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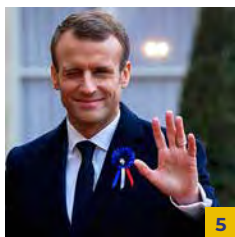


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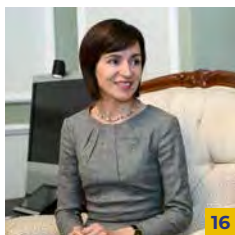


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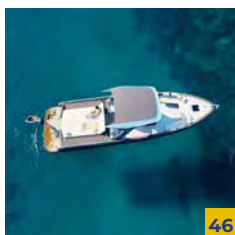


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NATO Secretary General Jens Stoltenberg and French President Emmanuel Macron

APRÈS MOI, LA DÉLIQUESCENCE?

Where is Emmanuel Macron heading (and what follows after)?

Some commentators are likening France's current president, Emmanuel Macron, to one of his predecessors, Charles de Gaulle, largely because some of his comments have cast vague doubt on his commitment to NATO. De Gaulle had been elected in 1958 at the height of the Cold War, but it became clear that the United States was unlikely to weigh into a real European war in defence of its NATO allies using nuclear weapons. Secretary of State Henry Kissinger had stated openly that no US president would ever risk the safety of the housewife in Kansas to protect the housewife in Hamburg. Or, of course, Lyon, Limoges or Lille. Furthermore, European nations believed in dialogue with the Communist states while the Americans wanted nothing to do with them.



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Charles de Gaulle

De Gaulle concluded that if America wouldn't come to Europe's aid in a crisis there was not much point in staying fully engaged in NATO. This view had been hardened by the US decision to pull the plug on France and the UK over their seizure of the Suez Canal from Gamal Abdel Nasser, who had nationalised it for Egypt. Washington feared it would drive the Arab nations that they were courting into the arms of the Soviets. They were also annoyed at the lack of European support in

Vietnam, whereas several European nations had helped them during the Korean War.

In 1959, de Gaulle, speaking at France's École Militaire, announced his determination that France would have its own *force de frappe*: a nuclear weapon not dependent upon the US. Robert McNamara, US Secretary of Defence from 1961 to 68, wanted all the west's nuclear weapons under American control and described the idea that France would have its own as "dangerous, expensive,

prone to obsolescence and lacking in credibility.” McNamara also increased America’s involvement in Vietnam, so his political record is hardly blemish-free in the eyes of many. As explained in a lecture by Dr. Jamie Shea, former NATO’s Deputy Assistant Secretary General for Emerging Security Challenges, “In 1966, at a very famous press conference, de Gaulle announced that he was pulling out of NATO’s military structure and ordered SHAPE (Supreme Headquarters Allied Powers Europe) out of France.” He did not order the civilian offices of NATO out of France but they chose to go anyway, out of solidarity with their colleagues, to the severe disappointment of many of the staff, who had liked being based in France. They moved to Brussels instead. It may not have been the big deal it seemed at the time. As Shea said, “First of all, the French were very careful to stay in NATO military programmes where they saw an advantage. The NADGE air defence system, they kept the nuclear tasks in Germany. They kept a lot of personnel in NATO.”



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Dr. Jamie Shea, former NATO’s Deputy Assistant Secretary General for Emerging Security Challenges



© Wikimedia

Kori Schake, Director of Foreign and Defense Policy at the American Enterprise Institute

In fact, France withdrew from the Integrated Military Command structure, but it never left NATO altogether. Under Nicolas Sarkozy, after 43 years, France returned fully to the fold. Some US observers, though, are now saying that Macron wants to restore France’s ‘military sovereignty’, ending a reliance of any kind on Washington. In an on-line version of *The Atlantic*, columnist Kori Schake, Director of Foreign and Defense Policy at the American Enterprise Institute, described Macron as “a throwback to his predecessor Charles de Gaulle, who resuscitated France’s self-esteem after the grief of occupation in World War II. Like de Gaulle, Macron would unify Europe under France’s conception, with Germany footing the bill.” Perhaps, unlike the apparently rather Francophobe Ms. Schake, Macron simply doesn’t trust Washington. France under Macron, however, remains a player on the world’s military stage.

It is France that is almost single-handedly fighting the jihadists in the Sahel region. French forces, headquartered at N’Djamena, the capital of Chad, have a base in Gao, central Mali, where jihadist forces slaughtered almost 5,000 people in 2019. France’s Defence Minister, Florence Parly, has visited the base and been briefed by the soldiers doing the fighting. The enemy there is a group calling itself Islamic State in the Greater Sahara (ISGS) and it was soldiers from France, Niger and Mali, helped by French Special Forces and using intelligence supplied by the US, who tracked the jihadists.

They killed a large number of them and seized weapons, motorcycles, fuel and food supplies in what one French officer described as an “intense” encounter. France has more than 5,000 troops engaged in what is called Operation Barkhane. No other European country has as many forces on the ground there. The United Nations has a parallel peacekeeping operation in the area, but European forces contributing to it are numbered in the low hundreds. France doesn’t want to be seen as neo-colonialist and Macron has hosted the leaders of the five affected countries – Burkina Faso, Chad, Mali, Mauritania and Niger – to a conference, seeking and getting their support for a continuing French presence.

Some other European forces have assisted in French-led operations, but the main burden is born by France. It’s a long-term commitment, made more difficult by the relative political instability in the area, but persuading France’s allies that it’s a war worth winning has been hard. French forces have also been heavily involved in the Middle East and in the Balkans. No-one can accuse Macron of shirking France’s global military responsibilities.



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French President Emmanuel Macron and First Lady Brigitte Macron during an official visit to Ukraine

MISREADING THE SCIENCE

No-one is quite sure who first said “après moi, le déluge”, but it seems to have been either King Louis XV or his chief mistress, Madame de Pompadour. It was most probably said as “après nous, le déluge”, and the most commonly held belief is that it meant “after us comes chaos” (that’s how my Harrap Shorter French Dictionary explains it), but it could also have been a prediction of the coming French Revolution or even of genuine floods, the literal meaning of the expression. If the first option is correct, and as it was supposedly first said in 1757, whoever said it had amazing foresight; the Revolution didn’t start until 32 years later, although the obscene gap between the uber-rich and the starving poor must have made it virtually inevitable. It could also have meant “who cares what happens after we’ve gone?”, said in response to references being made to increasing unhappiness about the lavish royal lifestyle at a time when most French citizens were on (or below) the breadline.

The France of Emmanuel Macron is very different from Louis XV's kingdom, and the unrest of today has rather different, arguably more complex causes. They are there, though. Charles Dickens refers to the extreme poverty of France under the Ancien Régime in 'A Tale of Two Cities'. Early in the book, after a wine cask is broken in the Sainte Antoine area of Paris and the poor nearby have scooped up and drunk the pools of muddy wine among the cobbles in their filthy hands, Dickens mentions "the woman who had left on a doorstep the little pot of hot ashes, at which she had been trying to soften the pain in her own starved fingers and toes, or in those of her child". He mentions poverty in London, too, but clearly believed that things were considerably worse in Paris.

France was in a bad way following its losses in the Seven Years War (for which Madame de Pompadour, a leading Royal advisor as well as Louis' bed mate, was partially blamed) and its poorly led and badly indebted government. But members of the nobility were still living the high life and telling themselves that it was the will of God that made them rich while so many others were starving. Certainly, it was the profligacy of the ultra-rich and the starvation of the masses that fuelled the Revolution in 1789, but that may not have been what Louis and his mistress meant. Halley's Comet was predicted to reappear in late 1758 or early 1759 (it appeared in 1758) and with it being a



Louis XV

popular topic for debate at the time, some "experts" predicted that it would cause flooding similar to that faced by the biblical Noah, in which case "après nous, le déluge" made literal sense. Sir Isaac Newton, a brilliant physicist who none-the-less took the Bible literally, had supported a theory that it was water from this comet's tail that had caused the biblical flood. Anyway, Louis XV survived the floods that never came and died of smallpox in 1774, thus missing the revolution that saw his son, Louis XVI, named Citizen Louis Capet at his trial, go to the guillotine.



French Minister of Defense Florence Parly visiting the frigate Courbet

Macron's problems will not lead to revolution, even if his popularity rating by late November 2020 had fallen to just 21%, according to a YouGov poll. When you consider that back in July it reached an impressive 50%, that's quite a fall. It sounds pretty drastic but those who actively disapprove of him make up only 27% while 34% say they're neutral. That leaves 18% who seem to have no opinion at all, and opinion polls have fairly consistently got it wrong anyway (whatever happened to Joe Biden's anticipated landslide?). In any case, Macron has no need to listen out for the sound of the tumbrils rumbling towards the Elysée Palace just yet.

The YouGov poll also asked which politician people would choose to be "world king" and a surprising 9% chose Boris Johnson, Britain's vain and struggling prime minister, which would put him 1% ahead of Angela Merkel. There's an old saying in the north of England, popular in Yorkshire and Lancashire: "there's nowt so queer as folk" (there is nothing so strange as people), which means that many of

us can be very unpredictable in our tastes. Macron only got 1%, but he shouldn't worry unduly; 50% said they wouldn't choose any of those listed in the poll and 12% didn't know. Less surprisingly, perhaps, Xi Jinping and Kim Jong Un got no takers at all.

Macron should be more worried by the fact that his popularity, which goes up and down like the water in a pool with a wave machine, is still slipping. He is seen more and more as the President for big business and the rich. His immediate post-election popularity, now dwindling in history's



Élysée Palace

rear view mirror, has been damaged. Back in the early summer, one French newspaper was suggesting that Macron was considering triggering a new election by resigning in the hope that his successful handling of the coronavirus epidemic would ensure his re-election. The Elysée Palace denied it at the time and it certainly seems extremely unlikely. Even then, his popularity rating was only 38% and his then prime minister, Edouard

Philippe, was not only more popular but talking about entering politics on his own account, becoming a potential rival.



© Wikipedia

Former French Prime Minister Édouard Philippe



© Wikipedia

French Prime Minister Jean Castex

He resigned during a re-shuffle in July. As a centre-right politician, he posed a threat to Macron's La République En Marche party, although he has since come under investigation by the Law Court of the Republic, which looks into allegations of ministerial misconduct, for his handling of the COVID-19 pandemic, so his chances of winning the presidency have almost certainly shrunk. His replacement, Jean Castex, was a virtual unknown, charged with getting France out of lockdown, which has earned him the nickname "Monsieur Déconfinement".

LA RÉPUBLIQUE EN MARCHÉ, ARRIÈRE?

Macron, with his newly formed political party was elected in 2017 on a pro-European, pro-business agenda, promising reforms that would include making France's labour market less sclerotic. However, it meant taking on France's powerful trades unions,

which had enjoyed considerable influence ever since the Second World War. Macron's reforms to taxation led to higher fuel prices which, many felt, fell disproportionately upon the working and lower-middle classes, especially away from the big cities. An on-line petition in May 2018 protesting about it attracted almost a million signatures. Six months later, the Gilets Jaunes – the Yellow Jackets (a garment referred to as 'hi-vis' jackets in the UK because they are reflective and are the near-universal outer garment of outdoor workers) – took to the streets in what became an increasingly visible and later violent protest. They wanted the fuel taxes reduced and the reintroduction of the wealth tax, imposed by a Socialist government in 1981 as the Impôt de solidarité sur la fortune, or ISF, then removed, then reimposed before finally being morphed into the Impôt sur la fortune immobilière (IFI) by Macron's government. The original ISF applied to all kinds of wealth, moveable, immovable or financial, in excess of €1.3-million. The IFI applies only to real estate, so other types of asset are exempt. Not surprisingly, the very wealthy prefer the IFI to the ISF.



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French economist Thomas Piketty

On his blog in October 2017, the French economist Thomas Piketty wrote: "let us say it straight away: the abolition of the wealth tax (ISF) constitutes a serious moral, economic and historical fault. This decision shows a deep misunderstanding of the unequal challenges posed by globalization." Piketty, who came to global fame with the surprising runaway success of his economics book 'Capital', wrote: "If we add the

gifts granted to dividends and interest (which will henceforth be taxed at a maximum rate of 30%, against 55% for salaries and non-salaried activity income), we end up with a total cost exceeding 5 billion Euros. This is the equivalent of 40% of the total budget allocated to universities and higher education, which will stagnate at 13.4 billion in 2018, while the number of students continues to increase, and the priority should be to invest in training. We bet that students will remember when the government tries to add selection to austerity in the coming months." This was written, of course, before the SARS-CoV-2 virus came along. Piketty is a firm believer in a wealth tax and so, it seems, were the Gilets Jaunes.

Macron, a former investment banker, is supposedly a centrist, owing nothing to the parties of the left and right that have traditionally run France, but he is increasingly seen as a figure of the right. For many of those who gave him over 66% of the vote, he was a breath of fresh air after François Hollande, whom I always found a charming and somewhat self-deprecating man in real life, although the French public viewed him as a bit stuffy. A French friend told me that Macron had cast himself as France's answer to Margaret Thatcher, which would put him very much on the political right, albeit less inclined to hit opponents with a handbag. When his private bodyguard was seen to assault May Day protestors, he was slow to react and criticise and this did nothing for his public image as a 'man of the people'. In September he allegedly told an unemployed man that he could easily get a job if he tried. This did not go down well, either. Nor has his lack of success with the French economy, which has not seen the hoped-for increase in growth or fall in unemployment.



© Nrf

Beheaded French teacher Samuel Paty

More recently, Macron has attracted condemnation and even death threats from Islamic countries that think he was wrong in his reaction to the brutal murder of Samuel Paty. Paty was a history teacher who had shown his class some of the cartoons of Muhammed from the satirical magazine Charlie Hebdo during a class about freedom of speech.

Paty had warned his students in advance and given them the option of not looking, or even leaving the room, but an enraged Tweet by a supposed parent (not actually a parent of anyone in the class) who claimed to have been there (but wasn't) was enough to inspire a young extremist to behead him. Macron's resulting attack on Islamist extremism – of which France has seen more than its fair share – earned him rebukes from the leaders of some Muslim countries and demonstrations by Muslim groups. Even some western newspapers in countries that share France's views on freedom of speech and intolerance have criticised Macron for what was seen by some as intemperate language in his response. Macron was so incensed about the hostile reports that he got his office to arrange for him to give an interview to the New York Times. In it, he spoke of his disappointment that what France calls the Anglo-American press appeared to be ambivalent in its support for the Republic. "When I see, in that context, several newspapers which I believe are from countries that share our values — journalists who write in a country that is the heir to the Enlightenment and the French Revolution — when I see them legitimizing this violence and saying that the heart of the problem is that France is racist and Islamophobic, then I say the founding principles have been lost." The New York Times columnist Ben Smith set Macron's complaint in context. "More than 250 people have died in terror attacks in France since 2015, the most in any Western country. Mr. Macron, a centrist modernizer who has been a bulwark against Europe's Trumpian right-wing populism, said the English-language — and particularly, American — media were imposing their own values on a different society."

MADDENED, MALIGNED, MISQUOTED



French President Emmanuel Macron and Al-Azhar Imam Cheikh Ahmad al-Tayeb in Egypt in 2019

Macron has expressed outrage before about being misunderstood and even misreported. A complaint to Britain's Financial Times even led to one of its articles being taken down from the Internet, said to be a first for the august and respected journal. In the offending article, the writer had said "Macron's war on Islamic separatism only divides France further," when he had used the expression "Islamist separatism", which has a distinctly different meaning. 'Islamic' and 'Islamist' are very different words. In clamping down on Islamic groups, including Muslim charities, Macron was accused of targeting ordinary Muslims, not terrorists. In France, perhaps more than in any other European country, a person's choice of religion is up to them – as long as they continue to respect those of other faiths or none. "Our model is universalist, not multiculturalist," Macron told the New York Times. "In our society, I don't care whether someone is Black, yellow or white, whether they are Catholic or Muslim, a person is first and foremost a citizen." Liberté, égalité, fraternité, indeed. Other western countries, though, and sections of their media have put some of the blame for Islamist attacks on Macron and on France's very determined secularism. Macron insists that it really is secularism, not racism or Islamophobia, although the Washington Post suggested that the French government seems more concerned to influence the way in which Islam is practised than at looking into why French Muslims feel alienated. Most Muslims, after all, are happy to follow their religion and abide

by its precepts in completely lawful and peaceful ways, wherever they live and without seeking to overthrow the state.

Certainly, the French government's countermeasures after the murder of Paty and the attacks that followed have been more large-scale than after previous attacks. There were some 120 house searches, associations accused of spreading Islamist rhetoric were closed down and bodies suspected of raising funds for Islamist causes were investigated, while pressure was put on social media companies to ensure their sites do not permit incitement to violence. Given how many previous attacks there had been in France, Macron's determination to stop it may be understandable, although many political analysts suspect that it owes a lot to his concerns over the next presidential election, scheduled for 2022.



Marine Le Pen

A recent poll to discover who the French people would most trust to deal with terrorism was topped by the leader of the far-right National Rally (formerly the Front National), Marine Le Pen, who sees any public expression of Islam, however peaceful, as a threat to the state. Le Pen has been capitalising on Islamist terrorist attacks to bolster her position in a bid to win the Elysée Palace. National Rally is different from the Front National in that it is no longer officially antisemitic, but it remains strongly Eurosceptic, although Le Pen claims only to be 'nationalist'. She was quick to blame the coordinated 2015 terrorist attack that left 130 dead and around 350 wounded on the liberal immigration policies of the then Socialist president, François Hollande. Macron is determined not to lose out in a similar way.

A VEILED THREAT?

His party is certainly not liberal politically. Although Macron has tried to avoid getting dragged into discussion on 'burkinis' and halal school meals, members of his party would clearly prefer them not to exist. A couple of months ago one of Macron's MPs, Anne-Christine Lang, joined other more obviously right-wing legislators in walking out of the Assemblée Nationale so she could avoid hearing testimony from a Muslim woman wearing a headscarf. They were supposed to be debating the effects of COVID-19 on young people with members of the students' union, whose representative, Maryam Pougetoux, was a Muslim.



Maryam Pougetoux

Lang claimed that, as a feminist, she could not accept the presence of someone dressed in that way. That inflexible view was criticised by Sandrine Morch, another En Marche MP who was chairing the session. She pointed out that there was no rule to prevent people attending a session wearing religious clothing, saying she would not allow a "fake discussion" around a headscarf to shift the focus of the meeting, when the future of the country's young people was under discussion.

It goes without saying that France's response to the Paty murder has drawn criticism from Islamic countries, with Turkey's president, Recep Tayyip Erdoğan, even questioning Macron's sanity and imposing a ban on French products. France withdrew its ambassador in response. Macron has introduced a number of new measures, including putting pressure on the French Council of the Muslim



French aircraft carrier Charles de Gaulle

Faith (CFCM) to establish a National Council of Imams from which serving Imams can obtain accreditation that can be removed if they step out of line. Additionally, Macron has introduced rules about home schooling, with harsher punishments for anyone trying to intimidate public officials on religious grounds. All children are to get a national identification number to be used to ensure their attendance at school, with punishments ranging from huge fines to six months in prison for parents who break the law. People will also be barred from sharing anyone's personal information in such a way that it allows those wishing them harm to track them down. Civil liberties advocates are more concerned, however, about a ban on the public filming of the police, which has been seen as a bulwark against brutality. That response prompted angry protests all over France, with marchers bearing placards with such slogans as "La République En Marche Arrière".

ARMED INDEPENDENCE

France is now the only country in the European Union to have a nuclear weapon, since the UK walked away. Both countries are, of course, still in NATO, in which Article 5 of the Washington Treaty remains of prime importance. Under it, an armed attack on any member is counted as an attack on all, obliging each member to take "such action as it deems necessary, including the use of armed force, to secure and maintain the security of the North Atlantic area." It's a strange thing that Britain voted to leave the EU, where it had the power to veto decisions, but not to leave NATO, which can order a country to go to war. Voters were not made aware of

this. In his satirical song 'Who's Next', the humourist and Harvard-educated mathematics lecturer Tom Lehrer – now aged 92 and retired – listed the countries that have a nuclear weapon. In one verse he suggested some tension in relations between France and the USA when he sang:

"Now France has got the bomb, but don't you grieve,

Coz they're on our side...I believe."

The last two words were sung after a pause and a slight giggle, suggesting that Lehrer wanted to convey the idea that he wasn't too sure about it. The song was first broadcast not long after de Gaulle's decision to leave NATO's Integrated Military Command structure. Macron has said in an interview that "What we are currently experiencing is the brain death of NATO," by which he was referring to what he saw as a Trump-led US abandoning Europe. It's hardly something new, given the comments made years ago by Robert McNamara and Henry Kissinger. But those comments were political and



French President Emmanuel Macron attends the completion ceremony of new Barracuda class first nuclear-powered submarine in the port city of Cherbourg

designed for a domestic audience. We must assume that Macron's comments were, too. France's Permanent Representative to NATO today, Ambassador H  l  ne Duch  ne, has no intention of ignoring the Article 5 obligation to come to the aid of allies.

"NATO takes the necessary deterrence and defence measures against any threat and aggression and against any emerging security challenge which could compromise the fundamental security of one or several allies," she wrote on France's European and Foreign Affairs Ministry website. Article 5 has only been invoked once, in response to the terrorist attacks on the World Trade Centre on 11 September 2001, when fellow NATO members responded with a big anti-terrorism operation in the Mediterranean. There were conditions placed by France upon re-joining the Integrated Military Command Structures: France retains full discretion over its contribution to NATO operations, it keeps its nuclear independence, no French force can be placed under permanent NATO command in peacetime and it does not have to contribute to funding expenditures linked to decisions taken before it re-joined.

