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IN THIS ISSUE



■ **Recep Tayyip Erdogan** The Making of a Sultan p.6

■ **Vaping** When e-cigarettes become an issue p.11

■ **Most wanted** Crime has no gender p.16



■ **Nuclear threat** The strange death of the INF Treaty p.18

■ **Pharmaceutics** Raising drug prices is addictive p.23

■ **Crimes against journalists** Ending impunity p.29



■ **High Tech under the seas** A James Bond-like submarine p.32

■ **Pilotless aircraft** Now a reality. p.34

■ **Linking European nations** The world's longest road and rail tunnel p.36



■ **Cyber security** Fostering a safer online future p.38

■ **Robotic technology** Revolutionising the UK care system p.41



■ **Leonardo Da Vinci** The Louvre pays homage to a genius p.44

■ **Timeless Chic** Standout fashion and beauty trends p.48

■ **Books** Our selection p.50

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Nikola Hendrickx

CANNABIS LEGISLATION IN EUROPE

Cannabis is Europe's most commonly used illicit drug. It is estimated that at least one in every eight young adults (aged 15–34 years) used cannabis in the last year across the European Union. At the national level, these rates range from less than 1 % to over 20 % of young adults. The most recent data provided by the European Monitoring Centre for Drugs and Drug Addiction (EMCDDA), suggest that 1 % of the adult population (aged 15–64 years) of the European Union and Norway, or about 3 million individuals, are smoking cannabis on a daily or near-daily basis. The European Monitoring Centre for Drugs and Drug Addiction (EMCDDA) is the central source and confirmed authority on drug-related issues in Europe. For over 20 years, it has been collecting, analysing and disseminating scientifically sound information on drugs and drug addiction and their consequences, providing its audiences with an evidence-based picture of the drug phenomenon at European level.

A renewed debate about the laws prohibiting or permitting cannabis use and supply around the world has been fuelled by the legalisation of supply and use of cannabis for 'recreational' purposes in some US states and Uruguay since 2012.

Proposals to legalise the drug have raised concerns they may lead to increases in cannabis use and related harms, and questions about the ways in which cannabis for non-medical purposes could be regulated to mitigate these concerns.

Throughout Europe there is media and public discourse on the issue of changing cannabis laws. However, national administrations are concerned about the public health impact of cannabis use and generally oppose the decriminalisation or legalisation of cannabis for recreational use.

Nonetheless, cannabis laws and the medical and scientific research that informs policy-making can be regarded as entering a period of change, the direction of which is still unclear.

LAWS AND ASSOCIATED GUIDELINES

There is little harmonisation among EU Member States in the laws penalising unauthorised cannabis use or supply. Some countries legally treat cannabis like other drugs; in others, penalties vary according to the drug or offence involved.

Evidence suggests that police tend to register cannabis use offences, rather than overlooking them as 'minor'. In a few countries there can be a rehabilitative response such as counselling or treatment. While all countries in Europe treat possession for personal use as an offence, over one third of countries do not allow prison as a penalty in certain circumstances; of the remainder, many have lower-level guidance advising against prison for that offence.

Since 2000, the trend is to reduce the maximum penalty for use-related offences. The best available evidence does not show a clear or consistent effect of penalty changes on use rates.

Several proposals for full legalisation have been presented to parliaments in the last few years, usually by opposition parties, but most have already been rejected.

No national government in Europe is in favour of legalisation.

LEGALISING MEDICAL CANNABIS

International law does not prevent cannabis, or cannabis-based products, being used as a medicine to treat defined indications. According to the UN conventions, the drugs under international control should be limited to 'medical and scientific purposes'.

Article 28 of the 1961 Convention describes a system of controls required if a country decides to permit the cultivation of cannabis that is not for industrial or horticultural purposes, while the 1971 Convention controls THC, the principal psychoactive constituent of cannabis.

WHY COUNTRIES SHOULD CONTROL CANNABIS

To understand today's cannabis control laws, we must look at the history of international drug law, which binds signatory countries. Cannabis was first placed under international control by the Second Opium Convention of 1925 (League of Nations, 1925).

In Article 1, cannabis was referred to as 'Indian hemp', which covered only the dried or fruiting tops of the pistillate (female) plant because these were considered to be particularly rich in the pharmaceutically strong active resin.

The 1925 Convention banned the export of cannabis resin to countries that prohibited its use and required domestic controls, such as penalties for unauthorised possession of cannabis extract and tincture.

The convention established that any breaches of national laws should be punished by 'adequate' penalties.

The international drug control system has evolved since then, and currently three United Nations conventions describe the basic framework for controlling the production, trade and possession of over 240 psychoactive substances (most of which have a recognised medical use).

These treaties, which have been signed by all EU Member States, classify narcotic drugs and psychotropic substances according to their danger to health, risk of abuse and therapeutic value.

HARMONISING EU LAWS

It is not easy to discern a common approach to the legislation surrounding cannabis across these countries. Many countries differentiate the legislation and penalties around cannabis sale and use, but in different ways.

Several countries treat all illicit drugs the same in the laws, others define cannabis offences as a less serious legal matter, and a few prescribe more severe penalties for cannabis offences.

Despite differences in formal legal sanctions, in most EU countries the actual penalties for possession, use and supply of cannabis are often less severe than those for other illicit substances.

Where countries have sought to divert cannabis users into treatment, it is not evident that this approach has received widespread support, with legislative initiatives being designed and implemented with varying degrees of enthusiasm.

It is not clear how much this is based on a desire to prioritise a punitive approach or a lack of confidence in the effectiveness of more rehabilitative responses.

Over the last 20 years, at least 15 European countries have made changes to their legislation affecting penalties for cannabis users, though there has been little rigorous scientific evaluation of these. Use rates may be affected by other factors, such as anti-smoking policies, and other environmental prevention strategies may also be playing a role.

This is a time of mounting public debate about cannabis policy. Advocates for change claim that cannabis is less harmful than other drugs but European statistics show the increasing potency of illicit cannabis and the increasing number of people seeking treatment for their cannabis consumption.

In order to avoid all excesses and to prevent situations where loopholes and differing legislations may allow dealers, as well as users to obtain illicit substances, it is time European countries effectively adapted their laws and implemented a common legislation.

*The Editor-in-Chief
Trajan Dereville*



RECEP TAYYIP ERDOGAN

The Making of a Sultan

We are far from being the first to tell the story of Recep Tayyip Erdogan ; in Turkey he has already been the subject of a fawning biopic. 'Reis' (The Chief) hit the screens in 2017 and stars famous actor Reha Beyoglu as Turkey's strongman in his early life. In the months preceding the release of the film, the teaser was broadcast on television almost daily and the Turkish press was full of the most positive and flattering reviews and commentaries. On October 9, 2019, the world was holding its breath : it was waiting to see how far Turkey's President, Recep Tayyip Erdogan would go. He sent soldiers, tanks and jets across the border into Syria. The mission, code-named Operation Peace Spring was to create a safe zone, free of Kurdish militias. He vehemently insisted that this was in no way an invasion, as Turkish and international media carried the president's explicit message : *"Hey, European Union...get a hold of yourselves ! Look, I'm telling you again : if you describe our operation as an invasion again, we'll take the easy road...we'll open the doors and send you 3.6 million refugees !"* The invasion, sorry... the military action has been roundly condemned. It's all a far cry from a decade ago when Erdogan was feted by the West and could do no wrong. In fact, through Erdogan, Turkey climbed onto the world stage and in those years, became an aspiration for many developing countries, especially in the Islamic world.

THE BEGINNINGS

Reccep Tayyip Erdogan, from humble roots was born on February 26, 1954, in Kasimpaşa, a poor district of Istanbul mostly populated by migrants from the Black Sea region, which in fact is where his own family came from.

This was during the Democratic Party's (DP) reign and two years after Turkey joined NATO.

His father was a sea captain; he sailed ferries on the Bospho-

rus and it is said that at night, the young Erdogan would sneak onto cargo ships anchored in the bay to practice reciting the Koran. His parents were devout Muslims, their beliefs at odds with Turkey's official, secular republic.

As a child, his very strict father enrolled him in the Istanbul Imam Hatip Lisesi, a religious vocational school where imams and preachers are trained. These schools were seen as something of a second-class option in the early days of the republic. If one had been to an Imam Hatip school, one

couldn't go to university, for example. But it was the choice for the poorer and more pious families.

So, in order to gain the right to a higher education, Erdogan took additional courses in a regular high school.

And it was during his teens that he began to play football; in fact he became obsessed with the game. He played football for 16 years as a semi-professional in various clubs and was even nicknamed "Imam Beckenbauer" by his teammates, after the famous German player.

His piety and dominant style of play were already very apparent.

ENTERING THE POLITICAL ARENA

But Erdogan proved to be better at politics.

In 1969, when he was fifteen years old, he began attending meetings and demonstrations of the MTTB (National Turkish Student's Union) and was soon spotted by his superiors.

This was a time when leftist, nationalist and Islamist movements were beginning to rise and the Student's Union became a focal point for meetings and debates. Armed clashes with the police and the army were frequent.

It was in this climate that a young engineer and independent deputy, Necmettin Erbakan founded the Islamic National Order Party (MNP) in 1970 and became Erdogan's mentor.

Very rapidly, Erdogan began holding positions of responsibility within the party structures and Islamist organizations who also supported the MNP.

The party was active for only 15 months before it was shut down, following the 1971 military coup, on charges of conducting an anti-secular agenda.

However, in 1972, the military leadership allowed Erbakan to form another party, the National Salvation Party (MSP) which went on to win 48 seats in the 1973 general election and formed a coalition government with the CHP.

By this time, Erdogan had successfully passed his final exams at high school and was admitted to university. He enrolled at Marmara University's Faculty of Economics and Administrative Sciences and obtained his graduation diploma in 1981.



Erdogan had been elected chairman of the Istanbul Youth Branch of the MSP in 1976, at the age of 22. He held this position until the party was yet again dissolved by another military coup in 1980.

FALLING IN LOVE AND MARRIAGE

It was during a political rally in 1977, where Erdogan was reciting religious poems that he first met a 22 year-old girl, also from a modest background and who was very much impressed by his declamation.



Erdogan and First Lady Emine Erdoğan praying

They were introduced by a common friend and the attraction was immediate and mutual.

The couple married in 1978 and now have two sons and two daughters.

Erdogan and his wife Emine have been seen walking hand in hand on many occasions, even during official visits. This is quite unusual for a religious couple in Turkey.

ROAD TO THE MAYORALTY OF ISTANBUL

The military coup of 1980 changed the country's priorities; communism rather than Islamism was now perceived as the new enemy.

In order to counter this threat, the military government encouraged a moderate type of Islam that was under its strict control. It was formally known as the "Turkish-Islam synthesis" which was also used to control the increasing threat posed by the Kurdish liberation movement.

