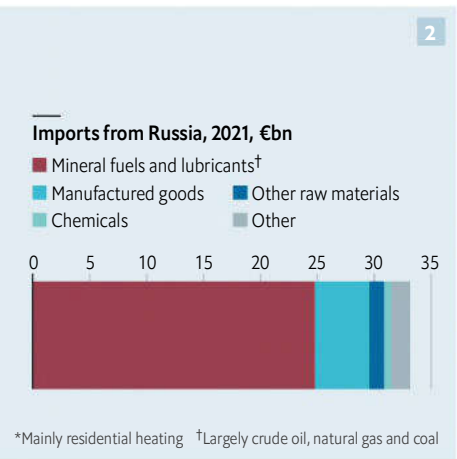
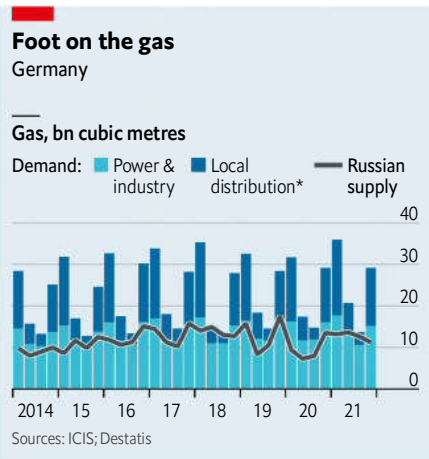
Start with implementation. After a long decline Germany's military budget started climbing after Russia's first bite at Ukraine in 2014 (see chart 1). But a sprawling bureaucracy and high spending on running costs like buildings and pensions have left the Bundeswehr with under-equipped troops and helicopters unable to take off. On the day Mr Putin rolled his tanks into Ukraine, the head of Germany's army declared on LinkedIn that the Bundeswehr had been left "more or less bare".

How to spend it?

A priority is to fill gaps in ammunition and spare parts. Just replenishing stockpiles of such things could gobble up €20bn. Germany's long-suffering troops need rifles that fire and radios that work. Voters, says Sophia Besch at the Centre for European Reform, simply want "a Bundeswehr they're not embarrassed about".

Beyond that lies a long shopping list. Some of it has already been ticked off: on March 14th the government said it would buy 35 American F-35 fighters to replace its Tornados, and 15 Eurofighter jets to conduct electronic warfare. Germany must meet NATO obligations on tactical air defence, infantry and cyber capabilities. Heavy-lift helicopters are sorely needed.

Big budgets attract lobbyists. German arms firms such as Rheinmetall and Hensoldt, enjoying surging share prices, are pushing for early disbursements of the



loot; MPs with manufacturers in their constituencies spy chances for pork. The government must resist all this, says Roderich Kiesewetter, an MP from the opposition Christian Democrats and a former soldier. Defence wonks hope for a slow disbursement of the €100bn fund to suit planning and long procurement cycles. The finance ministry, which wants to avoid overburdening the regular defence budget in reaching the 2% target, will push for speedier spending, perhaps over four years. That would test the Bundeswehr's absorption capacities, themselves damaged by years of neglect. If spent badly there is a huge risk of the money falling into a "black hole", says Christian Mölling of the German Council on Foreign Relations.

Nor is money the only problem. Germany's defence-procurement agency is a byword for risk-averse dysfunction. In the defence ministry lines of authority are blurred, staffing bloated and a love of pettifoggery detail so entrenched that military planners splurge on bespoke helmets because off-the-shelf ones fasten in the wrong direction. ("As if German soldiers' heads are different from everyone else's," sighs one official.) Fixing these problems will fall to Christine Lambrecht, the defence minister. Ms Lambrecht is a skilled administrator and close to Mr Scholz. But she had no defence experience before taking the job last December, and has failed to impress German securocrats since.

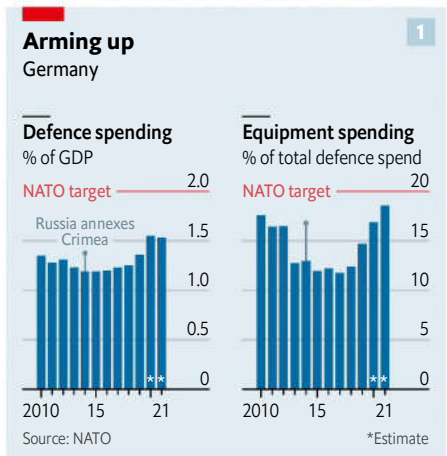
Tackling Germany's energy needs is, if anything, more pressing. Germany is quitting nuclear power—the last three plants will close this year—and aims to stop burning coal in 2030. Now it faces the challenge of weaning itself off Gazprom, Russia's state gas giant. Russia supplies over half the gas that heats German homes and powers its industry (see chart 2); gas was named as a "bridge" fuel to a renewable future in the coalition deal signed in November. "I say this with great regret: Germany is dependent on Russian energy imports," said Robert Habeck, the Green climate and economy minister, recently.

One challenge is to cope with demands that Germany go cold turkey on imports from its biggest supplier. Germans must "freeze for freedom", cried Joachim Gauck, an ex-president. Some economists argue that Germany could cope with an immediate cut-off. Officials who have crunched the numbers angrily disagree. A sudden stop to Russian imports would mean "moving to a war economy", says Kirsten Westphal at H2Global Foundation, a lobby group. But the Kremlin itself could follow through on threats to turn off the taps.

Germany is drawing up contingency plans to cope with such a supply shock, from restarting mothballed coal plants to negotiating fresh LNG supplies via Europe's existing terminals. It will legislate to ensure higher levels of gas storage before next winter; last year Gazprom ran down stocks in the facilities it was inexplicably allowed to buy a decade ago. And, should it come to it, the country has drawn up a priority list for demand management: industrial concerns will have to cut usage first, pensioners last. "Then we will see how patriotic Germans really are," says a minister.

In the medium term, help should come from the LNG terminals officials say will be constructed at "Tesla-speed", with a nod to the Gigafactory that Elon Musk has built outside Berlin. The government's plans to accelerate renewables, already dauntingly ambitious, have become yet more urgent. So have those for the green hydrogen those LNG terminals will eventually be able to receive. Just as it has had to accept a role for the military in its diplomacy, Germany is quickly learning that security of supply must be a cornerstone of energy policy.

Beyond equipping its army and guaranteeing its energy supply, Germany must begin to ask what it wants from its foreign and security policy. Money creates options, and presumably Germany does not simply want to become a larger France or Britain without nukes. But these are unfamiliar questions for a country not yet at peace with the tools of war. "The French have spent money on an army they want to ▶▶



use, we have spent it on one we don't want to use," says an exasperated official.

Priorities must be identified and trade-offs accepted. Should Germany worry less about joining French adventures in Africa and more about supporting allies in eastern Europe? How should it hedge for the prospect of a return of Donald Trump in 2025? More broadly, can it embrace the idea of force as a tool of statecraft? A proposed national-security strategy offers a chance for ideas, but the debate will matter as much as the answers. "Our passive foreign policy, waiting for partners to decide and then taking a stance, is not appropriate for a country the size of Germany," says Carlo Masala at the Bundeswehr University in Munich. "It comes close to cowardice."

Polls find majorities for all of Mr Scholz's proposals, and then some: 61% believe Germany should cut off Russian energy imports, and nearly half want to reintroduce conscription. But Mr Putin's brutal war has shocked Germans, and the moment will surely fade. For the *Zeitenwende* to fulfil its "transformative potential", says Sergey Lagodinsky, a Green MEP, a sustained debate must be led from the top.

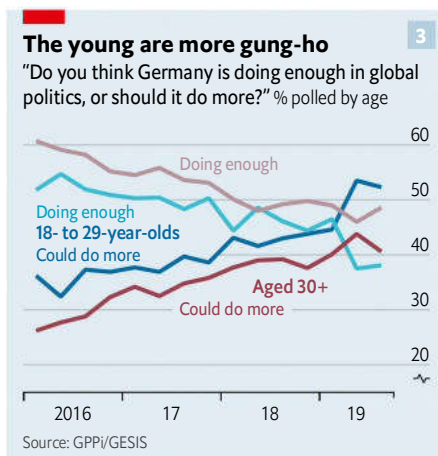
Persuade, and then persuade again

German politicians have long been nervous about leading such discussions. Yet Sönke Neitzel, a military historian, says they drew the wrong lesson from Afghanistan in 2011, after the Bundeswehr had been drawn away from peacekeeping into messy shooting battles. The problem, he says, is not that voters disliked German troops being sent into combat. It is that politicians had not prepared them for it.

Analysis of polling data by the Global Public Policy Institute, a research outfit, provides tentative support. Since 2016 a growing share of Germans, especially younger ones, have said the country must take a greater leadership role rather than hew to the status quo (see chart 3). And support for more military spending has long belied Germany's reputation for pacifism. There is political space here, should the country's leaders choose to occupy it.

For now, such is the unifying power of Mr Putin's war that few expect Mr Scholz's immediate plans to unravel. Indeed, some spy a Nixon-to-China effect of a left-leaning government telling Germany it must rearm. "It needed a war, and it needed the SPD and the Greens in power," says Claudia Major at SWP, a think-tank in Berlin. Bigwigs such as Lars Klingbeil, the SPD's co-leader, have conducted discreet talks with security experts on how to establish a more enduring revision to foreign policy.

But there is unease in both parties. Sceptical MPs will seek compensation in favoured areas in the coming budget negotiations. Some Greens insist the new defence fund must not be spent exclusively



on military hardware. "Our members are certainly not falling into a state of euphoria over the *Zeitenwende*," says Kevin Kühnert, the SPD's general secretary and a hero of the party's left. "But Putin's brutal aggression is forcing us to make decisions that I personally rejected a few weeks ago."

Certain shibboleths are gone. They include the old *Ostpolitik* idea that establishing energy interdependence—Russia as essential supplier, Germany as indispensable customer—helps build peace. Now politicians see how hard it has become to stop financing Mr Putin's war with gas money. Nor can Germany's remaining *Putinverstehers* (Putin apologists) expect much of an audience for their pleas to respect Russia's "legitimate" security interests. Indeed, most have publicly recanted.

Germany's *Zeitenwende* will have application beyond Russia. In the EU the government has no time for what officials dismiss as Franco-Italian wheezes on debt-funded investment pools for defence or energy or rewriting fiscal rules. But as the world's third-biggest military spender Germany will have a crucial role in shaping

Europe's nascent common defence and industrial policy. It will enjoy added heft in discussions, now made much more urgent, over NATO's direction—including the "Strategic Concept" to be adopted at a summit in June. And Germany's belated conversion to the 2% target has removed an alibi for other European penny-pinchers, several of which have declared their own plans to ramp up military spending.

Then there is Germany's largest trading partner. Parts of the business and political elite have been growing cold on China for years. Now, as Xi Jinping cosies up to Mr Putin, the wind has turned icier. Chemical and car companies with long-term investments in China have been nervously eyeing the alacrity with which Russia has become an economic pariah. One test of whether Germany's *Zeitenwende* is worthy of the name, argues an official, will be if German exporters begin to tap markets in developing countries beyond China; and if politicians encourage them to do so in service of a geopolitically savvy trade policy. Another is German alertness to the ownership of its critical infrastructure, from telecoms networks to gas-storage units.

For many Germans, all this requires a painful rejection of recent history. After the end of the cold war enabled its reunification, Germany aspired to build a free, whole and secure Europe with space for its historic Russian adversary. Diplomatic relations were buttressed by a thicket of commercial, cultural and academic links that penetrated deep into German society. Mr Putin's growing aggression dampened but did not kill those hopes. Now those bonds are shattered, and an era of confrontation looms. Accepting that is a step towards ensuring, as Mr Scholz put it, that the peace and security enjoyed by Germany in the past three decades remain "more than a historical exception". ■



Scholz the transformer

The French election

Unassailable

POISSY

The invasion has darkened the mood, but entrenched Emmanuel Macron

THERE WAS no bass beat to pump up the audience, nor banked rows of flag-waving supporters. Emmanuel Macron's first campaign event since he declared formally on March 3rd that he is running for re-election as president next month was a low-key affair. In a municipal hall (and former vaccination centre) in the town of Poissy, west of Paris, he took mostly friendly questions from a modest audience of some 250 people. The first two raised a matter of great concern during this campaign: Russia's war in Ukraine.

Anxiety about the war has turned Mr Macron's campaign for re-election, at a two-round vote on April 10th and 24th, into what increasingly looks like a foregone conclusion. By March 15th *The Economist's* forecasting model put his chances of winning at 97%. Even as a candidate, he is spending more time telephoning world leaders than shaking hands on the campaign trail. Rivals are struggling to find the right tone to criticise his leadership. "He's hanging over this campaign at such a height that it's very difficult to get at him," grumbles a member of a rival team.

Mr Macron certainly knows how to make the most of this. "Before coming here I was on the phone with President Biden," he dropped casually into the conversation in Poissy; "tomorrow I will be [on a call] with President Xi Jinping." On March 14th a French television channel organised an entire evening event with eight of the 12 candidates entitled "France faced with war". Most of the aspirants tried hard to show that they have what it takes to serve as head of state and the armed forces; Mr Macron recounted his conversations with Vladimir Putin.

In some ways, it is unsurprising that war has strengthened the sitting president's hand. Voters are seeking some form of stability at a time of fear, and Mr Macron is often at his best in a crisis. The war has exposed the contradictions of his three main rivals on the hard left and the hard right, who have all scrambled to deny or withdraw past sympathy for Mr Putin. The mainstream contenders, who have real differences with Mr Macron on matters such as taxation or nuclear energy, see little option but to applaud, broadly, his diplomatic efforts.

Moreover, Mr Putin's war has shifted the debate in Europe in Mr Macron's direction. The muscular talk about "strategic



Having a good war

sovereignty", and Germany's decision massively to increase its defence spending, reinforce what he has been saying for years. Before he was elected in 2017, Mr Macron warned that "war and conflict are not behind us" in Europe. Shortly after taking office, in a speech at the Sorbonne, he urged Europe to think in terms of "European sovereignty", a phrase that at the time seemed as abstract as the ambition felt far-fetched. Yet at a summit in Versailles on March 10th and 11th, EU leaders promised precisely to build "European sovereignty": to take more joint responsibility for defence, and work towards greater autonomy in energy, medicines and food.

Mr Macron's diplomacy has its critics. Abroad, especially in eastern Europe, he was seen as a loose cannon and even as an appeaser when he first tried to court Mr Putin with talk of a new European security architecture. Last month, after his shuttle diplomacy to Moscow failed to prevent the war, he was regarded by some as naive. French diplomats had been persuaded that, in all likelihood, Mr Putin would not be reckless enough to invade. General Thierry Burkhard, France's most senior soldier, conceded as much to *Le Monde*. "The Americans said that the Russians would attack—they were right," the general said. "Our services thought, rather, that the conquest of Ukraine would have a monstrous cost and the Russians had other options" to bring down the Ukrainian regime.

Yet, as Célia Belin of the Brookings Institution points out, Mr Macron has managed to present his dialogue with Mr Putin as clear-eyed statesmanship: that he engaged in talks precisely because he had perceived how serious Russia's threats were. "It's not entirely false," she says, "and it's certainly working for him." Since December the French president has held calls with (or met) Mr Putin 16 times, and

Ukraine's president, Volodymyr Zelensky, 24 times. A poll says 59% think Mr Macron has "risen to the challenge" over the war.

In short, Mr Macron's efforts are applauded, despite the lack of results. Fully 65% of the French back arms deliveries to Ukraine, which France is carrying out quietly, and 80% support taking in refugees. At a visit this week to a centre to welcome those fleeing Ukraine, Mr Macron promised that France would take in at least 100,000. The war has turned the campaign into a sombre affair. But Mr Macron will have few complaints if, as seems likely, that helps him keep his job. ■

Russia

The Z factor

Russian propagandists turn on pro-Western "traitors"

THE E-MAIL was anonymous and written entirely in capitals. "TRAITORS!!! SHUT UP!! SHUT YOUR UGLY MOUTHS WITH YOUR LETTERS, YOU PACIFICISTS!!! BITCHES, PROSTITUTES, BASTARDS. DON'T DIRTY RUSSIA WITH YOUR PRESENCE, NOBODY IS KEEPING YOU HERE!!!" It was part of the barrage of hate mail sent to Marina Davydova, one of Russia's best-known theatre critics and the organiser of a prominent festival, who on the day that Russia attacked Ukraine published an open letter against the war.

Then on March 4th Ms Davydova found a giant Z painted on the door of her flat in Moscow. On the same day, the same letter appeared on the door of Anton Dolin, a film critic who had also published a statement ►►

decrying the war. The symbol, which initially served as an identifying mark on invading Russian tanks and has been seized on by Russia's propagandists, now stands for Vladimir Putin's invasion. Mr Dolin and his family were on their way to the train station to leave Russia when they saw the sign. "I felt disgusted, as though I'd stepped in a pile of shit," he said.

After hours of interrogation, Mr Dolin and Ms Davydova were let out of Russia. Ms Davydova says she was asked questions like, "Where are you going? Why? Have you attended protests? What do you think of the special military operation? Don't you feel sorry for the children of Donbas?"

Mr Dolin and Ms Davydova were not targeted only for their political views. Thousands of Russians have come out in protest against the war, but few have been subjected to such harassment. What links them is culture. The hostility towards Ms Davydova and Mr Dolin reflects a hostility towards the artistic world they represent—the modern Western art that the two critics see as a natural part of Russia's cultural life.

The idea behind the hounding of prominent figures in the arts is to reject Western influence as alien. One of the most public faces of this campaign is Margarita Simonyan, the boss of the state-run RT television station. As she said in one of her recent talk shows, "We must all consolidate, grip our will in our fists, establish exceptional order in education, culture and information, and rid the country of truants, idiots and traitors." In a speech on March 16th, Vladimir Putin said such people would be "spat out".

Several new websites have sprung up to help identify such "traitors". One such is provokatoru.net, which is Russian for "No to provocateurs". It displays names and pictures of more than 200 artists, writers, actors and journalists who have spoken out against the war. "At a time when our soldiers are fighting the brown chimera" (a reference to the Nazi monsters who supposedly run Ukraine) "and our volunteers are supporting the suppressed people of Ukraine, these [traitors] are openly opposing our people, our government and our president," an opening statement on the site says. It invites "the people" to add names, photographs and descriptions of more such fifth-columnists, to be reported to the authorities.

Meanwhile, the disquieting z symbol is everywhere. Ever since RT advertised a black t-shirt with a z in the middle on February 26th, z-themed flash mobs, videos and billboards have appeared across the country. Hospital patients and factory workers are being ordered to form human zs to be photographed from the air. In the city of Kazan youths dressed in identical white hoodies marked with the z can be seen on videos throwing up their arms and

chanting "Russia forward". TikTok, a Chinese-owned video-sharing app, has been flooded with z-themed content featuring attractive young women. One video shows a woman emerging from an ice-hole, to the accompaniment of an uplifting Russian song, wrapped in the Russian flag, and with a z painted on her forehead. Displaying a z is beginning to be seen as a test of loyalty to Mr Putin.

The purpose of all this is to fan resentment and hatred towards the West, and to create an illusion of unity in the face of

growing economic pain and mounting casualties. But the more pervasive the propaganda, the more noticeable the defiant voices against the war, few though they are. Probably none has been as widely heard as that of Marina Ovsyannikova, a television producer who on March 14th interrupted a live broadcast of a news bulletin on state-owned Channel One holding a sign that said, "Don't believe the propaganda. They are lying to you here." Her act of defiance will not stop the war. But it was a brave protest against totalitarianism. ■

Ukraine

The cats and dogs of war

KYIV AND LVIV

Europe is bending immigration rules for furry fugitives

AFTER A 12-hour train journey from Mykolayiv, a town on Ukraine's south coast, Tatiana is ready to take her family into Poland. She stands outside the station in Lviv, a Ukrainian city 80km from the border, next to a pile of suitcases, her eight-year-old daughter and Gucci, a tiny dog whose camouflage-coloured coat is too thin to stop him shivering. "It was a simple decision" to bring Gucci, says Tatiana. "He is part of the family." The EU has helped by relaxing the paperwork for refugees' pets, as well as for the refugees themselves.

Ukrainians fleeing Mr Putin's war are bringing cats in carriers and dogs on leashes. As families break up, with fathers staying to fight, many see no reason to compound the children's distress by leaving their pets behind.

This marks a change from previous conflicts. When the second world war dawned in London, owners rushed to kill their pets. The British government, mindful of looming food shortages, set up euthanasia clinics and told owners that it was "kindest to have them destroyed", to spare them the horror of war. So many cats and dogs were put down that some vets ran out of chloroform. Attitudes have softened since then. Westerners now treat pets almost like people. Four-fifths of Ukrainian pet-owners see them as family members.

During the previous big wave of refugees into Europe, in 2015, hardly any Syrians or Afghans brought pets. This was partly because the journey was long, and space was limited on leaky boats across the Mediterranean. But it was also because most Muslim societies do not think of pets as little people, notes John Bradshaw, a retired anthrozoologist.

Many pets remain in Ukraine. Kyiv's metro stations—now bomb shelters—are full of dogs and cats, often snuggling

quietly with their owners. One such pet in Dorohozhychi station is a white rabbit, tucked inside Taria Blazhevych's backpack next to a laptop. Ms Blazhevych, a software engineer, explains that "Fluffy Steve" gets scared on his own, especially when bombs are falling. Citizens in the metro are getting enough food, she adds, but Fluffy Steve's supply of grass and carrots is running low.