Macron has no intention of letting France get left behind in the new arms race. In early December he announced a new aircraft carrier that will be, like its predecessor, nuclear powered. Don't expect to spot it at sea off the French coast any time soon: it will take until 2038 to become fully operational – just in time to replace the similarly nuclear-powered Charles de Gaulle, which entered into service in 2001. The new vessel will be France's biggest-ever warship at around 75,000 tonnes and 300 metres



France has more than 5,000 troops engaged in Africa in what is called Operation Barkhane

in length, capable of speeds of around 27 knots.

That makes it smaller than America's Gerald R. Ford and Nimitz class carriers but bigger than anything the United Kingdom, Russia or China can boast. Of course, as we all know, size isn't everything, even if it confers bragging rights. It will also be carrying the latest aircraft, now in development but, according to France's Armed Forces Minister, Florence Parly, it will be "bigger than the Rafale" and there will be 30 of them, making it a formidable vessel indeed. For the technically minded, the ship will be powered by two K22 generators, each giving out 220 megawatts. The Charles de Gaulle's generators are smaller. This will be a very French undertaking, apart from the launch catapults, a field in which France lacks experience. They will be of the latest type – electromagnetic instead of steam-powered – and they will be imported from the US. The design phase will last until 2025 at a cost of around   900-million. The work will be carried out by Naval Group, which will, as usual, work with its main industrial partners, Chantiers de l'Atlantique, TechnicAtome and Dassault Aviation. Relatively few nations can boast nuclear-powered naval vessels and Macron is determined to keep France up there with the leaders.

France's threats these days do not come so much from overseas, despite Macron's spat with Turkey. The murderer of Paty was a French-born Muslim, radicalised by extremists and shot dead by police. France remains a major military player internationally, however, with more than 10,000 troops deployed not only in the Sahel but also in Iraq, Lebanon and the Central African Republic, among other places.

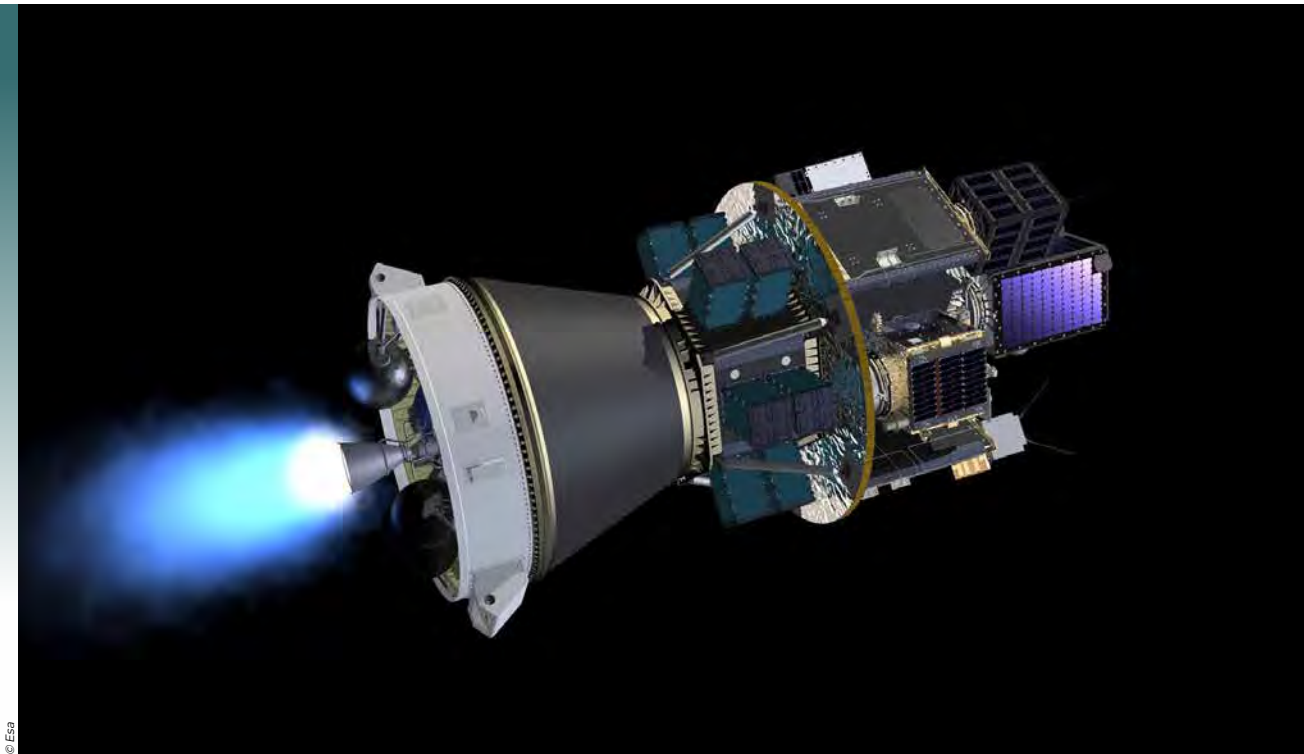
The French forces have been accused of overstepping their brief to get involved in domestic politics, such the series of airstrikes in early 2019 which France launched to destroy a column of trucks.

The trucks were carrying soldiers trying to overthrow Chad's president, Idriss D  by, so it was a matter of internal rebellion against an autocratic and unpopular leader. D  by rules a country rich in oil, uranium and gold but its people are dirt poor. According to the UN, 8% of new-born infants don't live to see their first birthdays while 20% don't make it to the age of 5. D  by lives richly enough though and spends much of the country's income on his personal security, even though he knows he can rely on French protection. In an on-line article for *The Conversation* by Nathaniel K. Powell, a Research Associate at the Department of War Studies at King's College, London, he claims that France's main objective, going back to the 1960s, has been to prop up governments in Africa, even those led by blood-thirsty despots. Stability is the priority. Macron may be tough on insurgents in faraway places, but in common with other leaders in the secular west has yet to find an answer to Islamist radicalism that leads to terrorism and murder at home. It is the kind of problem that cannot be addressed with nuclear weapons, nor any other kind, nor by sending in his paratroopers. What's the point in attacking bodies when the danger and hostility lurks out of sight, in the mind? Which way will a post-Macron France lean? Perhaps it will be a case of 'Apr  s moi, le d  lug  '. At least that's preferable to 'Apr  s moi, la d  ch  ance'.

Anthony James



The future Rafale F4



© Esa

Artist's view of Vega VV16 with SSMS

EUROPEAN SPACE AGENCY

ClearSpace SA signs service contract with ESA to carry out the first mission to remove space debris in orbit in 2025

Swiss start-up ClearSpace SA has signed a service contract with the European Space Agency (ESA) worth 86.2 million euros to remove orbital debris. This mission, named ClearSpace-1, will see the first debris removed by 2025.

ClearSpace SA – a spin-off of EPFL, created in 2018 by space debris experts – was selected out of twelve other

candidates to develop ClearSpace-1, an innovative service to remove space debris from orbit. ClearSpace-1 aims to develop sustainable technology to clean space as well as provide other services in orbit to support a new sustainable space economy.

“We are delighted that ESA has put their faith in us. We share the same clear vision of safer, more sustainable space for all, that is our goal,” says Luc Piguet, co-founder and CEO of ClearSpace. “The way space has been used until now has led to a situation where over 5,000 satellites and out-of-control rocket stages are in orbit compared to only 2,700 working satellites. In-orbit services are not only a natural part of future space operations, they will also ensure the development of a thriving space economy.”

Over the past ten years, the number of satellites launched every year has increased tenfold to over 600 a year. At the same time, the rising amount of

debris in space is a growing threat to the future and safety of space activity. Over 23,000 items of debris closely tracked.

“Drawing on its experts, engineers, researchers and network of industry specialists throughout the world, ClearSpace is building technology that will enable space debris to be removed safely and sustainably. It has put together its team of subcontractors and has already started design and testing work. Over the next few years, advanced technology will be developed and integrated in the spacecraft to be launched in early 2025,” explains Muriel Richard-Noca, co-founder and head engineer at ClearSpace.

FIRST AUTONOMOUS MISSION TO REMOVE SPACE DEBRIS SET FOR 2025

ClearSpace-1's mission is to develop a robot-like spacecraft with four articulated arms which will ultimately



© Lucpiguet

Luc Piguet, co-founder and CEO of ClearSpace

enable space debris to be removed safely. ClearSpace-1's first task scheduled for 2025 after launching from the Kourou space centre in French Guiana, will be to bring down the Vespa (Vega Secondary Payload Adapter) left by the Vega rocket placed in orbit in 2013, the size of a 112 kg satellite. With its articulated arms, the robot will remove Vespa and move it closer to the earth's atmosphere where it will burn up and disintegrate.

ClearSpace-1 is part of ESA's ADRIOS programme to develop in-orbit services for satellites such as refueling, repairs and orbital manoeuvres.

The Swiss start-up will need to draw on its network of sponsors and contributors to help fund this 14-million-euro project, representing 14% of the total project cost which stands at circa 100 million euros to which ESA contributes 86 million euros. This investment will create high added-value employment locally and launch a new in-orbit cleaning market which is set to thrive in the years to come.



© Esa

VV02 fairing integration

CLEARSPACE, A VENTURE HARNESSING INDUSTRY AND RESEARCH TALENT FOR SPACE

ClearSpace is in charge of Research & Development, designing and building the spacecraft with the help of its industry partners.

Four companies will provide ClearSpace SA with systems engineering expertise:

- Deimos Portugal and UK will be responsible for the navigation and guidance systems.
- Airbus in Germany will be in charge of avionic assembly based on Airbus's flexible LEO platform (FLP2), adapted for robots.
- OHB-Sweden will design and manufacture the propulsion system which will give the space robot the maneuverability it requires. OHB-Sweden is also foreseen to be in charge of final integration of the satellite on their premises and all related tests.
- APCO-Technologies in Switzerland will offer its expertise in satellite structure and thermal control. It will be responsible for designing, developing and testing the systems required to ensure the robot survives the launch and subsequent space environment.
- Satellite Applications Catapult is an essential partner for setting up the operations centre. It will be joined by several British companies, currently being assessed, to develop, test and approve the mission software on the ground.

A group of Swiss industry sponsors including RUAG Space, Syderal Swiss Micro-Cameras & Space Exploration and nanoSPACE will also contribute to the project in their respective fields. They will be joined by cutting-edge space industry researchers and academics such as EPFL, scientists at the HEIG-VD (Vaud School of Management and Engineering) and the AIUB (University of Bern Astronomy Institute).

According to Claude Nicollier, ESA/NASA astronaut and Chairman of ClearSpace's advisory board : « Space debris and our current use of space, especially in low earth orbit, is a growing risk for both manned spacecraft and operational satellites. The time for action is now: we need to adopt space traffic management based on sustainability; we need to be able to de-orbit satellites that break down, and strictly limit the lifetime of low earth orbit satellites, especially those in constellations. It will no longer be acceptable in the future to leave upper stages of launchers in orbit,

and those already in orbit today should be eliminated as far as possible.»



© Nasa

Astronaut Claude Nicollier, STS-103 mission specialist representing the European Space Agency (ESA), speaks at the crew return ceremony at Ellington Field

A NEW WAY FOR ESA TO DO BUSINESS

Paying for such a service contract rather than directly procuring and running the entire mission represents a new way for ESA to do business – intended as the first step in establishing a new commercial sector in space.

Along with part-purchasing this initial mission – ClearSpace itself will be raising the remainder of the mission cost through commercial investors – ESA is also contributing key technologies for flight, developed as part of the agency's Clean Space initiative through its Active Debris Removal/ In-Orbit Servicing project, ADRIOS.

These include advanced guidance, navigation and control systems and vision-based AI, allowing the chaser satellite to close safely on the target on an autonomous basis, as well as robotic arms to achieve capture.

CHALLENGING ACHIEVEMENTS AHEAD

“Think of all of the orbital captures that have occurred up until this point and they have all taken place with cooperative, fully-controlled target objects,” explains ESA Director General Jan Wörner.

“With space debris, by definition no such control is possible: instead the objects are adrift, often tumbling randomly.

“So this first capture and disposal of an uncooperative space object represents an extremely challenging achievement.



© Wikipedia

ESA Director General Johann-Dietrich Wörner

But with overall satellite numbers set to grow rapidly in the coming decade, regular removals are becoming essential to keep debris levels under control, to prevent a cascade of collisions that threaten to make the debris problem much worse.”

Luc Piguet, founder and CEO of ClearSpace comments: “At orbital velocities, even a screw can hit with explosive force, which cannot be shielded against by mission designers; instead the threat needs to be managed through the active removal of debris items.”

“Our ‘tow truck’ design will be available to clear key orbits of debris that might otherwise make them unusable for future missions, eliminating the growing risks and liabilities for their owners, and benefitting the space industry as a whole. Our goal is to build affordable and sustainable in-orbit services.”

Luisa Innocenti, Head of ESA’s Clean Space Office, adds: “The plan is that this pioneering capture forms the foundation of a recurring business case, not just for debris removal by responsible space actors around the globe, but also for in-orbit servicing; these same technologies will also enable in-orbit refuelling and servicing of satellites, extending their working life. Eventually, we envisage this trend extending into in-orbit assembly, manufacturing and recycling.”

EUROPEAN INDUSTRY LEADS DEBRIS REMOVAL

ClearSpace – a spin-off company established by an experienced team of space debris researchers from EPFL, the Swiss Federal Institute of Technology in Lausanne – is leading an industrial team that includes companies from several European countries, and contributions will come from enterprises in Switzerland, the Czech Republic, Germany, Sweden, Poland, the United Kingdom, Portugal and Romania.



© Esa

In 2025, the first active debris removal mission, ClearSpace-1, will rendezvous, capture and take down for reentry the upper part of a Vespa (Vega Secondary Payload Adapter) from Europe’s Vega launcher

With a mass of 112 kg, ClearSpace-1’s Vespa target is close in size to a small satellite, while its relatively simple shape and sturdy construction make it a suitable first goal, before progressing to larger, more challenging captures by follow-up missions – eventually including multi-object capture.

The ClearSpace-1 mission will initially be launched into a lower 500 km orbit for commissioning and critical tests, before being raised to the target orbit for rendezvous and capture using a quartet of robotic arms, flying under ESA supervision. The combined ‘space robot’ chaser plus the Vespa target will then be deorbited to burn up in the atmosphere.

ABOUT CLEARSPACE

ClearSpace SA, a Swiss start-up founded in Lausanne in 2018, brings together space experts including astronauts, engineers and researchers from all over the world at EPFL. They aim to harness their respective talents to clean up space debris and build the future of in-orbit services. The team of experts were originally hired for an academic mission to bring down SwissCube, a cubesat launched in 2009 by EPFL, but they left EPFL in 2012 to focus on ClearSpace-1, their mission for the European Space Agency (ESA). On 13 November 2020, ClearSpace signed a contract worth 86 million euros with ESA to send their first robot cleaner into space in 2025.

ABOUT ESA

The European Space Agency (ESA) is Europe’s gateway to space. ESA is

an intergovernmental organisation founded in 1975 whose mission is to shape the development of Europe’s space capability and ensure that investment in space continues to deliver benefits to the citizens of Europe and the world. The following countries make up ESA’s twenty-two member states: Austria, Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland and the United Kingdom. Slovenia and Latvia are associate members. Six other EU states have Cooperation Agreements with ESA. Canada also participates in certain ESA programmes through a cooperation agreement.

ABOUT EPFL

EPFL, one of the two Swiss Federal Institutes of Technology, based in Lausanne, is Europe’s most cosmopolitan technical university with students, professors and staff from over 120 nations. A dynamic environment, open to Switzerland and the world, EPFL is centered on its three missions: teaching, research and technology transfer. EPFL works together with an extensive network of partners including other universities and institutes of technology, developing and emerging countries, secondary schools and colleges, industry and economy, political circles and the general public, to bring about real impact for society.

Sources : Esa/ClearSpace

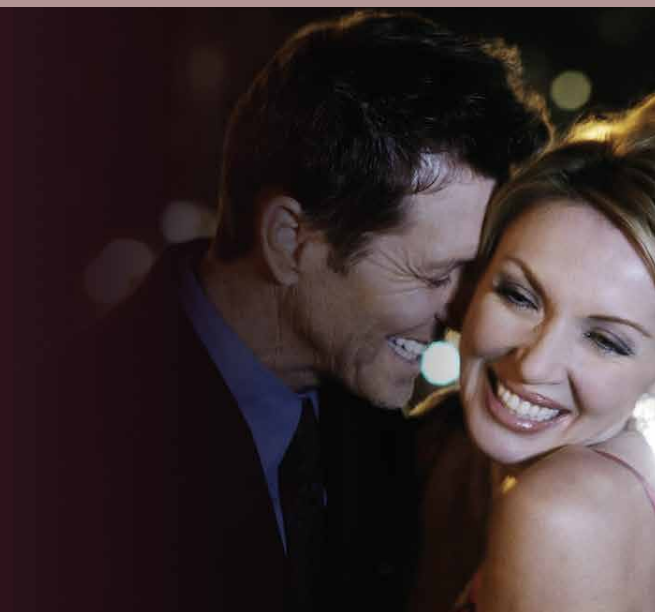


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Maia Sandu voting

THE GOLDEN FISH SURFACES IN MOLDOVA

Maia Sandu's surprising election win

Could it be that Russian President Vladimir Putin's grip on events is weakening in what he seems to see as his 'sphere of influence'? In Moldova's presidential election he supported the incumbent head of state, Igor Dodon. In fact, they supported each other: Dodon was a Putin admirer and very pro-Russian, although he has denied allegations that he used Russian advisors during the election campaign, as the winning team claimed. But things are seldom certain when a powerful leader seeks to influence elections in another country in which not everything is going well. Broad hints and even threats don't always work when you're talking about an enfranchised diaspora voting far from home. Moldova, once part of the Soviet empire, is a country whose people are poor; perhaps they felt in need of a change after four years with Dodon at the helm? He has, of course, indicated a desire to contest

the outcome in court. It's becoming something of a fashion, with Trump initially denying his defeat and telling his supporters he'd been cheated. Apparently, 88% of them are still convinced of electoral fraud and a conspiracy by the liberal left to deprive their hero of the White House.



Moldovan President Igor Dodon with Russian President Vladimir Putin during a Military Parade on Red Square in 2017

So Dodon is in good company when he accuses his opponents of denying votes to his supporters in Transnistria or of 'buying' and transporting opposition voters across frontiers to a misplaced ballot box. It was anti-corruption candidate Maia Sandu who won both the first round on 1 November and the runoff two weeks later. Dodon promised his own supporters that he will take his complaints to the Central Election Commission, the ordinary courts, the Appeals Court, and the Constitutional Court. However, he has offered his congratulations to Sandu and he has conceded defeat, rather more promptly than Trump did to the victorious Joe Biden.

The wind of change seems to be blowing in Moldova. Even Putin has offered Sandu his congratulations. In an old Moldovan folk tale, a poor man goes fishing every day (Moldova

wasn't always landlocked as it is now) and one day he caught a golden fish. Because he let it go, the fish filled his wife's cupboards with food. But she wanted more and more: a posh house and then to become queen. She kept wanting more until until the golden fish got fed up and took away its earlier gifts. If Sandu is the golden fish, better not ask her for too much.



President Igor Dodon and Prime Minister Maia Sandu in July 2019

When I was in Chişinău, Moldova's capital, five years ago, the country was in the grip of a banking scandal. Already Europe's poorest country, it had just seen US\$1-billion (€0.84-billion) disappear from three of its banks in an elaborate theft. Where the money ended up is unclear, except that a lot of it (if not all) passed through a complex network of British and Hong Kong banks and accounts held under mysterious beneficial ownership in offshore tax havens and therefore untraceable, and with the help of seemingly respectable UK-based financial advisors (surely they must have known they were assisting a theft?) who seem to have had no qualms about picking the pockets of the very poor to enrich the wealthy (and crooked), as long as they get their commission.

It had clearly been very well planned by experts who knew how to make some of the world's least well-off people that much poorer while enriching themselves in untraceable ways. As the American evangelist Frank Buchman wrote in 'Remaking the World' in 1947, "There is enough in the world for everyone's need, but not enough for everyone's greed." The man accused of this mega-heist, Ilan Shor, was just 28 years old at the time and looked younger. That same year, and despite being under house arrest while the massive theft was under investigation, he was elected mayor of Orhei, a city some 35 kilometres from Chişinău, into which he poured money that may not have been his to give (he denies that), including new modern buses – a marked improvement on their rattle-trap Soviet era predecessors – together with a free express bus service for those going to Chişinău. Even that largesse was not without controversy as the purchase had not been put out to tender, although bus travellers didn't complain. Shor rebuilt collapsing churches, too, and was incredibly generous all round. As one Moldovan commented, he's not the first person in Moldova to embezzle money, but he seems to be the first to share the fruits of his theft. If that's where the money came from, of course; he says not.

The people loved him and in 2019 elected him to parliament, despite his 2017 conviction. Some reckoned he only stood as a candidate to avoid prosecution over the missing \$1-billion, but that didn't seem to have worried a population whose average monthly earnings are around \$340 (€286). The World Bank claims that Moldova has the second lowest per capita income in Europe. Only the people of Ukraine rate as poorer.