In the meantime, Washington had implemented a policy of Zbigniew Brzezinski - national security advisor to former US President Jimmy Carter - to contain the influence of the Soviet Union, by setting up moderate Islamic regimes in countries around its borders.

The 1980 military coup paved the way for Islamist parties in Turkey and indirectly, initiated Erdogan's rise to power.

Shortly after the coup, Erdogan began his military service. However, he



returned to politics in 1983, following the founding of a third Islamist political party by Necmettin Erbakan who now placed his trust in Erdogan's ability to further the cause of the new Welfare Party (RP).

As expected, Erdogan rose rapidly through the ranks and in 1985 became a member of the Central Executive Board of the RP.

In 1989, his name was put forward as the RP candidate in the mayoral elections for the Beyoglu district of Istanbul. Although Erdogan had, for the first time, allowed female members of the RP to participate in these elections, he lost out to more experienced and high-profile politicians.

But his unexpectedly modern stance regarding the participation of women, significantly increased the RP's votes.

Erdogan's big moment came in 1994 with unexpected victory against well-known, secular politicians. Other than Istanbul, his party also won the mayoral elections in the capital Ankara and six other cities.

The following year, in the 1995 general election, the RP came on top and formed a coalition with the centre-right True Path Party (DYP). And Erdogan's long-time mentor, Necmettin Erbakan became prime minister of Turkey.

Alarm bells began ringing in the military and secular establishments as Erdogan further raised concerns when he banned the sale of alcohol in cafes and restaurants. He proudly announced : *"I am not just the mayor of this city but also its Imam."*

He also began organizing conferences in Istanbul where he invited major international Islamist figures who discussed and even recommended the reintroduction of the Caliphate in order to combat modern-day capitalism.

THE FOURTH COUP AND THE PRIME-MINISTERSHIP

In February 1997, the RP-DYP coalition government was given an ultimatum by the military establishment to comply with its decision to restore the secular character of the regime.

This was rapidly followed by a decree outlawing the RP and thus forcing

prime minister Erbakan to resign.

Although this time there was no bloodshed following the military action, there began a period of severe repression and harsh measures against Islamists.

As for Erdogan, he didn't just want to be an ordinary mayor; he used that platform to build his image on the national stage. He began touring the country to give speeches and organize meetings and rallies.

In 1997 in the eastern city of Bitlis, he read out a poem in which were blended very nakedly, Islamist and nationalist slogans :

"The mosques are our barracks...the minarets our bayonets... the domes our helmets... the faithful our soldiers... Allahu akbar... Allahu akbar !"

He was tried and convicted for inciting religious hatred; he was sentenced to 10 months in prison and consequently was forced to resign in 1998, before completing his term as mayor of Istanbul.

But in the end, he served just 4 months... and he made them pay !

Ironically, this was the point where his image really went stratospheric.

On leaving jail, Erdogan banded together with other like-minded individuals who wanted him to become a founding member of the new Justice and Development Party (AKP).

Its goal was to bring more democracy to Turkey, more fundamental rights and freedoms and a better and more equitable economy.

Within one year, the AKP was in power and it has dominated Turkish politics



Iranian President Hassan Rouhani, Erdogan and Putin

since 2002. Although Erdogan was banned from politics due to his conviction in 1998, this obstacle was removed through a constitutional amendment, followed by victory in a by-election.

And so, on March 14, 2003, Recep Tayyip Erdogan became the new Prime Minister of Turkey.

TRYING TO CONVINCE THE WEST

The new government embarked on a series of huge infrastructure projects. New airports, roads and rail links were built, overseeing massive economic growth.

Erdogan was truly in power and in his element.

Power is one of the central concepts in explaining his character. That's why he is a pragmatist rather than an ideologue; ideology is important for him insofar as it allows him to remain in power.



Recep Tayyip Erdogan with Kazakh President, Nursultan Nazarbayev



© fotomac.com

Erdoğan soccer player

At one point, he declared : *“We have destroyed all types of nationalism. Turkish nationalism, Kurdish nationalism; we’re above nationalism now”*.

But ironically, he turned out to be the ultimate nationalist.

Another view of Erdoğan was expressed by the US Ambassador to Turkey, Eric S. Edelman :

“Erdoğan has traits which render him seriously vulnerable to miscalculating the political dynamic, especially in foreign affairs”.

In a 2004 cable to Washington revealed by Wikileaks, Edelman listed what he saw as Erdoğan’s flaws : *“First, overbearing pride. Second, unbridled ambition, stemming from a belief God has anointed him to lead Turkey”*.

But it is the following remarks that make it obvious why the US wanted to keep this cable confidential.

“Third, an authoritarian loner streak which prevents growth of a circle of strong and skillful advisers. This streak also makes him exceptionally thin-skinned !

Fourth, an overweening desire to stay in power which, despite his macho image, renders him fearful and prone to temporizing even at moments which call for swift and resolute decisions. And finally, a distrust of women which manifests itself not only in occasional, harsh public comments, but also in his unwillingness to give women any meaningful decision-making authority”.

Be that as it may, Erdoğan tried very hard to convince the West that he had no hostile feelings towards them.

With the Turkish people, he was punchy. His rallies became something of a phenomenon.

One cannot underestimate just how much charisma and how big a stage presence Erdoğan has. His rallies are Turkey’s rock concerts !

He has the ability to move the masses with the tone of his voice and it is said that women find him physically attractive. According to Yaşar Yakiş, a former Foreign Minister and founding member of the AKP, there were even women who volunteered to become his concubines, despite Turkey’s conservative society.

But for some, the attraction was now fading. Turkey’s economy had slowed down, inflation and unemployment had risen, and so had discontent.

In 2013, a protest over a construction project on Gezi Park, a green area of Istanbul mushroomed into the biggest demonstrations Turkey had seen in more than a decade.

These were the first mass street acts of opposition to Erdoğan, and they really knocked him off-balance.

That was followed by a big corruption scandal in which the sons of three cabinet ministers were arrested by the police.

Audio of Erdoğan allegedly telling his own son to conceal large amounts of money were posted onto You Tube and the government responded by trying to ban access to social media sites.

Erdoğan then launched a corruption probe against members of his inner circle. In the course of the investigations some 350 police officers were dismissed.

Erdoğan also blamed his former close collaborator, Fethullah Gülen for being behind the unrest. Gülen who is a cleric, is living in exile in the United States but has a very strong power base in Turkey.

BECOMING PRESIDENT

Despite all the difficulties, Erdoğan kept winning.

In 2014, twenty years after first becoming mayor of Istanbul, he acceded to the largely ceremonial post of president. This was the first time that the president was elected by the people instead of being nominated by parliament.

He immediately set about changing the constitution, to further expand his powers.

However, in 2015 the opposition, which was composed of a coalition of parties including the Kurdish HDP, attempted to counter Erdoğan’s plans for modifying the constitution in his favour.

Erdoğan’s political party, the AKP did not have a parliamentary majority at the time. But as in the past, the far-right, ultra-conservative MHP (Nationalist Movement Party) came to Erdoğan’s rescue by preventing the opposition from forming a viable governing coalition.

And so, in November 2015, the AKP won back its parliamentary majority following a snap election.

THE FAILED COUP

On July 15, 2016, Erdoğan’s enemies came for him. Large sections of the military attempted a coup.

In Istanbul, there were tanks on the streets, in Ankara fighter jets attacked parliament and in a resort on the Aegean coast, plotters nearly captured Erdoğan.



© zaman

Fethullah Gülen

The president, calling news network CNN Turk live from his hotel room, insisted he was the commander-in-chief and urged the Turkish people to take to the streets.

And they did. Within a day, he had wrested back control, thanks to the support of nationalist elements in the army who saw the attempt as a Western plot.



Turkey 2016 Coup

Erdogan also reportedly received support from Moscow and some political analysts speculate that this was in fact, the beginning of his friendship with Russian president, Vladimir Putin.

Whatever the case, the fighting had killed over 250 people, including one of his closest friends. Later, as he gave the funeral address, the president broke down in tears at the grave site.

Erdogan again blamed Fethullah Gülen for instigating the vast conspiracy and demanded his extradition from the United States, to no avail.

As the expression goes: 'When you come at the king, you best not miss'.

Erdogan declared a state of emergency and launched a crack-down on opponents, real and perceived.

From that point on, tens of thousands of people were arrested, and countless others lost their jobs. There were crack-downs on academia and on the media, with dozens of newspapers closed.

In April 2017, a controversial referendum aimed at reforming the constitution was held.

Amid claims of irregularities from the opposition, Erdogan obtained the abolition of the post of prime minister by a narrow margin, as well as the extension of his presidential executive powers.

In the June 2018 presidential election, Erdogan won a majority of the vote for his second term in office, thanks yet again to the support of the MHP. The opposition again contested the results and the fairness of the process, but to no avail.

Erdogan had succeeded in changing Turkey's parliamentary form of government into his preferred presidential one.

LOSING ISTANBUL, LOSING TURKEY

There is a classic way that authoritarian leaders go and Erdogan followed that path exactly.

The more power they get, the more enemies they make and the more paranoid they become.

As a result, they begin purging their inner circle of the people who might have wanted to stand up to them.

With his popularity apparently waning, inflation and unemployment rates rising, his AKP party also lost key cities like Ankara, Istanbul, Izmir and Adana in local elections in 2019.

Losing Istanbul to the opposition was particularly painful to Erdogan who had governed that city for over 4 years.

"Losing Istanbul is like losing Turkey" he remarked when the election results came in.

The AKP proceeded to contest the results, but a re-run of the election only served to reinforce the victory of Ekrem Imamoglu, the CHP candidate who went on to become the new star of Turkish politics.

What's more, Erdogan now has to deal with the challenge from his old colleague, Ahmed Davutoglu, who was forced to resign as Prime Minister by him in 2016 and who, along with former Economy Minister Ali Babacan, is planning to launch a new breakaway party.

It should perhaps be emphasized that Abdullah Gul, former president and once close friend of Erdogan is backing the formation of this new party.

We now have the context for Turkey's controversial military offensive in Syria.

Designed, according to Erdogan, to create a buffer along a frontier stretching hundreds of miles, driving Kurdish militias out and replacing them with 3 million Syrian refugees currently living in Turkey.

World leaders may be appalled but it's a policy popular with Turks back home.

Erdogan is an ultimate pragmatist and in that sense, the ultimate populist. His skill is reading the mood of his country and then responding to it.

Erdogan once said : *"Democracy is like a street car; you ride it until you reach your destination"*.

But is he in danger of running out of road ?

There have been many times when people have predicted the beginning of the end for Erdogan but he has always managed to survive and even strengthen his hold on power.

He is undoubtedly the master tactician when it comes to Turkish politics and the future of his country.