Some unlucky pets have been separated from their owners, often because they were out of town when the invasion began. A few have found refuge at the boutique Dog City hotel, in Kyiv's south. Sandra Ischenko, the director, counts in her menagerie not only dogs and cats but also a budgie and Simon the hedgehog, who spends his day running from the Russians on a spinning wheel. Owners need not call to check on their pets, says Ms Ischenko, "because they can see for themselves 24/7 via our webcams".



A best friend in need



→ Also in this section

52 Bagehot: Rishi's revolting menu

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The Joint Expeditionary Force

NATO-lite

KYIV AND LONDON

Boris Johnson tells *The Economist* about the ten-country coalition against Russia

ON THE NIGHT of March 14th, while Russian forces were pounding Ukrainian cities, six leaders and other representatives of the Joint Expeditionary Force (JEF), a British-led coalition of ten northern European countries, gathered for the first time at Chequers, the country house of Britain's prime minister. They put their phones away for security, sat down to dinner and set to work. "We agreed that Putin must not succeed in this venture," Boris Johnson told *The Economist* the next day. They agreed to "co-ordinate, supply and fund" more arms and other equipment requested by Ukraine. And they declared that JEF, through exercises and "forward defence", would seek to deter further Russian aggression—including provocations outside Ukraine that might stymie NATO or fall under its threshold.

JEF, largely unknown outside defence circles, was established a decade ago as a high-readiness force focused on the High North, North Atlantic and Baltic Sea re-

gions (see map on next page for its members). Unlike NATO, it does not need internal consensus to deploy troops in a crisis: Britain, the "framework" nation, could launch operations with one or more partners. As one British officer puts it: "The JEF can act while NATO is thinking."

That makes it especially useful in murky circumstances. "It's there to respond flexibly to all sorts of contingencies, maybe [those] that fall short of an Article Five threshold," says Mr Johnson, referring to NATO's collective-defence clause. JEF matters because, although Article Five covers "armed attack", it is unclear whether lower-level or ambiguous provocations, such as the unmarked Russian soldiers who seized Crimea from Ukraine in 2014, would meet the threshold. JEF is therefore a "valuable complement" to NATO, says Martin Hurt of ICDS, a defence think-tank in Estonia. In the case of an attack in northern Europe, he says, JEF, alongside American forces, has the potential to become a first responder.

JEF has also become an important diplomatic and military instrument in responding to Russia's war in Ukraine. British officials say that only a few weeks ago a London summit built around the force would have been unthinkable. JEF "consists of the countries that were fastest off the blocks, with us, in sending direct military assistance to Ukraine," Mr Johnson points out. Nine out of ten members are now supplying weapons (Iceland, which lacks a standing army, is the exception). "What we agreed today was to make sure that we're not all supplying the same thing," says Mr Johnson.

All for one

JEF's growing prominence reflects wider trends in European security. Instead of relying on NATO, countries are hedging their bets and diversifying with a dizzying array of coalitions, blocs and groupings, from the French-led European Intervention Initiative to the European Union's Permanent Structured Co-operation, or PESCO. In September France signed a defence pact with Greece. Britain, Poland and Ukraine agreed on a trilateral security pact in February. JEF's composition is noteworthy because it includes three countries that are members of NATO but not the EU (Britain, Iceland and Norway) and two that are members of the EU but not NATO (Finland and Sweden).

For Europeans, much of this is about ►►

► strategic autonomy—in part an effort to insulate their defence from the vagaries of American politics. But for Britain, this defence diplomacy is more about re-establishing its long-standing role as a military power on NATO's northern flank, at the same time as creating post-Brexit ties with natural allies in Europe. "Most JEF countries are smaller nations who have traditionally been very close to the UK, strongly regretted Brexit for that reason, and have been anxious to ensure its continued commitment to their security," says Malcolm Chalmers of the Royal United Services Institute, a think-tank.

Russia's invasion has made that commitment more important. "We all agreed that this had been a turning-point in...our collective security, and all our worst fears about Putin had come true," says Mr Johnson. "All our illusions had been dispelled." On a visit to Kyiv weeks before Russia's invasion, Mr Johnson told Melinda Simmons, Britain's ambassador in Ukraine, that he thought Mr Putin would be "crazy" to attack; that "he's got to be bluffing".

Mr Putin's long essay on Russia and Ukraine last summer—"that 5,000-word turgathon", as Mr Johnson describes it—suggests that he grossly miscalculated Ukraine's sense of nationhood and its will to resist. Mr Johnson remembers being struck that "these people are definitely going to fight", as he weighed up the Kremlin's calculus, recalling an earlier trip to Kyiv when he visited a bar studded with machine guns, and pictures of martyrs at Maidan Nezalezhnosti, or Independence Square, the focal point of the country's revolution against a pro-Russian president in 2014. In invading, Mr Putin has made "an absolutely catastrophic mistake...worse than a crime," says Mr Johnson. "We haven't seen anything like this in our continent for 80 years."

Despite initially doubting that Mr Putin would take such a calamitous step, Mr Johnson's government moved quickly to arm Ukraine, long before other major European powers were doing so. On January 17th, even as French officials warned of Anglo-American "alarmism", Britain began rushing thousands of NLAW guided missiles to Ukraine (the acronym stands for Next Generation Light Anti-tank Weapons). Around 4,000 have been delivered so far, at a total cost of £120m (\$156m), according to the *Sunday Times*. Britain's early deliveries inspired other European nations to do the same, argues Mr Hurt. In the region, "UK credibility has improved hugely," he says. Britons are supportive: some 78% of voters approve of sending arms and rations to Ukraine, and would back sending Western troops to aid its defence by 43% to 40%, according to Opinium, a pollster.

Ukrainians offer even more resounding endorsement. If you travel through their



country, NLAWs—and their handiwork, in the form of mangled Russian armour—are ubiquitous. Ukrainian soldiers praise their effectiveness and ease of use, saying that they, along with American-supplied Javelin missiles, might have made the difference between survival and defeat in the war's first weeks. "We hit it thanks to the gifts from Her Majesty The Queen," beams one Ukrainian soldier, standing proudly in front of the carcass of a Russian tank, its turret blown off the hull by an NLAW. At a wedding of two soldiers on March 6th, north-east of Kyiv, a guest, Denys Demchenko, a 47-year-old actor, clutched an NLAW as he watched the proceedings. "They are one of the best and most important weapons we have," he explained.

The aim of this flow of arms is to drive Mr Putin out of Ukraine. "We need to do everything we can to ensure that he fails in a catastrophic venture, does not succeed in subjugating the people of Ukraine and that he withdraws as fast as possible—permanently," says Mr Johnson. He plays down talk of "off-ramps, deals, ways out" for the Russian president. "If you're going to completely abrogate all the rules of civilised be-



Illusions dispelled

haviour...then you've got to find your own way out of that." British officials say that they are also sending additional Javelins and Starstreak anti-aircraft missiles, which can shoot down planes 7km away.

Britain's response to the crisis has not been uniformly smooth, however. The Home Office's initially fumbled plan to deal with refugees bears the same hallmarks of poor administration, weak ministerial leadership and bad planning as the Foreign Office's botched response to the fall of Kabul. The British sanctions regime has improved after a ropery start. On March 15th the government said it would place sanctions on 370 more Russian individuals, including more than 50 oligarchs and their families with a combined net worth of £100bn. That brings the number of individuals or entities put under sanctions since Russia's invasion to more than 1,000. Yet a key test will be how well these are enforced. One expert says there have been barely any sanctions-related prosecutions in the past decade and at most half a dozen fines, averaging a paltry £3m each.

As Russia intensifies its war, Britain and its allies face difficult decisions over how far to go. Though Joe Biden, America's president, opposed a Polish bid to provide old MiG jets to Ukraine, Western allies are discussing the prospect of heavier and more powerful arms, including bigger surface-to-air missiles. Nuclear threats are "fundamentally a distraction", insists Mr Johnson. But asked whether he is willing to intervene directly in Ukraine if Mr Putin uses chemical weapons, Mr Johnson is more cautious. "It's very important that we don't get locked into any kind of direct conflict between the West and Russia because that's how Putin wants to portray it...as a fight between him and NATO. It isn't. This is about the Ukrainian people and their right to defend themselves."

Mr Johnson concedes that Mr Putin may have a greater stomach for risk than the West. "In any situation like this, typically, the most ruthless person wins," he says. "I don't think this is going to be such a situation, because I think that he's fatally underestimated the resolve of the Ukrainians and he's underestimated the resolve and unity of the West." On March 24th both the EU and NATO will hold summits in Brussels; those meetings are likely to heap yet more economic and diplomatic pressure on the Russian president.

Whatever happens on the battlefield in the coming weeks, "there's a sense in which Putin has already failed," says Mr Johnson. Russia might "lay the urban centres of Ukraine to waste and claim some sort of Pyrrhic victory". But "everybody can see that whatever he does to the infrastructure or the buildings or the kindergartens or the hospitals of Ukraine, he will never conquer the hearts of Ukrainian people." ■

Bagehot | An unappetising menu

Does Rishi Sunak have the stomach for what he must swallow?



IN “THE WIRE”, a crime drama, a former mayor of Baltimore explains the realities of political office to his successor. “The first day I became mayor, they sit me down at the desk—big chair, dark wood, lots of beautiful things—I’m thinking: how much better can it get?” In walks a flunkie carrying a silver bowl. “What the hell is this?” I said. ‘It looks like shit. What do you want me to do with it?’ He says, ‘Eat it.’” At that point more bowls arrive, a constant flow of immaculately presented excrement. “That’s what it is. You’re sitting eating shit all day long. Day after day, year after year.”

No British politician has a more revolting menu in front of him than Rishi Sunak, the chancellor. Ahead of a spring statement on March 23rd, silver platters are coming fast and their contents are foul. Inflation is near 6% and may hit 10% later this year. Energy bills are likely to cost British households £38bn (\$45bn) extra over the next 12 months, or the equivalent of raising the marginal rate of income tax by six percentage points. A 2.5-percentage-point rise in national insurance, a payroll tax, split between employees and employers, will kick in from April. The price of diesel may reach £3 per litre by the end of 2022. Voters are already upset, yet worse is to come. Bowls are stacking up on the chancellor’s desk.

The experience is new to Mr Sunak, whose political rise has been smooth and speedy. After attending Winchester, a fancy private school, and then Oxford University, he embarked on a career in finance, in which he made pots of money (before marrying the daughter of a billionaire). When he entered politics in 2015, aged 34, he was given the constituency of Richmond in North Yorkshire, which contains two national parks, a direct train to London and the country’s biggest Conservative majority. He was appointed chancellor less than five years after becoming an MP, in February 2020, just before Britain’s first lockdown.

Compared with the current crisis, covid-19 was politically simple for the chancellor. Almost all economists argued that the government had to spend, and almost all politicians agreed. The temporary nature of a pandemic meant the Treasury could pump cash into the economy, with the state’s balance-sheet bearing the brunt, as during wartime. It was most voters’ first sight of Mr Sunak, who came across as a slick finance guy, even as the prime minister, Boris Johnson, resembled a clown delivering a eulogy. A

quick way to make voters like you is to give them £400bn. And Mr Sunak duly became Britain’s most popular politician.

This time, his options are less palatable. Rocketing energy prices and inflation constitute a once-in-a-generation crisis hitting after a once-in-a-century crisis. The Treasury is jittery about whether the national balance-sheet can take more damage. There is no unanimity on what to do. Advice pours in, calling on Mr Sunak to delay tax rises or increase benefits or slash tax on fuel, or perhaps all of the above. Each would leave a nasty taste. Scrapping the rise in national insurance would make him look inconsistent and weak. Cutting fuel duty would be popular but difficult to reverse, slaughtering a government cash cow. It would also increase demand for oil, precisely when geopolitics requires the opposite. As for raising benefits, Conservatives dislike nothing so much.

Swallowing the inedible is easier if there is a reason. Those chancellors who reshaped Britain from 11 Downing Street all had a clear vision. When they did unappetising things, such as slashing spending in the case of George Osborne, or holding fast to inherited Conservative spending plans, as Gordon Brown did for New Labour, it was with a sense of purpose. In a recent lecture Mr Sunak offered a competent diagnosis of Britain’s economic ills: businesses invest too little, workers lack skills and new technologies should be more flexibly regulated. But he had less to say about how to fix these long-standing problems. It was a plea for fewer bowls, rather than a plan for disposing of them.

Grumbles about Mr Sunak’s political naivety are common among Conservative MPs and advisers. The issue, however, is not that the 41-year-old is relatively young for a chancellor. Mr Osborne was around the same age when he became chancellor in 2010, but he had been in politics for 16 years, working through the embers of Sir John Major’s government in the 1990s, New Labour hegemony in the 2000s and the financial crisis. Although fresh-faced, he was battle-scarred. By contrast, Mr Sunak was still a junior minister for local government in the summer of 2019.

Criticism of Mr Sunak’s political nous is overdone. Increasing national insurance, which is paid by people of working age, to fund health and social care, which are mainly required by the retired, is the closest a Conservative chancellor can come to taxing Labour voters for the benefit of Tory ones. (Labour won a plurality of working-age voters in the most recent general election; the Conservatives won a big majority of the over-60s and two-thirds of the over-70s.) Likewise, freezing income-tax allowances is about the most politically astute stealth tax imaginable. High inflation coupled with rigid allowances lets extra cash pour into government coffers, without budging the headline rate of tax. Betting markets still put Mr Sunak as favourite to succeed Mr Johnson as prime minister. For someone who is “crap at politics”, as one Labour aide puts it, he is remarkably successful.

You’ve never had it so bad

Yet the things that made Mr Sunak popular—in particular, spending lots of money—are the things that the chancellor professes to dislike. He has consistently called for lower taxes and a smaller state, even while raising taxes and spending more. Memories of the state’s largesse during the pandemic have faded. Instead, anger is growing at the government’s miserliness when it comes to the rocketing energy bills. For many Britons, Mr Sunak will become the face of economic misery. For Mr Johnson, an expert in allowing other people to take the blame, this is no bad thing. For Mr Sunak, it will be hard to swallow. ■



Business and war

Value-chain reaction

NEW YORK

Russia's invasion of Ukraine is creating corporate losers—and winners

MOST MULTINATIONAL companies can live without Russian customers. Living without Russian commodities would be much harder. On March 15th the European Commission announced new economic constraints on Russia, including a ban on exports of European luxury items and cars—the definition of an essential good is, after all, in the eye of the oligarch. But the announcement also included a ban on steel products from Russia. More such restrictions on Russian exports may come.

Companies are struggling to contain the fallout of Russia's brutal war in Ukraine. The first response of those with business in Russia was to rush for the exit. About 400 have announced their withdrawal from Russia, according to one tally, cowed by legal and reputational risks. Executives now face a different, bigger challenge. This concerns not their business within Russia but supply chains that extend beyond it, and other knock-on effects. As the war continues, it is creating corporate winners and losers, as well as an awful lot of volatility.

There are two factors that make the shock to supply chains particularly difficult for firms to manage. The first is the breadth of commodities produced by Ukraine and Russia. The two countries together supply 26% of the world's exports of wheat, 16% of corn, 30% of barley and about 80% of sunflower oil and sunflower-seed meal. Ukraine provides about half the world's neon, used to etch microchips. Russia is the world's third-largest oil producer, second-largest producer of gas and

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top exporter of nickel, used in car batteries, and palladium, used in car-exhaust systems, not to mention a large exporter of aluminium and iron. Even without formal sanctions on most of Russia's commodities, Western traders are increasingly trying to avoid them, wary of legal risks.

The second complicating factor is the market's extraordinary swings. The price of Brent crude surged to \$128 a barrel on March 8th, then dipped below \$100 a week later as China announced new covid-19 restrictions and investors anticipated the interest-rate increase by America's Federal Reserve on March 16th. The London Metal Exchange halted trading of nickel on March 8th after its price shot past a record \$100,000 a tonne. When trading resumed on March 16th, a technical issue prompted the exchange to suspend trading once more (see Finance & economics section).

The overall American stockmarket is back roughly to where it was before the invasion. But a few industries benefit from the turmoil, from armsmakers to cable news and the lawyers who help firms comply with sanctions (see subsequent articles). The biggest winners are commodities firms, especially outside Russia (see chart on next page).

A stockmarket index of American frackers, which benefit from high oil prices and European demand for liquefied natural gas, climbed by a fifth between February 23rd and March 10th. It remains 9% above its pre-invasion level, despite the decline ▶▶

in oil prices. Mining firms are, as a group, likewise performing well, buoyed by higher metals prices, as are steelmakers (except Russian ones). The share prices of US Steel and Tata Steel, with headquarters in Pittsburgh and Mumbai, respectively, have climbed by 38% and 11% since the eve of the invasion. Bunge and ADM, two big listed traders that specialise in rerouting flows of grain, have outperformed the market, too.

The war does not affect all commodities firms equally. Rio Tinto, a big miner, announced on March 10th that it would abandon a joint venture with Rusal, a giant Russian aluminium producer. Rocketing electricity costs resulting from the soaring price of natural gas, 40% of which Europe gets from Russia, have forced some Spanish steelmakers to cut output.

Pricey inputs are a more widespread problem for sectors further up the value chain. Just as they were preparing to lift off as pandemic travel restrictions are relaxed, airlines got slapped with rising fuel costs. Yara International, a Norwegian fertiliser-maker, said on March 9th that the cost of natural gas had prompted it to cut production at two European factories.

Carmakers, which have not yet recovered from the pandemic's disruptions to supply chains, face fresh problems. Volkswagen and BMW, two German giants, have cut production in Europe as they seek out new manufacturers of the harnesses that bundle miles of electrical wires in their cars to replace out-of-action Ukrainian suppliers. Morgan Stanley, a bank, reckons that the 67% jump in nickel prices before trading stopped represented an increase of about \$1,000 to the input costs of the average American electric vehicle.

Gabriel Adler of Citigroup, another bank, notes that carmakers have so far been successful in passing their costs on to consumers. Tesla, America's electric-car superstar, this month raised prices; Elon Musk, its boss, complained in a tweet about "significant recent inflation pressure in raw materials & logistics". Such pricing power is enviable. But it has its lim-

its. At some point people will not be willing to absorb any further increases.

In certain cases, consumers are beginning to balk. American food firms have been raising prices for months to offset higher costs of energy, transport and ingredients. However, they have been unable to raise them quickly enough to protect margins. The need to negotiate prices with grocers limits their ability to demand higher ones whenever they desire. And grocers, in turn, are under pressure from shoppers. Robert Moskow of Credit Suisse, one more

bank, notes that consumers have in the past year been willing to stomach pricier food. But the war's impact on commodities prices comes at a moment when their patience is wearing thin, especially in America, where inflation has hit a 40-year high.

"Every food company must be getting a little nervous that they are pushing the consumer too far," says Mr Moskow. As the costs of inputs continue to climb, it looks increasingly likely that companies will be forced to choose between compressing profits and depressing demand. ■

Television

Good news and bad news

CNN enters the streaming business at an opportune moment

"IT MAY NOT be good for America, but it's damn good for CBS," said Leslie Moonves, the TV network's then boss, of Donald Trump's presidential candidacy in 2016. Ratings soared under Mr Trump, and slumped when he left the stage. Now war has people tuning in again. Since Russia invaded Ukraine, cable-news channels' audience share in America has nearly doubled, to 12%, reckons Inscope, a data firm—heights last recorded when the Capitol was stormed in January 2021.

America's original Cable News Network hopes to sate this hunger with a new format. CNN+ will launch in America on March 29th, with an international roll-out to follow. For \$5.99 a month viewers will enjoy live streams of on-demand news and documentaries, plus interactive features (like the chance to submit questions to interviewees).

The launch coincides with upheaval at the 42-year-old network, one of the biggest names in news. CNN's boss, Jeff Zucker, quit in February over an undisclosed office romance; Chris Licht, an experienced producer, takes over next month. Meanwhile, the merger of CNN's owner, WarnerMedia, with Discovery, a cable giant, is expected to close in April.

The new management prefers to highlight CNN's hard-news expertise, on display in Ukraine, over the partisan commentary in which it indulged in the Trump years. A neutral brand suits Warner-Discovery's strategy. Warner plans to bundle CNN+ with its entertainment platform, HBO Max, due to combine with Discovery's. That bundle cannot afford to repel conservatives. (If it does, CNN's new owners may sell it.)

Nor can CNN+ afford to undermine the cable business. Like all legacy media firms, Warner-Discovery is trying to launch a streaming lifeboat without sinking its cable mothership. So for now,



CNN+ or minus?

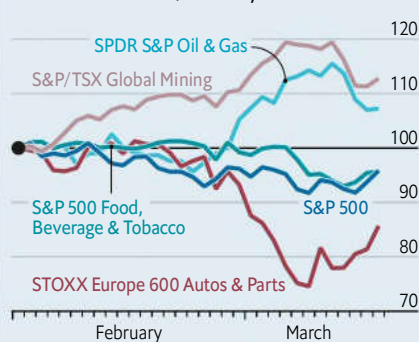
CNN is keeping its main rolling-news channel exclusively on cable, with separate shows for CNN+ aimed at news junkies and documentary fans.