Ilan Shor's wife, Jasmin Shor, a pop singer, was decorated by Russian Federation President Vladimir Putin as an "honored artist of Russia"



Ilan Shor

Moldovans are said to believe that you can bribe a policeman for \$20, or even \$10 if you're hard up, so honesty may not always be the best policy there. Shor is now believed by many to be living in the country of his birth, Israel, and he's not answering calls from journalists, although the whole affair has led, unfairly, to an upsurge in anti-Semitism in Moldova. It's not the first time. Back in 1903 and again two years later, large numbers of Jews were murdered in pogroms following the deaths of two Christian children, for which the Jewish community was blamed. Some have seen those pogroms as precursors to the Nazi Holocaust, which was built upon the idea of blaming Jews for everything that was wrong, although that was always grossly unfair. It's grossly unfair to blame them as a race for the bank robbery, too. After all, criminality is not a national characteristic; it's horribly easy to find crooks of any and every nationality, as well as moral and honest people. Shor himself, appearing before journalists by video link in March 2020 denied that he had fled the country, though without saying



Chişinău Central Station

where he was hiding, and expressed a willingness to face a court, but only if his arrest warrant is annulled. He also denied involvement in the massive bank theft, blaming Moldovan civil servants for the raids on the three banks involved. He may be right, but without an open and transparent trial and an ability to follow the money trail from start to finish and with no interference by 'interested parties' we may never know. Wherever Shor is, it would be more interesting for most Moldovans to know where the loot now resides, whoever stole it, and to get it back.

RIVAL PROTESTORS

Oddly enough, what I remember most about Chişinău is not the banking scandal of the time but the large rival camps that had set up on the main road past the parliament. Both had been separated from the traffic by temporary barriers and comprised large numbers of small tents and canvas lean-tos filled with campaigners of one persuasion or the other. One of the camps was flying Russian flags and showed banners, written in Cyrillic script, praising Putin and calling for closer links with Russia. The other, about a hundred metres along the road, showed European flags and placards in Romanian or English, calling for closer ties with the European Union. I had been filming in a nearby park and a local woman was explaining it to me as we walked past on the opposite pavement. She was very angry and grumbled to me that Russia was pouring pro-Putin propaganda into Moldova, mainly over the radio, that was very anti-EU and less than entirely truthful. Poor old Moldova. Many of its citizens took up the offer of Romanian citizenship once Romania joined the EU, hoping to provide some insurance against a Russian takeover of their country. Moldova and Romania share a language and, to a large extent, a culture, except for the country's Russian speakers, which is why Romania offered Moldovans citizenship. Romania is by far and away Moldova's largest trading partner.

The issue clearly troubled the Moldovans I met, most of whom seemed to be largely pro-European, and there was widespread concern over which direction their country would take. The direction many have taken,

especially the young, is out of Moldova altogether. Over the last three decades, the population has plunged from 4.4 million to around 3.5 million as many citizens seek greener pastures abroad. It was, to a large extent, the votes of those Moldovans in exile that secured the presidency for Sandu. Among the diaspora, she won 93% of the vote.



Maia Sandu

So, what do we know about her? Born in 1972 in the village of Risipeni, a commune in the Făleşti District on the western border of Moldova. She heard sad stories of the war, of famine and deportations from her parents and grandmother. Together with her extended family, she moved to Chişinău and, having been a bright child at school, studied economics at Moldova's Academy of Economic Studies. She proved a good student and after graduation she went to work for the Ministry of Economy. After gaining a master's degree, she joined the World Bank in Chişinău and it was there that she mixed with people from different countries and backgrounds and learned from their experiences. Attempts to change Moldova's economy, though, she found very

often to be blocked by vested interests and corrupt or inadequate politicians. She obtained another master's degree, this time in public policy, from the Harvard Kennedy School.

"I saw how things are done in civilised countries," she wrote on her autobiographical web page, "and I returned home to support the country's development." She was appointed Minister of Education in 2012, believing that education would be the key to long-term reform and found herself working with a dedicated team, but their attempts to put an end to corruption in the education system were repeatedly thwarted by corrupt officials and politicians. As other countries have found, it's hard to stamp out corruption when those in influential positions are paid paltry amounts, despite having had to study and hard work to reach those positions. The temptation to accept bribes and to try to earn a little extra for yourself and your family is too great.

Sandu didn't yield to temptation, nor did the members of her team, but they found their anti-corruption efforts met with substantial opposition. They were threatened and intimidated, she says. "When we close our eyes to the fact that exams are sold and bought," she wrote, "we have to think that we want to be treated by a doctor who did not buy his diploma, we want to live in a block where the engineer learned well and fly in a plane where the aviator did not copy for exams." In that one sentence, Sandu sums up many of the problems still facing Moldova, although she hopes as president, she may help to put things right. However, in Moldova the powers of the president are limited. She is likely to seek a snap



Maia Sandu

parliamentary election, building on her current popularity in the hope of taking full control of the political system or at least ensuring it runs fairly, but getting it won't be easy.

Her opponents in socially conservative Moldova used dirty tricks to try to damage her, including the suggestion that she had no children because she is a lesbian, something she denies. She has also been painted as a cold person, lacking empathy and warmth. She countered that by talking a lot about her family during the campaign, which seems to have worked. When, in 2015, she was offered the post of Prime Minister, she insisted on the dismissal of the Prosecutor General and the governor of the National Bank so as to tackle that enormous theft, but government politicians said 'no', convincing her that, as she put it, "corruption had swallowed up the entire political class", as it has in several other countries. Realising that there was little chance of overcoming corruption in the main political parties, she founded her own, the Action and Solidarity Party.



Vlad Plahotniuc

During street protests she met up with a partner with similar ideas, the Dignity and Truth Platform and together they formed the NOW bloc, gaining enough votes in 2019 to block the overall victory of Vladimir Plahotniuc's Democratic Party of Moldova. Plahotniuc, an ethnic Romanian, has since been charged with involvement in the massive bank robbery and has fled to the United States. Even Moscow had described him as "toxic" and urged Moldovans not to support him. The big bank theft is still being



Moldovan parliament

linked to Shor who is accused of masterminding the mind-boggling heist in which \$1-billion was funnelled overseas through dubious loans, shell companies, asset swaps, and shareholder deals. According to Radio Free Europe/Radio Liberty (RFE/RL), "Prosecutors said that through Shor, Plahotniuc allegedly withdrew \$100 million (€84 million) from the former state bank, Banca de Economii. US officials have been accused of not doing enough to arrest and extradite Plahotniuc. Geese that may be able to lay golden eggs seem to be welcome everywhere, as long as they keep their heads down.

CHOOSING A DIRECTION

Sandu has expressed a strong desire to broaden Moldova's global connections. Under Dodon it has followed an isolationist policy, only seeking links with Moscow, which he has visited thirty times during his four years in office.

He visited again for consultations immediately following his defeat by Sandu, who chose to visit Bucharest and Kyiv instead. RFE/RL's Moldova service quoted Alexei Tulbure, a political analyst based in Chişinău, on the strangeness of the country's isolation from its neighbours and – one would have thought – obvious allies. "It was an absolutely abnormal situation." He told RFE/RL, "when we did not go to the neighbours and the neighbours did not come to us. That is over now. We will have a completely different situation." Don't hold your breath, however: achieving the changes Sandu wants will not be easy. Dodon's Socialists remain the largest group in parliament and, this being a parliamentary democracy, more or less, it is parliament that wields

the most power and is most likely to throw obstacles in the way of change. As one observer commented, it was not so much Dodon as a person who was defeated but the remains of the Soviet Union and Soviet thinking. Ideas are hard to kill.



Former Moldovan President Igor Dodon (middle)

One of her first moves, Sandu has said, will be to tackle Moldova's corrupt judicial system, which will include judges and prosecutors. She told the website 'Balkan Insight' before her victory in the run-off, "All those connected to the mafia system, who committed crimes, took illegal decisions, protected thieves and corrupt people today will have to leave the system and be penalized." According to Al Jazeera, "Sandu has received messages of support from German Defence Minister Annegret Kramp-Karrenbauer and former European Council President Donald Tusk. Some of Dodon's supporters denounced such support as an attempt to destabilise Moldova. Sergei Naryshkin, the head of Russia's SVR Foreign Intelligence Service, accused the United States last month of plotting to instigate mass protests against Dodon as punishment for him

fostering good relations with Moscow.” In other words, the Kremlin seems to have indulged in its usual policy of spreading fake news in support of its faithful acolytes but in this case it didn’t work. The UK’s Guardian newspaper reported that Nicu Popescu, who was a foreign minister when Sandu was prime minister in 2019, has warmly welcomed Dodon’s – and Moscow’s – defeat. “There’s been high demand for an anti-corruption platform for many, many years,” he is quoted as saying. “It was also very clear that Dodon has been part of the same world with very corrupt politics ... it was clear for people and they didn’t buy into his divisive campaign.” Attempts to hack into the Central Electoral Commission during the count were defeated by Moldovan technicians. It’s been suggested that Russia’s support for Dodon was ‘half-hearted’, although there’s little doubt that Putin would have preferred him to Sandu.



Vladimir Filat before the court session in Chisinau

Certainly, Sandu should be a big step up from Vladimir Filat, recently released on parole after serving four years of a nine-year prison sentence imposed for his alleged involvement in the massive bank heist. After being denounced by the man accused of masterminding the theft, Ilan Shor, Filat, formerly Moldova’s prime minister, was charged with passive corruption and influence-trafficking. He was also accused of extorting money, goods and services worth hundreds of millions of dollars from Shor and may face further charges of money laundering, which he denies. Filat’s son, also called Vlad, was ordered to pay almost £500,000 (€560,000) in the UK after

an investigation by Britain’s National Crime Agency (NCA) in early 2019. The NCA claim that the young Filat’s costs for living in London, where he was studying, were met with massive transfers of funds from Turkey and the Cayman Islands. His funds were frozen by a court order in 2018 and the District Judge hearing the case said he was satisfied that the money was derived from Filat Senior’s illicit activities in Moldova, since Filat Junior could not name a legitimate source for his income. While studying at university, the younger Filat was living in a penthouse in London’s exclusive and very expensive Cadogan Square and driving to lectures in a Bentley Bentayga, bought brand new from a showroom in Mayfair for £200,000 (€225,000). It would seem that Moldova’s corrupt upper stratum believed that no-one would notice their wrongdoing. As the French playwright Molière wrote in ‘Le Tartuffe’, “It is public scandal that constitutes offence, and to sin in secret is not to sin at all.” That’s not the view taken by the law, however. Or to put it another way, the wages of sin may be, as the Bible says, death, but on the other hand, the salaries of propriety won’t buy you many luxuries. Certainly not a Bentley Bentayga.

What’s more, even if Moldova picks up economically, it will do so from a low base.



The National Bank of Moldova

The World Bank is not entirely pessimistic but it’s clear there is some way to go to reach relative prosperity. “A vulnerable political system, a

polarized society, low productivity, demographic challenges, skills mismatches, and a high vulnerability to both climate-related and external shocks are Moldova’s biggest economic challenges,” says a report. “Moldova’s large-scale out-migration, combined with decreasing fertility rates, has led to an alarming decline in the population and increased the share of elderly people. This puts pressure on the pension system and limits the available labour force and the country’s long-term competitiveness.” Certainly, even six years on from the massive bank robbery, Moldova’s banking sector needs to win confidence, with the help of the European Central Bank (ECB). The National Bank of Moldova (NBM) signed a Memorandum of Understanding (MoU) with the ECB in September 2020 aimed at strengthening the capacity of banking supervision. According to the ECB, the signing should also be seen as representing “a significant achievement aimed at strengthening the banking supervision capacity of the NBM, as well as a conclusive confirmation of the implementation of common objectives set by our country and the European Union within the Association Agreement between the Republic of Moldova and the European Union. Thus, the NBM continues the process of reforming the banking sector in our country, consistently applying the best European and international practices.”

WARDING OFF THE BEAR

One challenge Sandu will find it hard to overcome is her country’s dependence on Russia. “With few natural energy resources, Moldova imports almost all of its energy supplies from Russia and Ukraine,” reports the CIA. “Moldova’s dependence on Russian energy is underscored by a more than \$6 billion (€5.04 billion) debt to Russian natural gas supplier Gazprom, largely the result of unreimbursed natural gas consumption in the breakaway region of Transnistria.

Moldova and Romania inaugurated the Ungheni-Iasi natural gas interconnector project in August 2014. The 43-kilometer pipeline between Moldova and Romania, allows for both the import and export of natural gas. Several technical and regulatory delays kept gas from flowing into



The Ungheni-Chișinău gas pipeline

Moldova until March 2015. Romanian gas exports to Moldova are largely symbolic. In 2018, Moldova awarded a tender to Romanian Transgaz to construct a pipeline connecting Ungheni to Chișinău, bringing the gas to Moldovan population centers. Moldova also seeks to connect with the European power grid by 2022.” Indeed, the CIA cites a large number of potential obstacles to progress. “Over the longer term, Moldova’s economy remains vulnerable to corruption, political uncertainty, weak administrative capacity, vested bureaucratic interests, energy import dependence, Russian political and economic pressure, heavy dependence on agricultural exports, and unresolved separatism in Moldova’s Transnistria region.” That’s quite a catalogue, and we haven’t really mentioned the ongoing issue of Transnistria.



Soldiers from Transnistria on independence day



Moldovan Army

Transnistria is a narrow strip of Moldova along its eastern border, sandwiched between the Dniester river and the Ukraine frontier. Its dispute with Moldova, which dates back to the break-up of the Soviet Union, is one of the world’s so-called ‘frozen conflicts’, which show little sign of ending soon. Transnistria declared its independence from Moldova unilaterally in 1990. Two years later, Transnistria, backed by Russia, took up arms against Moldova, the conflict lasting from March to July, 1992. The European Parliament’s Directorate General for External Policies characterised it like this: “While Moldova, and to a lesser extent the Transnistrian region, have made progress towards more democratic forms of government and more effective, transparent and accountable governance, neither is a fully free and democratic society according to most international assessments. Problems persist in relation to human rights and political and civil liberties, organised crime and pervasive corruption.” Transnistria has shown little sympathy with Moldova’s moves towards a more European future. “The Transnistrian region,” runs the report, “while economically benefitting from access to the European Union market, has yet to engage fully with Moldova’s European agenda and aspirations and retains a significantly stronger economic, cultural and political orientation east, towards the CIS, and especially Russia and Ukraine.”

Transnistria has a population of around half a million, is recognised as independent by very few other countries but even issues passports, although not many countries accept them. It gets its gas for free from Russia and has banned the use of the Latin alphabet in favour of the Cyrillic, even though its ethnically Romanian citizens would write in Latin script. In the 2016 election, large numbers of Transnistrian citizens were bussed into Moldova to vote. That was not officially allowed in 2020 and the US ambassador to Chișinău, Derek Hogan, informed Moldovan media that he had been given assurances there would be no repeat of such tactics. In 2012, Russia opened a consulate in Transnistria, despite protests from Moldova, but it did not go as far as to recognise it as an independent state. The Transnistrian capital is Tiraspol, officially the second

largest city in Moldova, and its flag still bears the old Soviet hammer and sickle emblem in one corner.



Lenin Statue on 25 October Street - Tiraspol - Transnistria

It seems certain that Sandu’s victory will lead Moldova to have to closer links with Romania, the EU and the United States, which will not please Putin. However, Sandu has been careful not to provoke or antagonise Russia, saying that she will seek to develop Moldova’s relationship with Moscow. Putin may be uneasy about that, but his influence at home and among his neighbours may be slowly dwindling anyway and may dwindle further in elections likely to be held in September 2021. As the Foreign Policy (FP) website wrote after Sandu’s win, “President Vladimir Putin’s attempts to keep Russia’s immediate neighbors close are unravelling, with the citizens of Moldova joining those of Kyrgyzstan and Belarus in signaling in recent days and months that they have lost patience with discredited Moscow-backed leaders.” He will not, of course, give in easily and Putin’s record shows a willingness to engage in intimidation and violence to get his way. Certainly, the EU is pleased with the outcome of the election.

European Commission President Ursula von der Leyen described Sandu’s victory as “a clear call to tackle corruption and restore respect for the rule of law — the path to a prosperous future. The EU is ready to support Moldova.” Moldova will need it. In her victory speech, Sandu told the media: ““We need a developed economy that offers work opportunities here at home, so our youth and our people are not forced to leave their loved ones.” There were a number of allegations of corrupt practices during the



Angela Merkel welcoming the Prime Minister of the Republic of Moldova, Maia Sandu, in July 2019

election, but Sandu has said they will be investigated. “We made hundreds of reports and I will insist they are analysed and those who are guilty are punished — it’s about bribery, buying votes, grave abuses,” she said. Moldova has seen its share of those over the years. Even Sandu’s battle with Dodon is not over.

His Socialists hold 37 of the parliament’s 101 seats while Sandu’s PAS and her allies in the Truth and Justice platform have just 25. The rest are divided up among various very small groups and individuals. Dodon has talked about trying to organise an ‘anti-Sandu’ coalition to snarl things up and prevent reforms. New elections are not due until 2023 and some sitting members may want to delay any further elections until then to protect their positions and their power. They can see how popular Sandu proved at the ballot box and may fear history repeating itself.

QUIET CHEERING IN BRUSSELS

Meanwhile, the EU is in celebratory mood. The European Economic and Social Committee (EESC) has already expressed its delight at the

outcome. “Having a pro-European Head of State in our neighbourhood is a very positive message for the whole European Union,” wrote Christa Schweng, President of the EESC and Dimitris Dimitriadis, President of the External Relations Section. “It is an incentive for closer cooperation with the authorities and civil society of Moldova in accelerating progress and implementation of the roadmap for EU integration.” Sandu is certainly going to need the ongoing support of the EESC in the budgetary battles ahead. It looks as if she’ll get it. “The Committee praises the fact that despite the pandemic, the high turnout gives a strong mandate to Ms. Sandu and emphasises the wish of the people of Moldova for a better future in a fairer society. Moldovans have chosen to pursue the European and democratic path and Europe will continue to stand by Moldova in its efforts towards modernisation, democratisation and rapprochement with the EU.”

The mention there of the pandemic is perhaps overdue: dealing with it is likely to top Sandu’s ‘to do’ list, even before she tackles corruption and graft. As at the time of writing, Moldova has seen around 100,000 cases of COVID-19 and over 2,000 deaths.

America’s Centers for Disease Control and Prevention are still advising against all travel to Moldova, although most other countries, including the very cautious UK, are merely advising extreme care, which should apply to every country. The UK, on its advice to English citizens (as opposed to Scottish, Welsh or Northern Irish, who get their own advice) says: “Moldova has announced the lifting of the State of Emergency and the easing of some coronavirus (COVID-19) measures. The government has taken steps to restart economic activity. Social distancing guidelines remain in place and you must wear a mask in enclosed spaces such as supermarkets, restaurants, bars and on public transport.” It sounds pretty



Romanian President Klaus Iohannis

much like most cities in the UK, in fact. In any case, it’s unlikely to deter Romanian President Klaus Iohannis from becoming the first foreign head of state to visit Moldova since Sandu’s election. He was the first to congratulate Sandu on her victory and it’s thought likely he could visit in late December. If so, it will be a clear sign that Moldova and Romania mean to progress together, which should come as no surprise. With the result, many in Moldova are daring to hope Sandu’s victory will be the beginning of a more representative and progressive democracy and an end – eventually – to the long-lived kleptocracy. If the people don’t expect too much more than mild improvement, perhaps the golden fish will go on giving.

T. Kingsley Brooks



Maia Sandu during her presidential election



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Taiwan President Tsai Ing-wen observing a military maneuver / Chinese President Xi Jinping reviews the armed forces as part of the commemorations to mark the 90th founding anniversary of the People's Liberation Army (PLA)

ISLAND OF DREAMS

China's lust for Taiwan in a continuing East-West power struggle

In the much-troubled Chou Dynasty China of the 6th century BC, the philosopher Kong Qui, known in China as Zhongni (which means Master Kong, who was subsequently misnamed in the West by Jesuit missionaries as Confucius), wrote: "To rule a country of a thousand chariots, there must be reverent attention to business, and sincerity; economy in expenditure, and love for men; and the employment of the people at the proper seasons." That seems to be the precept by which Xi Jinping's China seeks ever-greater influence in the world, although just how much "love for men" is apparent is a matter for debate. Economic strength, however, is China's goal and one in which it

seems to have succeeded. China does not like Taiwan being independent; it is the island to which, of course, Chiang Kai-shek's Kuomintang (KMT) nationalists retreated from Mao Zedong's victorious Communist army. The KMT ruled the island as a one-party state for 40 years and were internationally recognised for years as the Republic of China, much to the annoyance of those ruling the vast territory of mainland China from Beijing. For Mao and his successors, Taiwan was unfinished business.

At least he seems to have realised it was an issue to be left for another time. Xi Jinping, on the other hand, has tried to pretend it doesn't even exist, putting pressure on Western

powers, companies and international organisations to list Taiwan's towns and cities as 'part of China'. They are not. Taiwan is a democratic, self-ruled entity that has been economically successful and whose people do not, by and



Chiang Kai-shek and Mao Zedong in Chongqing, 1945

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large, speak Mandarin Chinese as their mother tongue, speaking Formosan dialects instead. To the Portuguese who first set up trading links there, the Island was called Formosa. In the late Pleistocene era, some 140 million years ago, when sea levels were much lower, the Taiwan Strait was dry land and the island really was part of the mainland. However much Xi may prefer things to be otherwise, however, he can't wish away a stretch of water now 160 kilometres wide and 70 metres deep.