He remains the dominant personality, dictates the agenda and defines the contours of Turkey's political debates.

Hossein Sadre



Kurdish protesters attend a demonstration against Turkey's military action



© Wikimedia commons

THE (FRUIT-FLAVOURED) SMOKE OF BATTLE

When e-cigarettes become an issue

Most people who smoke wish they didn't. Odd, isn't it? Spending all that money on a product that often annoys those around you, that forces you to stand outside your place of work on a cold, wet day, wasting break-time, and that wrecks your health when you'd really rather you didn't do it at all. Almost seven out of every ten smokers would like to give up the habit, according to Doctor Michael Blaha, a preventive cardiologist and director of clinical research at the Johns Hopkins Ciccarone Center for the Prevention of Heart Disease in the United States. But of course, it's not just a habit, it's an addiction; nicotine is an addictive drug, like heroin and cocaine, so giving up smoking isn't easy. I know from bitter experience: I was a heavy smoker (30 to 40 a day) for more than twenty years and parting myself from tobacco was difficult. It was more than thirty years ago but I remem-

ber it vividly. I was running a radio news-room at the time and some of my staff wished I would take it up again, simply to improve my temper. But I persevered and I'm very, very glad I did. I had an economics lecturer once who still had nightmares in which he accepted a cigarette at a party, despite having given up smoking twenty-five years earlier. I have been fortunate in not suffering the same fate and I now find I dislike intensely the smell of burning tobacco, even crossing a street to avoid walking behind a smoker. Or a vaper.

And that's where there are strong differences of scientific and medical opinion on either side of the Atlantic. In the United States, the Trump administration and a number of individual states are considering a ban on flavoured vaping liquids. The opinion of some experts there seems to be that they encourage young people

to take up smoking (or at least vaping) and that they are, like regular cigarettes, dangerous. Perhaps we should pause here to look more carefully at exactly what e-cigarettes are. They come in various forms. There are "cigalikes", which look similar to normal cigarettes and can be either disposable or rechargeable. There are "vape pens", which comprise a small tube, a storage tank for "e-liquids", replaceable heating coils and rechargeable batteries. Pod systems are small rechargeable devices with e-liquid capsules. And "Mods" come in a variety of shapes and sizes but are usually larger than the other devices, complete with a refillable tank, longer-lasting batteries and adjustable power. Turning up the power can increase the heat which gives a stronger "hit". The liquids can come in a variety of flavours, often fruit flavours, and virtually all contain (or are supposed to contain) nicotine. The devices do not

burn tobacco, nor produce tar nor carbon monoxide. Instead, they heat the chosen liquid which contains nicotine but also other chemicals and flavourings.

In fact, most e-liquids can contain a wide variety of substances apart from nicotine, such as diacetyl - a flavouring also found in popcorn - along with acetoin and anatabine. Another ingredient, acrolein, for instance, is the simplest unsaturated aldehyde, a colourless liquid with a piercing acrid smell. If you overheat cooking fat you get the same smell because the glycerol in the burning fat breaks down into acrolein. There are various forms of nicotine by-products too, such as n-nitrosornicotine, produced during the curing and processing of tobacco and a known carcinogen, and its precursor, nor-nicotine. The liquids often contain ethyl maltol, too, which is a sweetener, and 2,3,5-trimethylpyrazine, which occurs naturally in cereals and cereal products such as bread but also in chocolate, baked potatoes, asparagus, Swiss cheese (why only Swiss cheese? I've no idea), coffee, black tea and roasted filberts. Vaping e-liquids, I should point out, does not contribute to the five vegetables a day you're expected to consume as part of a healthy diet. Indeed, the only healthy thing about e-cigarettes and vaping is that most (but by no means all) medical authorities reckon it's preferable to ordinary cigarettes and that it can help smokers to quit. That's why Europeans regard the Trump administration's suggested ban on e-liquid flavourings as bizarre, as long as tobacco vendors' shelves are still full of what the Victorians called (somewhat appropriately) "gasps" - ordinary cigarettes.

LOSING ITS FLAVOUR?

Even so, while UK medical authorities encourage smokers to switch to vaping, in America there are serious safety concerns. Some experts there claim that young people are taking up vaping despite never having smoked a cigarette because it's "cool" (a word that advertisers use to use to promote menthol cigarettes; "cool as a mountain stream" is one I remember from way back when). In the United States there have been some serious health issues - including deaths and hundreds of hospitalisations - related to vaping, although they're problems that would not have arisen in Europe under existing European Union regulations. Doctor Alok Patel, a New York paediatrician,

has reminded patients that nicotine is highly addictive and "detrimental to the developing adolescent brain", a process which continues until the mid-20s, and it's a point much stressed by the pro-ban lobby. Doctor Patel believes a ban on flavourings would limit vaping's appeal, at least to the young. However, the US Centre for Disease Control have released figures showing that 63% of deaths were linked to the use of THC, the psychoactive substance found in cannabis, not nicotine, that was contained in black market e-liquids. There has also been a high incidence of lung injuries - more than 1,600 by late October, mostly among young white men. Older people of 65 or over made up just 2% of the illnesses linked to vaping but accounted for 25% of the deaths. It's worth bearing in mind, however, that most of those were people who had smoked ordinary cigarettes throughout their lives and were using e-cigarettes to help wean them off the real thing. Their deaths, though tragic, may not have come as a surprise to their friends and families.

Earlier in October, Juul, a manufacturer of vaping products, announced that it would suspend sales of its fruit-flavoured e-cigarettes and e-liquid. But Juul is just one company and it had already come under pressure after a former executive accused it of knowingly shipping out to retailers a million e-cigarette pods it knew to be contaminated. Juul's former senior vice-president of global finance, Siddharth Breja, has filed a lawsuit against the company over the allegation. He was sacked one week later, in what he claims was retaliation. In his legal action, Breja claims that executives were told in March 2019 that a quarter of a million Juul mint e-liquid refill kits that were known to be contaminated were shipped out for sale

anyway. Breja claims Juul refused to issue a product recall notice or to issue a health warning. Former Chief Finance Officer for Juul Tim Danaher said the move would have cost the company billions of dollars and "questioned his (Breja's) financial acumen" for suggesting it. As usual with the tobacco industry, profits seem to rate a far higher priority than public health. A former member of the European Union press lobby who went to work for a US-owned multinational tobacco company was always concerned about what she was doing. She was also a smoker. I met her some years ago when she returned to Brussels to celebrate the 30th work anniversary of another journalist, a mutual friend. "How are you doing?" I asked. "OK, thanks," she replied, "still killing millions." I won't name her but she was a good journalist and deserved better.

As for Breja, his lawyer, Harmeet Dhillon, told BuzzFeed News "Mr. Breja became aware of very concerning actions at the company, and he performed his duty to shareholders and to the Board by reporting these issues internally. In exchange for doing that, he was inappropriately terminated." Dhillon added: "This is very concerning, particularly since some of the issues he raised concerned matters of public safety." Breja had also urged Juul to add a "best before" date to its packaging, but his idea was ignored. Former Juul Chief Executive Kevin Burns, who has since been replaced, is alleged to have said in response to the idea: "Half our customers are drunk and vaping like mo-fos (your guess is as good as mine as to the precise meaning, although I suspect it's somewhat vulgar), who the f*ck is going to notice the quality of our pods?" Nice to see corporate concern for customers still looming so large. Mind you, Juul has its problems, having come in for some serious criticism for campaign tactics said to make its products more appealing to the young. Both the Federal Trade Commission and the US Food and Drug Administration accuse it of undermining efforts to discourage teenage non-smokers from taking up vaping.

It's all so different on the other side of the Atlantic. It was back in 2014 that the European Commission proposed laying down rules for electronic cigarettes sold as consumer products in the EU, and they're very strict. Adopted in 2016, the rules aim to make the product as safe as possible for consumers, as explained in the Commission's official announcement: "The Directive sets a maximum nicotine



concentration and volume for cartridges, tanks and nicotine liquid containers. E-cigarettes should be child-resistant and tamper evident (it should be clear to see if they've been tampered with) and have a mechanism that allows refilling without spillage to protect consumers. E-cigarette ingredients must be of high purity and e-cigarettes should deliver the same amount of nicotine when puffed at the same strength and duration." In addition, health warnings must be clearly displayed on packaging, pointing out that the products contain nicotine, giving the amount of nicotine in the product and with an explanatory leaflet enclosed providing information on possible adverse effects, addictiveness and toxicity, with a warning about groups who could be especially at risk. The Directive includes monitoring and reporting requirements for manufacturers and importers and imposes a ban on cross-border advertising and promotion of vaping products.

CHEMICAL SOUP

So, while cases of respiratory problems, fatigue, vomiting and diarrhoea have afflicted mainly young and previously healthy people in the United States, that has not been the experience in Europe. In a report on the use of e-cigarettes in February, 2019, Public Health England wrote that "smoking remains the leading preventable cause of illness and premature death and is one of the largest causes of health inequalities. So alternative nicotine delivery systems, such as electronic cigarettes or e-cigarettes, could play a major role in improving public health." Compare that with this report from the US Academies of Sciences, Engineering and Medicine: "There is conclusive evidence that exposure to nicotine from e-cigarettes is highly variable and depends on product characteristics (including device and e-liquid characteristics) and how the device is operated." It continues that "there is conclusive evidence that in addition to nicotine, most e-cigarette products contain and emit numerous potentially toxic substances," and "There is conclusive evidence that other than nicotine, the number, quantity, and characteristics of potentially toxic substances emitted from e-cigarettes are highly variable and depend on product characteristics (including device and e-liquid characteristics) and how the device is operated." What is a smoker who wants to quit to believe? In California, the Department of Public Health has gone further, urging

"everyone to refrain from vaping, no matter the substance or source, until current investigations are complete". In a statement, Dr Charity Dean, California's acting public health officer, said "There are numerous unknown factors at this time, and due to the uncertainty of the exact cause, it is our recommendation that consumers refrain from vaping until the investigation has concluded." Presumably they'll just go on smoking those perfectly healthy old-fashioned cigarettes instead?



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In research carried out for Public Health England, meanwhile, it was found that vaping is 95% less harmful than traditional cigarettes and that it was helping some 20,000 people a year to give up smoking. It was also concerned that a lot of smokers - more than 50% - believed vaping to be as harmful as smoking, which it is not. So why the different attitudes? It really comes down to regulations and advertising. America has seen some manufacturers of vaping devices and liquids engaging in a competitive raising of nicotine levels in their products to appeal to heavy smokers. Europe imposes a strength limit. Additionally, the EU has a total ban on the advertising of, or sponsorship by, producers of smoking products of any kind, except in internal specialised magazines available only within the tobacco industry.