Sceptics wonder about the size of the new market. As for cable, it is in decline. Just over half of American homes have it, down from nearly nine out of ten a decade ago. Sport, which along with news is the last reason not to cut the cord, is slowly shifting to streaming. Amazon and Apple, with no cable interests to protect, have begun buying the rights to big matches.

Historically less-cabled international markets may provide a glimpse of what comes next. CNN+ customers in Latin America are likely to get the CNN en Español linear channel, for instance, while some European subscribers are expected to get CNN International. CNN+ is a side-bet for the time being. It is also the network's most likely future home when American cable is severed for good.

Resourceful v resourceless

Stockmarket indices, February 1st 2022=100



Source: Refinitiv Datastream

Navigating sanctions

Read and follow

Companies will need to up their game to comply with Russia sanctions

WITH UNPRECEDENTED sanctions come unprecedented compliance challenges. Western banks and companies hoping to navigate the morass are, at least, getting some help from the Office of Financial Assets Control (OFAC), which oversees most American measures. It has published answers to 62 “frequently asked questions” about those against Russia. But compliance officers craving clarity can hardly relax. The legalese runs to 13,800 words—and leaves many queries unanswered since guidance is still being fleshed out. Moreover, new sanctions are being added almost daily. And the ones imposed by Britain, the EU and others overlap only partially with America’s.

The Western response to Russia’s invasion of Ukraine is without parallel in terms of both the number of countries participating, and the size and interconnectedness of the target’s economy. They have created what Stephen Platt, author of “Criminal Capital”, a book about financial crime, calls “a sanctions-compliance emergency”.

This is further fuelling a sanctions-industrial complex that has burgeoned over the past decade. International law firms say they have never had so many inquiries; some have set up round-the-clock hotlines for worried clients. Compliance-tech firms are busier than ever, too: software that helps users weed out entities and individuals hit by sanctions is flying off shelves. Global spending on sanctions compliance by banks alone (no reliable figures exist for non-banks) reached a record \$50bn or so in 2020, the latest year for which estimates are available. The outlay this year is likely to be well above that.

Keeping on top of the new sanctions is no easy task. In America alone they are being issued by four separate agencies: OFAC (financial sanctions), the Commerce Department (export controls), the State Department (visa bans) and the Justice Department (anti-kleptocracy measures). Together, these are “a masterclass of all prior sanctions programmes being imposed all at the same time, utilising elements of those imposed on China, Cuba, Iran, Venezuela and even narco-traffickers,” says Adam M. Smith of Gibson Dunn, a law firm.

Banks, which have long been on the financial-crimefighting front line, will find complying tricky but manageable. The challenge is more daunting for non-financial companies, a far greater number of

which do business that is covered by the sanctions than was the case with Iran or other past programmes. The Russia sanctions “reach across the corporate spectrum like never before”, says Michael Dawson of WilmerHale, another law firm. Lawyers say calls for help are coming from software-makers, manufacturers, consumer-goods sellers and even, in one case, a sports team that recruits players from Russia.

One reason for the anxiety is the sweeping export controls implemented by America and 33 “partner countries” which restrict the sale of technology (for things like semiconductors and telecoms), components and whole goods to Russia. These cover not only stuff shipped directly to Russia but parts for products assembled in other countries, such as China, and later exported to Russia. In some cases sanctions kick in if the “controlled content” exceeds 25% of the value of the finished product. They may also apply if the product is manufactured in third countries where the machinery used is itself “the direct product of US-origin software or technology”.

This covers technology and widgets made by thousands of Western firms, large and small. Many have homework to do to determine if their products might be caught in the net. Another lawyer says he is getting fretful calls from startups that have outsourced software development to Russian contractors. It may or may not be legal to continue doing so, depending on the circumstances; either way, payments have got more complicated because of sanctions on Russian banks. Many small and middling Western firms are “spectacularly ill equipped” to conduct the required due diligence on business partners, counterparties or supply chains, says Mr Platt.

This task is made harder still by Russia’s expertise in obfuscation. Russian money-men have developed world-beating skills in creating opaque offshore structures to

conceal ownership. Their creativity has prompted OFAC to tighten its rules on what constitutes control of a corporate entity.

Adding to the anxiety, fines for violations have got bigger, and not only for banks. Firms hit with hefty American penalties in the past decade include Schlumberger, an oil-services group (\$259m) and Fokker, an aircraft-parts maker (\$51m). The Justice Department’s recent creation of a “KleptoCapture” task force adds to the risks of trading with oligarch-linked firms. Enforcement in Europe has been less vigorous, but that may change. Even Western lawyers, with all the extra billable hours, need to stay on their toes: Britain’s Solicitors Regulation Authority said on March 15th that it will police law firms’ sanctions compliance with spot checks. ■

Business in Russia

Should I stay or should I go?

BERLIN

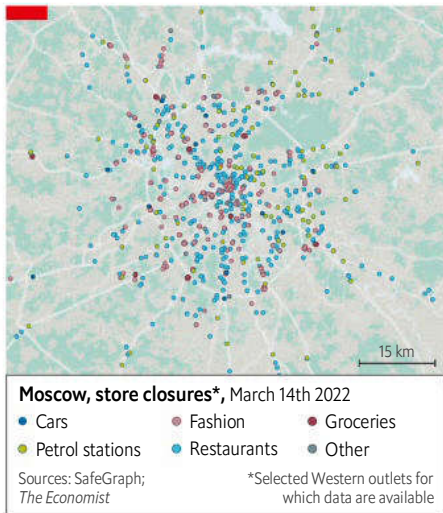
Some Western firms’ Russian dilemmas are getting thornier

“ONE SHOULD not condemn companies that decide to stay in Russia as financiers of Putin’s war,” says Michael Harms, head of Germany’s Eastern Business Association, a lobby group. As long as they don’t violate Western sanctions it should be up to them whether they stay in Russia or leave. Metro and Globus, two big German supermarkets, have so far opted to stick around. They say they do not want to let down their staff or innocent Russian shoppers, who need their groceries. H&M has frozen new investments in Russia but not its sales of laundry detergent and other essentials. Bayer, another German giant, will keep selling both its medicines and, for now, its seeds. Procter & Gamble, an American consumer-goods behemoth, has stopped advertising in Russia but many of its brands remain available there.

Western companies in Russia can be divided into four categories. First are firms whose business is subject to Western measures. These comprise the makers of some microchips or any type of dual-use technology (including things like artificial intelligence or cryptography). They have no choice but to pull out. The second group encompasses companies such as Volkswagen, Europe’s biggest carmaker, which stopped production in Russia because the war, and the West’s response to it, disrupted its supply chains. Next are firms such as Coca-Cola and Pepsi, two makers of soft drinks, and McDonald’s, a fast-food chain, which have suspended operations in Russia to signal their horror at the invasion. ▶▶



The pro-lawyer lobby



▶ The last lot are the remainers.

Nearly 400 Western firms have announced plans to suspend or scale back their operations in Russia since Mr Putin attacked Ukraine, according to a tally by Jeffrey Sonnenfeld of the Yale School of Management. Some of them, such as BP, a British energy giant and Russia's biggest foreign investor, pulled out early and with seemingly little hesitation. Others did so more reluctantly. Citigroup, an American bank with nearly \$10bn of exposure to Russia, had previously said that it was assessing its operations in the country, including its consumer business. But on March 14th the bank, which has been in the country since 1992, said it would "expand the scope" of its withdrawal and stop seeking new business or clients.

Russians living in big cities, where the bulk of Western firms' retail operations are located, will suffer the most from such closures. But the pain will be felt throughout Russia's vast landmass. An analysis by *The Economist* of data provided by SafeGraph, a geolocation-information firm, shows that the shutdown of Western businesses will affect at least 3,500 retail outlets in 480 cities across the country. This includes 1,200 restaurants and cafés, 700 clothing stores, 500 shoe shops and 400 petrol stations. Muscovites will suffer around 1,000 shop closures; residents of St Petersburg will face more than 300 (see map).

Critics of Western firms' voluntary withdrawals say that these could radicalise the middle class and anger traditionally pro-Western young Russians. That could solidify Mr Putin's regime rather than topple it, they argue. Mr Harms, who used to live in Moscow, disagrees. The middle class understands that the exodus is aimed at the regime rather than the population at large, he thinks.

Moreover, Western-style consumer goods will remain available in Russia. SafeGraph's data show that Russians shopping for Nike trainers won't have far to go to find

an alternative pair at one of Reebok's stores, which are operating as normal. The median distance between the rival American sportswear brands' outlets is 0.8km. If Big Mac lovers are prepared to accept the Whopper as a substitute, they can typically find an open Burger King within 0.6km of a closed McDonald's. Burger King's owner, Restaurant Brands International, has suspended support for its Russian franchisees but many of their outlets remain open. The same goes for some other Western brands.

The big question is what will happen to the firms that have pulled back from Russia. Russian prosecutors have reportedly been threatening to arrest corporate executives who criticise the government and to seize the assets of companies that withdraw from the country. A senior member of Mr Putin's United Russia party mooted a plan to nationalise the operations of departing Western companies, arguing it would help prevent job losses and maintain Russia's domestic productive capacity. Mr Putin has endorsed the plan.

Some companies that are staying put are, by contrast, apparently being courted by Russian officials. They must weigh those inducements against accusations of war-profiteering, which have sprouted all over Western social media. Olga Podorozhna, a Metro employee in Ukraine, fiercely criticised her employer's decision to stay in Russia in an emotional post on LinkedIn, a social network. Metro reacted with its own LinkedIn post condemning the war. But it has not reversed its decision to keep its Russian shops open.

That is unsurprising. Around 10% of Metro's total sales of €25bn (\$28bn) are generated by its 93 supermarkets and 10,000 or so employees in Russia. The 19 Globus hypermarkets with 9,900 Russian employees accounted for 14% of the group's sales last year. They were doing so well that the company has invested more than €110m in the Russian market in the past couple of years. For firms like these,

virtue-signalling is much harder than it is for a company such as Coca-Cola, which derived less than 2% of last year's revenue from Russia. But the pressure to head for the exit mounts with every indiscriminate Russian assault on Ukraine and its besieged citizens. Even for the remainers, the reputational cost of staying may soon become too high to ignore. ■

Chinese big tech

Tonal language

SHANGHAI

The government hints at the beginning of the end of the techlash

THE CHINESE COMMUNIST PARTY has exhibited a high tolerance for the excruciating pain felt by investors in China's biggest technology companies. The firms' sins ranged from throttling smaller competitors and mistreating workers to hooking young minds on video games. After forcing Didi Global to delist from New York, earlier this month regulators in ef-▶▶



fect scotched the ride-hailing giant's relisting plans in Hong Kong. On March 14th the *Wall Street Journal* reported that they are preparing to slap a record fine on Tencent, an internet Goliath, for alleged anti-money-laundering violations. The next day the Cyberspace Administration of China (CAC), the main internet watchdog, accused Douban, a social-media platform with 200m users, of creating "severe online chaos", marking it as a target for stricter censorship. This, combined with uncertainty over Russia's invasion of Ukraine and a rash of covid-19 outbreaks (see Finance & economics section), shaved a third from the indices of Chinese tech stocks in the first two weeks of March, while America's tech-heavy NASDAQ index remained flat (see chart on previous page).

Yet the pain of the spiralling tech sell-off, which at its deepest wiped out more than \$2trn in overall market value, may be becoming too much to bear even for desensitised party bosses. On March 16th Xinhua, a state news agency, published a report from a meeting of the central government chaired by Liu He, China's top economic adviser. The agency declared that the "rectification" of large Chinese technology companies would soon come to a close. New regulations should be transparent, Mr Liu was supposed to have urged, and policymakers must be cautious when implementing rules that might hurt the market, according to Xinhua. Moreover, state media reassured readers, the Chinese leadership would stabilise stockmarkets. It may even support foreign listings of Chinese companies, which it has discouraged or, as in Didi's case, opposed.

Mr Liu's statements are the strongest signal so far that the tech crackdown initiated by President Xi Jinping in late 2020 is coming to an end, says Larry Hu of Macquarie, an investment bank. Markets certainly seem to think so. Hong Kong's Hang Seng Tech Index soared by 22% on March 16th, a daily record—and was up again the next day. The Golden Dragon index, which tracks American-listed Chinese technology firms, jumped by a third. Having lost tens of billions of dollars of market value just days earlier, put-upon tech titans such as Tencent and Alibaba, China's biggest e-emporium, added a lot of them back in barely a few hours of trading.

The government's increased sensitivity to market sentiment comes as a relief to many investors, who have watched with unease as leaders in Beijing have become increasingly indifferent to how China and its markets are viewed by the outside world. The latest policy whipsaw nevertheless raises nagging questions about conflicting interests within the party and about the lack of co-ordination between regulators. It is unclear, for example, if Mr Liu's conciliatory message was intended to

signal displeasure with the CAC's recent heavy-handedness, or instead to praise the agency for having done a good job.

Regardless of the government's true motive, its pronouncements may stem the colossal value destruction of the past 18 months or so. Whether they will be enough to reverse it is another matter. Chinese tech stocks remain depressed. Tencent's market capitalisation swelled by \$112bn in

the two days following Xinhua's report. But that brought it back to where it was a week earlier, which is still down by around half from its peak of nearly \$1trn in January 2021. Alibaba's stockmarket value of \$250bn is one-third of what it was a year ago. If the Communist Party's objective was to take Chinese tech down a peg and neutralise a perceived rival power centre, it has succeeded in spades. ■

Business on screen

WeBinged

A corporate fiasco makes for strangely compelling television

SURFING BETWEEN team-building exercises. Tequila shots in meetings and pot on private jets. Barefoot strolls around New York. Adam Neumann's quirks have been familiar to readers of newspapers' business pages since 2019, when WeWork, the workspace provider with tech aspirations that he co-founded, reached a private valuation of \$47bn, only to crumble after an abortive initial public offering (IPO). The story of WeWork and its flamboyant boss have now reached a wider audience thanks to "WeCrashed", a new series which will stream on Apple TV+ from March 18th.

Popular culture, whose creators lean left, revels in skewering the perceived greed of capitalism, also through the prism of real-life business figures. The villains change with the times. In the 1990s it was the buy-out barons ("Barbarians at the Gate"). After the financial crisis of 2007-09 it was the investment bankers (notably on

stage with "The Lehman Trilogy") and other financiers (on the silver screen with "The Big Short"). As big tech grew too big for some tastes, the spotlight turned to its misanthropic billionaire bosses ("Steve Jobs", "The Social Network").

The latest cohort of capitalist anti-heroes and -heroines to receive popcultural treatment includes the darlings of Silicon Valley's startup scene. "The Dropout", a series streaming on Hulu and Disney+, recounts the rise and fall of Elizabeth Holmes and her fraudulent blood-testing firm. Showtime's "Super Pumped" dissects the life of Travis Kalanick, Uber's brilliant but abrasive co-founder. "WeCrashed" belongs to this genre.

Mr Neumann and his new-agey wife, Rebekah ("fear is a choice"), are made for TV. Most chief executives have big egos but few can match the sheer scale of the couple's narcissism (or good looks). Mr Neu- ▶▶



The colourful Mr and Mrs Neumann

Bartleby Loafing can be work

Daydreaming, promenading and zoning out all pay rich dividends

THE FAMILIAR exerts a powerful subliminal appeal. The “name-letter effect” refers to the subconscious bias that people have for the letters in their own name, and for their own initials in particular. They are more likely to choose careers, partners and brands that start with their initials (Joe becomes a joiner, marries Judy and loves Jaffa cakes). A related bias, the “well-travelled-road effect”, describes the tendency of people to ascribe shorter travelling times to familiar routes than is actually the case.

A bias towards the familiar shows up at work, too. One such prejudice is about what exactly constitutes work. Being at a desk counts as work, as does looking at a screen above a certain size. Responding to email and being in a meeting are indubitably forms of work. So is any activity that might elicit sympathy if performed on the weekend—typing, taking a phone call from the boss, opening any type of spreadsheet.

This prejudice helps to explain worries about “proximity bias”, the risk that white-collar employees who spend lots of time in the office are more likely to advance than remote workers who are less visible. That is because being inside an office building is itself something that counts as work. Pre-pandemic research showed that “passive face-time”—the mere fact of being seen at your desk, without even interacting with anyone—led observers to think of people as dependable and committed.

But these familiar forms of work can deceive, for two reasons. The first is that what looks like a Stakhanovite effort may be no such thing. Keyboard-tappers may just be updating their LinkedIn profiles. Attendees at a meeting are often present in body but not in spirit. Even when actual work is being done, it may not be

the most productive use of people’s time.

The second is that things that look like the opposite of work—loafing about, to use the technical term—can be very useful indeed. Take daydreaming. In most workplaces, staring into space for hours on end is frowned upon; security guards and models can get away with it, but few others. Yet letting the mind wander is not simply part of being human; it can also be a source of creativity, a way to unlock solutions to thorny problems.

Albert Einstein’s breakthrough moments often came via thought experiments in which he let his imagination drift. What would it be like to travel as fast as a light beam? What happens if double lightning strikes are observed from different perspectives? Einstein is admittedly a pretty high bar, but zoning out can help mere mortals, too. Research published in 2021 found that tricky work-related problems sparked more daydreaming among professional employees, and that this daydreaming in turn boosted creativity.

In similar vein, going for a walk is not just a break from work, but can be a form

of it. An experiment from 2014 asked participants to think of creative uses for a common object (a button, say) while sitting down and while walking. Perambulation was associated with big increases in creativity. Being outside generally seems to improve lateral thinking. In another study, hikers who had been yomping away in the wilderness did much better on a problem-solving task than those who had yet to set off.

Loafing has clear limits. If you miss a deadline because you were staring soulfully out of the window, you still missed a deadline. Not every problem requires a backpack and a journey into the countryside. If you don’t much like your work in the first place, you are likely to daydream about other things.

But time to muse is valuable in virtually every role. To take one example, customer-service representatives can be good sources of ideas on how to improve a company’s products, but they are often rated on how well they adhere to a schedule of fielding calls. Reflection is not part of the routine.

The post-pandemic rethink of work is focused on “when” and “where” questions. Firms are experimenting with four-day workweeks as a way to improve retention and avoid burnout. Asynchronous working is a way for individuals to collaborate at times that suit them. Lots of thought is going into how to make a success of hybrid work.

The “what is work” question gets much less attention. The bias towards familiar forms of activity is deeply entrenched. But if you see a colleague meandering through the park or examining the ceiling for hours, don’t assume that work isn’t being done. What looks like idleness may be the very moment when serendipity strikes.



mann, who grew up in an Israeli kibbutz, once claimed that the elusive Middle East peace treaty would be signed at a WeWork venue. His company’s IPO prospectus promised not merely to offer convenient co-working space but, apparently without irony, to “elevate the world’s consciousness”. Portrayed masterfully by Jared Leto and Anne Hathaway, the on-screen Neumanns are, like many startup founders only more so, both intoxicating and painful to watch. It is suddenly easy to understand why so many investors felt at once besotted and uncomfortable around them.

Mr Neumann’s knack for distorting reality—most notably by dressing up a loss-making office-rental firm as a successful tech giant—is a trait common to many successful founders. It is not the whole story, however. “WeCrashed” also depicts how the reality of Silicon Valley distorted him and his firm. In one scene Son Masayoshi, the messianic boss of SoftBank, a free-spending Japanese tech-investment group that poured billions into WeWork, tells Mr Neumann, “You’re not crazy enough.” A string of other prominent venture capitalists likewise encouraged the company to

aim for the stars. So it did.

Colourful characters aside, WeWork’s rise and fall makes for compelling TV because it follows the dramatic arc of a Greek tragedy: a protagonist grossly overestimates his abilities; his hubris is punished; order is restored. Except in this case, the punishment is meted out not by mercurial gods but by Mr Neumann’s increasingly impatient VC backers and the public markets, whose scrutiny of his firm’s value-torching business model undid the IPO. As such, “WeCrashed” also traces the arc of capitalism’s capacity for self-correction. ■

Schumpeter | The silicon state of mind

Has Silicon Valley lost its monopoly over global tech?



SILICON VALLEY feels like a college reunion these days. As covid-19 restrictions are lifted across America, tech-bros (and the occasional tech-gal) who have not met in person in ages are high-fiving each other all over the place. Firms from Alphabet to Zynga are urging workers back to the office. Venture capitalists are flocking back from second homes by Lake Tahoe or ranches in Wyoming. Foreigners, who during the pandemic became a rarer sight in San Francisco than unicorns, can again be spotted south of Market Street, a popular pasture for startups valued at \$1bn or more.

The people look the same. Yet the place feels different. Your guest columnist, who is heading to Berlin after spending a total of 12 years, including all of the pandemic, in San Francisco over the past three decades, suspects that many returnees will feel like strangers in a strange land. Not because everyone seems suddenly obsessed with the decentralised “web3” (which they are) or because the valley has peaked (which it hasn’t). Silicon Valley has changed, and not just as a result of the pandemic.

When this stand-in Schumpeter moved there in the mid-1990s, even some top venture capitalists drove lumbering clunkers. Now a zippy Tesla is *de rigueur* (with a Ferrari often sitting in the garage). Similarly, the hub’s business metabolism, which few places could match to begin with, has sped up. In the pandemic job-hopping became even more rampant and rapid. Many firms offer six-figure cash bonuses and pay rises of 25% to retain talent. Promising startups can raise money in days rather than weeks. Last year more than 17,000 venture-capital (vc) deals were cut in America, 40% more than in 2020, according to PitchBook, a data provider.