Taiwan has inevitably been caught up in the war of words between Beijing and Washington, and no outcome looks especially promising. If the verbal war becomes a shooting war, Taiwan looks rather vulnerable, being so close to the Chinese mainland. On the other hand, if a new US administration were to take a less hostile stance towards China, it may not see its defence of the island as quite so important. Xi still talks about "Communism with Chinese features" and the duty of all Chinese people to "liberate all humanity" and to become what he called (not for the first time) the "gravediggers of capitalism". Strange, then, that China's businesses are engaged in what looks very much like capitalist competition with other capitalists and every bit as cut-throat.



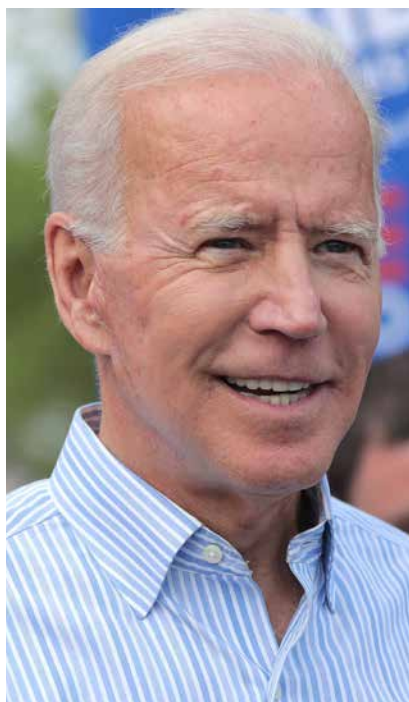
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Taiwan President Tsai Ing-wen



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General Secretary of the Communist Party of China Xi Jinping



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US President Elect Joe Biden

An official report to the US Congress reminded readers that: "In 2017, Beijing announced its goal to build the People's Liberation Army (PLA) into a 'world-class' military, overcoming remaining shortfalls in the force's capabilities to establish China firmly among the ranks of the world's leading military powers." This takes us back to Mao's 'Little Red Book', which quotes from one of Mao's older writings, dating back to 1939. "Experience in the class struggle in the era of imperialism teaches us that it is only by the power of the gun that the working class and the labouring masses can defeat the armed bourgeoisie and landlords; in this sense we may say that only with guns can the whole world be transformed." From Xi's point of view, he wants to see Taiwan transformed into part of the People's Republic and his ambitions may require him to abide by one of Mao's own precepts: "Political power grows out of the barrel of a gun". Of course, so does repression and tyranny.

In recent times, Xi has been facing off an increasingly aggressive, unsympathetic and antagonistic US President in Donald Trump. Now Trump is going, where does that leave Taiwan? Is it going to be an unwilling trade-off in attempts to placate or appease Beijing? Polls showed that most Taiwanese wanted Trump to win. What attitude will Joe Biden take towards them?

It's not an issue Taiwan can afford to leave to chance, which is why Taiwan's President, Tsai Ing-wen, has already made virtual appeals to three leading US think tanks, urging the incoming administration to continue working with Taipei in standing up to Beijing's threats to security in the South China Sea. She wants to win popular support in the United States for resisting China's bullying. The Taiwanese public is certainly nervous that US China policy may change under a Biden presidency and take a softer stance towards Xi, unintentionally encouraging adventurism and his ambitions to take back Taiwan. They have plenty to worry about. Since early September, China has been carrying out its most provocative show of force in years. China has employed thirty or more combat aircraft and a number of military vessels, which have engaged in military patrols of the Taiwan Strait every other day. Many of them have even crossed the median line between the countries that had been respected for decades, until last year.



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US Secretary of Health and Human Services Alex Azar and Taiwan President Tsai Ing-wen

Virtually every day, Taiwan's air defence systems are activated because of incursions into its Air Defence Identification Zone (ADIZ). Most often, the aircraft are Shaanxi Y-8 turboprop planes, based on the old Soviet-era Antonov An-12. On one day, three such incursions led to warnings being issued to the public. The three offending aircraft were different versions of the Y-8, one anti-submarine version (the commonest in these repeated incursions), one was an electronic warfare version and the third was a tactical reconnaissance type, according to Taiwan's Ministry of National

Defence. These may just be attempts to rattle the bars of Taiwan's defences, to cause annoyance and concern, much as Russia does in and over the territorial waters of Scandinavian countries and the United Kingdom. It is a worry, though, to Taiwan and its allies. In a report to the US Congress by the US-China Economic and Security Review Commission, "Through its modernization efforts, China has emerged as an unprecedented economic rival and a growing military threat capable of inflicting grave harm on the United States and its allies and partners. China's economic engagement with the United States has proved to be a critical enabler of its rapid economic growth, steadily feeding Beijing's confidence in its ability to act on its long-standing ambition to match and ultimately displace the United States as the predominant global leader."

VAULTING AMBITION

Xi Jinping is not really much like his predecessors: he's more ambitious for global power and his dislike of America and all it stands for seems to be almost visceral. "The ruling Chinese Communist Party (CCP) regards the liberal democratic values championed by the United States as a fundamental impediment to its external ambitions and an existential threat to its domestic rule," says the same Congressional report. "Chinese leaders' assessment of the United States as a dangerous and firmly committed opponent has informed nearly every facet of China's diplomatic strategy, economic policy, and military planning in the post-Cold War era. Although elements of this competition have been evident for some time, under General Secretary of the CCP Xi Jinping the competition has intensified."



Peoples Liberation Army of China



Taiwan Military

Where does that leave Taiwan? Beijing has at its command a military machine ten times the size of anything Taiwan can boast. That includes the largest air force in Asia, the biggest army, more conventional missiles and far more ships. Its long-range defence systems can shoot down aircraft in the skies over Taiwan and it could, at the press of a button (or several buttons), wipe out Taiwan's air force and even destroy the US bases in the region, although it's unlikely to attempt such a plainly suicidal manoeuvre. But China would have to want to wipe Taiwan off the map altogether, which certainly isn't part of Xi's game plan. As an article on the Foreign Policy (FP) website points out, while mainland China certainly has the numbers, Taiwan is a natural fortress, guarded by a strait that experiences typhoons and 10-metre-high waves, with steep cliffs to its eastern coast and miles of mud flats on the western side, that are not only difficult to cross but are also swept by strong and treacherous tides. According to FP, Taiwan only has about a dozen beaches where an invasion force could land, where the vessels landing them would be extremely vulnerable to missile attack. As a result, experts have advised Taipei to invest its limited defence budget in mobile missile launchers, armed drones and mines. It should also, they suggest, develop an army that can put tens of thousands of troops on any of its beaches, backed up with a million reserve troops trained in guerrilla fighting techniques. It might not stop a truly dedicated China but it would slow them down and make the exercise extremely expensive in both men and matériel. However, FP points out, Taiwan and the US would have to start building such defences without delay and there are fears that a Biden administration, like that of Barrack Obama, would not want Taiwan to present an obstacle to any possible friendly accommodation with Beijing.



Protesters in front of the US consulate in Hong Kong to call for the passage of the US Hong Kong Human Rights and Democracy Act that requires the U.S. government to impose sanctions against mainland China and Hong Kong officials considered responsible for human rights abuses in Hong Kong. It was signed into a law by US President Donald Trump in November 2019

In any case, Washington is somewhat distracted by Hong Kong. China's 'one country, two systems' promise when the United Kingdom handed it back has long since been forgotten. As the old saying goes, 'promises are like pie crusts, made to be broken'. And Xi always planned to have his finger in the pie. The 19th century American anarchist Lysander Spooner wrote, "Those who are capable of tyranny are capable of perjury to sustain it." How true. In November, China forced out of the Hong Kong legislative body four members it didn't like, because they had supported independence, even if only the limited independence Beijing had promised. On 11 November, the National People's Congress Standing Committee (NPCSC) disqualified the democratically elected members who, as Human Rights Watch (HRW) quotes, "publicise or support independence", "seek foreign interference" or pursue "other activities that endanger national security". Fifteen other members of the Hong Kong legislative assembly resigned in sympathy. So even the last pretence of keeping its promises to Hong Kong has been abandoned. No Chinese

lawmaker, whether in Hong Kong or on the mainland, will now have any power to say 'no' to whatever Xi decides. HRW says the decision has turned "the semi-democratic Legislative Council, or LegCo, into a rubber-stamp body." Even before Beijing took this step, however, "almost half of the LegCo members were facing dubious criminal charges designed to harass them and block their political participation." It doesn't seem to bother Hong Kong's chief executive, the Beijing-faithful Carrie Lam, who has said that having a legislature with no opposition is "nothing to be ashamed of" and that she is "excited" that the government will be able to pass bills "more efficiently". She seems not to have grasped the basic idea of democracy. It means, of course, 'one person one vote', but in Carrie Lam's peculiar and subservient world, that one person is Xi Jinping.



© Studio Incendo

2019 Hong Kong anti-extradition law protest on 16 June



Hong Kong protester throwing eggs at the portrait of General Secretary of the Communist Party of China Xi Jinping on 1 October 2019 on the 70th National Day of the People's Republic of China

In early December 2020, prominent participants in pro-democracy demonstrations were jailed for "inciting, organising and participating

in unauthorised assembly", an offence under Hong Kong's Public Order Ordinance. The charges arise from speeches made to crowds outside the police headquarters in 2019. "Hong Kong is descending at a dizzying pace from a city of freedoms to a mainland Chinese city that criminalises peaceful protests," according to senior HRW China researcher Maya Wang. Nobody was hurt in the 21 June protests but the magistrate who presided at the trial said that "derogatory chants" towards police officers had "challenged police power". Tut, tut. Interestingly, the protests concerned had been about police brutality, so respect for the police may not have been high on the agendas of the protestors at the time.

It's just the latest in a series of draconian measures designed to snuff out democracy altogether. Xi (and his minions) do not want anyone daring to question his decisions. No emperor of old in China held so much unchallengeable power. In fact, it is fair to compare Xi with the emperors of China's long historical past. In his book *China: A History*, historian John Keay writes: "Though emperors were neither subject to any form of law nor accountable to anything in the nature of a representative body, they were not therefore beyond all restraint. The Mandate might be forfeited if they abused it," Confucius had told one of his followers: "If it is not right, remonstrate." Who would dare do that to Xi? Would they even survive such an act of lèse-majesté?

PRAISE THE LORD AND PASSWHATAMMUNITION?

The Taiwanese, then, have a lot to fear from China, and yet the island's defensive capabilities are highly questionable. According to Human Rights Watch (HRW) its military forces have only one civilian maintenance or management worker for every twenty armed personnel, compared to one for every two in the US. As a result, Taiwan's armed forces regularly find they have no weapons or ammunition and maintenance is so poor that soldiers avoid training in case they damage what weapons they have, or else run out of bullets. Some estimates have suggested that most of Taiwan's military pilots fly for less than ten hours each month and that more than half of Taiwan's tanks

and attack helicopters don't actually work, or not properly. As a result of saving wear and tear on equipment, morale among military forces is low and many soldiers lack basic tactical knowledge. You may be certain that if HRW is aware of these glaring deficiencies then Beijing is as well. It was the American naval chaplain Howell Forgy who told a line of sailors, engaged in doing the very thing he was talking about, "praise the lord and pass the ammunition" but their present-day Taiwanese equivalents may have none to pass. That's not very reassuring to the people of Taiwan.



© MND.gov

Taiwanese army helicopter

"China is not an adversary to NATO," said NATO Secretary General Jens Stoltenberg at the end of a 2-day virtual meeting of the organisation's foreign ministers in early December. "It is clear that China's rise can provide new opportunities." How, you may well ask. "For instance on trade, and engagement on global issues, such as arms control and climate change." There is a caveat, however, to this optimistic summary, as Stoltenberg admits: "China has the second biggest defence budget in the world and is investing heavily in new capabilities. And China does not share our values." What does that mean in practice? Stoltenberg explains NATO's views on the People's Republic: "It undermines human rights. It bullies other countries. And is increasingly engaging in a systemic competition with us." His solution is for others that share NATO's values to work more closely together. The ministers attending the meeting agreed to organise a comprehensive report on China to assess its military development, its growing activity in NATO's neighbourhood and the implications for "NATO resilience". They also agreed that NATO must continue to engage with China but that, as a rising power, China must respect the international rules-based order.

From Taiwan's point of view, hope still resides in the belief that in an emergency the US will come rushing to its aid. Its politicians certainly haven't done very much to address the glaring problems with their defence strategy. Like most non-military people, they don't seem to know or understand tactics and logistics: an infantry division of well-trained soldiers is boring in media terms compared with exciting new equipment, in the same way that everyday groceries are less interesting than, say, buying jewellery or a shiny new motorcycle. It's far more impressive to buy big ships, submarines and American fighter jets, even if the planes lack missiles to use in combat. However, the US has no bases very near to Taiwan. Only two of them are within 800 kilometres, which is also the furthest combat range for a US fighter jet without refuelling. The alternative would be aircraft carriers, which are even more vulnerable to Chinese missiles, especially in the hazardous Taiwan Strait. We have the ironic situation that Taiwan has the geographic advantages of a natural fortress while the US has the world's most powerful military, but neither is likely to avail much if China decided to take Taiwan by force. In November 2020, Taiwan began construction of eight new attack submarines, the first indigenous vessels of their type. They're being built by a Taiwanese company at a specially designed shipyard in Kaohsiung, a massive port city in the south of the island.



The Chien Lung class of submarine, also known as the Hai Lung (Sea Dragon) class, was manufactured in the Netherlands for the Republic of China (Taiwan) and is currently in service with its navy

They replace Taiwan's ageing fleet of four submarines, purchased from the Netherlands and the US and two of which date back to the 1940s.



The Dongfeng-17 is China's first operational hypersonic weapon systems and one of the world's first to be put in full initial operation

The new subs have been designed to work well in the Taiwan Strait, where China's massive navy may find the going tough, and they will be armed with Harpoon anti-ship missiles and torpedoes, at an overall cost for the first submarine of around US\$1.72 billion (€1.42 billion). It's due to be ready to enter service during 2024, the others following as soon afterwards as practicalities permit. The overall cost of all eight new vessels has been estimated at around \$16 billion (€17.74 billion). 2024 should also see the completion of upgrades to two of Taiwan's existing submarines. The new fleet will be powered by lithium-ion batteries and have double hulls. China itself, of course, already has a massive numerical advantage in the size of its fleet, although US experts say China has nothing that could stand up to Taiwan's new submarines once they've been built. At least, that's the hope.

Where, then, can Taiwan turn for help. Militarily, of course, the answer is nowhere, although they may keep their fingers crossed about an American response. But in trading terms, it looks increasingly to the EU. In September, some fifteen European countries launched their first joint campaign to promote investment between the EU and Taiwan. It was a signal of their warming ties with the island despite escalating U.S.-China tensions. It was organised by the European Economic and Trade Office, which serves as the effective European Union embassy in Taiwan, and it shows a Europe increasingly suspicious of China. In fact, in 2018 Taiwan came 18th in the list of the EU's trading partners, while for Taiwan, the EU comes fourth, after China, the USA and Japan. In fact, the EU has a trade deficit with Taiwan that it would like to put right. The EU's exports

to Taiwan of semi-finished products, machinery and transport equipment confirm its position as an important industrial supplier for Taiwan industry. As for what makes up those exports and imports, office telecommunications equipment, machinery, transport equipment and chemicals are by far the most traded commodities between the EU and Taiwan. Taiwanese imports of services from the EU are dominated by transportation, business, travel and financial services. Taiwanese exports of services to the EU are dominated by sea transportation and business services.



Container ship YM People from the Taiwanese Yang Ming Marine Transport Corporation in the port of Keelung in Taiwan

The EU exports very few agricultural products to Taiwan, despite being the world's biggest supplier globally. Market access – or the lack of it – is seen as the biggest obstacle. The EU outstrips Taiwan in terms of the services it exports there but these are heavily outweighed by the goods coming the other way. Taiwan has, in fact, one of the fastest-growing economies in the world. OK, so the growth in GDP is not expected to exceed 2% this year, but that still puts it with a small group of fewer than a dozen countries whose



Established in Taiwan in 1974, Hon Hai Technology Group (Foxconn) is the world's largest electronics manufacturer

economies are projected to grow at all. In the current coronavirus age, most are shrinking or at best static. That's largely down to Taiwan's success at containing the virus, a near universal willingness on the part of the public to wear masks, whilst simultaneously keeping open its schools, shops and offices. Its other great advantage has allowed it to profit from the pandemic: its main export takes the form of electronics, from small components like microchips to large-scale computer networks, all of which have become increasingly vital in a world where many are forced to work from home and most interviews involve the use of Zoom technology.

Taiwan's electronics manufactories have been expanding, while some Taiwanese firms that had been using construction facilities on the Chinese mainland have moved back to escape the tariffs imposed by the United States. This latest trend makes a welcome change from the previous movement of factories and jobs to the mainland. That was because Taiwan does have some disadvantages: for a start, it's not very big and, being an island, there is very little opportunity for expansion. Taiwan is also very dependent on China: it's nearby and rich, so a large proportion of Taiwan's industrial output inevitably goes there.

FRIENDS AND ALLIES

Taiwan was once known to Europeans as Formosa and it became politically separated from the Mainland when Japan invaded and occupied it in the first half of the 20th century. It cannot have been an entirely unwelcome situation for some: a number of Taiwanese men served in the Japanese armed forces during World War II. But Taiwan has been a place of interest for China for a very long time.



Sui Yangdi, Emperor of Sui

In the very early 7th century, the Sui dynasty emperor Yangdi launched two naval expeditions against what was recorded as Liuqiu, which was probably Taiwan. The first such invasion was repelled and the second withdrew. Both, having been initiated by the unpopular Yangdi, were recorded as ill-conceived and ruinously expensive, according to John Keay's fascinating book, 'China: A History'. Taiwan figured large in Chinese affairs again in the 17th century, when Dutch traders were very much engaged there through the Vereenigde Oost-Indische Compagnie (United East India Company). Not permitted a mainland base by the Ming emperor, and after settling briefly on other islands, they chose Taiwan, which they had taken from the Portuguese (who had first called the island Formosa). It was sparsely-populated, its people were consistently hostile and the climate was notoriously bad for Europeans. The Dutch had been encouraged to settle there by the influential Zheng family, who had used it from time to time as a naval base. It's a complicated tale of advances and retreats for the Zheng, whose rivalry with the Qing dynasty launched large scale migration to Taiwan, starting in 1661. Zheng's navy defeated the Dutch, who left the island, while Zheng was hailed as the first Chinese leader to defeat a European force. Zheng died in his thirties but his son became friendly with English traders before his fleet was destroyed in battle by the Qing, when Taiwan was incorporated into China. Statues to Zheng were erected for his patriotism and even the invading Japanese respected them because Zheng had been born near Nagasaki to a Japanese mother.



Taiwan

Of course, China does not recognise the independence of Taiwan; it considers the island its own property and has warned Washington not to develop closer ties with it. China's dismissal of Taiwan is almost certainly why the island country was not invited to send a delegation to a World Health Organisation conference on COVID-19, despite its remarkable success in dealing with the pandemic. From Beijing's point of view, Taiwan seems to be considered like some sort of ghost: lots of people know it's there but if we don't talk about it maybe it will go away. I don't believe in ghosts but neither do I believe that ignoring a well-known phenomenon will make it disappear. As the old 1899 children's poem, *Antigonish*, by William Hughes Mearns puts it:

"Yesterday upon the stair

I met a man who wasn't there.

He wasn't there again today.

I wish, I wish he'd go away."

Taiwan will not go away and however powerful its military may be, can China afford a global war to regain it? It has been discussed in Beijing since 1949 but has never got much further than sabre-rattling, incursion into territorial waters and saying unpleasant things about each other. Returning for a moment to Confucius, he once wrote: "It is easy to hate and it is difficult to love. This is how the whole scheme of things works. All good things are difficult to achieve; and bad things are very easy to get." For China, getting Taiwan would be both ruinously expensive and extremely unpopular with its neighbours and trading partners.

China's dislike of Taiwan as an entity almost certainly originates in the long war between Mao's Communists and Chiang Kai-shek's Kuomintang. Taiwan, of course, was the place to which Chiang and his army retreated, and which he and his successors ruled without elections until the 1980s, and even then the change to democracy was slow. In its early days, the Kuomintang launched what was called the "white terror", seizing, imprisoning, torturing or killing anyone not supportive of its brutal forces. It was a continuation

of the party's policies during its war with Mao's Communists. "As for the dead," Mao told the British writer and journalist Robert Payne, after a dinner together in Yunnan, "you should ask the Kuomintang, who kill and mutilate the Red Army soldiers who fall into their hands." He also told Payne that his forces wanted peace. Payne quoted to him the words of the Chinese philosopher Lao Tzu, who had once said that "government should be as simple as cooking little fishes" and asked Mao if he agreed. "You may be sure," Mao replied, "that when the Communists are in power, government will be as simple as cooking little fishes." That probably is not how Xi would describe it, but the modern world is more complicated than the one familiar to Mao, who notoriously neither liked nor trusted foreigners. In that, at least, Xi may have agreed with Mao.