According to the American Vaping Association, a lobby group in the United States, most of the deaths and illnesses reported there stem from the purchase of unregulated and badly manufactured vaping devices and liquids from street vendors or other illegal sources. The New York State Department of Health has reported that

laboratory test results showed "very high levels of vitamin E acetate in nearly all cannabis-containing samples" tested. For every patient who submitted a sample of the product they had been using, at least one contained vitamin E acetate, which is normally used as a thickening agent but which has been used by unlicensed backstreet manufacturers to dilute THC oils that are too viscous to vape properly. Also known as tocopherol acetate, it's often used in dermatological products like skin creams and topical medication. Not being oxidised, it can penetrate through the skin to the living cells, where about 5% is converted to free tocopherol. Tocopherol can be obtained from corn or other vegetable oil but also from petroleum, using toxic precursor chemicals, especially trimethylhydroquinone. Hydroquinone is banned in the European Union because of its carcinogenic properties but although the FDA has expressed some concern about it, it's still contained in products available over the counter in the US as a skin lightening agent, used to treat dark patches on the skin.

PUT WHAT IN YOUR PIPE AND SMOKE IT?

However, vitamin E acetate has not been found in all the e-liquid samples and its effects on the body when inhaled are not known for certain. It is not used in any nicotine-based e-liquid by recognised manufacturers. It may not be the guilty party in this case, however: according to the US Food and Drugs Administration, tests revealed a "broad range of chemicals," including metals, cutting agents, pesticides and other toxins. In addition to e-liquid additives, the on-line magazine WebMD reported last year that "Scientists say the tiny metal coils that heat the liquid nitrogen in e-cigarettes may contaminate the resulting vapor with lead, chromium, manganese and nickel." Vitamin E acetate was found in 47% of the THC liquids tested. Some 13% of those suffering ill effects deny having used the THC liquids, only available on the black market, claiming to have vaped only commonly-available and legally obtained nicotine-based e-products. One is tempted to say "well they would, wouldn't they?"

A number of leading medical organisations have now joined in the call to President Trump to get tough in tightening the regulation of vaping products. The American Medical Association, the American Academy of Paediatrics and

the American College of Physicians have expressed concern about the short- and long-term health consequences of vaping, especially for children. They have called for a total ban on flavoured vaping products, including the popular mint and menthol flavours, and for the permitted age for purchasing vaping equipment and liquids to be raised to 21. They also want much stricter rules to apply over the marketing of all tobacco and vaping products to children. The magazine *Modern Healthcare* quotes Dr. Jacqueline Fincher, president-elect of the American College of Physicians, who said "a lower amount of poison is still poison."

New York Paediatrician Dr. Alok Patel claims to have spoken about the use of e-cigarettes with his teenage patients, who told him that vaping is "trendy" and that the youngsters vape between lessons and during breaks, especially favouring the flavoured e-cigarettes. I suspect a bit of teenage bravado could have led to a degree of exaggeration, here. I can sympathise, though: a little rebellion is essential for teenagers. At my school in England's industrial North-East, I and most of my friends smoked and the local corner shop was happy to sell cigarettes in ones and twos to those of us in our school uniforms who couldn't afford a whole packet. As long as there were no adults in the shop to witness the transaction, of course. The shopkeeper knew we were also below the permitted legal age of 16 for buying tobacco products.

Patel says the teenagers are not vaping as an aid to giving up smoking: they enjoy the tastes, and that is why he wants a ban on flavourings, not on vaping products per se. He mentions some of the flavours his young patients found so enticing: mango, unicorn puke, sweet tarts and crème brûlée, for instance. Why would anyone be attracted to inhaling unicorn puke? You'd have to ask a teenager; I'm too old to remember. The Vapor Technology Association, which represents the interests of manufacturers, wholesalers and retailers of vaping products, claims that "if a federal flavour ban is enacted, more than 10 million adults will be forced to choose between smoking again [...] or finding what they want on the black market." Or presumably switching to nicotine patches and special chewing gum to help them to kick the habit, as many others have done.

PULLING THE LEVERS OF POWER

The VTA has embarked on a big campaign to get vapers to write to Trump and to Congress demanding the right to continue using flavoured products under the slogan "I vape, I vote", suggesting the ban might persuade the vaper to switch their party allegiances. The campaign goes on to say: "Tell President Trump how important flavoured vapor products are to you! Sec. Azar (Alex Azar, United States Secretary of Health and Human Services) just said on Fox that he & the President are removing flavors from the market! Make your voice heard." Corporate America has a loud voice and gets very angry if a health move threatens profits. One hopes that when they make their own voices heard the vapers aren't coughing too much.

I gave up smoking by temporarily taking snuff, like an 18th century stagecoach driver. I don't recommend it - it can be seriously damaging to health - but it was only until the cravings went away a few months later. I still have the snuff box my former radio staff gave me but it's empty these days. I have no desire to try the stuff again. Those who make and sell vaping products get very aerated (if that's an appropriate word in this case) at the prospect of a flavour ban, which they say could lead to massive job losses and shop closures. They have taken their concerns to law, too; a judge in Michigan recently halted a proposed ban on flavoured vaping products. Legislators won't find it easy to take on the well-heeled tobacco and tobacco products lobby, which would

prefer no legislation because it would dent sales as well, perhaps, as an intrusion into the much-lauded freedom of choice in the US. Unless you are under the age of 21 and want a beer, of course.

The sudden upsurge in vaping-related illness is a very recent thing. Nicotine vaping products have been available all over the world for more than twelve years without anyone suggesting a health risk. Although some of the people who became ill denied vaping products containing THC, most of them were young and could have feared parental or police involvement if they admitted it. After all, cannabis is still illegal at a federal level and in most states. One young patient at New York University Langone Hospital denied vaping at all until his parents found a cartridge containing cannabis oil in his bedroom. The US Centers for Disease Control still believe vaping is safer, especially if it helps the user to break their cigarette addiction.

WHAT'S YOUR POISON?

A study from the University of North Carolina found that the two primary ingredients found in e-cigarettes-propylene glycol and vegetable glycerin-are toxic to cells and that the more ingredients in an e-liquid, the greater the toxicity. That's irrespective of what else may be in the vaping liquid. Even so, the overwhelming view of medical professionals is that vaping is safer by far than smoking cigarettes. Britain's National Institute for Health and Care Excellence, NICE, issues guidelines to medical professionals that acknowl-

1. Consider using vapes with safety features

such as firing button locks, vent holes, and protection against overcharging.

5. Replace the batteries if they get damaged or wet.

If your vape gets damaged and the batteries are not replaceable, contact the manufacturer.



© FDA

edge vaping as a means of breaking the addiction to tobacco. "Many people use e-cigarettes to help them stop smoking. The committee considered it likely that they are substantially less harmful than smoking," said Professor Gillian Leng, Deputy Chief Executive and Director of Health and Social Care at NICE. "As a relatively new product, the long-term impact of their short-term use as well as the long-term health impact of their long-term use is still developing. The committee was concerned that people who smoke should not be discouraged from switching to e-cigarettes because the evidence is still developing. Our guidance therefore recommends that healthcare professionals help people make informed decisions on their use." I think that means that vaping is safer than smoking, as well as proving that medical experts like to hedge their bets.

"The e-cigarette market in Europe has experienced a continuous expansion since 2008," says the European Commission in a report on electronic cigarettes, "and, in 2014, was estimated to be worth approximately €2.16-billion. The UK, Italy, Poland and France are the largest EU markets. The biggest increase (+100%) in market value was noted in the UK, from 2013-2014." Despite this, the use by young people of vaping devices remains low in the UK, according to research by Public Health England, "with 1.7% of 11 to 18-year-olds in Great Britain reporting at least weekly use in 2018 (it was 0.4% among 11-year olds and 2.6% among 18-year olds)." According to the figures published by the UK's NHS Digital, more than 3.2-million adults in Britain use e-cigarettes; that's 6.3% of the adult population. Of them, 52% are former smokers, which suggests vaping is helping people to quit smoking. The European Commission's website does note one matter of concern: "An overview of the most popular industry websites indicated that hundreds of brands and sub brands are available on the EU market, with e-liquid available at different nicotine concentrations. It is also noteworthy that a few websites allowed for the purchase of base liquids in very high volumes (up to 25 litres) and/or refill mixing bowls, nicotine concentrates and syringes/pipettes for home mixing."

It is vaping equipment that has been modified in this way that is blamed by many for the upsurge in deaths and illnesses in the United States related to the use of e-cigarettes. It also accounts for one problem noted by the National Academies of

Sciences, Engineering and Medicine in the US: the fact that e-cigarette devices can explode and cause burns and projectile injuries. The NASEM stressed that risk increased significantly when the batteries are of poor quality, stored improperly or modified by users. However, the European Commission stated that of eight products requested for testing purposes three showed evidence upon delivery of having leaked in transit. E-liquids can be harmful to skin and certainly to eyes and very toxic if consumed orally, which is why the Commission insists on fool-proof refill mechanisms and leak-proof packaging. The Commission, while recognising the help e-cigarettes give to these trying to quit smoking, admits that some dangers may remain. "There is growing evidence of potential risks from adverse effects in published cellular, animal and human studies," says a report. "These include: evidence of cytotoxic effects of some refill liquids, especially when nicotine and flavour substances are present; oxidative stress, inflammation of the respiratory system and effects on blood glucose in animal or tissue models; and reports of adverse effects in e-cigarette users, such as pneumonia, chest pain, hypotension, dizziness, and nausea."

At a meeting with manufacturers' representatives, TVECA and ECITA, the European Commission heard that a large majority of electronic cigarettes have a nicotine concentration below 30 mg/ml (the most common strength in the UK is 18 mg/ml). The manufacturers argued that concentrations below 30 mg/ml would not be sufficient to meet the nicotine cravings of heavy smokers, although no-one was aware of any research to back up that claim. Although the European Union banned flavourings in cigarettes, it permits flavourings in e-cigarettes in the hope of luring smokers to at least try to give up. And as for the other chemicals found in legal nicotine-based vaping products, the over-riding message is "don't worry". They are present in minute quantities and are therefore far, far less likely to harm you than an ordinary cigarette. The Irish Cancer Society warn that normal cigarettes contain some seven thousand chemicals, many of them poisonous and more than sixty of which are known to be carcinogenic. They provide a handy list, with a note of other substances in which they're found, which I shall put in parenthesis after each name:

Toluene (*industrial solvent*)

Carbon monoxide (*exhaust fumes*)

Cadmium (*batteries*)

Arsenic (*rat poison*)

Ammonia (*toilet cleaner*)

Radon (*naturally-occurring radioactive gas*)

Hexamine (*barbecue lighter liquid*)

Methane (*sewer gas*)

Tar (*road surfaces*)

Acetone (*nail varnish remover*)

Polonium-210 (*highly-radioactive isotope of polonium, discovered by Marie Curie. Used in the murder of former Russian FSB agent and defector Alexander Litvinenko in November, 2006. Also used in nuclear weapons*)

Methanol (*rocket fuel*)

Methylamine (*tanning lotion*)

Hydrogen cyanide (*poison*)

Butane (*lighter fuel*)

It's not a jolly list of suitable ingredients for a cake or anything else you might consider consuming. Why would you want to draw these chemicals into your lungs? Well, the good news is that apparently properly produced e-cigarettes contain far fewer really nasty things and will do you less harm, and it would be even better if they helped you to escape your addiction to smoking. The health problems that have occurred in the United States seem to have stemmed from unregulated products, weak legislation and humankind's endless willingness to tamper with things, especially while chasing a high. Dr. Patel warns that "switching is not quitting" and "don't be fooled by e-cigarette companies". The advice from the Federal Drug Agency seems the most sensible: "If you are an adult who used e-cigarettes containing nicotine to quit cigarette smoking, do not return to smoking cigarettes." As for youngsters experimenting with things they know their parents or teachers won't like, warnings and flavour bans won't stop them. As the 8th century BCE Greek poet Hesiod wrote: "I see no hope for the future of our people if they are dependent on frivolous youth of today, for certainly all youth are reckless beyond words." But at least e-cigarettes are not heroin, cocaine, spice, LSD, psilocybin or amphetamines. It's better to be mildly rebellious than recklessly stupid.