All that money pouring into a limited number of deals helped raise late-stage startups’ median valuation to \$115m in 2021, nearly double the level in 2020. Outside investors, including hedge funds such as Tiger Global and Coatue Management that used to invest mainly in public markets, have piled in. These newcomers bring a new philosophy, in which a firm’s performance and its fit in the overall portfolio trump conventional vc considerations such as knowing the founder or understanding the industry.

Valuations may already have suffered as a result of rising interest rates. But the cash will not disappear. Non-traditional investors, from private-equity firms to family offices, keep coming. And

money isn’t the only accelerant. Tech itself has chivvied things along, too. Zoom makes it easier for people to interview for a new job and for entrepreneurs to pitch to potential investors. In the words of Mike Volpi of Index Ventures, a vc firm, “This has created a much more efficient market.”

It has also created a much more global one. In the late 1990s Silicon Valley’s startup uniform of washed-out t-shirt, shorts and hairy legs was (thankfully) confined to the Bay Area. Today’s less off-putting Silicon Valley look—untucked shirt, khaki trousers, white trainers—is the fashion choice of founders everywhere. Less sartorially, whereas as a few years ago a base in the valley was still a must for ambitious entrepreneurs, engineers and investors, now they no longer have to be physically present to get access to capital, talent and know-how. Established tech firms, too, are expanding their geographical footprint. Many are building offices in such places as Austin and New York. A few, including Hewlett Packard Enterprise and Oracle, have relocated their headquarters to Texas. The Brookings Institution, a think-tank, recently estimated that 31% of tech jobs are now offered in “superstar metro areas” such as Silicon Valley, down from 36% before the pandemic.

vcs, for their part, have learned they do not need to drive to a startup or smell the founder to make a lucrative deal. Sequoia, a vc stalwart, no longer requires live in-person pitches from entrepreneurs and is perfectly happy with pre-recorded video presentations. More of Sequoia’s fellow vcs on Sand Hill Road, the historic centre of vc-dom in Palo Alto, are eyeing Europe. Venture investments across the Atlantic have shot up from less than \$40bn in 2019 to more than \$93bn last year—pulling nearly equal with Silicon Valley, according to CBInsights, another data provider. Sequoia—king of the Sand Hill, having wrested the crown from Kleiner Perkins, the dotcom-era lord—recently opened offices in London. Other vc firms are planning European outposts. Plenty already have Asian ones.

The Bay Area has lost its “geographical monopoly” in tech, sums up Phil Libin, a serial entrepreneur who runs mmhmm, a video-conferencing firm (whose investors include Sequoia). Mr Libin himself now lives in Bentonville, Arkansas, better known as the home of Walmart than as a tech hub.

Some of this dispersion may slow or even reverse. As covid-19 fades into endemicity, even Zoom-hardened venture capitalists would rather interrogate a startup founder over a bottle of a Napa cabernet than over a video call. They may also become more discerning about where to put their capital now that it is becoming costlier. This could favour nearby startups on which it is easier to keep an eye.

The valley reforged

Will all this make Silicon Valley more parochial, and less relevant? Don’t bet on it. It is true that the next trillion-dollar company may not come from Silicon Valley, the place, as most of the current crop have done. But the odds are that it will emerge from Silicon Valley, the mindset. Its high-octane venture capitalism and, increasingly, its capitalists and capital have infused technology scenes from Stockholm to Shanghai and São Paulo. That may be bad news for landlords in San Francisco, second-rate entrepreneurs in Mountain View and other rent-seekers who took advantage of the Bay Area’s initial geographical monopoly. For everyone else, be it tech workers south of Market who can at last afford a flat nearby or innovators in Mumbai able to tap Silicon Valley money and expertise, it is a boon. ■

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Globalisation

Economic freedom v political freedom

SAN FRANCISCO

Autocracy and globalisation are awkwardly locked together. Disentangling them will be hard—and costly

THE WORLD'S supply chains have taken a knock yet again. Russia's invasion of Ukraine provoked the biggest commodity shock since 1973, and one of the worst disruptions to wheat supplies in a century. Countries from Hungary to Indonesia are banning food exports to ensure supply at home. The West has issued sanctions against Russia, depriving it of all sorts of parts and technologies.

The strain on globalisation comes on top of the effects of the financial crisis of 2007-09, Brexit, President Donald Trump and the pandemic. For years measures of global integration have gone south. Between 2008 and 2019 world trade, relative to global GDP, fell by about five percentage points. Tariffs and other barriers to trade are piling up. Global flows of long-term investment fell by half between 2016 and 2019. Immigration is lower too, and not just because of border closures.

The war in Ukraine stands to accelerate another profound shift in global trade flows, by pitting large autocracies against liberal democracies. Such confrontation happened during the cold war, too. But this

time autocracies are bigger, richer and more technologically sophisticated. Their share in global output, trade and innovation has risen, and they are key links in many supply chains. Attempts to drift apart, therefore, will bring new consequences, and costs, for the world economy.

After the second world war democracies ruled the economic roost. In 1960 America, Britain, Canada, France, Italy and Japan accounted for about 40% of global exports. Autocracies, by contrast, were economically unimportant on the world stage. The Soviet Union accounted for 4% of global trade; China barely featured in the statistics. Average GDP per head across the communist bloc was a tenth of America's. The West was locked in a fierce ideological battle with communist countries, filled with proxy wars and nuclear scares. But in economic terms there was no contest.

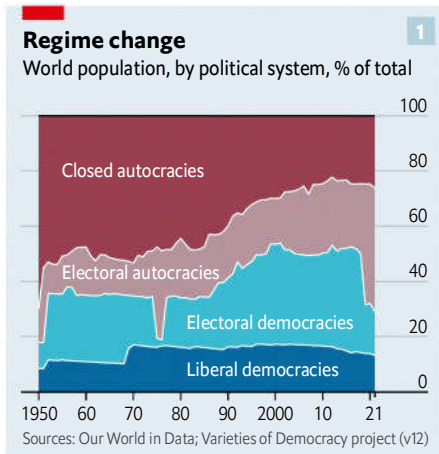
Their economies were also largely un-integrated. One observer in the late 1950s reckoned that trade between the USSR and America was so small that a big shipment could double the total from one month to another. The exceptions in east-west

trade—a bit of Russian gas to Europe; a wheat deal in 1972; a vodka-for-Pepsi swap from 1974—were few. A study published by the IMF days before the Soviet Union fell said that "foreign direct investment in the USSR has been minimal to date".

The communist bloc played by its own rules. Soviet external economic activity largely took place within COMECON, a group of sympathetic countries (China and the USSR barely traded with each other from the late 1950s, having fallen out). Trade in COMECON took place not via money-for-stuff, but in the form of a peculiar system of barter—oil for manufactured goods, say—agreed by governments.

From the late 1970s onwards, autocratic regimes began to open up. In part this was the result of an ideological change, first apparent in China. The death of Chairman Mao in 1976 allowed hitherto heretical views to emerge. "Unless it could expand and modernise its economy more rapidly than it had done in previous decades, China would remain poor, weak and vulnerable," wrote Aaron Friedberg of Princeton University in a paper published in 2018, describing the ideas of Deng Xiaoping, the leader who spearheaded China's opening up in the 1980s. A focus on class struggle gave way to a desire for modernisation and development. Further momentum for globalisation came from the fall of the Soviet Union in 1991.

The West, on the whole, welcomed and encouraged economic liberalisation, believing that it could be a force for good (and ▶▶)



▶ for large profits). By bringing countries into the global trading system it would be possible to raise living standards, as well as foster democracy and freedom. A globalised world would also be a more peaceful one, the argument went.

In the 1990s globalisation took off. Trade boomed. Annual global flows of foreign direct investment (FDI, including purchases of companies and the construction of new factories) rose by a factor of six. In 1990 Russia's first McDonald's opened, in Moscow; KFC set up shop a few years later. Russian oil companies began directing their exports towards the West. Between 1985 and 2015 Chinese goods exports to America rose by a factor of 125.

Living standards certainly went up. The number of people living in extreme poverty has fallen by 60% since 1990. Some formerly closed countries have utterly changed. The average Estonian is now only marginally poorer than the average Italian.

The other hoped-for benefit of globalisation—political liberalisation—has faltered, however. Our World in Data, a research organisation, puts countries into four groups, ranging from most to least free: “liberal democracies”, such as America and Japan; more flawed “electoral democracies”, such as Poland and Sri Lanka; “electoral autocracies”, such as Turkey and

Hungary; and “closed autocracies”, such as China and Vietnam, where citizens have no real choice over their leader.

Classifying political regimes is not an exact science, and involves making assumptions and judgments. Our World In Data counts India as an electoral autocracy since 2019, for instance, which some other sources do not agree with. Nonetheless, it helps give an idea of a broader trend: the waning might of liberal democracies.

The share of political regimes that were liberal democracies rose from 11% in 1970 to 23% in 2010. But democracy has retrenched since. Most of the 1.9bn people living in closed autocracies now reside in just one country: China. But lesser forms of autocracy are on the rise, such as in Turkey, where President Recep Tayyip Erdogan has consolidated power during his two decades in office (see chart 1).

Using data from the World Bank, the IMF and elsewhere, we divide the global economy into two. We estimate that today the autocratic world (ie, closed and electoral autocracies) accounts for over 30% of global GDP, more than double its share at the end of the cold war. Its share of global exports has soared over that period. The combined market value of its listed firms represented just 3% of the global total in 1989. Now it represents 30% (see chart 2).

China is by far the biggest non-democracy in economic terms, with a dollar GDP roughly two-thirds of America's, making up over half of our group of autocracies. But others, such as Turkey, the United Arab Emirates and Vietnam, have also gained in economic clout over the past 30 years.

Autocracies are now an especially serious rival to democracies when it comes to investment and innovation. In 2020 their governments and firms invested \$9trn in everything from machinery and equipment to the construction of roads and railways. Democracies invested \$12trn. Autocracies received more FDI than democracies between 2018 and 2020. And since the mid-1990s their share of patent applications has gone from 5% to over 60%. China

dominates patenting, but on almost all other measures the economic power of autocracies has soared even after China is excluded from our calculations.

Many autocracies have remained steadfastly mercantilist. China, for instance, opened its domestic markets where it suited it, but kept whole sectors closed off to allow domestic champions to rise. Nonetheless autocracies have become integrated with democracies to an extent that would have been unthinkable during the cold war. Vietnam, which has been ruled by a single party for decades, for instance, has become a pivotal link in the global manufacturing supply chain. The kingdoms and emirates of the Middle East are vital sources of oil and gas.

We estimate that roughly one-third of democracies' goods imports come from other political regimes. The codependency in some markets is clear. Democracies produce about two-thirds of the oil necessary to meet their daily needs. The rest must come from somewhere else. Half of the coffee that fills Europeans' cups comes from places where people have weak political rights. And that is before getting to precious metals and rare earths.

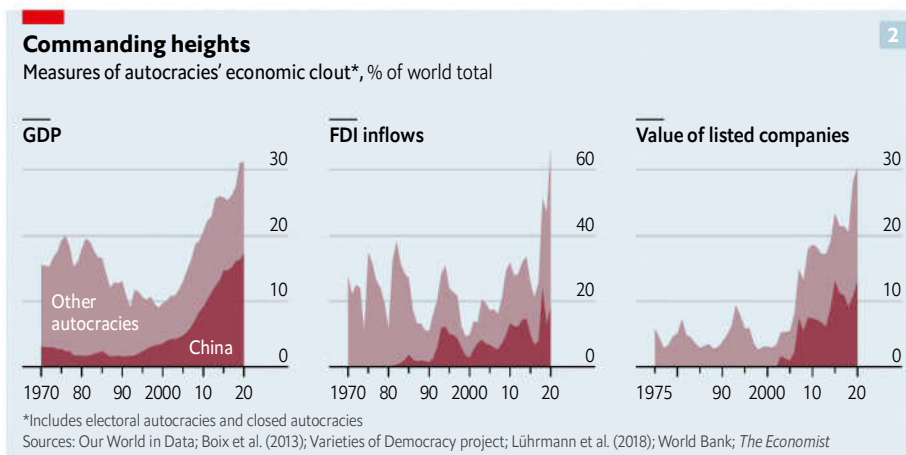
Integration goes far beyond trade. American multinationals employ 3m people outside democracies, a rise of 90% in the past decade (their total foreign employment has increased by a third). Investors from democracies hold over a third of the autocratic world's total stock of inward FDI. Autocracies have built up huge foreign reserves, now worth more than \$7trn and often denominated in “free” currencies like the dollar and the euro.

Broken dream

This intimacy is now under threat as a third, darker period comes into view. Even before the war in Ukraine, powerful countries were losing interest in a truly global presence. Instead they were seeking to rely more on themselves or to dominate their immediate geographical area. Their new thinking is becoming increasingly enshrined in strategy and policy.

The waning appetite for globalisation has a few causes. One relates to greater consumer awareness in the West about human-rights abuses in places such as China and Vietnam. Polls in Western countries regularly find that a high share of respondents support boycotting Chinese goods (whether they would actually do so is another matter). Western companies are being pressed to source goods elsewhere. Concerns over the national-security implications of trade and investment, including industrial espionage, have also risen.

Autocracies have their own worries. One is that too much integration can cause Western culture to seep across borders, weakening autocratic rule. Deng himself ▶▶



identified the dilemma: “If you open the window for fresh air, you have to expect some flies to blow in.”

Another, bigger worry relates to power. Being part of global supply chains means being vulnerable to sanctions. This was clear from an early stage. In 1989 China faced sanctions after the crackdown in Tiananmen Square. The next year America placed Cuba, El Salvador, Jordan, Kenya, Romania and Yemen under sanctions for various infractions. Several rounds of Western sanctions on Russia, first in 2014 and then again today, bring the message home still more forcefully.

Already there is evidence of a crude decoupling. In 2014 America banned Huawei, a Chinese tech firm, from bidding on American government contracts. In 2018 Mr Trump started a trade war with China, with the goal of forcing it to make changes to what America said were “unfair trade practices”, including the theft of intellectual property. FDI flows between China and America are now just \$5bn a year, down from nearly \$30bn five years ago.

Recent policy announcements and trade deals shed some light on the probable direction of globalisation as the world’s most powerful democracies and autocracies turn away from each other. Countries are signing smaller, regional trade deals instead; democracies are banding together, as are autocracies; and many countries are also seeking greater self-reliance.

Begin with regional trade deals, the number of which is booming. In 2020 China signed an agreement with 14 other Asian countries, mostly non-democracies. In that year the ASEAN group of South-East Asian countries became China’s biggest trading partner, replacing the EU. In Africa, meanwhile, most countries have ratified the African Continental Free Trade Area.

Countries with shared political systems are also coming closer. The CoRe Partnership, an agreement between America and Japan, launched last year and is designed to promote co-operation in new technologies from mobile networks to biotech. The US-EU Trade and Technology Council, the pointed ambition of which is to promote “the spread of democratic, market-oriented values”, is working on climate change and strengthening supply chains.

Autocracies are also forming their own blocs. The stock of long-term investment from the autocratic world into China rose by over a fifth in 2020, even as the amount of investment from autocracies into America barely budged. Saudi Arabia is reportedly mulling selling oil to China in yuan, rather than dollars. Long-term investment from autocracies into increasingly illiberal India rose by 29% in 2020.

Large countries in particular, meanwhile, are also turning inward. A big focus of President Joe Biden’s administration, for

instance, is “supply-chain resilience”, which in part involves efforts to encourage domestic production. China’s turn in 2020 towards a “dual circulation” strategy includes an attempt to rely less on global suppliers. It wants to release its rivals’ grip on “chokehold” industries, such as chip-making equipment, which it fears could be used to strangle its rise. India, too, has turned towards self-reliance.

Many of these efforts could come at a price. Autocracies are notoriously prone to pursuing their own self-interests, rather than banding together. History shows that withdrawing from global trade and investment networks carries huge costs. In 1808 America came close to autarky as a result of a self-imposed embargo on international shipping. Research by Douglas Irwin of Dartmouth College suggests that the ban cost about 8% of America’s gross national product. More recently, many studies have

found that it was primarily American firms that paid for Mr Trump’s tariffs. Brexit has slowed growth and investment in Britain.

Russia’s attempt at self-reliance, by pursuing import substitution on a large scale, building up foreign-exchange reserves and developing parallel technological networks, shows just how hard it is to cut yourself off from the global economy. Sanctions by the West rendered much of its reserves useless overnight (see Buttonwood). The economy was struggling even before the war, and has since gone off a cliff. Unemployment is likely to soar as foreign firms leave the country.

The risk, though, is that countries draw the opposite lesson from Russia: that less integration, rather than more, is the best way to protect themselves from economic pain. The world would become more fractured and mutually suspicious—not to mention poorer than it could have been. ■

Covid-19 in China

A deep ditch

HONG KONG

Will China’s lockdowns add to strains on global supply chains?

WHEN CHINA’S government said on March 5th that it would aim for economic growth of 5.5% this year, the target looked demanding. Now it looks almost fanciful. On March 14th China recorded 5,370 new cases of covid-19. That would be a negligible number in many countries. But in China it is an intolerable threat to its cherished zero-covid policy. The bulk of the cases are in the north-eastern province

of Jilin, which has gone into a full lockdown. But lockdowns of varying severity have also been imposed in Shanghai and Shenzhen, two cities that account for more than 16% of China’s exports.

In Shanghai, anyone wanting to leave the city has to show a negative result on a nucleic-acid test taken in the previous 48 hours. Parks and entertainment venues have been closed. Entire blocks of flats are locked down if anyone living in them is suspected of exposure to the virus.

The restrictions in Shenzhen go further. People have been allowed to stock up on groceries, but must now hunker down for a week while they undergo three rounds of compulsory tests. Everyone must work from home or not at all, unless they help supply essential goods and services to the city, or to Hong Kong next door.

The lockdowns pose an obvious threat to the world’s supply chains. Shenzhen (the name of which can be translated loosely as “deep ditch”) accounts for almost 16% of China’s high-tech exports. Foxconn, which makes iPhones for Apple, has suspended operations at its plants in the area for at least the first half of the week, according to Reuters. Other links in the tech supply chain have also paused production. And the wholesale electronics markets in the Huaqiangbei neighbourhood, landmarks of “low-end globalisation”, bustle no more. ▶▶



Zero covid, zero tolerance

Shenzhen is also home to Yantian port, one of the world's busiest. After a covid outbreak in May last year, it briefly had to operate at only 30% of its capacity. That contributed to long queues of ships out at sea and high towers of containers on the docks. This time "the shockwaves will be felt across America...and almost everywhere in the world," warns Johannes Schlingmeier of Container xChange, a platform for leasing containers.

Still, China's supply chain is some way from snapping. Foxconn, for example, has some room for manoeuvre. It has over 40

plants in China and does much of its iPhone production outside Shenzhen. March is also not a peak delivery season for many of the things Shenzhen makes, point out Helen Qiao of Bank of America and colleagues. And China's manufacturers will go to great lengths to keep production running. In Shanghai, for example, a car-parts maker has asked essential workers to live and sleep on the factory premises when conditions allow, according to LatePost, a Chinese media outlet. Some factories in Shenzhen will be allowed to operate in this kind of bubble, too.

The more certain economic threat posed by the latest outbreak is to Chinese consumption. The country's retail sales had recently shown signs of life: they rose by 4.9% (adjusted for inflation) in January and February, compared with the same two months a year earlier. But Nomura, a bank, thinks retail sales, in real terms, could shrink again in the months ahead.

The outbreak has also delayed any relaxation of China's zero-covid policy. In recent weeks, there had been some signs of a softening. Prominent public-health experts had begun to talk about a path to co-▶▶

Buttonwood With reservations

The new dilemmas of foreign-exchange reserve managers

CRYPTO INVESTORS sometimes say they have been "rugged" when the developers of a coin vanish, along with the capital that has been allocated to it, pulling the rug out from under them. Foreign-exchange reserve managers might never have expected to recognise the feeling. But almost as soon as Russia invaded Ukraine, American and European authorities froze the assets of the Central Bank of Russia. As others followed, the country's first line of financial defence was obliterated. According to the Russian government, \$300bn of its \$630bn in reserves are now unusable.

The managers of the \$13.7trn in global foreign-exchange reserves are a conservative breed. They care about liquidity and safety above all else, largely to the exclusion of profits. Much of their thinking was shaped by the Asian financial crisis of 1997-98, when currencies collapsed in the face of huge capital outflows. The lesson learned was that reserves needed to be plentiful and liquid.

Watching a big chunk of Russia's reserves being made functionally useless is likely to be just as formative, even for those who face no immediate prospect of a terminal rift with the world's financial superpowers. That is particularly true for the State Administration of Foreign Exchange (SAFE), the agency in charge of China's \$3.4trn in reserves. India and Saudi Arabia, with \$632bn and \$441bn in reserves, respectively, may also be paying close attention.

Barry Eichengreen, an economic historian, has described the choice of the composition of foreign-exchange reserves as being guided by either a "Mercury" or a "Mars" principle. The Mercurial approach bases reserves on commercial links; the currencies being held are largely determined by their usefulness



for trade and finance. A Martian strategy bases the composition more on factors like security and geopolitical alliances.

Mars seems to be in the ascendant. Central banks are bound to take into account which countries will and will not replicate sanctions against them. In 2020 Guan Tao, a former SAFE official now at Bank of China International, laid out a range of ways that China could guard against the risk of sanctions. In extremis, he suggested that the dollar could stop being used as the anchor currency for foreign-exchange management and be replaced by a basket of currencies.