For Europe, Taiwan holds the promise of a useful democratic trading partner. In fact, European Parliament Vice President Nicola Beer plans to visit it for talks as soon as the pandemic recedes.



Head of Taiwan's representative office in the EU Tsai Ming-yen

She has already held on-line discussions with Tsai Ming-yen, Taipei's representative to Belgium and the EU. They discussed freedom, democracy and the worsening situation in Hong Kong, which is a worry for both. Beer wants to see deepening cooperation between



European Parliament Vice President Nicola Beer

Europe and Taiwan, and favours negotiations for a Europe-Taiwan free trade agreement. She also wants the EU to demonstrate greater support for Taiwan's participation as an observer in international organizations such as the World Health Organization (WHO), as well as strengthened regular exchanges between EU parliamentary members and Taiwanese politicians. She said she wants more scientific cooperation, too. The Taiwanese may have been most pleased that she spoke of the need to counter China's provocative actions in support of its military ambitions in the South China Sea. Taiwan needs all the friends it can get, especially now that Trump is going. The EU may not have the military might of the United States, nor the power to wield it, but trade can only help to fill Taiwan's coffers. That, in turn, will serve to underwrite the strengthening of Taiwan's defences. Beijing will go on provoking, probing Taiwan's defences, looking for a weak spot. The trick must be to ensure that there are no weak spots.

As Beer said when talking about a mission to meet Taiwan's leaders, "The situation in Hong Kong shows that Europe should take action before it is too late." Intentionally or otherwise, Xi's constant provocations have made Taiwan and its allies more determined than ever to resist.

Robin Crow



© IranGovir, Mohsen Fakhri-zadeh / © Wikipedia

Defence Minister Brigadier General Amir Hatami in front of a poster of Mohsen Fakhri-zadeh vowing retaliation against those behind the assassination of Iranian scientist Mohsen Fakhri-zadeh

IRAN NUCLEAR DEAL ON THE BRINK

The ongoing European dilemma

The assassination of top Iranian nuclear scientist Mohsen Fakhri-zadeh on 27 November 2020 near Tehran sent shockwaves that in no time were felt most strongly in Israel, Europe and the United States. The repercussions of this event will no doubt be serious and will almost certainly heighten tensions in the region; it could also prove very damaging for all the parties involved in the negotiations towards the nuclear deal with Iran that began in 2013.

An Iranian Revolutionary Guard commander said that a satellite-controlled machine-gun with "artificial intelligence" was used to kill Fakhri-zadeh. The machine gun had been mounted onto the back of a pick-up truck that was parked on the side of the road. Shortly after the victim had been hit a number of times and critically wounded, the pick-up truck exploded.

This claim could not be verified independently and experts and analysts in electronic warfare remain somewhat sceptical.

At first, Iranian officials provided

conflicting accounts of how the scientist was killed, with the defence ministry issuing a statement saying there was a gunfight between terrorists and Fakhri-zadeh's bodyguards resulting in the death of "three to four" assailants. And on 9 December 2020, an Iranian parliamentary adviser, without going into details, said that a number of individuals had been arrested and would face trial.

In 2011, Mohsen Fakhri-zadeh established and headed the Organisation of Defensive Innovation and Research, known as SPND in its Persian acronym. The SPND is, according to Israeli and US intelligence officials, a government-

funded organisation tasked with the research and development of nuclear weapons.



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Israeli Prime Minister Benjamin Netanyahu

In 2018, Israeli Prime Minister, Benjamin Netanyahu publicly warned of Fakhrizadeh's involvement in such a programme. In fact, Israeli and other Western intelligence sources believe that this project is the continuation of the covert Project AMAD that was set up in 1989, also led by Fakhrizadeh, with the aim of developing a nuclear weapon.

The nuclear watchdog, the International Atomic Energy Agency (IAEA) however said this programme has been closed since 2003.

No one has yet claimed responsibility for the attack but it did not take very long for Iran to point the finger at Israel and the United States.

Iran's President Hassan Rouhani said his nation would respond to this criminal action at the appropriate time, while Supreme Leader Ali Khamenei said that punishment would be definitive, without giving any further details.

While Israel has made no comment, analysts believe Mohsen Fakhrizadeh had long been at the top of the Mossad hit list.

In the United States, former Chairman of the Joint Chiefs of Staff, Admiral Michael Mullen said : *"Fakhrizadeh was at the heart of the Iranian nuclear programme; he has been for years... not only the brains but also the passion behind it. So, his assassination is really a significant event"*.

US and Israeli intelligence work closely together and as new concerns are on the rise about what President Trump will do in his final days as commander-in-chief, at the very least, the assassination makes President-elect Biden's intention of reviving the Iran nuclear deal or Joint Comprehensive Plan of Action (JCPOA) much harder.

As far as the Iranian nuclear programme is concerned, this event will probably make no significant difference. Iran is way past the stage of having to rely on one individual in order to pursue its goals.

The reason for this assassination has probably little to do with Iran's nuclear programme and very much to do with the ambitions of some regional players to derail prospects for diplomacy and a possible re-establishment of the nuclear deal.

TRUMP GIVES UP ON IRAN POLICY

In a massive reversal of US foreign policy in 2018, President Trump withdrew from the Iran nuclear deal that was signed under President Obama in 2015. President Trump's European allies had strongly urged him to stay committed to the deal but he insisted that he could negotiate better terms.

And after signing the official withdrawal document, Donald Trump remained defiant : *"They are going to want to make a new and lasting deal, one that benefits all of Iran and the Iranian people"*.



US President Donald Trump on May 11, 2018 : "Therefore, I am announcing today that the United States will withdraw from the Iran nuclear deal"

The original deal imposed strict limits and monitoring of Iran's nuclear programme. Iran was forced to get rid of the vast majority of the uranium it had already enriched, as well as get rid of most of the centrifuges that it used to enrich that uranium.

Under the deal Iran also couldn't enrich uranium past the threshold for producing nuclear energy (3.67%), which is significantly lower than the threshold for medical uranium (20%) and weapons-grade uranium (90%).

The UN's nuclear agency (IAEA) verified that Iran complied with the deal which is also what made the US leaving so significant, especially at a time when it was about to begin negotiations with North Korea over that country's own nuclear programme.



Iran nuclear deal agreement in Vienna in 2015. From left to right: Foreign ministers/secretaries of state Wang Yi (China), Laurent Fabius (France), Frank-Walter Steinmeier (Germany), Federica Mogherini (EU), Mohammad Javad Zarif (Iran), Philip Hammond (UK), John Kerry (USA)

Europe however believes the deal works; European companies continued doing business with Iran. So this wasn't just a blow diplomatically, it was also a blow financially to many of the US's allies around the world.

As was to be expected, the US move played straight into the hands of the hardline elements in Iran's government and military establishment, including Supreme Leader Khamenei himself who, from the outset had strong reservations about any sort of deal involving the United States.

The decision by Iran's government to partially withdraw from the Iran nuclear deal came one year to the day after the Trump administration pulled out of the accord signed in 2015 under President Barack Obama.

This was of course a retaliatory measure by Iran whose major complaint at the time was that it had not seen any of the anticipated economic benefits from the deal in which it curtailed its nuclear programme in exchange for sanctions relief.



IAEA Director General Rafael Mariano Grossi delivers his opening remarks to the IAEA Board of Governors meeting on 9 March 2020

Iran also announced to the remaining five signatories of the deal that it will put an end to the transfer of its excess enriched uranium and heavy water reserves to Russia and Oman respectively.

And then in January 2020, following the US drone killing in Iraq of its top military commander, Iran announced it would no longer abide by any of the limits set by the nuclear deal, effectively ending its remaining commitments to the deal with world powers. This action included, most worryingly, uranium enrichment levels as well as research and development in its nuclear activities.



Deceased Iranian Major General Qasem Soleimani with Supreme Leader of Iran Ali Hosseini Khamenei

EU nations desperately attempted to salvage the deal but Iran's announcement left the deal in complete disarray. Iran's foreign ministry added it would take even bigger steps away from the deal than initially planned.

This move, with all its inherent dangers set alarm bells ringing, especially at IAEA headquarters in Vienna where the E3 made an urgent statement on Iran to the IAEA Board of Governors, following an alarming report by the Agency's Director General, Rafael Grossi.

The E3 refers to the grouping of Germany, France and the United Kingdom during the negotiations with Iran from 2003, when these countries launched negotiations with the aim of limiting the Iranian nuclear programme. This led to the Tehran Declaration of October 2003, followed by the voluntary Paris Agreement of November 2004.

As participants to the Joint Comprehensive Plan of Action (JCPOA), the E3 regret the US withdrawal and reiterate their continued commitment to the preservation and full implementation of the nuclear agreement.

However, the statement also adds : *"Despite these good faith efforts, Iran has engaged, for a year and a half now, in numerous, serious violations of its nuclear commitments. We continue to be extremely concerned by Iran's actions, which are hollowing out the core nonproliferation benefits of the deal. Advancements on Research & Development have irreversible consequences.*

We are concerned at Iran enriching

uranium above the 3.67% JCPOA limit, and the continued growth of its low-enriched uranium stockpile, which is now 2443 kg. This is a dozen times the JCPOA limit. Contrary to the JCPOA, Iran is using advanced centrifuges for the production of low-enriched uranium (LEU). Contrary to the JCPOA, Iran is also enriching at Fordo: this facility has no credible civilian use".



President Hassan Rouhani visiting the installation of a chain of 20 advanced IR6 centrifuges started in the Natanz enrichment facility in central Iran

As for nuclear research and development, the types and number of centrifuges Iran is using or is planning to use in the future remains a matter of concern : *"Iran also continues to conduct research and development on several types of advanced centrifuges not permitted under the JCPOA and the JCPOA's R&D Plan. This includes the operation of hundreds of IR-2m, IR-4 and IR-6 centrifuges. Iran has also introduced new types of centrifuges not authorized under the JCPOA. Iran must cease undertaking any research and development of advanced centrifuges contrary to the provisions of the JCPOA.*

On top of this, Iran has announced that it intends to install advanced centrifuges at the Fuel Enrichment Plant at Natanz. The IAEA report confirms this process has already started: one full cascade of IR2m centrifuges is now installed at the FEP, as well as some IR4 centrifuges. The report also indicates that these cascades will continue to accumulate uranium. The IAEA reported on 17 November that the process of feeding the IR2m cascade with UF₆ has now been initiated”.

In conclusion, the E3 demands that Iran immediately reverses its steps and returns to full compliance with the JCPOA without further delay.

As could have been expected, Iran didn't wait long before issuing a strongly-worded response. On 21 November, Iran condemned the E3's criticism of its expanding nuclear programme and added that European concern is totally unwarranted given that the countries involved are themselves not fully committed to the JCPOA.



Iran's medium-range ballistic missile Khorramshahr

The Iranian foreign ministry's spokesman, Said Khatibzadeh even called the statement by the E3 as “irresponsible” and added that Iran was scaling back its commitments precisely because the US withdrew from the deal and Europe failed to deliver economic benefits promised after the lifting of multilateral sanctions.

He called on the E3 to fulfill its own commitments under the deal : *“The peaceful nuclear activities of the Islamic Republic of Iran are fully within the framework of international laws and completely legal and legitimate, and in line with the country's intrinsic legal rights.*



Supreme Leader of Iran Ali Hosseini Khamenei and Mohsen Fakhrizadeh (far right)

This is completely in line with the JCPOA and Iran has always stressed that if other parties fully implement the JCPOA, Iran's nuclear steps are reversible”.

IRAN THREATENS

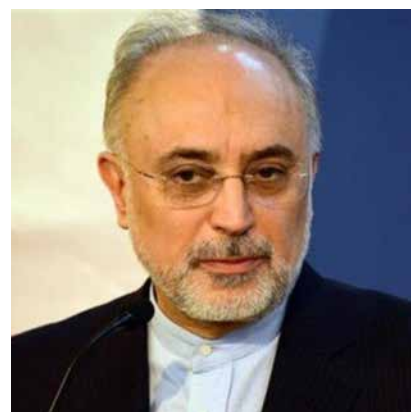
The Iran nuclear deal suffered its first major blow when the United States unilaterally withdrew from the agreement in 2018. However, another blow was dealt on 1 December 2020, this time by Iran which could this time, mean the end of the deal.

In response to the killing of Mohsen Fakhrizadeh, parliament in Tehran approved a new bill on “strategic action” designed to lift the current sanctions on the country and to safeguard national interests. The Speaker of the Iranian Parliament, Mohammad Baqer Qalibaf said : *“By ratifying the outlines of the motion, Parliament sent the enemies of Islamic Iran the message that the one-way game is over”.*

The proposed bill requires the Atomic Energy Organisation of Iran (AEOI) to produce and keep in stock at least 120 kilograms of enriched uranium at 20% purity level at the Fordo nuclear facility every year, and to fulfill the country's industrial requirements with uranium enriched above 20%. If ratified, the bill also demands that the AEOI increase the monthly production of enriched uranium for various peaceful purposes with different purity levels by at least 500 kg.

Three months after ratification of the law, uranium enrichment activities with at least 1,000 centrifuge machines of the IR-2M variety at Natanz must go ahead and the AEO will also have to launch uranium enrichment as well as research and development activities at the Fordo nuclear site with at least 164 IR-6 centrifuges and increase the number of centrifuges to 1,000 by March 2021.

Another provision of the law is the launch of a metallic uranium factory in Isfahan within 5 months and restoration of a 40-megawatt heavy water reactor in Arak, which was supposed to be re-designed and optimised under the JCPOA.



Head of Atomic Energy Organization of Iran (AEOI) Ali Akbar Salehi

The government will be required to prevent any foreign access and monitoring beyond the Additional Protocol and if the JCPOA parties fail to honour their commitments or refuse to lift sanctions until three months after ratification of the bill, and if Iran's banking ties with Europe or the oil purchases from Iran are not normalised until then, the Iranian administration will be required to suspend the voluntary implementation of the Additional Protocol of the Nuclear Non-Proliferation Treaty (NPT).

On 7 December 2020, France, Germany and the UK called the implementation of the proposed bill as “incompatible” with the JCPOA and described Iran's announced plans to install three more cascades of advanced centrifuges in the Natanz nuclear facility, in contravention of the agreement, “deeply worrying.”

The E3 also voiced its “great concern” over the law that was passed by the Iranian Parliament at the beginning of December calling for the expansion of the country’s nuclear programme and to stop allowing access to IAEA monitors to nuclear sites, unless Europe eases sanctions on Iran’s gas and oil industries by the end of December.

The E3 added that these actions by the Iranian government risk “compromising the important opportunity for a return to diplomacy with the incoming US administration”.

It should be noted however that the law is not binding unless it is approved by Supreme Leader Ali Khamenei.



Iran's Arak heavy water reactor

Be that as it may, the E3 issued a statement in response to Iran’s planned new laws.

The following is the full text of that statement issued by the German Federal Foreign Office :

We, the governments of France, Germany and the United Kingdom have worked tirelessly to preserve the Joint Comprehensive Plan of Action (JCPOA). It is a key achievement of multilateral diplomacy and the global non-proliferation architecture. We negotiated the JCPOA with the conviction that it would decisively contribute to building confidence in the exclusively peaceful nature of Iran’s nuclear programme, as well as to international peace and security. It remains the best, and currently the only, way to monitor and constrain Iran’s nuclear programme.

Iran’s recent announcement to the IAEA that it intends to install an additional



British, French, and German foreign Ministers Dominic Raab, Jean Yves Le Drian and Heiko Maas during a Berlin meeting where they discussed the Iran issue

three cascades of advanced centrifuges at the Fuel Enrichment Plant in Natanz is contrary to the JCPOA and deeply worrying.

Furthermore, we have taken note, with great concern, of the recent law passed by the Iranian Parliament, which - if implemented - would substantially expand Iran’s nuclear programme and limit IAEA monitoring access. The measures would be incompatible with the JCPOA and Iran’s wider nuclear commitments.

If Iran is serious about preserving a space for diplomacy, it must not implement these steps. Such a move would jeopardise our shared efforts to preserve the JCPOA and risks compromising the important opportunity for a return to diplomacy with the incoming US Administration. A return to the JCPOA would also be beneficial for Iran.

We will address Iran’s non-compliance within the framework of the JCPOA. We welcome the statements by President-elect Biden on the JCPOA and a diplomatic path to address wider concerns with Iran. This is in all our interests.

REVIVING THE DEAL : AN UPHILL BATTLE ?

As US President-elect Joe Biden prepares to take office, European leaders are hoping a new White House administration could see the US return to the Iran nuclear deal. Joe Biden has already signaled interest in reviving the agreement which would see the US once again lift sanctions against Iran in return for its limiting its nuclear activities.

But there are still many hurdles along the way because although the

Biden administration has said very clearly that it’s in for a compliance for compliance process, this is of course far easier said than done.

On top of this, it should be mentioned that real steps forward need to be made prior to the Iranian presidential election in the summer of 2021, which basically means that Europeans have that space of time between January and June 2021 to make concrete progress which requires on the one hand Iran stepping back from its own non-compliance from the agreement, in particular in terms of enrichment capacity and of course the US re-entering the agreement and pulling back in terms of sanctions.



US Vice President Joe Biden and US President Barack Obama in 2015



Iranian President Hassan Rouhani

This will certainly not be an easy task. But if one wanted to see a silver lining to this saga, it is probably fair to say that if the Iranians were really not interested in it, they would certainly have taken the opportunity over the last two years, to pull out of the agreement themselves. And then, as far as the Europeans are concerned, since 2002 or 2003 this has basically been their biggest foreign policy success; if there is one issue on which they have actually been proved to deliver, it is precisely this one.

However, the European dilemma seems to be that they do want to put additional pressure on Iran but at the same time don't want to side too openly with the United States. And another, reason for perpetual tension between Iran and the EU, although unrelated to the nuclear issue, is the continuing arrest and detention of mostly Iranian-European dual nationals as well as a number of high-profile arrests and prosecution of Iranians within the EU.

It is widely thought that Iran's principal aim is to use these detainees as bargaining chips for the release of their own nationals held in foreign prisons. In any event, this manner of conducting multilateral relations does nothing to smoothe out differences

where tensions, albeit for other reasons is already high.

The latest high-profile case which has stoked tensions with Tehran concerns an Iranian diplomat and three accomplices standing trial in Belgium and accused of carrying out a plan organised by Iranian intelligence services to explode a bomb during a meeting of an exiled opposition group in France. Assadollah Assadi who was the third secretary at the Iranian embassy in Vienna is accused of handing over an explosive device to a Belgian couple of Iranian origin, with the purpose of bombing a rally held by the Mojahdeen-e Khalq (MEK) opposition group near Paris.

The trial in Antwerp shines another uncomfortable light on Iran's international activities and came one day after a prisoner swap that saw three Iranians released from a prison in Thailand over a 2012 bomb plot in exchange for an Australian-British academic imprisoned by Tehran for alleged spying.

Iran may well have the intention of implementing a plan for the exchange of the diplomat for a number of British, French and other Europeans with dual nationality held in Iranian prisons for alleged spying activities.

Another blow to Iran-EU relations came on 12 December 2020. The execution of dissident journalist Ruhollah Zam in Tehran comes as Iran is attempting to pressure France and other European nations to resume cooperation over the collapsed nuclear deal.

Zam, who was granted political asylum in France and reportedly lived in Paris, ran a channel on the Telegram

messaging app called Amadnews. He was one of several people to have been sentenced to death over participation or links to protests that rocked Iran between 2017 and 2019.

Executions of course never help the perception that Iran's adversaries have of that country. That perception and that narrative is that Iran abuses human rights, there is no social freedom, no press freedom, no political freedom and it is very likely that Iran's adversaries, especially Western powers and influential human rights organisations will once again point to this execution as yet more proof.



Ruhollah Zam during a court session

The European Union condemned Zam's execution "in the strongest terms", and a statement from the EU External Action Service reiterated the bloc's "irrevocable opposition to the use of capital punishment under any circumstances".

However when it comes to Iran and the European Union, the stakes are so high in the nuclear deal that although this single execution may not be enough to completely derail efforts at restoring dialogue towards an agreement, it will no doubt heighten tensions even further and cast another long shadow over the proceedings to come.

As for the future of the Joint Comprehensive Plan of Action, there just may be a ray of hope. Supreme leader Ali Khamenei has said that Iran is willing to go back to full compliance if, and only if the United States, under new President Joe Biden rejoins the agreement.

So, that is the crucial question right now...we are all on hold.

Hossein Sadre



Assadollah Assadi

NEWS IN BRIEF



A NEW LUXURY HOTEL COMPLEX CLOSE TO MONACO IN THE MUNICIPALITY OF CAP D'AÏL : THE KEMPINSKI

Designed by architects Massimiliano and Doriana Fuksas, the designers of the grandiose Shenzhen Bao'An International Airport, the complex will cover 12,000 m of land and offer 130 rooms and suites with a large terrace overlooking the Mediterranean.

"The project "La Voile Blanche" aims at creating an architecture respectful of the territory's morphology, which will be completely integrated into the surrounding landscape by emphasizing it without altering its characteristics".

Massimiliano and Doriana Fuksas

The project site is located in a small inlet along the old SNCF railway line, on the coast that from Cap d'Aïl leads to the Principality of Monaco.

The new building will be articulated in organic surfaces arising from the insertion of the six project levels into the natural slope of the site. The level curves define the surface of each corresponding floor along which the various functions and spaces of the hotel are distributed: i.e. a large SPA, a starred restaurant and a congress centre.