Robin Crow



CRIME HAS NO GENDER

Meet Europe's most wanted female fugitives

Are women equally as capable of committing serious crimes as men? The female fugitives featured on Europe's Most Wanted website prove that they are. The criminals – of both genders – in this new campaign by EU law enforcement are all wanted for grave offences like murder, drug trafficking, fraud, theft and trafficking in human beings. We are asking for your information to help us track them down and make them take responsibility for their crimes. Many studies have examined how gender plays a role in crime. The majority of those looked at the gender of the victim but less often at that of the offender. However, in recent decades, the number of women engaged in criminal activity has increased, although at a slower pace than men. One of the possible explanations is that technological progress and social norms have liberated women from the home, increasing their participation in the crime market. Researchers consider it important to investigate female criminal behaviour to determine whether the policy prescriptions to reduce crime should differ for women.

MASQUERADE OF CRIME

Altogether 21 EU Member States have selected one of their most wanted fugitives to feature in this campaign. The focus is on the story behind the crime, starting with a full mask covering the face of the fugitive. As the story unfolds, parts of the mask disappear leaving the viewer guessing the gender of the criminal.

The aim is to attract as many visitors to eumostwanted website as possible. Experience has shown us that the more eyes look at the wanted fugitives, the higher the chance is that someone can place the final piece of the puzzle to locate and arrest the wanted person. Information can be sent anonymously via the website, directly to the national investigators looking for the fugitive.

This approach has proven successful

in the past three years. After every large communication campaign, several wanted fugitives were arrested or turned themselves in because the pressure became too high for them and/or their relatives. Since the launch of the project, 69 criminals who featured on the website have been arrested. In at least 21 cases this was down to information received from the general public via the website.



Europe's Most Wanted was initiated by the ENFAST community in January 2016 with the full support of Europol. The members of ENFAST are all specialised in locating criminals on the run who are suspected, or have been convicted of serious crimes and are subjects of European Arrest Warrants.

ENFAST (European Network of Fugitive Active Search Teams)

The ENFAST project aims to increase security within the European Union by improving efficiency in tracing and arresting internationally wanted criminals, who committed serious crimes. ENFAST is a network of police officers available 24/7 who can immediately undertake action to locate and arrest fugitives.

In 2012 at a fugitives conference attended by 24 national fugitive teams of the European Union, a motion was put forward to create a European network of national fugitive teams, named ENFAST. This motion was adopted by the European Council on 1st of January 2013. The Belgian FAST took the first Presidency for a two-year period (2013-2014). After German FAST having continued the project under its Presidency for another two years (2015-2016), Dutch FAST took over the Presidency for 2017 to 2018, now followed by FAST Croatia ensuring the continuity of the project



Elisabeth Skarits, the fugitive is suspected of at least 12 cases of serious fraud in the real estate and rental sector



Together with partner Jean-Claude Lacote (53), Hilde Van Acker (56) has been sentenced in absentia to life imprisonment by the Court in Bruges (West Flanders)

© Europe's most wanted



© Sergei Bobylev/TASS

The 9M729 missile demonstrated after a briefing for military attaches and international media by the Russian Defence Ministry at the Patriot Congress and Exhibition Centre in Kubinka, Moscow region.

WELCOME TO AN UNCERTAIN FUTURE

The strange death of the INF Treaty

“We can only hope that this history-making agreement will not be an end in itself but the beginning of a working relationship that will enable us to tackle other issues, urgent issues,” said President Ronald Reagan at the signing in the White House of the Intermediate-Range Nuclear Forces Treaty, normally referred to as the INF Treaty. Hopes were high around the world on that remarkable day, 8 December, 1987. Mikhail Gorbachev, then General Secretary of the Central Committee of the Communist Party of the Soviet Union (the Soviet leader, in fact), who was about to add his signature alongside Reagan’s, said “What we are going to do, the signing of the first ever agreement eliminating nuclear weapons, has a universal significance for mankind, both from the

standpoint of world politics and from the standpoint of humanism.” But that was back in the supposedly bad old days of a polarised world with mutually-assured destruction keeping aggressive, twitchy fingers away from the launch button. “We can be proud of planting this sapling,” said Gorbachev, “which may one day grow into a mighty tree of peace.” He also quoted the 19th century American philosopher and poet Ralph Waldo Emerson, who said “The reward of a thing well done is to have done it.” That was long before Presidents Trump and Putin turned up, wielding George Washington-style axes to Gorbachev’s sapling.

The world has moved on. Officially, the Cold War may be over but there are dangerously aggressive attitudes around the globe. NATO Secretary General Jens Stol-

tenberg said it was Russia that breached the terms that Gorbachev’s and Reagan’s teams had spent seven years discussing by developing the 9M-729 missile. Russia denies that it breaks the terms of the treaty and accuses America in turn of causing a breach by placing a missile defence shield in Europe and by developing weapons to be carried on drones. That may be so but it’s hard to see how the 9M-729 (also known within NATO as the SSC-8) could be seen as complying with the terms of the INF Treaty. The Treaty expressly required both signatories to eliminate ground-launched ballistic and cruise missiles with a range of between 500 and 5,500 kilometres. That agreement resulted in the destruction of some 2,692 short- and intermediate-range missiles, 1,846 of them Soviet and 846 American, and forbade either side from developing

more. Russia's 9M-729 is a highly-mobile ground launched cruise-type missile, capable of carrying nuclear warheads and with a range of - guess what - 500 to 5,500 kilometres. NATO Secretary General Jan Stoltenberg has said that: "By fielding multiple battalions of SSC-8 missiles, Russia has made the world a more dangerous place."

The whole idea of the INF Treaty was to keep Europe safe. Both nuclear powers



Novator 9M729 missile

retained their long-range and battlefield weapons but European capitals were no longer easy to target. The longer-range weapons can be tracked more easily. Not long after the Treaty was signed in 1987, for instance, Britain abandoned its "four-minute warning" alert system, believing its chances of being hit at short notice had diminished, even though the Treaty did not affect the United Kingdom's own nuclear arsenal. It did mean, though, that the highly controversial deployment of American nuclear-armed missiles at RAF Greenham Common and RAF Molesworth, both of which drew huge protests, could come to an end.

Geopolitical realities have moved a long way from the Gorbachev-Reagan era. Back then, at the signing ceremony, Reagan quoted an old Russian saying: "trust but verify". Verification very much underpinned the INF Treaty, allowing each side to have inspection teams in each other's territory. However, the verification mechanism ended in 2001, leaving America with no way of examining the new missile, which it labelled a "missile of concern".

When reports surfaced of Russia's breach, the NATO allies sought dialogue with Moscow. The NATO-Russia Council met in January 2019, but Russia continued to deny that their new missile breached the Treaty, and refused to respond to questions or to take steps to restore a verifiable compliance, which would presumably have included the destruction of its new weapon. Moscow claimed it had a range of less than 500 kilometres but a statement by America's Director of

National Intelligence in November 2018 claimed that Russia had test-flown the missile over much greater distances from a fixed launcher. The 9M-729 has clearly been in development for at least a decade, although Russia was keeping its existence under wraps until western anger at the annexation of Crimea made Putin bare his claws.

NEVER A FAN

President Vladimir Putin, despite denying Russia's breach of the Treaty, had been opposed to it for a long time. According to Jens Stoltenberg, Secretary-General of NATO, Putin first expressed his desire for Russia to quit the Treaty at the Munich Security Conference in 2007. Putin's apparent dislike of the Treaty does not appear to be widely shared; Russia's Deputy Foreign Minister, Sergei Ryabkov had previously warned that withdrawing from the treaty would be a dangerous step and could lead to a renewal of the arms race. He told the RIA Novosti news agency that if the US withdrew "we will have no choice but to undertake retaliatory measures, including involving military technology". Of course, with the 9M-729 Russia is already a decade ahead anyway. Probably. Basically, Moscow is saying "you can't prove our missile breaches the Treaty but if you try to match it we'll build a bigger one". It comes from the "yah-boo-shucks" school of playground argument.

According to the Center for Strategic and International Studies' "Missile Threat" report, the 9M-729 missile, developed by the Russian arms manufacturer NPO Novator, is probably based on the Russian Navy's 3M-54 Kalibr missile (known in NATO parlance as the SS-N-27 Sizzler), although it could also be a modified version of the Iskander-K or Kh-101. Flight testing began in 2008 and the first test firing was in July 2014, and then again in September, 2015. US experts say it did not fly further than the 500-kilometre INF limit on those occasions, which allows Putin to claim compliance. The US Air Force National Air and Space Intelligence Center (NASIC) estimates its maximum range at 2,500 kilometres. The missile is six to eight metres long, is road-mobile, easy to hide and can carry a 450 kg warhead. It has a guidance system developed by the Russian defence company GosNIPP and could shorten warning times to just a few minutes.

In February 2017, US officials claimed that Russia had deployed two 9M-729

battalions, one at its Kapustin Yar test range in south-west Russia, the second at an unknown operational base. Each battalion has four launchers and each launcher is equipped with six missiles. In January 2019, Russia publicly displayed the missile for the first time. Russia's Chief of the Military Missile and Artillery forces claimed that despite a more powerful warhead and an improved guidance system, it does not have a range that would breach the INF Treaty. As far as is known, by December 2018 Russia had produced fewer than a hundred 9M-729 missiles, but it is a weapon that would fit comfortably into Moscow's favoured strategy of dividing the NATO allies through perceived threats and thus winning what they call a "short-of-war" (meaning the avoidance of actual fighting through bullying) or, at worst, a "short war". NATO's defence of Europe relies on getting so-called "follow-on" forces to the battlefield or potential battlefield quickly, but the 9M-729 could easily target ports, airfields and marshalling points to make that deployment far more difficult. Without the INF Treaty, the Alliance must seek new solutions. NATO must be able to convince Russia that a quick blitzkrieg-type victory, even if initially successful, would face strong opposition that could turn it back. NATO's Enhanced Forward Presence in Poland and the Baltic States is aimed at demonstrating to Moscow that an attack on any NATO state is an attack on all of them and will meet with a massive response. The plan is to persuade Russia that not even a surprise attack would achieve its objectives. They may take some persuading.