Even that option, which might have sounded extreme a month ago, now falls short of what a Martian central bank would need, given the degree of co-operation with American sanctions. There are few, if any, jurisdictions with large, liquid capital markets denominated in currencies that are useful in an emergency, but which do not pose a risk from a sanctions perspective. Some worried central banks might start increasing their holdings of yuan assets (which currently make

up less than 3% of the global total). But that is no solution for China itself.

Why not go back to basics? Gold, the original reserve asset, is a large liquid market outside any one jurisdiction's control. Researchers at Citigroup, a bank, estimate that most of the reserves that Russia can currently marshal are in gold and the Chinese yuan. Yet the West's sanctions are so expansive that they prohibit many potential buyers from purchasing the assets Russia has accumulated over the years. Even a would-be counterparty in a neutral or friendly country will think twice about transacting with a central bank under sanctions, if it risks their own access to the financial plumbing of the dollar system.

There has been more adventurous speculation, too. Zoltan Pozsar of Credit Suisse, a bank, has suggested that China sell Treasuries in order to lease ships and buy up Russian commodities, arguing that the global monetary system is shifting from one backed by government bonds to one that is backed by commodities. Bold as the forecast is, it is also emblematic of the few conventional options available to reserve managers.

And that lack of good solutions points to another drastic approach: that countries limit their use of reserves for their financial defence altogether. Various tools of autarky, such as tighter capital controls, could become more attractive. Governments also typically rely on reserves as the last guarantee that they can service foreign-currency debts. But if that guarantee is no longer absolute, then they are less likely to be comfortable issuing dollar- and euro-denominated bonds at all. Private companies may be prodded to de-dollarise, too. If you don't invest in the first place, you won't be rugged.

existence with the virus. China Meheco, a state-owned firm, signed a deal to supply Pfizer's Paxlovid pill, which helps protect infected people against serious disease. But the latest outbreak has been met with more hawkish rhetoric. On a visit to Jilin on March 13th Sun Chunlan, one of the country's four deputy prime ministers, said China's provinces should follow their zero-covid strategy without compromise.

That relentlessness may, however, require compromise on other goals. Morgan Stanley, a bank, has cut its forecast for China's economic growth this year from 5.3% to 5.1%. It thinks GDP may not grow at all in the first quarter, compared with the previous three months. The economy may yet rebound later in the year. But if China is to come close to its growth target, it will first have to clamber out of its ditch. ■

Consumer prices

A Russian phenomenon

WASHINGTON, DC

The inflationary consequences of war will spread

LAST SUMMER, amid mounting alarm about inflation in America, economic advisers in the White House penned a blog post in which they examined historical parallels. Although the press was full of comparisons with oil shocks in the 1970s, they wrote that a nearer relative was the dislocation after the second world war, when supply shortages interacted with pent-up demand. It was a well-reasoned argument. But the surge in commodity prices over the past month, in the wake of Russia's invasion of Ukraine, gives rise to an unsettling question: is the global economy now seeing a 1970s-style price shock on top of a late-1940s-style supply crunch?

To be sure, no serious economist expects inflation in the rich world to reach the giddy double-digit heights of those episodes. On March 16th the Federal Reserve raised interest rates for the first time since 2018, kicking off a tightening cycle that it expects to continue well into next year. Moreover, the retreat in oil markets in recent days could offer relief.

Nevertheless, surging prices for everything from wheat to nickel threaten to add to inflation. And rolling lockdowns in parts of China could exacerbate strains on global supply chains. Consumer-price inflation in America already stood at a 40-year high in February, at 7.9% year on year; the rate in the euro area, meanwhile, exceeded 5%.

Investors are still far from persuaded that central bankers are on top of the pro-

blem. The most striking evidence is the inflation expectations that can be found in fixed-income markets in America. ICE, a financial firm, distils a few different numbers, including yields on inflation-protected bonds and interest-rate swaps, into short-term and long-term indices for gauging expectations. In late January the expected rate of inflation over the next year was 3.5%. On March 15th it stood at 5.4%. Expectations in the euro area have seen similar, if slightly steeper, trends. The one-year inflation swap rate rose to 5.9% on March 8th (see chart).

Markets are inherently volatile, so deriving inflation predictions from bond yields should be taken with a pinch of salt. But the shift in prices is broadly in line with what economists are forecasting. Last week Bank of America raised its inflation forecasts for much of the world. In America it now expects inflation over 2022 as a whole to average 7%, up from its prior forecast of 6.3%. In the euro zone it sees an even bigger increase, with inflation averaging 6% this year, well above its previous forecast of 4.4%. The challenge is greater for Europe because of its high dependency on Russia, which supplies about 45% of its gas imports.

In an indication of just how pervasive the pressures are likely to be, economists are even ratcheting up their inflation forecasts for Japan, where deflation has long been the bigger threat. On March 8th S&P, a rating agency, said that Japanese inflation would average 2% this year, more than double its previous prediction. So far forecasters expect a relatively modest increase in overall inflation in emerging markets. But rising food costs will be especially damaging for their poorest citizens.

Two related questions emerge from these forecasts. The first is whether the rise in commodity prices today will feed through into lofty inflation in the longer run. There is, in fact, reason for cautious optimism. A large body of research shows that the pass-through from higher oil prices into non-energy inflation is quite limit-

ed. For instance, Goldman Sachs, a bank, calculates that a 10% increase in crude-oil prices leads to a jump of nearly three-tenths of a percentage point in headline inflation in America, but to an increase of just about three-hundredths of a percentage point in core inflation (stripping out food and energy prices). That helps explain why market expectations of longer-term price trends remain more subdued: pricing for inflation five years from now is close to the Fed's goal of keeping inflation to an average of 2%.

The follow-up is what central bankers choose to do about rising commodity prices. The received wisdom of the past few decades is that policymakers should avoid over-tightening in the face of oil shocks. Indeed, surging energy prices can act as a drag on consumption, which is a particular concern for Europe.

But with real interest rates deeply negative in both America and Europe, central banks still have a long way to go to rein in inflation, whatever happens to commodity prices. On March 10th the European Central Bank surprised markets by announcing that it would wind down its bond-buying more quickly. And according to the Fed's projections, its quarter-point rate increase is likely to be the first of seven this year. Central banks are, for now, sticking to their pre-war plans. ■

The commodities crunch

When China met the free market

A nickel-trading fiasco leaves three big unanswered questions

THE TRADING OF commodities is an arcane activity that makes it into the public eye only at times of extreme hubris. That is when names like the Hunt brothers, who tried to corner the silver market in 1980, and Hamanaka Yasuo, or "Mr Copper", who in 1996 produced huge losses for Sumitomo, a Japanese trading house, became household ones. Xiang Guangda, a Chinese tycoon known as "Big Shot", vaulted into the news this month by taking a position on nickel that went badly wrong. The result has been one of the biggest tremors in the 145-year history of the London Metal Exchange (LME). It has also brought China, which is keen to exert more power over the trading of commodities, face to face with free markets gone mad.

In the cloistered world of the LME, some facts about the affair are clear. One is that nickel prices, already hot before Russia's invasion of Ukraine, surged after the West imposed sanctions on Russia. Another is ▶▶

Shock and war

Inflation expectations, one-year swap rate 2022, %



▶ that Mr Xiang's firm, Tsingshan, had exposure to short positions on the LME of about 180,000 tonnes of nickel, which were supposed to benefit if prices went down. They didn't, as a short-covering scramble for nickel briefly pushed prices above \$100,000 a tonne on March 8th, putting Tsingshan's potential losses into the billions of dollars. At that point the LME suspended nickel trading, cancelling all trades that took place overnight. When the suspension was lifted on March 16th, a sharp drop in nickel prices forced the LME to suspend trading again, adding to the chaos.

Three big questions remain. How important is Tsingshan's role in the debacle? Did its troubles provoke interference from China? And has the LME bungled its response? All will be the subject of scrutiny.

In media reports, Tsingshan has the lead role in the drama. There is debate about whether its short-selling represented the normal activity of one of the world's largest nickel producers hedging its output, or a speculator making a rash bet. What appears clear is that the nickel it produces is not the type of metallic nickel that is traded on the LME, meaning there was a mismatch between its shorts and longs. As its losses increased, its brokers forced it to provide more cash, or "margin". The size of its position meant that they also faced big margin calls, making it as much their problem as Tsingshan's. On March 15th Tsingshan said it had reached a standstill agreement with its creditors until it reduces its positions in an orderly way.

In the market, rumours abound that China may have influenced the LME's activities, partly because Hong Kong Exchanges and Clearing (HKEX) owns the exchange, and also because Tsingshan is strategically important to the country, because its nickel goes into electric-vehicle batteries. The LME denies receiving pressure from HKEX. It granted extra time on March 7th to CCBI Global, a Chinese broker for Tsingshan that is a member of the LME, to raise funds from its state-owned parent, China Construction Bank, to cover margin calls. That may have been a prudent thing to do. It knew the wealthy bank could provide the funds. Some traders wonder whether it would have been as tolerant with a non-Chinese entity. In the aftermath, Chinese authorities are said to have fought hard to stop Tsingshan's nickel assets falling into the hands of non-Chinese speculators.

The most intense scrutiny may fall on the LME itself, specifically the timing of its decision to suspend nickel trading and the cancelling of overnight trades that were rumoured to be in the billions of dollars. It said it halted trading in the early hours of March 8th when it reckoned the nickel market had become disorderly. It added that its decision to cancel that day's trades was because the big price moves had creat-

ed a systemic risk to the market, raising concerns of multiple defaults by member-brokers struggling to meet margin calls.

That latter decision is the biggest bone of contention. Critics say it favoured those with short positions, such as physical producers and their banks, over those with long positions that could be sold at a big profit. They ask why it stepped in to protect brokers when the LME has a default fund that its members can get access to in times of trouble. "The decision to erase the trades...will undermine long-term confidence in the LME," says Yao Hua Ooi of AQR, an asset manager that had trades cancelled on March 8th. "If you want the AQRs of this world [in the market], you cannot intervene when they make money and it hurts your brokers." He said the firm was exploring all options against the LME.

The LME has since set daily limits on price moves (which were exceeded on March 16th when it briefly reopened nickel trading). That is another sign of intervention by an exchange that used to pride itself on its free-market nature. Its owner in Hong Kong, with China looking over its shoulder, would no doubt approve. ■

Windfall taxes

Power grab

Politicians turn to a tax that is enticing on paper, but tricky in practice

ON MARCH 8th, the day the price of a barrel of Brent crude oil spiked above \$127, the European Commission unveiled its grand plan to fight stratospheric living costs. Claiming that the "crisis situation" warranted exceptional measures, it recommended that member states levy a one-off tax on electricity-generating firms. The revenues raised could then be used to keep



The taxman's temptation

households' bills down. The next day Elizabeth Warren, a senator from Massachusetts, tweeted that she and other legislators were working on a tax on the "war-fuelled profits" accruing to American oil majors. The proposal is now making its way through the House of Representatives.

Politicians have reached for such "windfall" taxes before. Bulgaria, Italy, Romania and Spain have imposed them on power generators in recent months, as benchmark energy prices have risen. In 1980 America announced that it would begin taxing oil producers in six years' time, hoping to cash in on profits that were expected to be made after prices were deregulated. Britain's new Labour government taxed utilities in 1997, after the Conservative government had sold them off cheaply.

The levies are understandably tempting for the taxman. Big windfalls mean big receipts. The usual worry with a tax is that it might change companies' behaviour, say by encouraging them to lower investment in order to bring down future tax bills. But the event causing the windfall is meant to be a one-off, unconnected to investment. They are "extremely efficient ways to raise revenue", says Helen Miller of the Institute for Fiscal Studies, a think-tank in London. At least, in theory.

Britain's tax probably fitted the ideal better than most. It had a clear rationale: that excess gains had come from the underpricing of shares when firms were privatised. Post-privatisation profits were multiplied by a price-to-earnings ratio; a 23% tax was levied on what was left over once public proceeds from privatisation were subtracted. Even then, however, the tax failed to target the beneficiaries of excess gains. British Telecom, the first utility to be privatised, had listed in 1984. Many early punters had come and gone, leaving shareholders in 1997 bearing the burden.

Levies elsewhere have faced other hurdles. In 2006 Mongolia introduced a 68% charge on profits from copper and gold sales, hoping to cash in on a new mine during a commodity-price boom. Instead, investors withheld funds for the project until regulators agreed to drop the tax. America's tax did distort firms' behaviour, by some estimates reducing oil production between 1980 and 1986 by up to 4.8%.

The European Commission's plan has its flaws. It does not explain why the current situation warrants a one-off tax, adding uncertainty about when such levies might be used again. Furthermore, the energy industry buys and sells power using long-term contracts, making the link between today's prices and tomorrow's profits fuzzy. And prices can fall as quickly as they rise. By March 16th, for instance, the oil price was back to about \$100 a barrel.

Recent experiments offer scant grounds for optimism. Romania, Italy and ▶▶



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Spain are targeting renewable-power generators, which have not experienced the same increase in costs as generators that use fossil fuels. Richard Howard of Aurora Energy, a consultancy, says that this raises the “risk premium” of investing in renewables—exactly what legislators want to avoid. Peter Styles of the European Federation of Energy Traders, a trade body, notes that Spain’s scheme stops green-energy

generators accruing excess profits to begin with, which will distort the way prices are set in the market.

Their momentum across Europe also creates a fiscal opening that may be hard to close. The commission recommends that all windfall taxes should be wound down by the end of June. But Spain has already extended its clawbacks once. And Italy’s measures will last until December. ■

Crypto and sanctions

False promise

NEW YORK

Sanctions-dodgers hoping to use crypto may be disappointed

TO THEIR CHAMPIONS, cryptocurrencies are supposed to be a libertarian Utopia. Because tokens are created and moved by loose, decentralised networks of individual computers based in dozens of countries, cross-border transactions can be quick and in theory are free from control by intermediaries, such as banks, which can be regulated by national governments. Critics of crypto-finance have long looked askance at the same system. To statisticians, it represents the tyranny of techno-anarchy.

Russia’s invasion of Ukraine and the West’s subsequent sanctions on Russian banks, companies and elites appears to turn on its head the debate about whom crypto helps and hurts. Though politicians and regulators in America and Europe at first feared that people and entities hit with sanctions would use cryptocurrencies to dodge the restrictions, little evidence of such activity has materialised. Instead, crypto institutions appear to be under the thumb of governments, too. And there has been a huge surge in crypto donations to help the government in Ukraine.

Crypto’s decentralised network is supposed to be supranational and its users are meant to be anonymous. This makes it seem like a useful tool for sanctions-dodging. Certainly, there is evidence that Russians have been buying more crypto. But this may stem from a desire to hold an asset that is not plunging in value. The rouble has tumbled by about 25% against the dollar since February 23rd, whereas bitcoin has risen against the greenback. For oligarchs looking to dodge sanctions, though, crypto has three main flaws.

The first is that the infrastructure, such as large exchanges, does not really exist in Russia. “Had the Russians wanted to use blockchain infrastructure for sanctions evasion, they would have had to have taken a very different regulatory approach,” says Tomica Tillemann, a former staffer for

President Joe Biden, who now advises Katie Haun, a crypto-focused venture capitalist. “Russia, along with a number of other authoritarian societies, has been pretty hostile to digital assets.” Thus Russians’ ability to convert significant amounts of wealth into crypto is limited.

The second flaw is that it is not possible to buy most everyday items or financial assets with crypto, which means that a sanctions-dodger must at some point leave the crypto-sphere. “Ultimately what they really need to do is get access to some form of fiat currency, which becomes more challenging,” said Christopher Wray, the head of the FBI, in a US Senate hearing on the Russian invasion on March 10th. That requires interacting with a crypto-exchange.

Though early iterations of some exchanges resisted the need to implement “know your customer” (KYC) anti-money-laundering measures, many have acquiesced as they have become regulated institutions. Some are publicly listed. Most have a presence in America and Europe. Binance, the largest exchange, implemented a KYC policy in 2021, requiring those using it to identify themselves to the firm.

The message from regulators to exchanges has been unanimous. America’s Treasury has stressed that its sanctions apply “whether a transaction is denominated in traditional fiat currency or virtual currency”, a message reinforced by an executive order on digital currency from Mr Biden on March 9th. The White House has also issued a statement with the leaders of other G7 countries and the EU, vowing to “impose costs on illicit Russian actors using digital assets to enhance and transfer their wealth”. The crypto industry has rushed to accommodate these requests. Coinbase, another large exchange, has frozen 25,000 Russian accounts. Binance has said it will freeze the assets of people who have been targeted with sanctions.

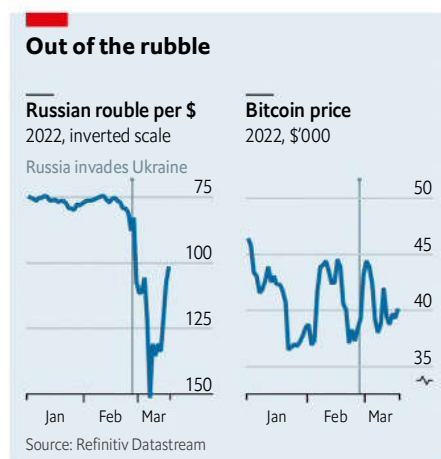
The third problem is that moving money around in crypto is not as private as is widely thought. Government sleuths have invested time and energy in trying to link supposedly anonymous wallets with real people, with some success. And as blockchain transactions are public, once identified, it is easy to trace the history of funds. In December the FBI managed to seize \$3.6bn-worth of crypto-assets related to a theft from an exchange in 2016.

Crypto may turn out to be far more useful to those looking to move in the open, rather than in the shadows. On February 26th the official Ukrainian Twitter account published digital-wallet addresses through which it is accepting bitcoin, ether and other tokens. Donations quickly flooded in. “Crypto really helped during the first few days because we were able to cover some immediate needs,” says Alex Bornyakov, Ukraine’s deputy minister for digital transformation. Nearly \$100m-worth of tokens has since been donated to those and other wallets set up by private initiatives.

Getting money to war zones is notoriously hard. In 2008 Mr Tillemann visited Tbilisi in Georgia with Mr Biden, then a senator, in the middle of Russia’s invasion of the country. “It became very obvious that we were going to have real challenges getting in resources,” he says. Donors were forced to ship pallets of \$100 bills into war zones in Iraq and Afghanistan.

Moving money out of war zones to buy supplies can be just as difficult. In the chaos of the war, it became increasingly difficult to pay in dollars or euros, especially abroad. “So we needed a tool to quickly perform those transactions. And crypto was our first choice,” says Mr Bornyakov. Although most suppliers did not operate in crypto, they agreed to accept it, he says. Ukraine has spent some \$30m on things like bulletproof vests, night-vision goggles and medicines. Around a fifth of that was spent directly in crypto.

The war has made it clear that there are serious uses for crypto. But it is now policed seriously, too. ■



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The disturbing new relevance of economists' theories of nuclear deterrence



SIXTY YEARS ago, a dispute over the placement of Soviet missiles in Cuba pushed Washington and Moscow perilously close to all-out war. The crisis provided history's most extreme example yet of nuclear brinkmanship, situations in which governments repeatedly escalate a very dangerous situation in an attempt to get their way. It also demonstrated the extraordinary value of the work of Thomas Schelling, an economist then at Harvard University, who used the relatively new tools of game theory to analyse the strategy of war. The war in Ukraine has made Schelling's work, for which he shared the economics Nobel prize in 2005, more relevant than ever.

Game theory came into its own in the 1940s and 1950s, thanks to the efforts of scholars like John von Neumann and John Nash, who used mathematics to analyse the strategies available to participants in various sorts of formal interactions. Schelling used game theory as a prism through which to better understand war. He considered conflict as an outcome of a strategic showdown between rational decision-makers who weighed up the costs and benefits of their choices. If a would-be attacker expects to gain more from aggression than any cost his adversary can impose on him, then he is likely to go through with the aggressive act.

For a government hoping to deter an aggressor, the effectiveness of its deterrence strategy thus depends in part on the size of the retaliatory costs it can inflict on its attacker. But this is not an exact science. Both sides may have incomplete information about the relative costs they can expect to bear. When Vladimir Putin, Russia's president, was preparing his invasion of Ukraine, for example, Western democracies threatened to impose stiff sanctions. Just how tough the sanctions could be was not necessarily knowable to either side beforehand, because the details needed to be negotiated with allies.

The credibility of retaliatory threats matters, as well; both sides of a potential conflict may issue grave threats, but if they ring hollow they may be ignored. The threat of stiff sanctions by Western democracies—clearly a powerful tool in hindsight—might well have been weakened by doubts that governments were prepared to expose their citizens to soaring oil and gas prices. Governments deploy a range of tools to bolster the credibility of their threats. An

American promise to defend an ally may be strengthened by the placement of American troops within the ally's borders, in harm's way, for instance; an American president would presumably find it more difficult to back down in the face of an attack that claimed American lives. Schelling, for his part, noted that credibility can sometimes be enhanced by taking costly actions or limiting your own options. A general's promise to fight to the bitter end if an enemy does not withdraw becomes more credible if he burns the bridges that provide his own avenue of retreat.