The principal facade is made up of wooden sunshade slats that ideally reconstruct the profile of the slope.

In order to fully optimizing the lot shape, facing east, a large interior space illuminated from above by natural light was designed: a canyon characterised by a green rock wall with falling water is developed at full height up to the roof level. Here, all the overlooking floors are located, connected by suspended transparent walkways which design the space.

The Infinity Pool, on the fourth floor, dominates a vast horizon towards the sea and the city of Montecarlo. Glass volumes overlook the pool and host the restaurant, the event area, the sun terrace and the roof garden with typical greenery.

The new building, planned to have zero impact, will be eco-sustainable. An innovative project that respects the landscape and consider climate conditions and energy resources.

Colours and materials generate a permanent dialogue with nature, respecting and enhancing its morphology: an inhabited sculpture.

DENMARK HAS A NEW AEROSPACE AND DEFENSE CLUSTER

Center for Defense, Space & Security* was recently awarded the title as Denmark's new national aerospace and defense cluster. Dustin Paul Wilden, who is an active part of Censec's board, has played a partial role in the new national cluster, creating a particular political focus on the aerospace and defence industry in Denmark. "I'm honored to be a part of our national defense cluster. The Ministry of Higher Education and Science has



recognized Censec as the new national defense cluster, which includes a stronger connection to the outside world and the global eco-system related to innovation and science. This means, from a national perspective, a higher focus on aerospace and defense related subjects which will benefit our nation in so many ways, including our multilateral connections. It has been an absolute pleasure being onboard this unique project and I'm looking forward to the road ahead." said Dustin Paul Wilden, Board of Directors at Censec in a recent interview.

* CenSec is the prime Danish cluster organization for companies specializing in high tech industries like defence, homeland security, space, aerospace and cyber security. CenSec currently has 151 member companies with leading edge skills in advanced manufacturing and production, electronic- and software development and other related industry niches.

GREECE: STRICTER MEASURES NEEDED TO FIGHT CORRUPTION, SAYS COUNCIL OF EUROPE EXPERT GROUP

The Council of Europe's Group of States against Corruption (GRECO) urges Greece to strengthen criminal legislation to more effectively fight corruption, as none of four relevant GRECO recommendations has been implemented.

GRECO criticizes for example how aggravating circumstances relating to bribery are not fully covered by the law, when the gravity and sanctions of such offences are decided and that prosecutors may abstain from prosecution in bribery offences.

It calls on Greece as well to fully criminalize passive bribery of foreign public officials, including judges, members of assemblies, jurors and arbitrators, in accordance with the Criminal Law Convention on Corruption.

The main reason for GRECO's report that triggered a "Rule 34 Ad hoc procedure" was the amendment of Article 236 CC, when Greece downgraded the criminal offence of bribery of public officials from a "felony" (major crime) to a "misdemeanour" (petty crime) in June last year. Following a joint mission between GRECO and the OECD Working Group on Bribery (WGB), including discussions with the Greek authorities, Greece restored the offence of bribery of public officials as a felony, and sanctions were strengthened accordingly.

While this legal amendment (November 2019) was welcomed, other consequences remained. For example, aggravating circumstances should be more decisive for the sanctions of bribery, and for bribery offences committed before the amendment in November 2019, the softer legislation (misdemeanours) and sanctions will apply.

Furthermore, GRECO recommended that the scope of corruption offences that can be subject to abstention of prosecution under Article 48 of the Criminal Procedure Code be strictly limited, and that this Article be applied only in exceptional, minor cases of corruption offences.

As this recommendation is still not implemented, GRECO notes that there is a considerable risk that this provision, if not remedied, could further weaken Greece's possibilities to effectively fight this form of corruption and possibly other related crimes, such as money laundering.

The Greek authorities have not dealt with any of the above issues so far, GRECO concludes in its follow up report. Having established an expert committee to deal with these matters, Greece is to report again to GRECO by 31 October 2021.

A ROBOT DOG TO HELP CHERNOBYL'S DECOMMISSIONING

Recently, Chornobyl NPP was visited by engineers of the University of Bristol. Their task was to test the remotely controlled robots under the Exclusion Zone conditions, and one of such robots was a world famous Spot, a robot-dog, developed by the Boston Dynamics.

Unique features of Spot are that it can move in complex terrain (such as stones or debris), get over obstacles, walk up sloping surfaces and stairs, as well as get on its feet after turning over onto its back. Availability on its "back" of a special platform for installing the equipment potentially allows using the robot for remote radiation survey.

The visit to the ChNPP is commented by David Megson-Smith, a Senior Post-doctoral Researcher at the University of Bristol involved in the development of novel and new sensors for deployment of robotic platforms, which can be used in the nuclear industry:



Spot Robot

"We came to the Chornobyl Exclusion Zone to use the robotic platforms for mapping the distribution of radiation, test our robotic platforms and build new networks of people. We've worked a lot with the nuclear organizations in the United Kingdom but we haven't ever worked in an environment as difficult as here at the ChNPP.

To work here within the nuclear power plant is an exciting opportunity for us. And we have an ability to demonstrate to your personnel what we can do and how we might be of help. Hopefully, everything we have seen here will make us better understand your problems. And we can develop our technology to adjust it exactly to the problems that your engineers need to address on a daily basis".

Dr. Peter Martin, a coordinator of the visit of the engineers of the University of Bristol to ChNPP, assured that the University is interested in further cooperation and it plans re-visiting the Chornobyl NPP in 2021 for testing other dosimetry technologies and presenting to the ChNPP the technologies that may be used during the radioactive waste management and dismantling activities.

Spot is an agile mobile robot that navigates terrain with unprecedented mobility, allowing you to automate routine inspection tasks and data capture safely, accurately, and frequently.

A HOME RAPID TEST KIT FOR COVID

The U.S. Food and Drug Administration has recently issued an emergency use authorization (EUA) for the first COVID-19 diagnostic test for self-testing at home and that provides rapid results. The Lucira COVID-19 All-In-One Test Kit is a molecular (real-time loop mediated amplification reaction) single use test that is intended to detect the novel coronavirus SARS-CoV-2 that causes COVID-19.

"The FDA continues to demonstrate its unprecedented speed in response to the pandemic. While COVID-19 diagnostic tests have been authorized for at-home collection, this is the first that can be fully self-administered and provide results at home. This new testing option is an important diagnostic advancement to address the pandemic and reduce the public burden of disease transmission," said FDA Commissioner Stephen M. Hahn, M.D. "Today's action underscores the FDA's ongoing commitment to expand access to COVID-19 testing."



Lucira 30-minute at home rapid-test kit for COVID-19

The Lucira COVID-19 All-In-One Test Kit test has been authorized for home use with self-collected nasal swab samples in individuals age 14 and older who are suspected of COVID-19 by their health care provider. It is also authorized for use in point-of-care (POC) settings (e.g., doctor's offices, hospitals, urgent care centers and emergency rooms) for all ages but samples must be collected by a healthcare provider when the test is used at the POC to test individuals younger than 14 years old. The test is currently authorized for prescription use only.

The test works by swirling the self-collected sample swab in a vial that is then placed in the test unit. In 30 minutes or less, the results can be read directly from the test unit's light-up display that shows whether a person is positive or negative for the SARS-CoV-2 virus. Positive results indicate the presence of SARS-CoV-2. Individuals with positive results should self-isolate and seek additional care from their health care provider. Individuals who test negative and experience COVID-like symptoms should follow up with their health care provider as negative results do not preclude an individual from SARS-CoV-2 infection.

"Today's authorization for a complete at-home test is a significant step toward FDA's nationwide response to COVID-19. A test that can be fully administered entirely outside of a lab or healthcare setting has always been a major priority for the FDA to address the pandemic. Now, more Americans who may have COVID-19 will be able to take immediate action, based on their results, to protect themselves and those around them," said Jeff Shuren, M.D., J.D., director of FDA's Center for Devices and Radiological Health. "We look forward to proactively working with test developers to support the availability of more at-home test options."

An important component to successful at-home testing is the ability to efficiently track and monitor results. As noted in this EUA, prescribing health care providers are required to report all test results they receive from individuals who use the test to their relevant public health authorities in accordance with local, state and federal requirements. Lucira Health, the test manufacturer, has also developed box labeling, quick reference instructions and health care provider instructions to assist with reporting.

Diagnostic testing remains one of the pillars of our nation's response to COVID-19. The FDA continues its public health commitment to pursue new approaches that help make critical tests available to more Americans through EUA authority.

The FDA, an agency within the U.S. Department of Health and Human Services, protects the public health by assuring the safety, effectiveness, and security of human and veterinary drugs, vaccines and other biological products for human use, and medical devices. The agency also is responsible for the safety and security of our nation's food supply, cosmetics, dietary supplements, products that give off electronic radiation, and for regulating tobacco products.

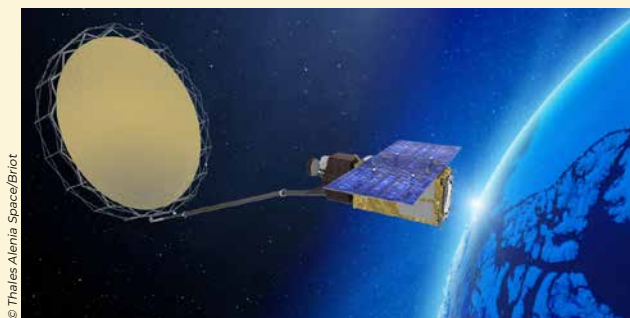
THALES ALENIA SPACE TO BUILD COPERNICUS CIMR SATELLITES

Thales Alenia Space, Joint Venture between Thales (67 %) and Leonardo (33 %) has signed a 93 Meuro, first tranche of the 495 Meuro global contract, with the European Space Agency (ESA) to build the Copernicus Imaging Microwave Radiometer (CIMR) environmental monitoring satellites. The CIMR mission is part of the expansion of the Copernicus Space Component programme of the European Space Agency, ESA, in partnership with the European Commission. The European Copernicus flagship programme provides Earth observation and in situ data and a broad range of services for environmental monitoring and protection, climate monitoring, natural disaster assessment to improve the quality of life of European citizens.

Thales Alenia Space will serve as mission prime with main partners OHB Italia for the instrument and HPS (High Performance Space Structure System GmbH) for the Antenna Reflector. This mission is dedicated to provide observations of Sea-Surface Temperature (SST), Sea-Ice Concentration (SIC) and Sea-Surface Salinity (SSS). Uniquely, it would also observe a wide range of other sea-ice parameters as Sea Ice Thickness (SIT), Sea Ice Drift (SID), Ice Type/Stage, Snow Depth on Sea Ice or Ice Surface Temperature (IST). CIMR responds to high-priority requirements from key Arctic user communities and will improve continuity of missions monitoring the Polar Regions, notably in terms of spatial resolution (~5 km) temporal resolution (sub-daily) and geophysical accuracy. CIMR measurement performances are at worldwide state of art.

"Our strong expertise and heritage on both Copernicus programs and radar technologies will serve this mission which is considered essential to the successful implementation of the integrated EU Arctic Policy", declared Hervé Derrey, CEO of Thales Alenia Space.

The CIMR system consists of up to 3 Satellites dedicated to day-and-night monitoring of land, ice and oceans flying in loose convoy with METOP SG satellite B. CIMR orbit is quasi-polar, near circular and sun-synchronous. In order to acquire measurements on a wide swath, the instrument rotates



© Thales Alenia Space/Briot
Artist's impression

continuously about an axis parallel to the local spacecraft vertical. The antenna system view the Earth scene with a nearly constant incidence angle of about 55.5 deg.

The CIMR satellites embark each a wide-swath conically-scanning multi-frequency microwave radiometer provided by OHB Italia and operating from L to ka band enabling radiometric measurements with unprecedented levels of accuracy. CIMR will be designed for a 7 years nominal lifetime with a sub-daily Arctic and Antarctic area coverage, it will be compatible with Vega-C and Ariane 6-2 launchers and will be fitted by a controlled re-entry system.

Massimo Comparini, Senior Executive Vice President Observation, Exploration and Navigation at Thales Alenia Space commented: "We are proud to lead this crucial mission for Europe and for arctic communities, as CIMR will provide operational sea-ice services and continuously monitoring of Arctic environment".

This program will take both advantage of Thales Alenia Space proven heritage in Copernicus missions, Earth observation satellites as well as the OHB Italia experience on rotating microwave imager, the platform is based on the new Thales Alenia Space Multi-Mission Platform product line (MILA), and the Large Deployable Reflector (LDRS) will be provided by the German company HPS.

More about industrial contributions

Thales Alenia Space in Belgium will provide the Power Control-Distribution Unit and the Solar Array Photovoltaic Assembly (PVA), Thales Alenia Space in Switzerland the monitoring camera, Thales Alenia Space in Spain, the Receivers and Calibration Assembly (RCA), the Instrument Control Unit (ICU), the Local Control Unit (LCU) and the Remote Interface Unit (RIU) and Leonardo the Star Trackers.

About the integrated EU Arctic Policy

The strategic, environmental and socio-economic importance of the Arctic region, including the Arctic Ocean and adjacent seas is now recognized. The Arctic's fragile environment is also a direct and key indicator of the climate change, which requires specific mitigation and adaptation actions, as agreed at the COP-21 held in Paris in December 2015.

To this end, the "Integrated EU Arctic policy" has identified and is addressing three priority areas

1. Climate Change and Safeguarding the Arctic Environment (livelihoods of indigenous peoples, Arctic environment).

2. Sustainable Development in and around the Arctic (exploitation of natural resources e.g. fish, minerals, oil and gas), "Blue economy", safe and reliable navigation (e.g. the Arctic Northern Sea Route).

3. International Cooperation on Arctic Issues (scientific research, EU and bilateral cooperation projects, fisheries management/ ecosystems protection, commercial fishing).

Continuously monitoring the vast and harsh Arctic environment in such a changing world with Earth observation, navigation and communication satellites (considering the sparse population and the lack of transport links) is considered essential to the successful implementation and effective management of the Integrated EU Arctic Policy.

About CIRM measured parameters

Sea-Surface Temperature parameter is required for climate modelling, mesoscale analysis, oceanic predictions and as climate change indicator

Sea-Ice Concentration is the most important parameter for operational navigation in sea-ice infested waters and for climate services

Sea-Surface Salinity is an essential climate variable that plays a fundamental role in the density-driven global ocean circulation, the water cycle, and climate

Sea Ice Thickness is a parameter already measured by satellite altimeters but a high spatial resolution thin sea ice thickness product for navigation purposes does not exist for the Arctic Ocean and will be crucial for operational applications

Sea Ice Drift parameters are not only important for the navigation but ice cover and motion have major effect on heat fluxes between ocean and atmosphere, as well as impact the fresh water flux which plays an important role in the thermohaline circulation

Ice Type/Stage is also a key parameter to operational services (navigation, marine operations) as well as to climate modelling Snow Depth on Sea Ice are needed for an accurate determination of the sea ice freeboard

Ice Surface Temperature parameter is potentially as important than SST in terms of assimilation of vertical heat diffusion

About Thales Alenia Space

Drawing on over 40 years of experience and a unique combination of skills, expertise and cultures, Thales Alenia Space delivers cost-effective solutions for telecommunications, navigation, Earth observation, environmental management, exploration, science and orbital infrastructures. Governments and private industry alike count on Thales Alenia Space to design satellite-based systems that provide anytime, anywhere connections and positioning, monitor our planet, enhance management of its resources, and explore our Solar System and beyond. Thales Alenia Space sees space as a new horizon, helping to build a better, more sustainable life on Earth. A joint venture between Thales (67%) and Leonardo (33%), Thales Alenia Space also teams up with Telespazio to form the parent companies' Space Alliance, which offers a complete range of services. Thales Alenia Space posted consolidated revenues of approximately 2.15 billion euros in 2019 and has around 7,700 employees in nine countries.

www.thalesaleniaspace.com

INTO THE UNKNOWN, ALONE

Labour migration and the children left on their own

“The scale of labour migration in Europe has serious implications for the protection of children left behind in their countries of origin,” said Viorel Riceard Badea, a member of the Romanian parliament. His report on the problem was adopted in November by the Standing Committee of the Council of Europe’s Parliamentary Assembly. It’s a strange and somewhat inexplicable fact that while politicians argue about migration and how to dissuade asylum seekers from seeking that asylum in their country, few people mention the children. The countries of Europe need to address the problem as a matter of urgency. What we are witnessing is not only children left behind by parents seeking work and opportunities in wealthier, less war-torn countries than their own, but also children sent out alone into the world to try to find a better life.



© Senat Ro

Viorel Riceard Badea, member of the Romanian parliament

“Some 210,000 unaccompanied children sought asylum in Europe over the past five years,” says the NGO Save the Children on its website. “The total number of children arriving is likely to be much higher, with

many being forced into an existence in the shadows of Europe, at risk of exploitation and abuse.” These are disturbing statistics, but they get worse. In the same period, more than 700 children, including babies, lost their lives trying to reach European shores, during perilous journeys by sea. And for those children left behind, what sort of future awaits them? “This requires a strong commitment from the Council of Europe,” Badea told me, “especially since these children are not even counted in official statistics. It is very disturbing.” It certainly is for a supposedly caring and civilised continent.



© BayBundegeard

Anita Bay Bundegeard

For those who set off towards Europe, the journey is invariably hazardous, especially for unaccompanied children.

“The way Europe has treated the most vulnerable children in their hour of need is unacceptable,” says Anita Bay Bundegeard, Director of Save the Children Europe. “On any given day since August 2019, an average of 10,000 children were stranded on the Greek islands, 60% of them are under 12 years old.” News reports of the way in which the United States, along its



© MoriaCoronaAwarenessTeam

A group of refugees in Moria camp have created the Moria Corona Awareness Team (MCAT) to encourage awareness and protect the camp from Covid-19

Mexican border, separated migrant children from their parents shocked many in Europe, but the record shows that Europeans are not so innocent either. “While some efforts were made to relocate children out of Greece, thousands have been abandoned due to the unwillingness of some European countries to take in and care for some of the most vulnerable children in the world. Children continue to die on the EU’s doorstep while European leaders look the other way”, Bundegeard wrote.

A number of European countries responded to the crisis by closing their borders completely, imposing the detention of children and making it virtually impossible for them to rejoin their parents. In March 2020, some 331 children were being held in detention in Greece.

The largest proportion of unaccompanied children who arrive in Europe are from Afghanistan, one of the deadliest of countries for youngsters. Roughly half of Syria’s eight million children have known nothing but war throughout their short lives. Even when they reach Europe’s

borders, they are not generally made welcome. Save the Children cites the case of Ahmed, a 15-year-old from Syria, now in Belgrade. “When we try to cross the borders we get beaten by the police, badly. They are often very rude. I think they want us to feel afraid to try again. I haven’t seen my family for a long time now, I left to go to Europe because there was nothing for me in Syria, or Lebanon, or Turkey.” Europe has not exactly shown itself to be welcoming either. Badea believes that the countries of origin, for their part, should do more, providing jobs for internally displaced adults, with tax advantages to encourage them to stay. “On the other hand,” he added, “countries of destination must ensure to people from third countries the same rights for the same work. This should be normal for any member country of the Council of Europe.” He’s right, of course: it should be. Sadly, it isn’t. Bundegaard writes on Save the Children’s website: “While some improvements have been made, these are overshadowed by harsh border policies and measures to prevent vulnerable children from entering Europe altogether. Europe needs to draw lessons from the past. New migration policies should not come at the cost of children’s lives.”

KEEPING SAFE FROM HARM

According to data from Eurostat, UNHCR, the Institute of Migration (IOM) and Save the Children, most of the 210,000 or so unaccompanied children arriving in Europe come from Afghanistan, Syria and Eritrea and end up staying mainly in Germany, Greece, Italy and Sweden. Unaccompanied child migrants are still a minority: of the 35,000 asylum seekers relocated from Greece to Italy over the last five years, only 823 were unaccompanied children. I say ‘only’ but that’s still a lot of kids. There is, however, a greatly increased risk that such children could fall victim to human traffickers and criminal gangs. “These children are one of the vulnerable groups in Europe today and are easy prey for smugglers and traffickers,” says a report by Icelandic MP Rósa Björk Brynjólfssdóttir.

“Their vulnerability continues as they are confronted with administrative procedures they may not understand and may perceive as physically and



Icelandic MP Rósa Björk Brynjólfssdóttir

psychologically invasive (which is, unfortunately, sometimes the case).” Brynjólfssdóttir correctly points out that the United Nations Convention on the Rights of the Child makes individual states responsible for protecting the lives of these children on their territory and for providing them with special protection and assistance. In other words, these unaccompanied children arrive with rights – if with little else – that must be protected by law. Too many European governments choose to turn a blind eye to that fact. Brynjólfssdóttir wants each child to have a form of effective guardianship to keep the wolves from their doors. “We have witnessed in the last year,” she told me, “unaccompanied migrant children are the most vulnerable group among migrant, refugee and displaced persons, and we have seen some thousands of unaccompanied children who have migrated to Europe, and we have also seen a need for us in the Council of Europe and the Parliamentary Assembly of the Council to ask firmly to protect their rights.”