A NEW WORLD ORDER?

On 2 August, 2019, US President Donald Trump announced America's withdrawal



Russian President Putin during a visit to the Peter the Great Military Academy of the Strategic Missile Forces Kremlin

from the INF Treaty, citing Russia's breach through its development of the 9M-729 missile. In a statement, US Secretary of State Mike Pompeo said "Russia is solely responsible for the treaty's demise." Trump also expressed concern over China's intermediate-range missile arsenal as a reason for withdrawal, which is slightly odd since China was never a party to the INF Treaty in the first place. It is, however, a matter of concern for NATO, a point highlighted by its Secretary General at the High Level Conference on Arms Control and Disarmament in October, 2019. "A new supersonic cruise missile. And an assortment of new drones and anti-ship missiles. This shows the world how far China has come," Stoltenberg told delegates, "but let me underline: China is not violating any arms control treaty. But as a major military power, it has major responsibilities. And it is time for China to participate in arms control." The rising might of a more globalist China is a concern in the West and President Trump said he has spoken to Beijing as well as to Moscow about a new nuclear arms treaty. He told reporters they were both "very, very excited" at the idea. Given that it took Reagan and Gorbachev seven years to negotiate the INF, no-one should anticipate early results, especially since the United States tested a ground-launched cruise missile that would have breached the INF Treaty just days after withdrawing from it, something that unsurprisingly drew instant criticism and accusations of hypocrisy from the Russians.

The INF Treaty was especially important for Europe. It came at a time when there was a lot of fear over the deployment of Soviet SS20 missiles, even though the decision to site American missiles on European soil was controversial and led

to protests. But it also led, eventually, to Reagan and Gorbachev signing the INF Treaty. Putin's Russia, though, is not like Gorbachev's. NATO has seen Russia violating the INF Treaty for years, whilst ignoring repeated calls to return to compliance. And that's not all. "Russia's negative record on arms control goes beyond the INF Treaty," said Stoltenberg, "it suspended its participation in the Conventional Forces in Europe Treaty back in 2007, a treaty with which all NATO allies continue to comply. Russia also has a record of circumventing the OSCE Vienna Document, which provides for inspections of military activities and exercises, and reduces risk of unintentional conflict. In fact, Russia has never opened an exercise for mandatory OSCE Vienna Document observation."

And Russia is not the only concern. More global players are developing advanced missile systems and nuclear weapons. "North Korea and Iran for example are blatantly ignoring or breaking the global rules. And spreading dangerous missile technology around the world," warns Stoltenberg. Meanwhile, China already has hundreds of its own missiles with ranges that would have been banned under the INF Treaty, had it applied to China. What's more, it recently put on show a new advanced intercontinental nuclear missile capable of reaching the United States. In addition, China boasts a new supersonic cruise missile and an assortment of new drones and anti-ship missiles. It is not, of course, violating any arms limitation treaties: it hasn't signed any. But NATO believes that as a major world military power, China has responsibilities and should participate in arms control. Trump may believe Beijing is "very, very interested" in the idea but as yet there's little evidence. Indeed, the Chinese Foreign Ministry has said that "China will in no way agree to making the INF Treaty multilateral". And for sensible reasons: China has fewer nuclear warheads and missiles than either Russia or the United States, so a treaty that guaranteed parity would mean increasing China's nuclear arsenal, not reducing it. China would never agree to a treaty that set in stone America's and Russia's nuclear supremacy.

HIGH-TECH WORRIES

The problem is that the worries go beyond nuclear weapons; technology has moved on. Stoltenberg reminded the

Arms Control and Disarmament conference that there are now new threats, such as cyber-attacks; hypersonic glide vehicles, which are launched from a rocket and then glide to their target at hypersonic speeds, not necessarily following a predictable ballistic path; autonomous weapon platforms that can kill and destroy without human participation; artificial intelligence and biological weapons. It's been claimed that America is working on using modified insects as vectors to genetically alter standing crops, theoretically to help them to cope with drought or pest attack, but which could be weaponised. Existing international treaties do not seem to fully constrain these sorts of experiments.

Given the limited range of options, NATO is determined to support the Nuclear Non-proliferation Treaty (NPT) as the only viable way towards what it hopes may be a world free of nuclear weapons (presumably without believing it's really achievable). NATO's commitment to the NPT will be re-emphasized at the Review Conference in April 2020. Although both America and Russia have now withdrawn from the INF Treaty, it did achieve remarkable results. "The INF treaty eliminated a whole category of weapons capable of carrying nuclear warheads," says Stoltenberg. "As a direct consequence, almost 3,000 missiles were destroyed. When the first START Treaty (Strategic Arms Reduction Treaty, signed by United States and the USSR in 1991) entered into force in 1994, the US and Russia were limited to 6,000 strategic offensive arms each. Now, under New START, they are limited to no more than 1,550 each. These treaties have worked." 1,550 each is still a lot of missiles.

Russia has called for a moratorium on the deployment of nuclear-armed cruise missiles in Europe, but as ideas go it's a non-starter: Russia has already deployed such weapons, in violation of the INF Treaty. But that doesn't mean there's no room for dialogue. The difficulty comes with finding ways to be reassured about the other side's intentions. As Reagan said at the signing of the INF Treaty, quoting that old Russian saying: "trust but verify". And Russia has not been keen on letting people check up on its activities since the INF verification process ended. Even so, NATO says it is keeping the door open to dialogue, and at the same time hoping to expand nuclear weapons limiting negotiations to other players. NATO also wants to see the OSCE's Vienna

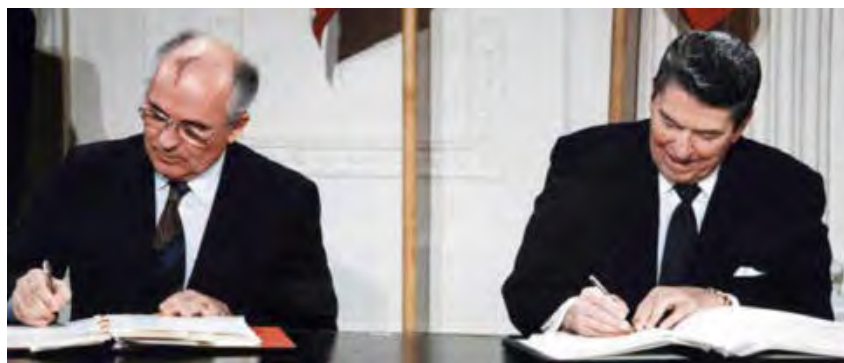


Nato Secretary General Jens Stoltenberg and US Secretary of State Mike Pompeo

Document brought up to date to reflect the new geopolitical realities. With fifty-seven member states in Europe, North America and Asia the OSCE (Organisation for Security and Cooperation in Europe) is the world's largest regional security organisation, dating back to the early 1970s when it was set up to foster dialogue between the West and the Soviet Union. The Vienna Document requires participating states to provide each other with information about their military forces, including manpower, budgets and major conventional weapons systems, on an annual basis. They are also supposed to warn each other about up-coming military activities and exercises and to accept three inspections of their military sites each year. In addition they are supposed to invite observers to view their activities, something Russia has found ways of avoiding. Stoltenberg remains hopeful that procedures to tighten verification measures can be agreed and that this will reduce risks. It all rather depends on the OSCE members agreeing to it.

ONE-SIDED CONVERSATIONS

As far as Russia is concerned, the signs are not encouraging. NATO suspended practical cooperation with Russia in 2014 in response to Russia's annexation of Crimea. Russia has shown itself willing to use force against neighbouring countries, and Russian forces are present not only in Ukraine but also in Georgia and Moldova against the wishes of the relevant governments. Many Moldovan people I spoke to in the capital, Chişinău, a few years ago, have applied for Romanian passports - they share a common language and are ethnically Romanian - because Romania is a member of the European Union. EU membership is generally seen as a useful safeguard in a dangerous world, especially with a hostile power firmly established in Transnistria, the breakaway province on the border with Ukraine that still tries to live in a version of the old Soviet Union. A thousand Russian troops are stationed there, to the consternation not only of Chişinău but of neighbouring Kyiv, too. Meanwhile, pro-Putin propaganda is pumped endlessly into the country, greatly annoying those who prefer to see a future in Europe. The propaganda comes as no surprise to NATO, because it fits with Russia's pattern of behaviour, which includes cyber-attacks, disinformation campaigns and attempts to interfere with democratic processes, quite apart from its



US President Ronald Reagan and General Secretary of the Communist Party of the Soviet Union Mikhail Gorbachev

failure to be transparent about its military exercises.

Despite the fact that the INF Treaty was principally about the security of Europe, the reaction to the Treaty's demise has been surprisingly muted. European leaders seem reluctant to accept that the threat from nuclear weapons is back on the agenda. Some mild regrets were expressed about the decisions to withdraw but there were no anguished pleadings to the Americans to reconsider, nor to develop and deploy a missile to match the 9M-729. The lack of panic among Europe's leaders may seem surprising. Perhaps they don't view Putin's expansionist Russia as being quite such an adversary as the Soviet Union used to be? Of course, Poland and the Baltic states are very well aware of just how dangerous Putin is. Other European countries are also well aware of how Putin uses the threat of Russia's nuclear capability to intimidate them and to try to drive a wedge between them. Maybe they have just grown too used to the relative protection the INF provided; today's schoolchildren don't see television warnings about how to react to the threat of a nuclear attack. I still remember vividly how the Cuban missile crisis dominated conversation at my school in 1962, and how much talk there was in the newspapers and on television of the possibility of a nuclear war. After the assassination of President John F. Kennedy, there were also growing fears about some possible future presidents, known to be militaristic. In the American 1960s political comedy show, *That Was The Week That Was*, the satirical songwriter Tom Lehrer performed (among many others) a song about the spread of nuclear weapons, called "Who's Next?". In it, Lehrer expressed concern about the then Governor of California, the fiercely anti-Soviet Ronald Reagan, who was not even considered a likely candidate by many. "I'll try and stay serene and calm when Ronald Reagan

gets the bomb," he sang (on the subsequent recording it was changed to "when Alabama gets the bomb"). Reagan signing the INF Treaty must have come as a surprise.