The problem of credibility becomes far more complicated in a showdown between nuclear-armed powers, which both have sufficient weaponry to retaliate against any first strike with a devastating attack of their own. If the first use of nuclear weapons is all but assured to bring ruin on one's own country as well, then efforts to use the threat of nuclear attack to extract concessions are likelier to fail. Wars may nonetheless occur. The invasion of Ukraine could be seen as an example of the stability-instability paradox: because the threat of a nuclear war is too terrible to contemplate, smaller or proxy conflicts become "safer", because rival superpowers feel confident that neither side will allow the fight to escalate too much. Some scholars reckon this helps to account for the many smaller wars that occurred during the cold war.

And yet the cold war also threatened to turn hot at times, as in 1962. Schelling helped explain why. He noted that the threat of a nuclear attack could be made credible, even in the context of mutually assured destruction, if some element of that threat was left to chance. As a showdown between nuclear powers becomes more intense, Schelling observed, the risk that unexpected and perhaps undesired developments cause the situation to spiral out of control rises. (When nuclear forces are on high alert, for instance, false alarms become far more dangerous.) The upper hand, in such a situation, is thus maintained by the side that is more willing to tolerate this heightened risk of all-out nuclear war.

This is the essence of brinkmanship. It is not merely a matter of ratcheting up the tension in the hope of outbluffing the other side. It is also a test of resolve—where resolve is defined as a willingness to bear the risk of a catastrophe. Mr Putin's move to increase the readiness of his nuclear forces may represent an attempt to demonstrate such resolve (over and above the message sent by the invasion itself). President Joe Biden's refusal to escalate in kind could be seen as an acknowledgment of the conspicuous fact that an autocrat embroiled in a pointless war has less to lose than the rich democracy to which Mr Biden is accountable.

The only winning move

It could be, however, that Mr Biden had something else in mind. In his Nobel lecture, Schelling wondered at the fact that nuclear weapons had not been used over the 60 years that had elapsed since the end of the second world war. While he chalked up the absence of nuclear use between superpowers to deterrence, he reckoned that in other wars and confrontations restraint was best understood as resulting from a taboo: a social convention that stayed belligerents' hands when they might otherwise have deemed it strategically sensible to deploy nuclear weapons.

Russia's aggression has shattered another taboo, against territorial aggrandisement through violence. And though the governments of the West feel compelled to respond to limit the damage that has caused, they are no doubt also keen to restore the old convention—to demonstrate that the world has moved beyond an age where the mighty take by force whatever they want. ■



The war in Ukraine

Magic armour?

Russian tanks are sprouting cages. But they seem to be pretty much useless

A LOT OF Russian tanks involved in the invasion of Ukraine have strange cages welded over the roofs of their turrets. Strange and apparently useless—for many pictures have emerged of destroyed vehicles surmounted by them. Sometimes the cage itself has been visibly damaged by an attack that went on to hit the tank beneath.

Stijn Mitzer, an independent analyst based in Amsterdam, has looked at hundreds of verified photographs of destroyed Russian vehicles. He thinks that, far from acting as protection, the cages have done nothing save add weight, make tanks easier to spot, and perhaps give a false and dangerous sense of security to the crew inside. They have thus been mockingly dubbed by some Western analysts as “emotional-support armour” or “cope cages”.

Superficially, they are an example of what is known in military circles as field-expedient armour—in other words, stuff that has been added to vehicles after they have entered service. Often, field expedients are sensible retrofits. Gareth Appleby-Thomas, head of the Centre for Defence Engineering at Cranfield University, in Brit-

ain, observes that they have ranged over the years from sandbags, via sheets of armour subsequently (and often crudely) attached to the outsides of tanks, to factory-made upgrade kits.

Cage fight

The new cages, the fitting of which seems to have begun late in 2021, appear to be a variant of so-called slat or bar armour. Such armour can provide effective lightweight protection if used correctly (as it is, for example, on American Stryker armoured personnel carriers). But in this case that seems not to have happened. They might thus be seen as symbols of Russia’s inadequate preparation for the campaign, as pertinent in their way as its failures to neutralise Ukraine’s air defences

and to shoot down that country’s drones.

One of the main threats to armoured vehicles are HEAT (High Explosive Anti-Tank) weapons, such as the Russian-made but widely employed RPG-7. The warheads of these rocket-propelled grenades are shaped charges—hollow cones of explosive lined with metal. When the explosive detonates it blasts the metal lining into a narrow, high-speed jet that is able to punch through thick steel. According to Dr Appleby-Thomas an RPG-7 can penetrate 30cm of steel plate.

And RPG-7s are the babies of the bunch. Other, far more powerful shaped-charge anti-tank weapons used by Ukrainian forces include Javelins supplied by America, NLAWs (Next-generation Light Anti-tank Weapons) supplied by Britain, and drone-borne MAM-L missiles, supplied by Turkey.

HEAT warheads may be countered by what is known as explosive reactive armour, or ERA. When this is hit, a sheet of explosive sandwiched inside it blows up and disrupts an incoming warhead before it can detonate. Many Russian tanks are indeed fitted with ERA. However ERA may, in turn, be defeated by a so-called tandem warhead, in which a small precursor charge triggers the armour’s explosive before the main warhead detonates.

Slat and bar add-on armours are a lighter and cheaper way to counter RPGs, though even if used correctly they are, literally, hit or miss protection. The spacing of the bars or slats is crucial. If a rocket hits a bar it makes little difference, for its war-

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The Chernobyl Research Initiative Lab

A casualty of war

The fighting in Ukraine threatens an intriguing piece of science

▶ head will detonate anyway. But if it gets trapped between bars it will probably be damaged in a way which means that the signal from the nose-mounted fuse cannot reach the detonator.

This approach is known as statistical armour, because the protection it offers is all or nothing. It is typically quoted as having a 50% chance of disrupting an incoming RPG. But Dr Appleby-Thomas notes that it works only against munitions with a nose fuse, which Javelins, NLAWs and MAM-LS do not have.

Russia has been fitting slat armour to vehicles since 2016, but the design of the new cages, seemingly improvised from locally available materials, is baffling. They appear to be oriented in a way that protects only against attacks from above. In principle, that might help against Javelins, which have a “top attack” mode in which they first veer upwards and then dive to punch through a tank’s thin top armour. But, as Nick Reynolds, a land-warfare research analyst at RUSI, a British defence think-tank, notes, even if the cage sets off a Javelin’s precursor warhead, the main charge is still more than powerful enough to punch through the top armour and destroy the tank—as the Ukrainian army itself proved in December, when it tested one against a vehicle protected by add-on armour replicating the Russian design. As expected, the Javelin destroyed the target easily.

Another idea is that the cages are a response to the conflict in 2020 between Armenia and Azerbaijan, over Nagorno-Karabakh, in which large numbers of Russian-made Armenian tanks were destroyed from above by MAM-LS. But Samuel Cranny-Evans, another analyst at RUSI, points out that the MAM-L’s lack of nose fuse makes adding cages unlikely to succeed. Hitting a cage might detonate the warhead prematurely, but Mr Cranny-Evans does not believe this would prevent it destroying a tank.

A third possibility is that the cages are meant as protection against RPGs (which the Ukrainians have in abundance) which are being fired at tanks from above. This rarely happens in an open battlefield but is a preferred tactic in urban warfare, where buildings offer shooters the necessary elevation.

The question “why?”

Even if that is true, though, it comes at a price. Patrick Benham-Crosswell, a former tank officer in the British Army and author of “The Dangerous World of Tommy Atkins: An Introduction to Land Warfare”, notes the cages limit the ability of the machine-gun mounted on the top of the turret to swing upwards to engage enemies firing down on the vehicle.

Dr Appleby-Thomas speculates that the cages’ real purpose might therefore be to

THE MELTDOWN in 1986 at the Chernobyl nuclear power plant in Ukraine was a human tragedy. But it was also a biological opportunity. Since 2000 Timothy Mousseau of the University of South Carolina and Anders Moller of the Ecology, Systematics and Evolution Laboratory in Orsay, near Paris, have run the Chernobyl Research Initiative Lab in collaboration with a dozen Ukrainian colleagues. They have looked at how animals and plants in what is now, by default, a wildlife sanctuary, have adjusted to their radioactive surroundings.

Over the years, they have published more than 120 papers. They began by studying the genetics of barn swallows (pictured) living at varying distances from the reactor. They discovered that mutations made the birds’ body sizes more variable in areas of high radiation. They then demonstrated that populations of colourful birds have declined

more than those of less colourful ones, supporting a long-standing contention that bright colours are used as an honest signal of good health (something birds are unlikely to enjoy in such a hostile place). They have even found evidence that birds around Chernobyl have evolved radiation tolerance, by showing that those living there have higher population densities than conspecifics in similar circumstances near the Fukushima plant in Japan. This melted down a mere 11 years ago, rather than 36, allowing the locals less time to have adapted.

All this work has been shut down following the invasion of Ukraine. Among the casualties are a six-year camera-trap experiment recording the distribution and abundance of mammals, a project monitoring the effects of radiation on the microbiomes of feral dogs, a study of the genomics, physiology, reproduction and ecology of rodents, and a collaboration with NASA, America’s space agency, to understand how plants adapt to chronic exposure to radiation—something that might be important if crops are ever grown on board spacecraft, or on celestial bodies with little or no radiation-intercepting atmosphere.

There is also the threat that the study site might be permanently damaged. Dr Mousseau suspects that noise from combat in the area has already led wildlife to flee in the opposite direction. He saw something similar during noisy clean-ups at Fukushima—though the animals did eventually return.

Fukushima was not, however, seeded with landmines, which he worries may have happened when Russian troops moved through the area. If true, that would pose a hazard to wildlife and biologists alike.



Bird of no-paradise

protect against small, improvised bombs released from drones. Ukraine has developed munitions based on hand-thrown anti-tank grenades, by fitting them with fins so that they can be dropped accurately from commercial drones. These drone-borne bombs might present a real danger in urban areas. But the cages would only blunt such attacks rather than provide complete protection, because they form but a partial screen over the turret, and leave other areas completely exposed.

The last possibility, then, is that the gibes about the cages being emotional-support armour are actually correct, and

that they have been added simply to improve morale by convincing the troops inside that they are safe. As Mr Benham-Crosswell notes, soldiers often take the view that every little helps.

Believing you are safe is not, however, actually the same as being safe. A pointed historical parallel might be found in the ghost dance shirts, supposed to have had supernatural powers to stop bullets, which were worn by some Lakota warriors in their uprising against the American government in 1889 and 1890. These certainly improved morale. But they didn’t save their wearers at Wounded Knee. ■



AI and chemical warfare

Yikes!

Tweaking a piece of drug-design software creates chemical weapons instead

SCIENTIFIC PAPERS are normally models of discreet understatement. They are also (or are at least supposed to be) loaded with the information needed for others to replicate their findings.

Not this one. “Dual use of artificial-intelligence-powered drug discovery”, just published in *Nature Machine Intelligence*, has clearly freaked its authors out. That comes over both in the tone of the text and the deliberate withholding of crucial information. For what Fabio Urbina and Sean Ekins of Collaborations Pharmaceuticals, in Raleigh, North Carolina, and their colleagues are reporting is a virtual machine that can be used to design new and nastier chemical weapons.

Hiding in plain sight

The story began in 2021, when Collaborations Pharmaceuticals, which uses computers to help its customers identify molecules that look like potential drugs, was invited to present a paper on how such drug-discovery technologies might be misused. The venue was a conference organised by the Spiez Laboratory, in Switzerland. This is a government-funded outfit that studies risks posed by nuclear, biological and chemical weapons. To prepare for the presentation some of Collaborations’ researchers carried out what they describe as a “thought exercise” that turned into a computational proof of concept for making biochemical weapons.

Their method was disturbingly simple. They took a piece of drug-discovery software, called MegaSyn (a piece of artificial

intelligence, AI, which the company has developed for the purpose of putting virtual molecules together and then assessing their potential as medicines), and turned one of its functions upside down. Instead of penalising probable toxicity, as makes sense if a molecule is to be used medically, the modified version of MegaSyn prized it.

The result was terrifying. Trained on the chemical structures of a set of drug-like molecules (defined as substances easily synthesised and likely to be absorbed by the body) taken from a publicly available database, together with those molecules’ known toxicities, the modified software required a mere six hours to generate 40,000 virtual molecules that fell within the researchers’ predefined parameters for possible use as chemical weapons.

The list included many known nerve agents, notably vx, one of the most toxic. But the software also came up with not-yet-synthesised substances predicted to be deadlier still. Worryingly, some of them occupied parts of what chemists call “molecular property space” that were entirely separate from those inhabited by known neurotoxins. This suggests that whole, new classes of chemical weapons might be developed, if anyone wished to try.

Wisely, Dr Urbina and his colleagues went no further than that. They did not try to synthesise any of their putative discoveries and have certainly not published a list of them. Nor have they described the details of their method. But, in the wider scheme of things, it is not those details that matter. What matters is that they have

shown this approach works in principle.

Moreover, as the authors themselves make clear, many people have the knowledge, if not the motive, to act on that fact. “We are but one very small company in a universe of many hundreds of companies using AI software for drug discovery and *de novo* design. How many of them have even considered repurposing, or misuse, possibilities?” They admit that, before being prompted by their role in the conference, they certainly had not considered them. “The thought had never previously struck us. We were vaguely aware of security concerns around work with pathogens or toxic chemicals, but that did not relate to us; we primarily operate in a virtual setting...Even our projects on Ebola and neurotoxins... had not set our alarm bells ringing.”

Such naivety is surely widespread in the industry, and the paper’s authors, who include Filippa Lentzos, an expert on biosecurity at King’s College, London—whose idea it was to write the article in the first place—and Cédric Invernizzi of the Spiez Laboratory, are open about this. As the paper observes, “Our own commercial tools, as well as open-source software tools and many datasets that populate public databases, are available with no oversight.”

As to dealing with the problem, the authors ask questions about harms both direct (should software downloads be monitored, or sales to certain groups restricted?) and indirect (will one result be restrictions and reduced investment in an area that has great medical potential?). But they offer few answers.

They do, though, draw an analogy with GPT-3, a natural-language generator with plenty of potential for abuse (for example, the creation of “deepfakes” purporting to be the words of real people). The inventors of this have so far kept its most crucial parts under wraps by employing what is known as an application-programming interface to stop outsiders prying. That might work for future software releases in the field of drug discovery, but will do little to deal with what is out there already.

In any case, even if no company has yet thought along the lines Dr Urbina and Dr Ekins have just opened up, governments probably will have done. And so, perhaps, will terrorist groups.

Governments in rich countries have, it is true, found little use for chemical weapons in regular combat since the first world war, and for good reason. They are no more deadly (and often less so) than high explosives, are easier to protect against, and are also harder to contain. Bombs, shells and rockets are simply more reliable. As agents of terror, though, whether delivered by dysfunctional states against rebel populations or by irregulars against civilians under the protection of their target governments, they are perfect. ■

3D printing

A Gutenberg moment

A new approach to 3D printing may bring it into the mainstream

EARLY FORMS of additive manufacturing, or 3D printing as it is popularly called, began to emerge in the 1980s. But it took more than a decade for the technology to start taking off. Initially, it was used to make prototypes. Now, intricate components are routinely 3D-printed in plastic and metal, for use in products ranging from jet engines and robots to cars.

Sales of 3D-printing services and machines grew by more than 17% in 2021, to reach around \$15bn, according to preliminary estimates for a report by Wohlers Associates, a firm that tracks the industry. However, as useful as additive manufacturing has become, it struggles to compete on cost and speed with more established ways of making things, such as injecting molten plastic into moulds or stamping out metal parts with a giant press.

As a result, most manufacturers use 3D printers to produce low-volume, high-value parts. The extra time and expense this takes can be worth it for certain items. Making things additively produces objects layer by layer, so tricky internal structures can be incorporated more easily into a design. Shapes can also be optimised for strength and lightness, saving materials. But what if these advantages could be had at the speed and cost of conventional factory processes? A new form of additive manufacturing aims to do just that.

The origin of this process, trademarked "Area Printing", goes back to 2009. That was when James DeMuth, having finished his master's degree in mechanical engineering at Stanford University, started work at the National Ignition Facility, part of the American Department of Energy's Lawrence Livermore National Laboratory (LLNL). This uses some of the world's most powerful lasers to study nuclear fusion.

One of the challenges Mr DeMuth was given was to find a way to use a highly specialised type of steel to manufacture a 12-metre wide fusion chamber containing many complex features. He considered a form of 3D printing, called Laser Powder Bed Fusion (L-PBF), for the job. This employs a laser beam to weld together particles on a thin bed of powdered metal, to form the required shape of the object's first layer. Then more powder is added and a second layer is welded on top of the first. And so on, until the item is complete.

The problem is that, as with most other forms of 3D printing, there is an inverse re-

lationship between resolution, which governs the level of detail that can be printed, and the speed of the process. Hence, some large components with fine details can take days, if not months, to print. Producing the chamber looked as if it might take decades. L-PBF was clearly unfeasible for such an application.

This got Mr DeMuth and a group of colleagues thinking about how to speed things up without compromising quality. After some work, they started using a device called an optically addressed light valve, which had been developed at LLNL. This permits a pulsed infrared laser, with its beam shaped to have a square cross-section, to be patterned with a high-resolution image. Working a bit like a photographic negative, the image can block or pass light, creating millions of tiny laser spots, much like the pixels that make up a digital image.

When projected onto a bed of powder, this patterned laser light can weld a complete area in one go. Mr DeMuth likens the process to producing documents with a printing press instead of writing them out individually with a pen.

Not such a dotty idea

In 2015 Mr DeMuth co-founded Seurat Technologies, to commercialise the technology. This Massachusetts-based firm is named after Georges Seurat, a post-impressionist French artist who pioneered a painting style called pointillism that builds pictures up from dots. Several companies, including GM and Volkswagen, a

pair of carmakers, Siemens Energy, a division of a large German group, and Denso, a big Japanese components firm, have partnered with Seurat to explore the use of its first prototype area-printing machine.

This prototype produces a series of small, patternable squares on the powder bed. Their size depends on the material. Aluminium requires 15mm squares. Titanium requires 13mm. Steel requires 10mm. Individually, these squares might seem small. But 40 of them can be printed adjacent to each other every second, so a large area can be covered quickly. The prototype was designed to work at this scale to keep the size of the laser and the amount of energy it consumes to a practical level.

With the equivalent of 2.4m pixels projected in each square, the machine can print parts with layers just 25 microns (millionths of a metre) thick at a rate of 3kg an hour. This is ten times faster than a typical L-PBF machine at such a fine resolution, says Mr DeMuth. Production versions of the area printer are now being built, and future generations of the machine should end up being 100 times faster.

All that, says Mr DeMuth, means area printing will be competitive with mass-production factory processes, such as machining, stamping and casting. As an example, he believes that by 2030 it will be possible to produce silverware (utensils that nowadays are made from stainless steel) for \$25 a kilo. "That means we could actually print silverware cheaper than you could stamp them out," he adds.

Other laser-based 3D printers are getting faster, too. L-PBF machines, for example, may be fitted with several beams—though the complexity involved could limit their number. And many non-laser ways to print things are improving as well, using all manner of materials to make items ranging from buildings to bridges to biscuits. One way or another, then, 3D printing seems at last to be ready to give traditional factories a run for their money. ■





Cultural heritage

In the line of fire

Vladimir Putin's war endangers Ukraine's museums, exquisite architecture and valuable archives

TWO YEARS ago the Khanenko Museum in Kyiv celebrated the return of a long-lost painting. "The Amorous Couple" by Pierre Goudreaux, an 18th-century French artist, was looted by the Nazis during the second world war. It had come up for sale at an auction in New York in 2013 and finally found its way home. Now the amorous couple are back in a packing-case, hidden away not from German occupying forces this time, but Russian ones.

Overlooked amid the appalling human tragedy is the threat Vladimir Putin's war poses to Ukraine's cultural legacy. Besides the obvious jewels—Kyiv, Lviv and Odesa—the country boasts a wealth of pretty and characterful smaller cities and towns. Ukraine has many lovely and interesting buildings, from the brick Byzantine churches of the early medieval Slav principalities to the futuristic Soviet-era bus stops and housing projects. (Kyiv's central crematorium, a fantasia in concrete that looks like a satellite dish crossed with a pair of elephants' ears, is a particular wonder.) Two locally loved buildings recently destroyed include a boxy yet charming

wooden church in Zhytomyr province and a pink-and-cream neo-Gothic children's library in besieged Chernihiv.

Mourned by all are around 25 paintings by Maria Prymachenko, a folk artist whose cheerful hybrid beasts—an orange horse with clawed feet and wings; a blue pig with antlers and shark fins—adorned many a Ukrainian child's bedroom wall. The artworks were destroyed on the fourth day of the war, when shelling set fire to a small museum near her home village.

Apart from the port of Mariupol, the city most damaged to date is Kharkiv, near the Russian border, which has been heavily shelled since the assault began. A boom-

town during the Russian empire's tardy industrial revolution, it has a feast of Art Nouveau buildings in its old centre. Kharkiv is most famous for a complex of oddly elegant Constructivist government offices built during the 1920s and early 1930s, when it was briefly the capital of the Ukrainian Soviet Socialist Republic. The city's leading architectural historian (since relatives are still there, she dare not let her name be printed) says that, in both the old and new centres, nearly every building has been damaged. "Sometimes it's just one rocket, one hit. But bombed buildings usually then catch fire, and their interiors burn out...How will they survive if they have no roof, and their interiors are gone?" she asks. "Our Kharkiv is a new Warsaw, a new Dresden, a new Rotterdam."