It all sounds like a good idea but these sorts of measure will obviously cost the countries of destination money and effort. It’s the sort of spending frequently criticised by a populist press and attacked by citizens opposed to migration. The growth of anti-immigration political parties has demonstrated public attitudes which, though not universal, are very common. Who, then, will provide this guardianship and how will it be regulated? “In my report, we’ve put forward guidelines and recommendations to member states, how to fulfil the Council of Europe’s standards,” Brynjólfssdóttir explained. In fact, the report calls on the member states to “step up their action and assess their legislation, policies and practices

and, where appropriate, take measures and allocate resources to ensure the necessary reforms to implement it.” This all sounds very sensible and humane, but there have been reports of widespread abuses of legal standards. Even the European Union’s Border and Coastguard Agency, Frontex, has been accused of stopping migrant boats and forcing them to turn back towards the shores they have just left. Such actions are called ‘pushbacks’ and are against international law.

Physically sending migrants back to a country from which they have fled after they have landed is called *refoulement* and is also illegal, even more so, in fact, and yet some governments have openly spoken about it as an idea they are at least considering, seemingly unaware that they are proposing to break the law. Frontex has been carrying out an internal investigation at the request of the European Commission ever since reports about pushback surfaced in the media. In October 2019 the annual report of the Frontex Consultative Forum, made up of representatives of the European Asylum Support Office (EASO), the EU Agency for Fundamental Rights (EUFRA), UNHCR, the Council of Europe and the IOM voiced concern about allegations of pushbacks, even



Frontex coast guards rescuing drifting migrants in the Central Mediterranean

before the stories reached the media. In the European Parliament, MEPs put some tough questions to Fabrice Leggeri, Executive Director of Frontex. The NGO Statewatch has also expressed concern over the growing powers of Frontex, which has been authorised not only to watch Europe's external borders but also to monitor 'hot spots' of migrants' movements internally.

"While this is only supposed to deal with 'trends, volumes and routes' rather than personal data, it is intended to inform operational activity within the EU," Statewatch wrote in a press release, "this may mean an increase in operations against 'unauthorised' migrants, bringing with it risks for fundamental rights such as the possibility of racial profiling, detention, violence and the denial of access to asylum procedures."



Croatian MP Domagoj Hajduković

SHOOTING THE MESSENGER

A vital link in helping migrants to survive, let alone thrive, has been the work of NGOs, often staffed mainly by volunteers. The work they have done, though, and continue to do, has brought them into conflict with some sections of society in the destination countries. The conflict and the hostility they often face led to a report adopted in November by the Parliamentary Assembly of the Council of Europe which praises their work. "Nevertheless," it says, "attacks on NGOs and their donors have taken the form of physical violence, legal obstacles, prosecutions, including of NGOs assisting boat migrants at sea, political accusations or even racist attacks." The author of the report, Croatian MP Domagoj Hajduković, believes the NGOs are invaluable. "NGOs are very

important for our democracy," he told me. "because they reflect the actions and involvement of civil society." The report itself praises the way the NGOs have worked with national and international agencies.

"Depending on voluntary donations or working as contractual partners of the United Nations, the European Union (EU) or member States, those NGOs accomplish extremely valuable humanitarian work. Without the efforts of thousands of volunteers working in NGOs, member States would not be able to meet either their legal commitments regarding refugees and migrants or their daily humanitarian needs." Basically, NGOs are stepping into a gap that shouldn't be there: fulfilling the humanitarian needs that should be met by the country in which the migrants arrive. "When it comes to assisting migrants, it is first of all a political issue," said Hajduković, "and that means they are very frequently labelled, that means blanket labels as organisations that do illegal activities, organisations that deal with smuggling, and so on and so on, which is not true, of course." Hajduković admits that there are, as he puts it, "a few rotten apples" among NGOs, but they are a tiny minority, far outweighed by the very many doing good. There have been a number of reported cases in which NGO teams have been refused entry to ports to discharge the people they have rescued and some have even been prosecuted by unsympathetic governments.

I put it to Hajduković that rescuers have a duty under international law to rescue those in distress at sea, whatever governments may think. "Indeed, they do," he replied, "and there has been a lot of controversy over rescue at sea. In fact, a separate resolution, also presented

by me to the Parliamentary Assembly, deals with this exact matter. NGOs that deal with rescue at sea are especially vulnerable to this blanket labelling of them as having something to do with illegal activities, but under international maritime law it is the responsibility of each vessel to rescue shipwrecked people at sea if they come across them." Sadly, many governments seem unaware of international maritime law and its obligations, although it is true that there is no legal obligation to open a port in order to permit disembarkation. Some ministers have seriously suggested adopting refoulement as a policy, seemingly unaware of its illegality.

The Hajduković report insists that "The legislation and practice of member States must comply with Council of Europe standards. Member States should neither discriminate against foreign NGOs providing humanitarian assistance to refugees and migrants on their territory, nor should they restrict foreign funding of humanitarian work by domestic NGOs. For their part, NGOs must comply with requirements such as respect for national laws and transparency." The Assembly condemned attacks not only on the NGOs themselves but on their donors, some of whom have been charged with funding a terrorist or criminal organisation. "Respecting the rights and freedoms of NGOs is imperative to upholding fully functioning democratic societies," said Hajduković.

RIGHTS AND TOO MANY WRONGS

NGOs can take many forms, as the report explains and it cites the example of the Heinrich Böll Foundation, set up by the Green Party of Germany. It works to help migrants and refugees, publishing a



Syrian and Iraqi refugees arrive at Skala Sykamias Lesvos Greece

report in 2018 entitled 'Germany – Land of Immigration'. But the report also highlights right-wing political activists who created an NGO which in 2017 bought a rescue vessel with the intention of stopping boat migrants from leaving Libya. One person's heroic rescuer is another person's terrorist. There have, not surprisingly, been cases of funds being misappropriated. In February 2020 the European Anti-Fraud Office (OLAF) of the European Commission concluded an investigation into the use of EU funds by an NGO for Syrian refugees and found that nearly €1.5 million of a €19 million project had gone missing. The EU's Court of Auditors called for more transparency and scrutiny of NGO funding in 2018. Meanwhile however, many of the children arriving in Europe are traumatised by their experience of conflict, of separation from their parents and of difficult, perhaps terrifying journeys.

A number of European countries have taken measures to ensure that the children receive a welcome that is at least adequate, if not always warm. "While some improvements have been made," said Save the Children's Anita Bay Bundegaard, "these are overshadowed by harsh border policies and measures to prevent vulnerable children from entering Europe altogether. Europe needs to draw lessons from the past. New migration policies should not come at the cost of children's lives". On its website, Save the Children is calling for the rights of children to be "at the heart of those decisions". It also asks for the EU and its leaders to ensure that ways are found to keep vulnerable children safe. "They must ensure that children can immediately access asylum and protection once they arrive to Europe, instead of being pushed back. More and better legal migration pathways, including swift access to family reunification, could prevent more children from dying on their way to Europe."

The European Parliament also commissioned a study on whether EU law might unduly criminalise humanitarian assistance to irregular migrants. On 5 July 2018, MEPs adopted a Resolution on guidelines for Member States to prevent humanitarian assistance from being criminalised. In 2018 the Fundamental Rights Agency of the EU published a note on "Fundamental rights considerations: NGO ships involved in search and rescue in the Mediterranean



Children behind a security fence at the Moria camp on the Greek island of Lesbos, in March 2020

and criminal investigations". The Expert Council on NGO Law of the Council of Europe INGO Conference published in December 2019 its report by Dr. Carla Ferstman entitled "Using criminal law to restrict the work of NGOs supporting refugees and other migrants in Council of Europe member States".

Dr. Ferstman is a Canadian-born barrister and a member of the Council of Europe's Expert Council on NGO Law. In a paper published in the German Law Journal and on the website of the University of Essex, she explained that "Extraterritorial cooperation—including by providing funds, equipment, training, and technical support—has become central to policies aimed at preventing access of refugees and 'irregular' migrants to particular countries and regions." Obligations exist, however, under human rights law to do everything possible to ensure that any cooperation they provide doesn't lead to violations of human rights, even those perpetrated by third parties in another country. Otherwise, they can become liable for the failure to exercise due diligence to prevent human rights violations from occurring in the states in which the migrants end up. In a report for a conference of International NGOs (INGOs) at the Council of Europe in December 2019, Ferstman wrote about the heavy loss of life among refugees, mainly caused by attempts to prevent them arriving. "Many individuals have drowned in the Mediterranean, with European States taking a de minimus approach to search and rescue

operations, an approach with the stated aims of discouraging unsafe migrant crossings and breaking the business model of smugglers and traffickers, but which appears to simply be about discouraging migration. Others have died on land routes, with yet others still encountering extreme forms of violence at the hands of traffickers, armed criminal gangs and some state officials, including slavery, torture and sexual violence." This clearly does not show Europe in a very positive light, but it applies to all migrants. Unaccompanied children are, by definition, far more likely to become victims of the criminally unscrupulous.



Afghan refugees sheltered in a church in Brussels, Belgium

The United Nations Convention on the Rights of the Child was agreed in 1989 and it has been ratified by every country except the United States. As Amnesty International explains, children must not be seen merely as

passive appendages of adults. The Convention is unequivocal: they are people with equal dignity who are entitled to respect. It provides them with their own set of rights. Those rights apply while they are travelling, even as irregular migrants, and they also apply in the countries in which they end up. Those countries have a legal obligation to care for them, protect them, clothe them and feed them. Most radically, the Convention gives children the right to a voice and to participate in all decisions that affect them. In other words, it recognises children's right to agency. Jonathan Todres, a law professor at Georgia State University, wrote that under the Convention: "Every child in the world 'should grow up in a family environment, in an atmosphere of happiness, love and understanding' and be raised 'in the spirit of peace, dignity, tolerance, freedom, equality and solidarity.'"

ALONE AGAIN, UNNATURALLY

For those left behind by parents in search of work and a settled future, 'an atmosphere of happiness, love and understanding' has not been their experience. "We are suggesting in my report," Rósa Björk Brynjólfssdóttir said, "that member states should review their legislation in this field when it comes to guardianship, and we should also allocate the necessary technical, financial and human resources to ensure that every child is assigned a guardian immediately upon reception." Given that in some cases there is hostility to immigration of any kind, what exactly does that mean? "Of course, the ideal is that the guardian should be a professional – a social worker, someone with a professional background – to help, aid and support the children in their most vulnerable situation, and I think that's among the recommendations for a holistic system where it comes to guardianship." Brynjólfssdóttir's report speaks of guardianship stretching from the time the child first arrives in a country up to their reaching adulthood. I put it to Brynjólfssdóttir that it's a lot to ask. "It is, but it's not just about the basic needs," she replied. "it's also about providing the children their rights, to have them know their rights, so as to assure they will have the rights that they are entitled to. That is also a part

of the guardianship." Ensuring that the children's rights are fully respected, though, depends on them knowing exactly what those rights are. "There is a lack of information to those children," Brynjólfssdóttir admitted, "and also to safeguarding that the children are aware of their rights, but also just to make sure that they get their rights."

In most cases, ensuring that they get their rights is the task of the NGOs, often struggling to make headway in a hostile environment. Many NGOs feel abandoned by the failure of governments and some intergovernmental organizations to demonstrate their clear support for whatever they have to do to assist people in need. Carla Ferstman, in her report for the Council of Europe, wrote: "Instead of explicitly acknowledging the importance of their work and actively supporting it by providing an enabling environment, the work of NGOs has been thwarted by many governments. In addition to criminalisation, some NGOs have been publicly smeared in the media, some have received threats and others have been kept outside of decision-making processes and restricted in their ability to access vulnerable migrants to carry out their work."

It is a very big problem. The UN High Commissioner for Refugees reported in late 2016 'the highest levels of displacement on record,' with an unprecedented 65.3 million people around the world forced from home. "Millions upon millions of them – the vast majority – have become displaced internally or have migrated or sought refuge in neighbouring countries, particularly in Africa and the Middle East. A significant and growing number of others have embarked on dangerous and complex journeys to reach other regions, particularly in Europe, North America and Australia." A report by Ferstman mentions the appalling conditions the migrants face because of the opposition of many people and their governments to accepting more refugees. "The deterrence policies are effectuated by broad executive powers; privatisation of many aspects of the reception, claims determination, detention and removal processes; limited transparency, safeguards and accountability and the lack of effective remedies and reparation.



Migrants at Eastern Railway Station
Budapest Hungary

The dehumanisation of refugees and other migrants also creates an environment in which allegations of ill-treatment based on sexual and/or racial discrimination are rife, though little is done in response." As for the idea of guardianship, will it actually happen? Will member state governments put their hands in their pockets to pay for services to help children and young people they didn't want in the first place? "This report will help the member states," Brynjólfssdóttir told me, "to strengthen their reception system when it comes to this vulnerable group. As we all have witnessed in Europe and in the member states of the Council of Europe...I'm not very keen on talking about the costs, but I'm talking about the effects on society. If we do not provide those children the support they are entitled to, we will see the effects of that: a lack of support in their lives in the upcoming years. That is something that we in the member states should avoid. We should instead strengthen these children, providing them with the rights and support they are entitled to and what will support them in their lives and to have a prosperous life in the future." As the report admits, guardianship systems, where they exist at all, are not always well adapted to the needs of the unaccompanied children. "In Europe, where guardianship systems differ significantly from country to country," says the report, "the appointment of guardians or legal representatives is a challenge, particularly due to the increase in arrivals, lack of adequate guardianship systems and lack of trained guardians which causes delays in appointment, among others." It's a worry for Domagoj Hajduković, too. "Especially with the pandemic

and another coming winter they will become even more vulnerable. That is why NGOs and their importance should be even more stressed, because they assist and they fill the gaps the systems leave.” Hajduković’s report emphasises that countries should not regard NGOs as being involved in illegal activities: they play much too important a rôle.

Ferstman, in a report for the NGO Redress and published on the University of Essex website, mentions the way in which refugees are deliberately characterised as ‘aliens’ by some societies, by “focussing on difference; different religion, culture, traditions which will infect or negatively impact on the traditions of the host state. Linked to this is the wish to dehumanise, the stoking of fears that the unknown ‘alien’ will not be capable of or interested in respecting the values of the host state – whether these are religious or personal values and beliefs. There is often a fear that accepting large numbers of persons from a different faith or culture will upset the natural majority/minority balance in the host state, and potentially destabilise that state. In one notorious and extreme example, a Polish magazine published on its front cover a depiction of a white woman being accosted and grabbed by three dark-skinned hands, with the headline ‘The Islamic rape of Europe.’” A desire to find scapegoats for various societal problems clearly did not end with the defeat of the Nazis. Some ideas are very persistent.



People in the Moria refugee camp on the Greek island of Lesbos wait to use one of the few overcrowded water stations in the camp

It remains illegal for a Council of Europe member state to return an asylum seeker to a country where torture is still practised. Britain tried to



Intercepted drifting refugees in the Central Mediterranean

argue that the torture ban only applied inside member states and sought to deport a man to a country that still engages in torture. He successfully took his case to the European Court of Human Rights, which found in his favour in a somewhat oddly worded judgement: “Accordingly, the Court cannot accept the argument of the United Kingdom Government, supported by the Government, that a distinction must be drawn under Article 3 between treatment inflicted directly by a signatory state and treatment that might be inflicted by the authorities of another state, and that protection against this latter form of ill-treatment should be weighed against the interests of the community as a whole. Since protection against the treatment prohibited by Article 3 is absolute, that provision imposes an obligation not to extradite or expel any person who, in the receiving country, would run the real risk of being subjected to such treatment.” In most cases, though, it is not the risk of torture that faces those sent back. Surprisingly, perhaps, fleeing from war is not an internationally recognised reason for becoming a refugee. Living in a war zone and therefore at risk of generalised violence doesn’t count as targeted persecution. But let’s face it, nobody takes the life-threatening dangers and enormous costs involved in becoming a refugee lightly. It’s not an easy road to choose at any age.

According to United Nations Department of Economic and Social Affairs (UN DESA) data, the number of young people aged 19 or under living in a country other than the one in which they were born rose from 28.7 million in 1990 to an estimated 37.9 million in 2019. In 2019, child migrants (aged 19 years and under)

accounted for 14 per cent of the total migrant population and 1.5 per cent among children globally. UNICEF, the United Nations Children’s Fund, reports that most of child migrants are boys, who make up 62% of arrivals. The numbers arriving in Greece, Spain, Italy, Malta, Bulgaria and Cyprus in 2019 were up by 7% on the previous year.

27% were separated from their families and unaccompanied. In 2019, European countries recorded 672,935 new asylum seekers, nearly a third of them (202,945) children. Among children, 17,735 were considered to be Unaccompanied Asylum Seeking Children (UASC).

In a troubled world people are always going to try to find a peaceful and more prosperous future for themselves and even for the children sent on alone or left by themselves along the way. UNICEF said many young migrants and refugees who made the journey to Europe experienced violence and abuse along the way, with consequences for their psychological and physical wellbeing. Particularly in Italy, nearly all the women and girls who were questioned reported having survived some form of sexual or gender-based violence. A recent study revealed that men and boys are also often subject to sexual violence in the hands of armed groups, while kidnapped or imprisoned, especially in Libya. The former president of South Africa once wrote: “There can be no keener revelation of a society’s soul than the way in which it treats its children.” Perhaps we’re justified in asking: ‘how is Europe’s soul doing? Would Mandela be satisfied?’

Jim Gibbons



HYNOVA RealNum - Computer Generated Image

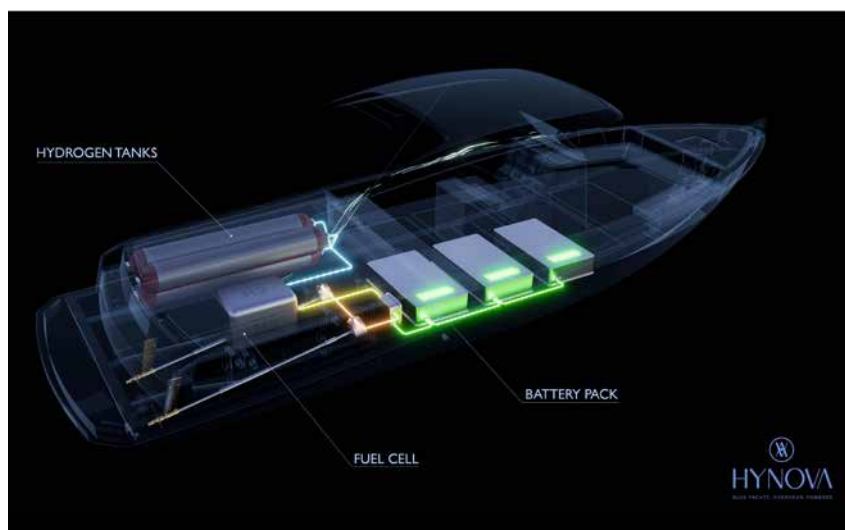
YACHTING

Looking to the future with Hynova

In the realm of shipping, there are sailors and captains around the world who carry a secret guilt that will remain forever unspoken. Many a time, a ship's crew and captain have probably returned to port with the weight of a guilty conscience ; for how can one love the sea and the oceans so much, and yet continue to pollute them ? Unravelling the impact of human activity on marine ecosystems was the first stage in the search for a zero emission solution. It was after acknowledging the destructive nature of her love for the Mediterranean that Chloé Zaied, the founder of the Hynova Project found the strength to bring off the search for a sailing craft that would combine pleasure, performance, economy and eco-friendliness.

Besides being a female captain – a rare occurrence in itself – Chloé Zaied has also found other means of setting herself apart in the shipbuilding industry. Her approach goes well beyond simple entrepreneurship ; she has had glimpses of a future where cleaner sailing would have no negative impact on either the ecosystem or on our wallets.

The Hynova project's ultimate solution comes down to hydrogen. With some boats able to reach speeds of up to 26 knots, hydrogen allows for an efficient combination of high performance and significant autonomy, although this is of course, subject to various user profiles.



Hynova designs, produces and commercialises the most eco-friendly boats.

POWERTRAIN

The secret of the Hynova project lies in its 100% electric propulsion system. A powerful fuel cell enables hydrogen to supply electricity for charging the batteries, with water as the only end product. Any risk of oil leakage and the emission of fine particles is thus eliminated.

This is a real boon to the pleasure craft industry. Hynova is the sole manufacturer in the world to offer electro-hydrogen propulsion as an alternative to the current systems that have transformed this competitive maritime sector into one of the biggest contributors to marine pollution.

WHAT IS 'GREEN HYDROGEN' ?

There are a number of different methods for producing hydrogen and these can vary widely to say the least. 'Blue' and 'grey' hydrogen together represent 95% of world gas consumption. They are extracted from fossil fuels, mainly natural gas. Catalysts made of metal compounds such as nickel, chrome, iron and copper are used to facilitate the chemical reaction of water heated to nearly 1000 degrees Celsius. However, these techniques are highly energy-intensive and are accompanied by the emission of large quantities of carbon dioxide.

For the production of one tonne of hydrogen, 10 to 11 tonnes of carbon dioxide are emitted into the atmosphere. As a result, the production of hydrogen on the global scale is responsible for the emission of some one billion tonnes of carbon dioxide per year. According to the International Renewable Energy Agency (IRENA), this figure represents the total combined emissions of Indonesia and the United Kingdom.

Of the different types of hydrogen production grouped by colour categories, it is the 'Green' and 'Yellow' varieties that have been singled out by different governments as the fuel of the future.

Green hydrogen is derived without

any CO2 emissions, through the electrolysis of water. This process consists in the decomposition of water – the quintessential natural compound – into oxygen and hydrogen by the use of an electric current. If this electricity is the product of renewable energies such as wind and solar power, then the resulting hydrogen is labelled 'Green'. If, on the other hand, the electricity used in the process comes from a nuclear power station which is often the case in France for example, then the resulting hydrogen is labelled 'Yellow'.