HEADS IN THE SAND

The European Council for Foreign Relations (ECFR) has mused that today's European leaders are more confident than their predecessors were that America would come to their aid in the event of invasion. The fear that America might not was what led to the deployment of "weapons of deterrence" in Europe back then. It was felt that the deployment would discourage the Soviets from gambling that the President of the United States would, at a pinch, decide not to "risk Chicago for Berlin". Do today's Europeans have confidence that Trump would run such a risk for them? As the ECFR puts it, "And pigs might fly". The reality may be rather more worrying. "The sad truth is that European indifference to the death of the INF Treaty stems not from confidence but from a deep-seated reluctance to accept that nuclear issues are back on the agenda at all," says the ECFR commentary. "As ECFR found in a comprehensive recent survey of attitudes towards nuclear deterrence across Europe, Europeans are choosing to address these issues with, in the words of the report's title, 'eyes tight shut'."

The "comprehensive survey" to which the article refers is mildly alarming. Among its conclusions, it says: "Firstly, despite the growing insecurity all around them, Europeans remain unwilling to face up to the renewed relevance that nuclear deterrence ought to have in their strategic thinking. Secondly, and as a consequence, national attitudes remain much where they were when the subject dropped off the agenda at the end of the cold war - which is to say, scattered across the entire

spectrum from those who continue to see nuclear deterrence as an essential underpinning of European security to enduring advocates of unilateral nuclear disarmament.” Perhaps it lends weight, ironically, to something Karl Marx wrote: “Hegel says somewhere that all great events and personalities in world history reappear in one fashion or another. He forgot to add: the first time as tragedy, the second as farce.” But there’s nothing farcical or remotely amusing for Europeans about Russia’s newfound confidence and insouciant adventurism. In the opinion of the ECFR, this is no time to be turning a blind eye to Putin and his ambitions: “Europeans need to take their heads out from under the duvet and start thinking seriously about how to create a ‘Euro-deterrent’ – that is, about how to effectively extend the deterrence capacity of the French and British nuclear arsenals to cover European partners and allies. No one pretends that such a goal will be quick or easy to achieve. But, without it, all talk of European ‘strategic autonomy’, or of a Europe able to exercise any real degree of strategic sovereignty in the twenty-first century, is ultimately vacuous.”

Nobody in Europe seems to be engaging in serious discussion as to how best to counter Russian aggression. Even anti-nuclear Germany is wondering what should happen next. “I firmly believe that we must manage once again today to agree to rules on disarmament and arms control in order to prevent a new nuclear arms race,” said German Foreign Minister Heiko Maas. “The end of this treaty raises the risks of instability in Europe and erodes the international arms control system,” France’s Ministry for Europe and Foreign Affairs said in a statement. “France reaffirms its commitment to arms control and to real and verifiable nuclear disarmament anchored in legal authority, and encourages Russia and the United States to extend the New START Treaty on their nuclear stockpiles beyond 2021 and to negotiate a successor to that treaty.” China’s Foreign Ministry spokesperson, Hua Chunying, meanwhile (and to nobody’s surprise) put all the blame on Washington. “Withdrawing from the INF Treaty is another negative move of the U.S. that ignores its international commitment and pursues unilateralism. Its real intention is to make the treaty no longer binding on itself so that it can unilaterally seek military and strategic edge.” No mention of those Russian 9M-729 missiles, then.

WHERE NEXT?

The website ForeignPolicy.com makes an interesting observation. It asks why the INF Treaty went wrong, citing the United States concern over the 9M-729 missile (although that was developed in the mid-2000s and was known to exceed the permitted range) while Russia, unsurprisingly had its own complaints and allegations, especially the Aegis Ashore facility in Romania which Moscow argued could be used to launch land-attack missiles in violation of the Treaty. “Mutual blame is to be expected when arms control treaties come crashing down,” says the website, “but as per usual, there are deeper forces at work. The interesting question is not ‘who was breaking the rules?’ but ‘why did they prefer to see the treaty collapse rather than fix it?’” It’s an interesting question that raises an issue few are talking about: the shift in geopolitical power. “Despite Russia’s invasion of Ukraine and its military build-up in the Black Sea and the Baltic,” the website argues, “the biggest challenge of international politics is posed not by revanchist Russia but by rising China. When the INF Treaty was negotiated, China was a minnow in a world dominated by two sharks. Indeed, its military was so dilapidated that it had recently lost a war with neighboring Vietnam.” Russia, says the website, is now a second-tier power in China’s eyes.

Although China’s arsenal may look small compared with Russia or the United States, it is at the forefront of technology, with its own hypersonic missiles capable of far exceeding the speed of sound and thereby striking in minutes. The kinds of missiles limited by the INF Treaty may have been state-of-the-art back in the days of Gorbachev and Reagan and they could certainly kill many, many people, but they’re old hat now. The challenges that we now face have become greater as a result of the end of the Treaty and are no longer only confined to Europe. Whatever negotiating may be done in future – assuming any fully-armed power wants to make the effort – must also involve new powers, such as North Korea, Iran, Israel, India and Pakistan, not to mention Britain and France. Nobody wants to concede anything as the world lurches from crisis to crisis. Countries need closer alliances, yet alliances are breaking up. Any sort of ban on nuclear weapons looks increasingly unlikely, for much the same reason that a number of teenagers in rough

inner-city estates carry knives: they know a knife makes it more likely that they will be attacked or killed but they feel safer with a weapon to hand, even if it confers little or no real advantage. It’s why there are so many needless knife crimes over minor disagreements and what they call “respect”.

Gorbachev is still alive, although now in his eighties. He is deeply concerned about the collapse of the INF Treaty. In an interview with the BBC recently, he said: “As long as weapons of mass destruction exist, primarily nuclear weapons, the danger is colossal. All nations should declare – all nations – that nuclear weapons must be destroyed. This is to save our lives and our planet.” He is afraid that things have deteriorated a lot since he and Reagan signed the INF Treaty. Asked how he would describe today’s complex present-day manifestation of the Cold War, he replied: “Chilly, but still a war. Look at what’s happening. In different places there are skirmishes, there is shooting, aircraft and ships are being sent here, there and everywhere. This is not the kind of situation we want.” Were he still alive, it’s highly probable that Reagan would agree with that analysis. However, it’s far less likely that Trump, Putin or, for that matter, Xi Jinping would. In Putin’s case, it’s all about Russian honour. In his speech at the signing of the INF Treaty, Gorbachev quoted Ralph Waldo Emerson, of ‘build a better mousetrap’ fame. Perhaps I could add a different quote by him now: “The louder he talked of his honour, the faster we counted our spoons”.

Jim Gibbons



Russian Foreign Minister Sergey Lavrov:

« The tendency towards compelling nuclear powers to “abandon their nuclear arsenals with no account to their strategic and security interests” is seen as “dangerous and delusional”

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DOWN ON THE PHARM

Raising drug prices is addictive

It would seem that for pharmaceutical companies, addiction comes easily. You put the price up steeply one minute, and before the effect has had time to wear off you just can't wait to give it another shot. Although, like most addicts, they deny their addiction. Or excuse it. There is a row going on in the United Kingdom at present over ownership of the National Health Service, that over-crowded, over-used and underfunded leviathan so much beloved of the British people but possibly - and I stress possibly - up for grabs in a trade deal with the United States once the UK has left the European Union. Assuming it ever does. In fact, a large proportion of the British public are unaware that the NHS has been fighting a constant battle against private enterprise since Aneurin Bevan, Minister for Health and Housing under Prime Minister Clement Attlee, got the National Health Act onto the statute books in 1946. The British Medical Association

of the time, which represented doctors, was opposed to it and most doctors refused to cooperate with it. They wanted to retain control over the field of medicine in which they would practice and how much they would earn for it. Bevan accused Dr. Charles Hill, secretary of the BMA, of trying to sabotage the new health service, which was part of Attlee's promised "new deal" following World War II. According to Bevan, he only got doctors to agree to it by "stuffing their faces with gold", according to John Bew's biography of Attlee, *Citizen Clem*.

Britain's over-stretched health service, however, remains high in public esteem and politically important, especially its promise to provide health care "free at the point of delivery". In fact, the NHS already involves a lot of private enterprise, including American health and pharmaceutical companies. In any case, under EU rules, US firms must be entitled to tender for

work in the NHS as long as they have a presence in Europe. They will lose that entitlement, ironically, when Britain is no longer in the Union. There are certainly those within Britain's corridors of power who would have no issue with allowing US corporations to take a larger part in Britain's health provision but there is an issue that could prove highly contentious from a constitutional point of view. Suppose a US firm won a contract but failed to execute it well. Could a future government take that service back into the public sector without being accused of infringing - even stealing - American corporate property, something of which the World Trade Organisation would disapprove?

In addition, although UK Prime Minister Boris Johnson retains his "loveable mop-head" image despite scandals that occasionally swirl around him, his claim that he would never sell off the NHS is not widely believed. Senior British civil servants have



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Eli Lilly and Company gave the trade name Prozac to fluoxetine

already held talks with representatives of American companies regarding the prices the NHS will pay for US-produced drugs in any post-Brexit trade deal. Johnson's assurances have also been parroted by, among others, UK Health Secretary Matt Hancock and the International Trade Secretary, Liz Truss. Scotland's Health Secretary, Jeane Freeman, said Scotland had not been informed of the meetings between British trade officials and US negotiators. And public opinion surveys suggest that fewer than one in three people trust Johnson where the NHS is concerned. An investigation by Channel 4 claimed that the price the NHS must pay for drugs could rise by £27-billion (almost €31.4-billion).

Comparisons between health experiences in the United States and Britain make for interesting reading. Healthcare costs in the US have been spiralling for years and, in terms of a percentage of GDP, can be double the costs in other wealthy nations, although outcomes are often worse. According to the writer Bill Bryson in his book "The Body", the maternal mortality rate in childbirth is far, far worse in America than in other developed countries. 16.7 mothers out of every 100,000 die, compared with 3.9 in Italy, 4.6 in Sweden, 5.1 in Australia, 5.7 in Ireland, 6.6 in Canada and even 8.2 in the United Kingdom. That puts the US in 39th place in terms of the childbirth death rate of mothers. It is, of course, far better than in the bad old days where home births, inexperienced midwives and poor hygiene killed far more, but it's not a record anyone would wish to emulate. Nor would they wish to see a situation in which millions of people have gone bankrupt because they can't afford to pay medical bills. As a result, sick people

ration their use of drugs and have to balance the cost against paying their rent and buying food. The mother of a 26-year-old man who died through being compelled to ration his costly insulin carried his ashes in a protest against the high cost of the drug outside the offices of the pharmaceutical company Sanofi in Cambridge, Massachusetts.