Kharkiv's Fine Arts Museum is now windowless; photos show tattered blinds and floors scattered with broken glass. Among its prized possessions are 11 canvases by Ilya Repin, a 19th-century Realist who was born nearby but made his name in St Petersburg. "The irony," a curator observes, "is that we are having to save Russian artists' work from Russians." Like Ukrainians in general, in the run-up to the invasion she and her colleagues were lulled into a false sense of security by Volodymyr Zelensky's urging that life should carry on as normal, and by the inaction of the Ministry of Culture. "It was all, 'Don't mention the war,'" says another art historian; "basically, they screwed up." As a result, when the blasts hit, many pictures were still ▶▶

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▶ hanging on the walls. Amazingly, none was visibly damaged.

In cities farther from the border, museums similarly stayed open right up until the invasion. They have had more time to prepare. Odessa has sent some of its treasures to Lviv, but institutions there are scrambling to safeguard their own collections and suitable storage is limited. (Art is sensitive to changes in temperature and moisture and cannot safely stay in damp cellars for long.) Lviv itself may soon be in the line of fire: on March 13th a missile targeted a nearby military base. Though several European museums have said they will whisk art abroad, the Ministry of Culture has not yet taken them up on the offer. In the meantime, curators are appealing to foreign colleagues for specialist packing and conservation materials.

Next in line for bombardment, probably, is Kyiv. At the time of writing, its historic centre is untouched and the fighting to date has been concentrated in the outer suburbs. The potential losses are awful to contemplate. They include St Sophia's Cathedral, whose blue-and-white bell tower appears over broadcasters' shoulders as they film from the rooftop bar of the Inter-Continental hotel across the square. Inside St Sophia's central dome, preserved through nine centuries of warfare and revolution, is a mosaic of the Virgin, hands upraised against a gold background.

Since Mr Putin makes much of the early medieval kingdom known as Kievan Rus, from which the cathedral dates and both Russia and Ukraine are descended, Ukrainians hope that he might spare her. Judging by his treatment of new mothers in Mariupol, whose maternity hospital was destroyed on March 9th, this may be wishful thinking. Opposite St Sophia's stands an equally fine monastery, St Michael's of the Golden Domes. Razed to the ground by Joseph Stalin in the 1930s, it was rebuilt, complete with soft, earth-toned frescoes, in the late 1990s. Now Moscow may destroy it all over again.

Another threat to Ukraine's heritage is the potential loss of archives and libraries. Over the past 15 years or so, Russia has closed its most sensitive archives to all but a small coterie of approved researchers. Ukraine's institutions, by contrast, were open, making it a centre for the study not only of Ukrainian history but of that of the whole Soviet Union. Not knowing when or if they will be accessible again is a blow to scholars worldwide. The even bigger fear is that Russian occupiers will destroy archives or purge them of material that does not fit Mr Putin's view of the world. In the words of the Kharkiv architectural historian: "They want to deconstruct not just buildings, not just infrastructure, not just the Ukrainian state. They want to deconstruct us, the Ukrainian people." ■



A reading list

The testaments

Six books that explain the history and culture of Ukraine

The Gates of Europe: A History of Ukraine. By Serhii Plokhy. *Basic Books*; 395 pages; \$29.99. *Allen Lane*; £25

The author is the most distinguished historian of Ukraine writing in English. "Chernobyl", his book on the nuclear disaster of 1986, is a masterful account of its causes and consequences. This one covers the many centuries in which the territory of Ukraine was plundered and invaded by powers from all points of the compass. Mr Plokhy shows how Ukrainian language, culture and identity flourished in adversity—which helps explain why, though they achieved a modern state of their own only 30 years ago, Ukrainians are fighting heroically to defend it.

Borderland: A Journey Through the History of Ukraine. By Anna Reid.

Basic Books; 368 pages; \$18.99. *Weidenfeld & Nicolson*; £10.99

Once a writer for *The Economist* in Kyiv, the author first published this blend of memoir, travelogue and history in 1997, but updated it in 2015. She ranges from Lviv in the west to Donetsk in the east, and from the capital to the Black Sea coast. Her narrative takes in portraits of fascinating Ukrainians, bygone and contemporary, including Taras Shevchenko, the national poet, and Bohdan Khmelnytsky, a 17th-century Cossack hetman. Ms Reid does not avoid the horrors of the country's past, with its genocide, deportations and famine; but she also finds room for hope.

The Ukrainian Night: An Intimate History of Revolution. By Marci Shore. *Yale University Press*; 320 pages; \$26 and £25

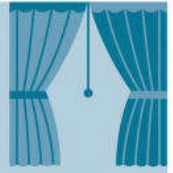
The title comes from a poem by Vladimir Mayakovsky, and the book is a fragmentary, cerebral account of the pro-democracy uprising in Ukraine in 2013-14 and its aftermath. The author captures the feelings of people swept up in the tumult in Kyiv—the sense of solidarity, and of moral imperative—and the motives of those who headed east to fight the Russian-backed separatists in the Donbas. She describes the bizarre mash-up of atavistic ideology and modern technology at work in the Kremlin's meddling, and the implications of Ukraine's fate for the future of Europe.

Red Famine: Stalin's War on Ukraine. By Anne Applebaum. *Doubleday*; 496 pages; \$35. *Allen Lane*; £25

The famine that Stalin inflicted on Ukraine in 1932-33 killed around 4m people. Especially after the Soviet Union collapsed and Ukraine won independence, the Holodomor, as the catastrophe is known, became an essential part of Ukrainian historiography and identity. Anne Applebaum, a Pulitzer-prizewinning author who wrote for *The Economist* in the 1980s and 1990s, evokes the awfulness of the episode and its lingering psychological legacy. Starvation, she argues convincingly, was used to suppress Ukrainian nationalism. She draws out the similarities between the subterfuge and criminality of Bolshevism



Back Story Crime and punishments



Disavow some Russian artists. Don't cancel Russian art

ART AND politics should have nothing to do with each other." So says Wilhelm Furtwängler in "Taking Sides", a play by Ronald Harwood that imagines an interrogation of the German maestro in 1946. In real life Furtwängler never joined the Nazi party and saved Jewish musicians, but he stayed in the Reich and performed for Hitler's birthday. "I believe in music," the character says. His is a popular tune. "I am an artist," protests Anna Netrebko (pictured), a superstar Russian soprano who has repudiated the war in Ukraine but not Vladimir Putin. "My purpose is to unite people across political divides."

They would say that, wouldn't they? In reality art is deeply political, as are artists—and not just agitprop merchants and radical poseurs, or those who serve, advertently or otherwise, as ambassadors for their countries. The avowed aims of art sound transcendent but are loaded with value judgments: eliciting sympathy and compassion for strangers (risky in Russia if the strangers are Ukrainian); honouring personal feelings (treasonous if the Kremlin says so); expressing emotions that are widely shared (except by "fascists"). Escapism is political, if politics is what you are escaping. Amid a drift to dictatorship, and above all in a time of war, what could be more political than uniting people across divides?

So it is not illogical for Russian artists to be caught in the backlash against the invasion. In some cases, it is just. Valery Gergiev rebuilt the Mariinsky Theatre in St Petersburg, making it and himself world-famous—with Mr Putin's backing. The conductor duly played victory gigs for his patron in South Ossetia in 2008 and Syria in 2016. After he refused to condemn the latest war, Western concert halls have cut Mr Gergiev loose (as some

have Ms Netrebko). The sound of shelling will always rumble in his music. Rightly, links with state-controlled institutions like the Bolshoi Theatre and the Hermitage Museum have also been suspended.

In a country where the state's influence is broad and tentacular, association with it can be hard to avoid altogether. Most Russian artists, however, are neither power-brokers nor propagandists. Anyone calling (from the comfort of a Western keyboard) for them to denounce their president might read Isaiah Berlin's account of a visit made by Shostakovich to Oxford in 1958. At any mention of current events, the composer fell into a "terrified silence", Berlin wrote. "I have never seen anyone so frightened and crushed in all my life." Such is the fear a totalitarian regime can instil in a genius, especially if his family is stuck at home.

Many Russian artists have spoken out anyway. Conductors, directors, rappers, dancers, actors and film-makers have heroically signed anti-war petitions, published passionate denunciations, expressed their shame, and withdrawn



from appearances or exhibitions in self-cancelling protest. Many have fled abroad. Despite their bravery, some have been tainted, and rejected, by association. For instance, Canadian venues have retracted their invitations to Alexander Malofeev, a piano prodigy who wrote on Facebook that "every Russian will feel guilty for decades because of the terrible and bloody decision that none of us could influence and predict."

That treatment is myopic and wrong. Freethinkers in Russia need and deserve solidarity. But remember: this too is Mr Putin's fault. Because of his bloodlust, arts administrators are facing dizzying pressures from their sponsors, performers, audiences and consciences. Not surprisingly, some are miscalculating. War wrecks lives and spreads suffering far beyond the battlefield.

Inevitable as they are, though, these emergency measures should carry two important provisos. One concerns the future. Precisely because art is political, and can reach across divides, emphasise commonalities and foster understanding, in most cases the boycotts and cancellations should be temporary. Even Mr Putin will not last for ever.

The other proviso involves the past. Today's Russian artists are one thing; Russian art is another. Shunning the country's back catalogue means giving up a guide to the darkness, and out of it. Cancel Dostoyevsky, as an Italian university threatened to, and you miss peerless insights into nihilism and violence. Blacklist Tchaikovsky—or Shostakovich—and you silence a beauty wrenched from the chokehold of repression. Turn away from Malevich's paintings, and you forgo his urgent vision of a world cracked open. Banishing Tolstoy means losing a timeless prophet of peace.

▶ methods in Ukraine and the tactics employed more recently by Vladimir Putin.

Death and the Penguin. By Andrey Kurkov. Translated by George Bird. *Vintage*; 240 pages; £9.99
The lurid realities of post-Soviet life in Ukraine (and elsewhere) were a gift to satirists, but also a challenge. Novelists struggled to compete with the grotesquerie all around them. Andrey Kurkov—who is chronicling the current war for *1843*, our sister publication—managed to in this story, first published in 1996. Viktor, the

hero, is a down-on-his-luck writer in Kyiv. He is employed by a newspaper to prepare the obituaries of living people—who before long fall victim to clan violence. Meanwhile Viktor keeps an ailing penguin as a pet. A memorable portrait of lawlessness and cynicism, but also of endurance and the elementary need for affection.

Odessa Stories. By Isaac Babel. Translated by Boris Dralyuk. *Pushkin Press*; 192 pages; £10.99
Isaac Babel is one of many feted offspring of Odessa, a place with a unique cosmo-

politan atmosphere and glorious cultural history—whose lovely boulevards and Italianate architecture are now threatened by invading Russian forces. In the stories he set in the Polish-Soviet war of 1919-21, Babel captured the brutality of conflict in piercing details. By contrast, these tales of Odessa's pre-revolutionary Jewish gangsters feature a narrator with "glasses on [his] nose and autumn in [his] heart" and the dauntless Benya Krik, the city's mobster king. "Everyone makes mistakes," Benya tells the mother of a man shot by one of his henchmen. "Even God." ■



World in a dish

Makers and shapers

NEW YORK

A new exhibition highlights African-American contributions to the American table

THE MOST visually striking things on display at “African/American: Making the Nation’s Table”, an exhibition at the Africa Centre in Harlem, are a quilt and a kitchen. The quilt (pictured) is made up of 406 squares, each depicting an African-American contribution or contributor to American cuisine. It invites study: working out who is who, and what each cookie or tankard represents. The test kitchen for *Ebony* magazine, rescued from demolition in Chicago, is a paragon of psychedelic chic, with multicoloured whorls covering the walls, cabinets and even the dishwasher, along with pea-green countertops and a dark orange refrigerator.

But the most revealing artefacts may be the most prosaic: an ice-cream scoop and a photograph of a man standing in front of a truck. Alfred Cralle invented the scoop with a built-in scraper, turning what had been a laborious task usually requiring two hands and at least two implements (frozen ice-cream is hard and slippery) into a simple one. And Frederick McKinley Jones invented the first portable refrigerated unit, allowing perishable food to be shipped more widely. These two objects, now so commonplace as to be unremarkable, changed how and what the world eats.

They embody the exhibition’s stated premise. In the words of Jessica Harris, an author, culinary historian and the show’s lead curator: “African-American food is American food.” Americans, along with the rest of the world, can eat strawberries in February and Cape Cod oysters far from Massachusetts because of Jones’s inven-

tion. Ice-cream enthusiasts everywhere can enjoy their dessert with ease, and less risk of covering themselves in frozen goo, thanks to Cralle’s.

Cralle’s invention also signifies the exhibition’s tacit idea: that African-Americans have never received the credit they deserve for their influence on American cuisine. Cralle patented his invention but never profited from it. Nearest Green, an enslaved distiller born around 1820, is not nearly as well known as the white man he taught to make and filter whisky—a fellow named Jack Daniel. In coastal Georgia and South Carolina enslaved West Africans turned immense malarial swamps into productive rice fields but never enjoyed the riches that their labour produced. Thomas Jefferson is renowned as a gourmet and oenophile, but his enslaved cook, James Hemings, made the food (including a “macaroni pie”) that won the Founding Father culinary fame.

This is a valuable corrective. The feeling visitors are left with at the end is admiration at the ingenuity of the brewers, chefs, distillers, farmers, restaurateurs, writers and others who persevered through unimaginable hardship and who showed far more faith in their country than their country showed in them. And the taste they’re left with is sweet: everyone who comes gets a cellophane-wrapped pair of benne cookies as they leave (*benne* is a Bantu word for sesame). The dessert has roots in Africa, but is also—in its softness, comforting delicacy and nifty packaging—thoroughly American. ■

British fiction

A smuggler’s tale

Winchelsea. By Alex Preston. Canongate Books; 352 pages; £14.99

IN 18TH-CENTURY ENGLAND, free trade meant a high-stakes gamble against the laws and forces of the state. Well-armed and merciless, gangs of smugglers cowed, or recruited, seafaring communities along the southern coasts. These “free traders” outwitted excise collectors to land and sell untaxed cargoes of wine, spirits, tea or luxury fabrics brought secretly from France and the Low Countries. Their deeds, often sanitised, passed into folklore, thence into the swashbuckling genre of Victorian fiction that Alex Preston’s new novel enjoyably revives.

Until its final acts, his ingenious and entertaining yarn unfolds in the 1740s around Winchelsea in Sussex—now a picturesque village, then a decayed port, honeycombed beneath with contraband-friendly caves. Mr Preston bows to his literary ancestors, such as J. Meade Falkner and Robert Louis Stevenson, but pulls the smugglers’ tale up to date. Goody Brown, his intrepid if conscience-stricken protagonist, yearns for a “full and unconstrained” life, free of the shackles of her sex. Through galloping, cross-dressing adventures she does justice to an “inner self” that, gender-wise, feels “neither one thing nor another”.

When her father is murdered by his fellow brigands after a suspected betrayal, Goody and her brother Francis opt to join an even more formidable local power, the Hawkhurst Gang—drawn from history, as ►►



Them that ask no questions isn’t told a lie

is its bloody downfall. Adopted, like his sister, Francis has been rescued by a lucky shipwreck from a life of slavery. In smuggling exploits on land and sea, the siblings press thrillingly close to “the dangerous edge of things” (a favourite phrase of Graham Greene’s). Yet for all her bravado in scraps with hapless troopers, or on “guinea runs” to pilfer foreign gold, Goody’s gnawing unease about her behaviour grows. Her guilt complicates and darkens a story packed with well-crafted action scenes.

The tale is told with exhilarating colour, flair and pace. If Goody’s “mongrel record of a hybrid life” edges close to realism—in episodes of pregnancy and childbirth, or its unblinking eye on the cruelty of smuggling clans—it soon sets sail again on the high seas of romance. On one level “Winchelsea” is a pastiche of a pastiche: a tribute to century-old revivals of Georgian prose. But Goody’s “wondrous and fantastical” story takes readers into unexpected territory, including a foray to the Scottish Highlands, the doomed rebellion of 1745 and a neighbouring literary genre, the Jacobite adventure romp. Mr Preston wears his tricorne hat with panache. ■

The Sandy Hook massacre

From the fringes

Sandy Hook: An American Tragedy and the Battle for Truth. By Elizabeth Williamson. Dutton; 496 pages; \$28

THEY WERE hiding in a bathroom when he arrived. On December 14th 2012, 20-year-old Adam Lanza fired more than 80 bullets through the door, killing 15 children while he laughed. When the medical examiner arrived to retrieve the bodies, crayon drawings of the first-graders’ “future selves” hung on a board labelled “Hopes and Dreams” inside the classroom.

December will mark ten years since Lanza murdered 20 children and six staff members at Sandy Hook Elementary School in Newtown, Connecticut. Over the past decade the scope of the tragedy has grown, not diminished. Today the words “Sandy Hook” evoke not just the massacre, but also a turning-point in America’s long flirtation with conspiracy theories.

A new book by Elizabeth Williamson, a journalist at the *New York Times*, describes the collective delusion and malice of conspiracists who denied that the shooting happened or asserted that it was a government plot to stoke anti-gun sentiment. Parents who lost their children were



Acts of remembrance

stalked by people who called them liars; who argued that their children never existed; who demanded that their bodies should be exhumed for proof. “Sandy Hook: An American Tragedy and the Battle for Truth” also shows how these hoaxers, and the platforms that helped them, created a “conspiratorial-industrial complex” that has eroded American democracy.

America is no stranger to conspiracy theories. Some believe the footage of the moon landing was faked, Lyndon Johnson was involved in President John F. Kennedy’s assassination, and the twin towers were brought down on September 11th 2001 by explosives rather than hijacked planes. But until relatively recently these ideas swirled at the fringes of society. Ms Williamson convincingly argues that no one person epitomises conspiracism’s leakage into the mainstream more than Alex Jones, the right-wing conspiracy-monger and creator of Infowars, a website.

Mr Jones was a local eccentric in the 1990s, a creature of radio and public-access television in Austin, Texas. As the internet took off, social media and audio streaming catapulted him to national fame and, later, into the orbit of Donald Trump, then a presidential candidate, who was interviewed by Mr Jones for Infowars in 2015. In the middle of Mr Jones’s rise was Sandy Hook. For years, beginning on the very day of the shooting, Mr Jones variously asserted that the massacre was a government plot, that it never happened and that grieving parents were “crisis actors”.

Mr Jones’s culpability is clear. He has lost several defamation lawsuits by default after refusing to hand over documents required by the courts. Late last year judges in Texas and Connecticut ruled that he and Infowars are liable to pay damages to the families of ten victims. David McCraw, a lawyer for the *New York Times*, told Ms Williamson that the legal proceedings were tantamount to “fake news on trial”.

The author nudges readers to think broadly about who is responsible for perpetuating the idea that Sandy Hook was a hoax. There are three kinds of villains in the story. The first is the shooter himself, who killed his mother, 26 people and finally himself. The second are conspiracists such as Mr Jones, who either truly doubted that the massacre happened, or used the episode to gain money and influence (Mr Jones’s riches come from peddling diet supplements on Infowars). Third are the social-media platforms, whose algorithms facilitated the spread of outrageous and hateful content because those posts boost engagement. If outrage begets clicks, and clicks beget influence and money, then hucksters including Mr Jones are incentivised to follow their worst impulses.

One of the book’s most revealing conclusions is not about the massacre at all, but conspiracism’s place in America today. Some of Mr Jones’s associates are members of the Oath Keepers or Proud Boys, far-right groups that stormed the United States Capitol building on January 6th 2021. Many of the same websites and conspiracists that spewed nonsense about Sandy Hook abandoned truth in service of the “Big Lie” that Mr Trump actually won the presidential election of 2020.