As far as the Hynova Project is concerned, 'yellow' hydrogen does not constitute a satisfactory compromise; it is obtained from uranium, which is a fossil fuel that is far from being renewable. In fact, the production of yellow hydrogen leads to radioactive waste that is dangerous and cannot be got rid of.

The green hydrogen used by Hynova is extracted from desalinated water.



PROTECTED SITES

Maritime law is gradually pushing for more restrictions and even prohibition for CO2 emitting vessels to access the most beautiful and most protected sites in the world, the very sites that are generally sought-after by the very wealthy. Today, hydrogen

powered sailing may be considered avant-garde by charter operators, but in the near future it will become mandatory if the new regulations are to be implemented. The customer base will have no alternative but to embrace green hydrogen or other clean sources of energy.

AN INTERNATIONAL AMBITION

Throughout 2020 Hynova may have been somewhat discreet about its activities but as of the beginning of 2021, the performance figures of the company will undoubtedly be echoed far beyond France and Monaco. After a number of unpublicised trials in December, a series of high-profile presentations will be organised between Monaco and Marseille before the whole 'road show' takes off to reach the international market and demonstrate the reliability of green hydrogen. Hynova will continue to play a leadership role in carrying its vision and its desire to accelerate the transition to clean energy. Far from wanting to create a monopolistic market, Hynova is most keen to also see fellow manufacturers and competitors alike initiate an ecological shift without delay.

LUXURY YACHT CHARTERS

At the outset, Hynova's ambition was to operate as an ordinary charter service, renting boats on a daily basis. However, the company's founder remains open to the idea of catering for luxury yachting customers who may see in Hynova the 'green key' that will open the doors to unlimited sailing, including boat trips to marine protected areas. The current world policy to protect the ecosystem suggests that this niche clientele could very soon become one of the company's biggest income generators. With this prospect in mind, Chloé Zaied went all out on questions of ergonomics as well as the ultra-futuristic design of this first project. Fully aware that this demanding clientele is perpetually in search of ever more extravagance, Chloé Zaied is already offering the possibility to see digitalized 3D models of its customised projects on the company's website.

In the year when France launched a €7 billion hydrogen development plan and the European Commission provided funds to the tune of €120 billion, one could reasonably have expected list prices of the pioneer companies in this sector to literally go through the roof. In her capacity as an ambassador for ecological transition, and out of concern for work ethics, Chloé Zaied rapidly put in place a mechanism together with her suppliers, whereby cost escalation would be avoided. This would have harmed or considerably slowed down the implementation of hydrogen propulsion in the leisure cruise sector.

Consequently, irrespective of the inherent cost of this new technology due to implementation measures and engineering patents, Hynova has undertaken to not exceed by more than 30% or 40% the cost of a conventional fuel powered boat of similar weight, length, power and design. This add-on will of course be recouped over time due to the considerable savings in fuel consumption.

Also, one is bound to say that many conventional boats have fuel tanks that are disproportionately large compared to the consumption needs of their users. Where hydrogen propulsion is concerned, Hynova is able to install

custom-size hydrogen tanks whose capacities correspond to the actual needs of each user.

With hydrogen, unlike a full battery-powered boat, fuel capacity and power requirement need not be coupled. It is possible to add hydrogen cylinders for more autonomy and a fuel cell for more power.

HARBOUR MASTERS UNDER PRESSURE

Chloé Zaied always has an ace up her sleeve and she never fails to let people know it.

The young and passionate advocate for green energy is already planning to launch negotiations with harbour masters so that they free-up more berths for zero emission vessels, to the detriment of conventional craft with high pollutant emissions.

There is no doubt that many luxury charter passengers would not hesitate to set aside a larger budget for an eco-friendly boat if only to be allocated a berth in a port, and especially if this berth is more conveniently located.

A striking example is the port of Cala del Forte which lies 7.6 nautical miles from Monaco, in the Italian city of Ventimiglia. The existing Hercule and

Fontvieille ports in the Principality of Monaco are so fully booked that another solution had to be found. In 2016, the Monegasque government took out an 85 year lease and spent some 80 million euros to build and develop Cala del Forte which can accommodate over 170 vessels, ranging from 6.5 metres to 60 metres.

A MILESTONE OF INNOVATION

Some men of genius such as Isaac Newton, Albert Einstein, Auguste and Louis Lumière, Nikola Tesla and Thomas Edison devoted most of their lives to the accomplishment of their work which all revolutionised the world. But this is not the case when it comes to the technical achievements initiated by Hynova.

Very early on, Chloé Zaied surrounded herself with a highly professional team that was able to bring together competent and caring people and to find investors who had faith in her vision.

It only took one year to build the first model – the Hynova 40 - which is expected to be marketed on a large scale in the next five to ten years.

Caroline Fayolle





Copernicus Sentinel-6 lifts off

ALTIMETRY TECHNOLOGY

New Copernicus satellite to monitor sea-level rise launched

The Copernicus Sentinel-6 Michael Freilich satellite has been launched into orbit around Earth on a SpaceX Falcon 9 rocket.

Using the latest radar altimetry technology, this new satellite is set to provide a new overview of ocean topography and advance the long-term record of sea-surface height measurements that began in 1992 – measurements that are essential for climate science, for policy-making and, ultimately, for protecting the lives of millions at risk of sea-level rise.

Carrying the 1.2 tonne Sentinel-6 satellite, the Falcon 9 rocket lifted off from the Vandenberg Air Force Base in California, US, at 17:17 GMT (18:17 CET, 09:17 PST) on 21 November. The satellite was delivered into orbit just under an hour after liftoff and contact was established at the ground station in Alaska at 19:49 CET.

ESA's Director of Earth Observation Programmes, Josef Aschbacher, said, "I'm extremely proud to have seen Copernicus Sentinel-6 liftoff this evening and know that it's well on its way to starting its mission of continuing the measurements of sea level that are so needed to understand and monitor the worrying trend of rising seas. I would not only like to thank the ESA teams that have worked so hard to get to this point, but also the EC, Eumetsat, NASA, NOAA and CNES, and, of course, we very much look forward to further fruitful cooperation between our respective organisations."

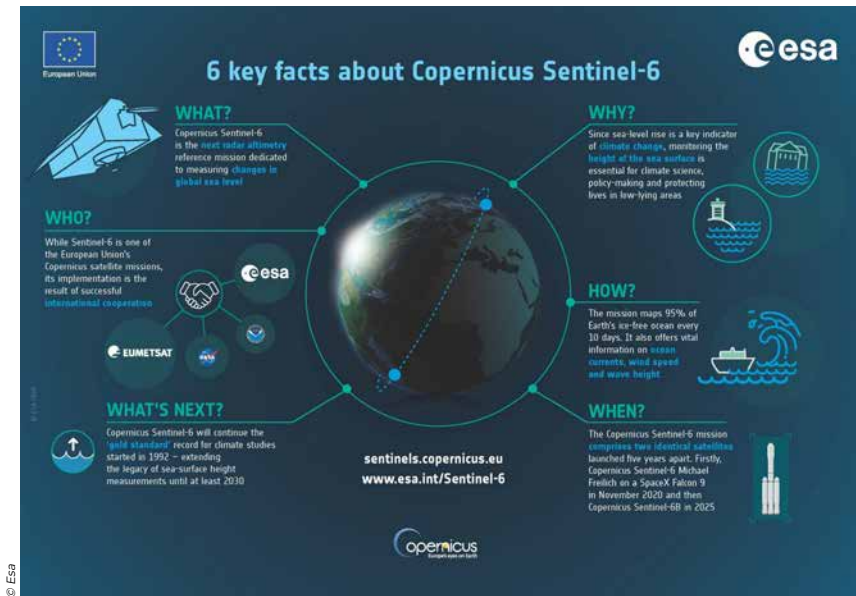
With millions of people living in coastal communities around the world, rising seas are at the top of the list of major concerns linked to climate change. Monitoring sea-surface height is critical to understanding the changes taking place so that decision-makers have the evidence to implement appropriate policies to help curb

climate change and for authorities to take action to protect vulnerable communities.



Eumetsat's Director-General, Alain Ratier and ESA's Director of Earth Observation Programmes, Josef Aschbacher signing an agreement on the extension of the CopernicusEU Sentinel family with #Sentinel3 C and D

Over the last three decades, the French-US Topex-Poseidon and Jason mission



series served as reference missions, and in combination with ESA's earlier ERS and Envisat satellites, as well as today's CryoSat and Copernicus Sentinel-3, they have shown how sea level has risen about 3.2 mm on average every year. More alarmingly, this rate of rise has been accelerating; over the last few years the average rate of rise has been 4.8 mm a year.

Now in orbit, Copernicus Sentinel-6 Michael Freilich will soon pick up the baton and extend this dataset – a dataset that is the 'gold standard' for climate studies. The mission comprises two identical satellites launched sequentially – so in five years, Copernicus Sentinel-6B will be launched to take over. The mission as a whole will ensure the continuity of data until at least 2030.

Each satellite carries a radar altimeter, which works by measuring

the time it takes for radar pulses to travel to Earth's surface and back again to the satellite. Combined with precise satellite location data, altimetry measurements yield the height of the sea surface.

The satellites' instrument package also includes an advanced microwave radiometer that accounts for the amount of water vapour in atmosphere, which affects the speed of the altimeter's radar pulses.

While heritage has been key to the mission's design, Sentinel-6 brings, for the first time, synthetic aperture radar into the altimetry reference mission time series. To ensure that no bias is introduced into the time series, the radar instrument operates in a continuous burst mode, simultaneously providing conventional low-resolution mode measurements and the improved

performance of synthetic aperture radar processing.

To ensure that the data time series is continuous despite the change of instrument technologies, Sentinel-6 Michael Freilich is spending its first year in orbit flying just 30 seconds behind Jason-3.

Orbiting at an altitude of over 1300 km and reaching 66°N and 66°S, Sentinel-6 provides sufficient measurements to map the height of the sea surface over 95% of the world's ice-free oceans every 10 days.

While Sentinel-6 is one of the European Union's family of Copernicus missions, its implementation is the result of a unique cooperation between the European Commission ESA, Eumetsat, NASA and NOAA, with contribution from the CNES French space agency.

The European Commission's Director-General for Defence Industry and Space, Timo Pesonen, said, "We are very pleased to welcome this newcomer to the EU's fleet of Copernicus Sentinel satellites. Copernicus Sentinel-6 Michael Freilich will enable delivering enhanced products and information concerning the oceans and the atmosphere to improve the daily lives of our citizens. The arrival of this satellite is another success for Copernicus, for Europe, for all mission partners and worldwide."



European Commission's Director-General for Defence Industry and Space Timo Pesonen

ESA has been responsible for the development of the Poseidon-4 radar altimeter and development of

the Copernicus Sentinel-6 Michael Freilich, as a whole. It is also responsible for the procurement of Copernicus Sentinel-6B on behalf of the European Commission and Eumetsat.

Transfer of ownership goes to the EC at the point of liftoff. ESA takes care of the early orbit phase of as well as in-orbit verification planning, and supports flight operations performed by Eumetsat.

Eumetsat is responsible for the development of the ground segment and for operations after the launch and early orbit phases. Eumetsat processes the data and delivers the data products services to European users.

Eumetsat's Director General, Alain Ratier, said, "Data from Copernicus Sentinel-6 Michael Freilich will be the most accurate yet and will be used to gain a deeper understanding of global sea-level rise, a key indicator of climate change. The data will also be used for weather forecasting, from improving the

accuracy of seasonal forecasts to predicting the tracks of hurricanes and cyclones."

Artist's view of Sentinel-6 during Falcon 9 fairing release © Esa

NASA has the responsibility for the launch services, the development of the microwave radiometer, the laser retroreflector and GNSS radio occultation receiver. It also provides ground segment support and contributes to the operations and data processing in the US. NASA and NOAA share responsibility for the distribution of data products to users in the US.

"Mike Freilich helped ensure NASA was a steadfast partner with scientists and space agencies worldwide, and his love of oceanography and Earth science helped us improve the understanding of our beautiful planet," said Thomas Zurbuchen, NASA's Associate Administrator for Science at the Agency's Headquarters in Washington. "This satellite, so graciously named for him by our European partners, will

carry out the critical work Mike so believed in – adding to a legacy of crucial data about our oceans and paying it forward for the benefit of future generations."

Source: ESA



Thomas Zurbuchen, NASA's Associate Administrator for Science

© NASA.gov



© Esa

Artist's view of Sentinel-6 during Falcon 9 fairing release

TIMELESS CHIC

Standout Fashion and Beauty trends

By Clara Bauman

It's Christmas shopping time!

This year has been stressful enough, and you don't need the added pressure of last minute Christmas shopping. Whether you spend Christmas with your partner, with the family or with close friends, here are some of the best gift ideas that will certainly keep you from procrastinating. Each has its own little story...don't forget to tell it !

A piece of jewellery... fine, but which one?

© Cartier



Love Bracelet (Cartier): Iconic and symbolic

The bracelet was designed in 1969 in the shape of an oval in order to fit as closely as possible to a loved one's wrist (for both men and women). They were referred to as "modern love handcuffs" for the way in which they are secured, using a screwdriver. Studded with diamonds, yellow gold or pink gold; how far are you prepared to go for love?

(en.cartier.com)

© Tiffany & Co



T Collection (Tiffany & Co): Modernity and elegance

Since its release in 2014, this "Tiffany T" collection embodies everything Tiffany stands for: freedom, happiness, love and strength. Designed with the letter T, as tall, true and iconic as the New York City skyline, a place of courage and reinvention that constantly sparks creativity. You're spoiled for choice, between monumental hinged cuffs, minimal bracelets, chains of varied lengths and pendants, rings and earrings.

(tiffany.com)

A handbag... great, but which model?

© Fendi



Baguette bag (Fendi): Collector item

This model has been a success ever since its very first introduction in 1997. It takes its name from the fact that it was meant to be held under the arm, the same way one does with a French "baguette" bread. Distinguishing marks : the Baguette is made from a very wide range of different and unusual materials. Most of these bags are now considered as collector items.

(fendi.com)

© Cartier



The Chain Pouch (Bottega Veneta): 2020 it-bag

This soft and voluminous pouch has unquestionably been THE darling of fashion influencers in 2020. In its original version, the bag stood out as a pouch without either a logo or a shoulder strap... In the version with an eye-catching, chunky chain, it received the ultimate accolade !

(bottegaveneta.com)

A perfume... All right, but which fragrance?

© Jean-Paul Gaultier



Le Mâle (Jean-Paul Gaultier)

« Le Mâle », as virile as it is sexy, pays tribute to the mythical figure that has forever inspired Jean-Paul Gaultier: the sailor. This fragrance has an unconventional vision of masculinity: lavender, referencing the familiar and reassuring smell of shaving soap, it is enhanced with the sensuality of vanilla. This gift set includes a 125 ml bottle of eau de toilette and a shower gel.

(fendi.com)

© Givenchy



L'Interdit (Givenchy)

In the beginning there was the delicate perfume developed by Hubert de Givenchy for his then client and friend, Audrey Hepburn: L'Interdit. She loved it so much that she kept its identity secret. When Givenchy wanted to mass produce the fragrance, her first reaction was: "Je vous l'interdis" ("I forbid it!"). More than 60 years after the presentation of the original perfume, here is the relaunch, just as successful and listed as a best seller in the category of « Floral Woody Musk fragrances ». This gift set includes a 50 ml bottle of eau de toilette and a hydrating body lotion.

(givenchybeauty.com and sephora.fr)



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BOOKS



BATTLE OF BROTHERS

By Robert Lacey

WILLIAM AND HARRY - THE INSIDE STORY OF A FAMILY IN TUMULT

A comparison of nine leaders who led their nations through the greatest wars the world has ever seen and whose unique strengths and weaknesses shaped the course of human history, from the bestselling, award-winning author of *Churchill* and *Napoleon*.

"Has the enjoyable feel of a lively dinner table conversation with an opinionated guest." - *The New York Times Book Review*.

Taking us from the French Revolution to the Cold War, Andrew Roberts presents a bracingly honest and deeply insightful look at nine major figures in modern history: Napoleon Bonaparte, Horatio Nelson, Winston Churchill, Adolf Hitler, Joseph Stalin, George C. Marshall, Charles de Gaulle, Dwight D. Eisenhower, and Margaret Thatcher.

Each of these leaders fundamentally shaped the outcome of the war in which their nation was embroiled. Is war leadership unique, or did these leaders have something in common, traits and techniques that transcend time and place and can be applied to the essential nature of conflict?

Meticulously researched and compellingly written, *Leadership in War* presents readers with fresh, complex portraits of leaders who approached war with different tactics and weapons, but with the common goal of success in the face of battle. Both inspiring and cautionary, these portraits offer important lessons on leadership in times of struggle, unease, and discord. With his trademark verve and incisive observation, Roberts reveals the qualities that doom even the most promising leaders to failure, as well as the traits that lead to victory.



YOUNG HEROES OF THE SOVIET UNION

By Alex Halberstadt

A MEMOIR AND A RECKONING

About Young Heroes of the Soviet Union.

In this "urgent and enthralling reckoning with family and history" (Andrew Solomon), an American writer returns to Russia to face a family history that still haunts him.

Named one of the best books of the year by Jennifer Szalai, *The New York Times*.

Alex Halberstadt's quest takes him across the troubled, enigmatic land of his birth, where decades of Soviet totalitarianism shaped and fractured three generations of his family. In Ukraine, he tracks down his paternal grandfather - most likely the last living bodyguard of Joseph Stalin. He revisits Lithuania, his Jewish mother's home, to examine the legacy of the Holocaust and the pernicious anti-Semitism that remains largely unaccounted for. And he returns to his birthplace, Moscow, where his grandmother designed homespun couture for Soviet ministers' wives, his mother consoled dissidents at a psychiatric hospital, and his father made a dangerous living by selling black-market American records. Halberstadt also explores his own story: that of an immigrant growing up in New York, another in a line of sons separated from their fathers by the tides of politics and history.

Young Heroes of the Soviet Union is a moving investigation into the fragile boundary between history and biography. As Halberstadt revisits the sites of his family's formative traumas, he uncovers a multigenerational transmission of fear, suffering, and rage. And he comes to realize something more: Nations, like people, possess formative traumas that penetrate into the most private recesses of their citizens' lives.



MADAME FOURCADE'S SECRET WAR

By Lynne Olson

THE DARING YOUNG WOMAN WHO LED FRANCE'S LARGEST SPY NETWORK AGAINST HITLER

About Madame Fourcade's Secret War.

New York Times bestseller • The little-known true story of Marie-Madeleine Fourcade, the woman who headed the largest spy network in occupied France during World War II, from the bestselling author of *Citizens of London* and *Last Hope Island*.

"Brava to Lynne Olson for a biography that should challenge any outdated assumptions about who deserves to be called a hero." - *The Washington Post*.

Named one of the best books of the year by *NPR* and *The Washington Post*.

In 1941 a thirty-one-year-old Frenchwoman, a young mother born to privilege and known for her beauty and glamour, became the leader of a vast intelligence organization-the only woman to serve as a *chef de résistance* during the war. Strong-willed, independent, and a lifelong rebel against her country's conservative, patriarchal society, Marie-Madeleine Fourcade was temperamentally made for the job. Her group's name was Alliance, but the Gestapo dubbed it Noah's Ark because its agents used the names of animals as their aliases. The name Marie-Madeleine chose for herself was Hedgehog: a tough little animal, unthreatening in appearance, that, as a colleague of hers put it, "even a lion would hesitate to bite."

No other French spy network lasted as long or supplied as much crucial intelligence - including providing American and British military commanders with a 55-foot-long map of the beaches and roads on which the Allies would land on D-Day-as Alliance. The Gestapo pursued them relentlessly, capturing, torturing, and executing hundreds of its three thousand agents, including Fourcade's own lover and many of her key spies. Although Fourcade, the mother of two young children, moved her headquarters every few weeks, constantly changing her hair color, clothing, and identity, she was captured twice by the Nazis. Both times she managed to escape - once by slipping naked through the bars of her jail cell - and continued to hold her network together even as it repeatedly threatened to crumble around her.

Now, in this dramatic account of the war that split France in two and forced its people to live side by side with their hated German occupiers, Lynne Olson tells the fascinating story of a woman who stood up for her nation, her fellow citizens, and herself.



CAFÉ EUROPA REVISITED

By Slavenka Drakulic

HOW TO SURVIVE POST-COMMUNISM

About Café Europa Revisited.

An evocative and timely collection of essays that paints a portrait of Eastern Europe thirty years after the end of communism.

An immigrant with a parrot in Stockholm, a photo of a girl in Lviv, a sculpture of Alexander the Great in Skopje, a memorial ceremony for the 50th anniversary of the Soviet led army invasion of Prague: these are

a few glimpses of life in Eastern Europe today. Three decades after the Velvet Revolution, Slavenka Drakulic, the author of *Café Europa* and *A Guided Tour of the Museum Of Communism*, takes a look at what has changed and what has remained the same in the region in her daring new essay collection.

Totalitarianism did not die overnight and democracy did not completely transform Eastern European societies. Looking closely at artefacts and day to day life, from the health insurance cards to national monuments, and popular films to cultural habits, alongside pieces of growing nationalism and Brexit, these pieces of political reportage dive into the reality of a Europe still deeply divided.

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