Truth be known

Perhaps the most eloquent voice in Ms Williamson’s account of Sandy Hook is Veronique De La Rosa, whose six-year-old son, Noah Pozner, was killed in the shooting. Near the end of the book, Ms De La Rosa compares conspiracism to a virus. It is constantly mutating, becoming endemic in a society that deals in “alternative facts”. Combating conspiracy theories is like a game of whack-a-mole: debunk one person, take down one post, and five more pop up in its place. Infowars’ tagline says: “There’s a war on for your mind.” About that, if nothing else, the website is right. ■

Economic data

	Gross domestic product			Consumer prices			Unemployment rate		Current-account balance		Budget balance		Interest rates		Currency units	
	% change on year ago			% change on year ago			%		% of GDP, 2022†		% of GDP, 2022†		10-yr gov't bonds	change on	per \$	% change
	latest	quarter*	2022†	latest	2022†							latest,%	year ago, bp	Mar 16th	on year ago	
United States	5.6	Q4	7.0	3.4	7.9	Feb	5.2	3.8	Feb	-3.3	-7.4	2.2	57.0	-	-	
China	4.0	Q4	6.6	5.2	0.9	Feb	2.4	5.5	Feb#	1.8	-5.0	2.6	55	-53.0	6.35	2.4
Japan	0.4	Q4	4.6	2.9	0.5	Jan	1.2	2.8	Jan	2.4	-5.3	nil	-8.0	118	-8.0	
Britain	6.5	Q4	3.9	4.1	5.5	Jan	5.4	3.9	Dec††	-3.3	-5.4	1.6	73.0	0.76	-5.3	
Canada	3.3	Q4	6.7	3.8	5.7	Feb	4.5	5.5	Feb	0.3	-4.8	2.2	62.0	1.27	-1.6	
Euro area	4.6	Q4	1.0	3.9	5.8	Feb	3.7	6.8	Jan	3.0	-4.0	0.4	73.0	0.91	-7.7	
Austria	5.5	Q4	-2.0	3.2	5.9	Feb	3.1	4.9	Jan	1.3	-3.3	0.8	90.0	0.91	-7.7	
Belgium	5.6	Q4	2.1	3.9	8.0	Feb	4.6	5.6	Jan	1.3	-4.7	0.8	94.0	0.91	-7.7	
France	5.4	Q4	2.9	3.9	3.6	Feb	2.2	7.0	Jan	-1.3	-4.9	0.8	89.0	0.91	-7.7	
Germany	1.8	Q4	-1.4	3.2	5.1	Feb	4.2	3.1	Jan	6.5	-2.6	0.4	73.0	0.91	-7.7	
Greece	7.4	Q4	1.7	4.2	7.2	Feb	4.3	13.3	Jan	-3.9	-4.3	2.7	180	0.91	-7.7	
Italy	6.2	Q4	2.3	4.4	5.7	Feb	3.5	8.8	Jan	3.5	-5.5	1.9	128	0.91	-7.7	
Netherlands	6.2	Q4	3.8	3.7	6.2	Feb	5.7	3.6	Jan	8.8	-4.3	-0.2	36.0	0.91	-7.7	
Spain	5.2	Q4	8.3	6.0	7.6	Feb	3.7	12.7	Jan	1.3	-5.4	1.3	101	0.91	-7.7	
Czech Republic	3.7	Q4	3.8	2.7	11.1	Feb	9.3	2.3	Jan#	-2.8	-4.6	3.6	171	22.4	-2.1	
Denmark	4.3	Q4	4.5	2.7	4.8	Feb	2.0	2.7	Jan	8.6	nil	2.7	69.0	6.77	-7.7	
Norway	5.4	Q4	0.3	3.3	3.7	Feb	3.6	3.3	Dec††	9.2	2.6	1.4	76.0	8.92	-4.9	
Poland	7.6	Q4	7.0	4.2	8.5	Feb	7.9	5.5	Feb§	-1.1	-4.0	4.8	325	4.26	-9.4	
Russia	4.3	Q3	na	-10.1	9.2	Feb	15.0	4.4	Jan§	8.5	-6.7	12.5	551	101	-28.1	
Sweden	5.2	Q4	4.6	3.3	4.3	Feb	3.0	8.3	Jan§	4.3	0.1	0.8	38.0	9.46	-9.9	
Switzerland	3.7	Q4	1.1	3.0	2.2	Feb	1.1	2.2	Feb	5.1	0.5	0.4	72.0	0.94	-1.1	
Turkey	9.1	Q4	6.2	3.3	54.4	Feb	43.7	12.1	Jan§	-2.6	-3.9	24.6	1,086	14.7	-48.8	
Australia	4.2	Q4	14.4	3.3	3.5	Q4	3.8	4.0	Feb	1.3	-3.2	2.5	75.0	1.38	-6.5	
Hong Kong	4.8	Q4	0.8	0.9	1.2	Jan	2.8	3.9	Jan††	1.9	-6.6	2.0	62.0	7.82	-0.6	
India	5.4	Q4	26.6	7.2	6.1	Feb	4.9	8.1	Feb	-1.1	-6.4	6.8	61.0	76.3	-4.9	
Indonesia	5.0	Q4	na	5.1	2.1	Feb	3.6	6.5	Q3§	0.2	-4.9	6.8	2.0	14,312	0.7	
Malaysia	3.6	Q4	na	4.5	2.3	Jan	2.8	4.2	Jan§	3.2	-6.1	3.7	19.0	4.20	-2.1	
Pakistan	6.0	2021**	na	3.0	12.2	Feb	8.0	6.9	2019	-5.1	-6.3	11.6	†††	119	179	-12.8
Philippines	7.7	Q4	13.0	6.0	3.0	Feb	4.1	7.4	Q4§	-1.7	-7.4	5.5	99.0	52.3	-7.0	
Singapore	6.1	Q4	9.5	3.8	4.0	Jan	2.9	2.4	Q4	17.5	-0.9	2.1	57.0	1.36	-0.7	
South Korea	4.1	Q4	5.0	2.9	3.7	Feb	3.2	3.4	Feb§	3.5	-2.9	2.8	67.0	1,236	-8.6	
Taiwan	4.9	Q4	7.6	4.5	2.4	Feb	2.4	3.7	Jan	14.7	-1.2	0.8	32.0	28.6	-1.4	
Thailand	1.9	Q4	7.5	3.2	5.3	Feb	2.8	1.5	Dec§	0.5	-4.6	2.2	46.0	33.4	-7.8	
Argentina	11.9	Q3	17.3	3.0	52.3	Feb	51.8	8.2	Q3§	0.5	-4.4	na	na	109	-16.7	
Brazil	1.6	Q4	2.2	0.3	10.5	Feb	7.6	11.1	Dec†††	-2.0	-7.7	12.2	362	5.11	9.2	
Chile	17.2	Q3	21.0	3.0	7.8	Feb	8.9	7.3	Jan††	-2.7	-4.1	6.2	307	802	-9.5	
Colombia	10.7	Q4	18.2	4.2	8.0	Feb	6.2	14.6	Jan§	-4.4	-6.0	9.7	389	3,830	-7.1	
Mexico	1.1	Q4	0.1	1.9	7.3	Feb	5.1	3.6	Jan	-0.9	-3.3	8.6	246	20.7	-0.7	
Peru	3.2	Q4	-12.9	2.3	6.1	Feb	6.1	9.4	Feb§	-2.6	-2.8	6.7	209	3.72	-0.3	
Egypt	9.8	Q3	na	5.3	8.8	Feb	7.0	7.4	Q4§	-4.1	-6.9	na	na	15.7	-0.2	
Israel	11.0	Q4	17.6	4.3	3.5	Feb	2.9	3.9	Jan	3.7	-2.3	2.1	96.0	3.26	0.9	
Saudi Arabia	3.2	2021	na	5.0	1.6	Feb	1.8	6.6	Q3	6.3	2.0	na	na	3.75	nil	
South Africa	1.7	Q4	4.7	2.1	5.7	Jan	4.8	34.9	Q3§	-0.6	-6.0	9.6	44.0	15.0	-0.9	

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:	
		Mar 16th	Dec 31st 2021
United States S&P 500	4,357.9	1.9	-8.6
United States NASComp	13,436.6	1.4	-14.1
China Shanghai Comp	3,170.7	-2.6	-12.9
China Shenzhen Comp	2,086.2	-1.4	-17.5
Japan Nikkei 225	25,762.0	4.2	-10.5
Japan Topix	1,853.3	5.4	-7.0
Britain FTSE 100	7,291.7	1.4	-1.3
Canada S&P TSX	21,468.8	-0.1	1.2
Euro area EURO STOXX 50	3,889.7	3.3	-9.5
France CAC 40	6,588.6	3.1	-7.9
Germany DAX*	14,440.7	4.3	-9.1
Italy FTSE/MIB	24,284.9	1.7	-11.2
Netherlands AEX	703.5	2.2	-11.8
Spain IBEX 35	8,380.4	2.7	-3.8
Poland WIG	62,488.8	4.3	-9.8
Russia RTS, \$ terms	936.9	nil	-41.3
Switzerland SMI	11,901.0	3.5	-7.6
Turkey BIST	2,088.8	2.3	12.4
Australia All Ord.	7,435.8	1.4	-4.4
Hong Kong Hang Seng	20,087.5	-2.6	-14.1
India BSE	56,816.7	4.0	-2.5
Indonesia IDX	6,992.4	1.9	6.2
Malaysia KLSE	1,571.3	0.6	0.2

	index	% change on:	
		Mar 16th	Dec 31st 2021
Pakistan KSE	43,975.7	2.2	-1.4
Singapore STI	3,290.9	3.0	5.4
South Korea KOSPI	2,659.2	1.4	-10.7
Taiwan TWI	16,940.8	-0.4	-7.0
Thailand SET	1,667.9	1.5	0.6
Argentina MERV	87,450.9	0.3	4.7
Brazil BVSP	111,112.4	-2.4	6.0
Mexico IPC	53,411.9	-0.9	0.3
Egypt EGX 30	10,705.6	2.8	-10.1
Israel TA-125	2,033.7	nil	-1.9
Saudi Arabia Tadawul	12,656.2	-0.6	11.7
South Africa JSE AS	73,484.3	1.1	-0.3
World, dev'd MSCI	2,936.3	1.9	-9.1
Emerging markets MSCI	1,081.0	-0.9	-12.3

US corporate bonds, spread over Treasuries

	Dec 31st 2021	
Basis points	latest	
Investment grade	161	120
High-yield	412	332

Sources: Refinitiv Datastream; Standard & Poor's Global Fixed Income Research. *Total return index.

Commodities

The Economist commodity-price index	% change on				
	2015=100	Mar 8th	Mar 15th*	month	year
Dollar Index					
All items	203.1	191.1	8.1	16.5	
Food	171.8	167.1	11.4	31.5	
Industrials					
All	232.3	213.5	5.7	7.6	
Non-food agriculturals	189.5	192.0	6.3	30.3	
Metals	245.0	219.9	5.6	2.9	
Sterling Index					
All items	236.4	223.2	11.8	23.9	
Euro Index					
All items	207.0	193.1	11.8	26.3	
Gold					
\$ per oz	2,056.1	1,925.1	4.1	11.4	
Brent					
\$ per barrel	128.2	99.3	6.3	45.0	

Sources: Bloomberg; CME Group; Cotlook; Refinitiv Datastream; Fastmarkets; FT; ICCO; ICO; ISO; Live Rice Index; LME; NZ Wool Services; Thompson Lloyd & Ewart; Umer Barry; WSJ. *Provisional.

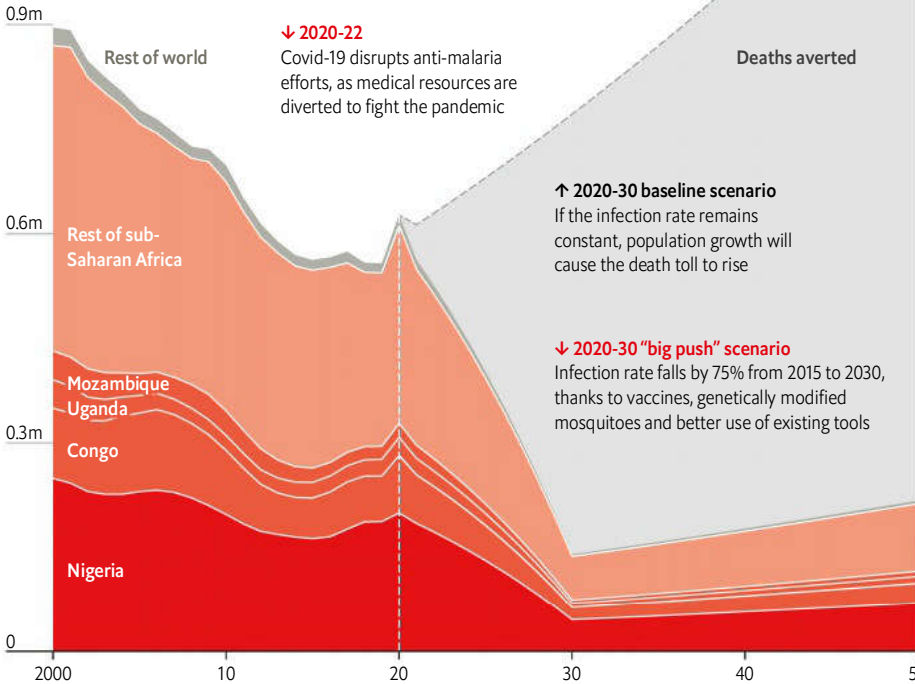
For more countries and additional data, visit [Economist.com/indicators](https://www.economist.com/indicators)

→ A big push to fight malaria could save nearly 20m lives over the next three decades

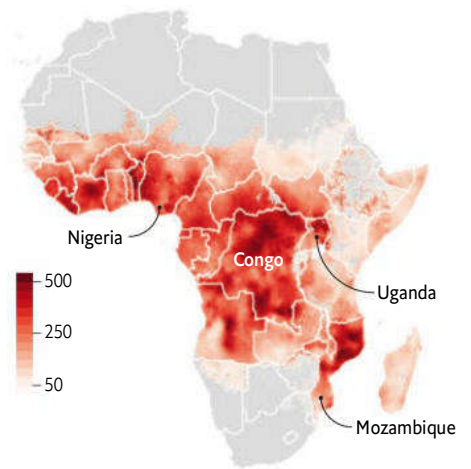
Annual deaths from malaria

↓ 2000-19

Better drugs, more accurate diagnoses and more bed nets reduce malaria deaths by 37%



Malaria* incidence per 1,000 people, 2019



With a 75% drop in malaria incidence

Total deaths averted



Total workdays gained



*Plasmodium falciparum Sources: Malaria Atlas Project; Our World in Data; UN; WHO; World Bank; The Economist

Another vaccine victory?

Squashing malaria could save as many lives as covid-19 has taken

WHEN IT COMES TO covid-19 vaccines, poor countries in Africa have been stuck at the back of the queue. However, the continent's long wait for another immunological miracle appears to be drawing to a close. Later this year, the world's first malaria vaccine is scheduled for a roll-out. Although the current version leaves much to be desired—it requires four doses, is hard to manufacture at scale and reduces severe infections by a mere 30%—better alternatives may be on the way. A jab developed by scientists at Oxford has shown 77% effectiveness. If clinical trials go well, they aim to apply for pre-qualification from the World Health Organisation in September. Production at a rate of up to 200m doses per year could follow swiftly.

Malaria has proved to be a stubborn adversary. In mosquito-rich environments, it is 5-20 times more contagious than the Omicron variant of SARS-COV-2. The dis-

ease was once endemic across most of the world, sweeping through the Americas in the 1600s and reaching as far north as Russia's Arctic coast and as far east as Japan.

Past efforts to defeat malaria using vaccines have failed, largely because the life cycle of the parasite that causes it has 12 stages. Each presents a different target. Instead, rich countries in cool regions have eradicated the disease by attacking the mosquitoes that spread it, both by spraying insecticides and by destroying breeding grounds. Poorer, tropical countries have fared worse. In 2020 malaria killed 627,000 people, of whom 96% lived in Africa.

New vaccines are just one element of a three-pronged strategy to vanquish malaria. Some tried-and-true tools, like installing insecticide-impregnated bed nets and distributing therapeutic drugs, can still reach more people. Another scientific advance could prove even more valuable than vaccines: genetically modified mosquitoes that cannot reproduce sustainably, which could cause the insects that spread the disease to die out. Such "gene drives" could damage ecosystems, and a regulatory process needs to be set up before they can be approved. But big donors like the Gates Foundation support them. Modellers at the London School of Hygiene and Tropical

Medicine reckon that, with enough resources, by 2030 these tactics could jointly cut deaths caused by malaria by 75%.

Partly because Africa's population is growing so fast, when projected into the future such gains would have a remarkable impact. By 2034 the annual number of deaths averted would exceed the current yearly toll from breast cancer. In total, 20m lives would be saved during the next three decades—the same number as *The Economist's* estimate of the global increase in deaths during the covid-19 pandemic. And measured in years of life, this effect would dwarf covid's. Whereas covid mainly kills the elderly, around 80% of those felled by malaria are aged five or younger.

The economic benefits are nearly as impressive. On average, adults who catch malaria lose three days of work. Cutting the number of cases by 75% would yield 14bn extra workdays over two decades, the equivalent of the current annual labour supply of Nigeria. Productivity might also improve, since non-fatal cases of malaria in children can stunt growth and hinder cognitive development, in part by inducing comas. A hidden factor holding back economic growth in Africa may be the lasting impact of the disease on survivors—call it "long malaria". ■



The star in a bulletproof vest

Pavlo (“Pasha”) Romanovych Lee, actor and tv presenter, was killed on March 6th, aged 33

ON THE VERY day that Russia invaded, February 24th, Pasha Lee left his job and went to enlist with the Territorial Defence Forces of Ukraine. He might well have been recognised as he signed up and took the oath to defend the motherland, because his face was famous. It was bright and handsome, with a quiff of well-gelled black hair and a delicate line of beard, and with an oriental cast from his half-Korean father.

His looks had turned him into a boy idol of a sort, and his Instagram page showed him living the dream: buffing his smooth, hard pecs at the gym, sipping coffee in bed in a luxury hotel, posing in sexy shades against backgrounds of soaring skyscrapers or foaming water, adjusting the cuffs of beautiful jackets. Even in more everyday gear, like his smiley-face sweatshirt, he was clearly in love with his phone and himself.

The job he had walked away from was as a presenter on the Dom (“Home”) tv channel—specifically, presenter of a popular new show called “Day at Home”, and glitzier bits of programming such as “Star Factory” and “X-Factor”. But through the neon and glitter there was also politics here. Dom had been set up in 2020 to broadcast in both Russian and Ukrainian to Russian-occupied Donetsk and Luhansk in the east, as well as to Crimea. “Do you want to know the truth?” shouted billboards and phones all over the country when they had their big audience drive; “Watch Dom tv.” President Zelensky himself had said he wanted two or three more channels like Dom, to tell people cut off from their own country’s media, already at war for years, what was really going on.

This work struck a chord because Pasha was from Crimea himself, from Yevpatoriya, a resort town on the Black Sea famous for healing water and mud cures. But eventually, especially after the Russian annexation in 2014, it was healthier to leave. So at some point he moved to Irpin, a city just outside Kyiv to the north-west, across the Irpin river. This too sold itself as a health resort and a

great place for sport; even better, it had an annual film festival and was really close to the capital, where he could pursue his acting. He became a regular performer at the Koleso theatre in Kyiv, a gem of a building recently rescued from being Soviet-era flats. It was tiny, with a company of 16 and space on the first floor for only 70 people, crammed almost up to the stage. On the ground floor was a space where the audience could take part in plays themselves, professionals and amateurs together.

Acting had bitten him early. At 17 he made his first film, a horror-thriller called “Shtolnya” (The Pit), in which a group of students uncovered a pit, left from the second world war, with terrible secrets at the bottom of it and no obvious means of escape. His more natural slot was in comedy-horror, where a few hapless students would be chasing girls one minute and devils the next. In “Unforgotten Shadows” (2013), an accident at a university released demons who would kill the whole campus unless he and his mates could find the Carpathian warlocks who had originally locked them up. Only slightly more seriously, in “#SelfieParty” (2016) he played a policeman trying to shut down a drunken orgy and find out, from four semi-conscious students, how a dead body had turned up next morning on the lawn. His most sober film was “The Fight Rules” (2016), in which a boxer, his friend, tried to resist the mobsters who were pressing him to throw a fight. “There’s a single rule in life and in the fight,” the boxer bravely told one villain: “you win or you lose.” “It’s not like that in life,” the villain sneered back.

Many Ukrainians knew his voice better than his face. He dubbed the Ukrainian versions of “The Hobbit” and the remake of “The Lion King”, both stories of reclaiming lost treasure and lost ancestral lands. In the Hobbit he was Bilbo Baggins, another confused and fearful character who steadily grew in courage and in the end defeated Smaug, a terrifying dragon who had ravaged the land with fire. Bilbo dreamed and sang of green meadows on his journey. Pasha’s profile picture, as the Russian threat drew nearer, was a yellow Ukrainian field.

In 2021 he had actually been making a war film, set in Luhansk and called “Mirny (Peace)-21”. When he turned up at the TDF office in Irpin he looked much less good at fighting. He had hardly ever handled weapons, unless you counted the baseball bat with which he whacked half-visible demons in mystical forests in “Shadows”, or his fake police pistol in “#SelfieParty”. Luckily, his main job would be to help the proper army behind the lines. With tens of thousands of others, housewives, lawyers, shopkeepers, footballers, he now spent his days learning basic first aid, how to make up emergency bags and the safe evacuation of buildings. He was also taught the basics of knife fighting and the use of RPG-7 anti-tank launchers, and did drills with wooden rifles in the snow. But as the publicity for “The Fight Rules” ran, “Your Spirit is your Weapon.” On Instagram he urged everyone to UNITE! And volunteer.

The lessons were needed quickly. Within days, the Russians began their bombardment of Irpin. On March 1st he posted a grim and resolute photo of himself in military gear, his hair flattened by an army cap, with the Ukrainian flag folded before him. On March 4th, after 48 hours of shelling, he posted a merrier image and message. “We are smiling because we will manage!” he told his followers. “Everything will go Ukraine’s way. WE ARE WORKING!”

By then the city had been without heating, water or power for three days. Hundreds of citizens were streaming towards the bridge over the Irpin river, hoping to cross towards Kyiv. But Ukrainian forces had destroyed it to slow the Russian advance, rigging up instead a perilous crossing of narrow planks and ropes. As evacuees tried to cross in terrified groups, the Russians shelled them. His job was now to shield the evacuees and carry their loads, shepherding them out of danger and plunging back in again. When his body was found, seven days later, it emerged that he had taken off his bulletproof vest to give it to a child he was carrying.

It was an elementary mistake for a man in uniform to make. But then he had never meant to be a soldier. ■

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TOWARDS A DREAM

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