THIS WON'T HURT A BIT

Pharmaceutical companies do not have a good record when it comes to pricing. They're rather bad at explaining price rises, too. In information released under a California transparency law, between 2017 and the first quarter of 2019, the median increase in wholesale prices of just over a thousand drugs in the United States was 25.8%, while generic drugs went up by an average of 37.6%. There were some very big jumps in the prices of particular drugs: a liquid generic version of Prozac went from \$9 (£8.13) to \$69 (£62.32), an increase of 667%. The manufacturer blamed new production costs. There are other, similar examples. But the drug companies are hitting back at those exposing their above-inflation price increases. The industry lobbying group PhRMA, which represents drug makers, has filed a lawsuit in California aimed at overturning the transparency law. They would rather spend their shareholders' money on obfuscation, so that they can raise prices without anyone knowing, except, of course, the sick people who can no longer afford them. Incidentally, PhRMA has also criticised NICE and other agencies who examine the cost-effectiveness of drugs, arguing that centralised government value assessments cre-

ate barriers to patient access. Do they mean barriers to the patients' access to drugs or barriers to the pharmaceutical industry's access to patients?

In Britain, too, drug prices have soared, although there are mechanisms in place to help control the cost of drugs prescribed on the NHS or accepted for the more common European systems of reimbursement by a health insurer. The Treaty on the Functioning of the European Union states that "Union action shall respect the responsibilities of the Member States for the definition of their health policy and for the organisation and delivery of health services and medical care... and the allocation of the resources assigned to them." However, the Treaty also allows EU action to 'complement national policies', permitting "any useful initiative to promote such coordination, in particular initiatives aiming at the establishment of guidelines and indicators, the organisation of exchange of best practice, and the preparation of the necessary elements for periodic monitoring and evaluation." This means that EU member states are free to set the prices of medicinal products and to decide on the treatments that they wish to see reimbursed.

In the EU (including Britain), the cost effectiveness and cost utility analysis (basically 'does it work?' and 'is it worth it?') is sometimes shown as the incremental cost-effectiveness ratio, or ICER, either in Euros or Pounds Sterling per Quality Adjusted Life Year, or QALY, which is a measure of the quality and length of life resulting from the use of a particular treatment, compared with any alternatives. The UK has a fractured and complicated system. In England, this assessment is generally undertaken by the National Institution for Health and Care Excellence (NICE), in Scotland it's the Scottish Medicines Consortium (SMC), in Wales it's the All Wales Medicines Strategy Group (AWMSG) and the Department of Health (DH) in Northern Ireland. NICE has come in for criticism in the past for not agreeing to allow certain expensive drugs to be funded by the NHS, either because their benefit is unproven or too little to merit the cost. Patients and their families, of course, denied the particular treatment, normally turn to the media to vent their anger.

IF YOU KNOW WHAT'S GOOD FOR YOU



Ben Goldacre

In fact, the pharmaceutical companies often do influence what drugs are used, mainly through funding courses and seminars which help doctors to keep up with the ever-changing field of pharmacological products and what others are thinking. In his 2013 book “Bad Pharma”, the science writer and qualified doctor Ben Goldacre cites an example in which a representative of Lilly, a major drugs company, got annoyed because the diabetes consultant he was with kept prescribing a rival company’s drug. The drugs company rep told the consultant he was being paid to use Novo Nordisk’s insulin, and that the proposed funding for an educational post in the doctor’s institution could be cut when it came up for review as a result of the failure to do so. This matters because elsewhere in the book Goldacre points out that new drugs are often prescribed when generic alternatives would be as good. When the book was written, the NHS was spending around £10-billion (€11.63-billion) a year on drugs, of which around £1-billion (€1.16-billion) was being effectively wasted. Goldacre cites the example of a statin, atorvastatin, which many doctors were prescribing, even though an arguably equally effective alternative, simvastatin, was out of patent and therefore cheaper. However, even when this was pointed out, many doctors continued to prescribe Atorvastatin, costing the NHS an extra £165-million (€191.81-million) a year. There are many other examples. But perhaps it’s less important than we imagine: many drug trials have been severely flawed, with clinical trials in which

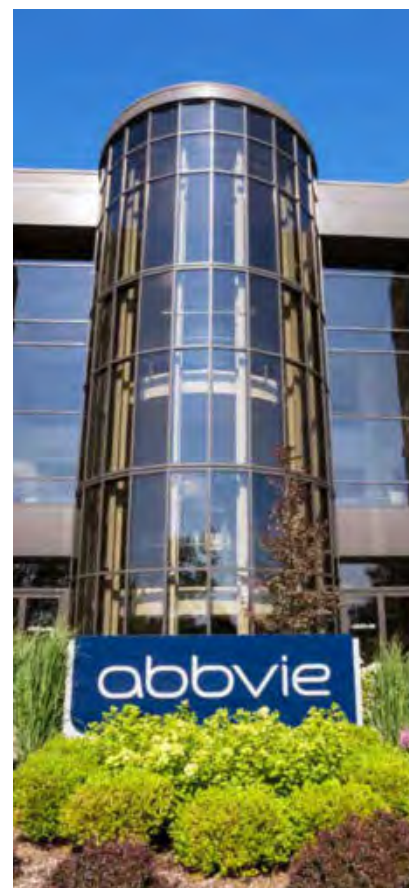
negative outcomes are not published, and where trials funded by the industry were twenty times more likely to produce a positive verdict than those conducted by independent academics.

An outline of negotiating priorities for any US-UK deal, issued by the office of the US trade representative in February, included a section on “procedural fairness for pharmaceuticals and medical devices” that vowed to “seek standards to ensure that government regulatory reimbursement regimes are transparent, provide procedural fairness, are non-discriminatory, and provide full market access for US products”. In a Channel 4 documentary, Stephen Vaughn, a former general counsel for the US Trade Representative’s office, said: “That really goes to the question of what the UK government means when it says the NHS is off the table. I don’t know what they thought they meant when they said that.” As a lawyer, Vaughn played a large part in new US trade deals with Canada, Mexico and South Korea, which saw large increases in the prices paid for US-made medicines in those countries. “I would expect US negotiators to see what we could do in terms of getting increased access to the British market. That’s what we do... I think it’s going to be likely to come up because the US mentioned pharmaceuticals in its negotiating objectives.” Johnson’s assurances seem a little less convincing in the light of that statement.

A PENNY SAVED IS A PENNY EARNED

According to the Channel 4 documentary, the drug Humira (also known as adalimumab), made by US drugs company AbbVie, is used to treat 46,000 patients in the UK who suffer from diseases like rheumatoid arthritis and Crohn’s disease. In the British newspaper “i” it is reported to be “the single most expensive drug for the NHS, costing £450-million (almost €523-million) a year. Last year, the NHS started prescribing cheaper alternatives to Humira that will save the health service £150-million (€174-million) a year.” However, in the United States doctors will not be allowed to prescribe the cheaper alternative until 2023. If Britain were forced to accept US style pricing, with

the drug companies allowed to charge their prices unchallenged, the cost for Britain of Humira alone could soar by £2.9-billion (almost €3.4 billion). British trade experts fear that US drug companies will be allowed similar price-fixing arrangements for other drugs in a future trade deal with the UK, costing the NHS an estimated extra £27-billion (€31.36-billion).



Abbvie US Corporate Headquarters

The US Ambassador to the UK, Woody Johnson, a member of the Johnson and Johnson pharmaceutical family, has stated that freer access to the NHS will be part of any post-Brexit trade deal. Trade experts fear that should a trade deal be signed with America, then the US administration will force Britain to adopt similar policies, denying access to cheaper drugs so that the primary manufacturer can make a larger profit and for longer. There have been assurances from the British government that, according to the Department for International Trade, “The NHS is not, and never will be, for sale to the private sector, whether overseas or domestic.” The Americans seem not to agree, despite the DIT claiming that “The sustainability of the NHS is an absolute prior-

ity for the government. We could not agree to any proposals on medicines pricing or access that would put NHS finances at risk or reduce clinician and patient choice.”

Of course, it could be argued that many drugs are over-prescribed by doctors keen to get patients out of their surgeries feeling happier, regardless of whether they have been helped. In the United States, 75% of the 40-million antibiotic prescriptions issued each year are for conditions that antibiotics do not treat. Alzheimer’s disease costs the NHS £26-billion (£30-billion) a year, according to Bryson’s book, “The Body”, but only £90-million (£104.54-million) is spent on research, while 99.6% of Alzheimer drugs have no effect at all. New ones are tested on mice, which don’t get Alzheimer’s disease unless they’ve been genetically engineered to do so. Researchers found a treatment that reduced the disease symptoms in the genetically-altered mice but were found to make the condition in humans worse. The US patenting system allows pharmaceutical companies to profit from their research but also helps keep prices high. Furthermore, patents last longer in the US than they do in Europe. Lengthy trials are necessary, of course, but the waiting time can be bad for patients desperately in need of new treatments, according to Medicines Law and Policy, a Creative Commons organisation. “These monopolies enable them to reap commercial rewards if they are successful and encourage yet more innovation,” says the report. “But when exclusive rights are granted over medical innovations, the consequences of monopoly pricing can be catastrophic if a high price means that access to the treatment is not provided to patients or is postponed until lower-priced versions of the product are available.” It is especially the US-based companies that gain from the arrangement, and Medicines Law and Policy is concerned. “In pharmaceuticals, the importance of striking the right balance between rewarding innovation and ensuring that medicines are available and affordable is particularly critical: Access to medicinal products can be a matter of life and death, of wellbeing and illness. Unfortunately, this balance has been tipped hugely in favour of private firms and away from maximising the public benefit.”



JUST CHECKING

In the European Union, it is the European Commission that has overall control over the availability of pharmaceutical products, partly, but not exclusively, through the European Medicines Agency (EMA). Under its centralised procedure, drugs approval can be applied for under a relatively simple system. “Companies wishing to market a medicinal product that is eligible for the centralised authorisation procedure, submit their application directly to the European Medicines Agency (EMA). The EMA is responsible for the validation and scientific evaluation of the application,” says the Commission. “The EMA’s Committee for Medicinal products for Human Use (CHMP) carries out a scientific assessment of the application and gives a recommendation on whether the medicine should be authorised or not.” Alternatively, individual member states can assess and approve new drugs under a mutual recognition system. “To be eligible for the mutual recognition procedure, a medicinal product must have already received a marketing authorisation in one EU country. Basic arrangements for implementing the mutual recognition procedure laid down....in all EU countries.” There has been concern that the EU is faster to approve new Drugs and/or Devices (DADs) than America’s Federal Drugs Administration (FDA), which means European patients have access to drugs before those in the United States. In 2016, the US Congress passed a bill to have drugs released in the United States if they have received EU approval. However, patients in the United States don’t always get a good deal, says on-line The Atlantic newspaper. “Abiraterone,

for instance, is a drug used to treat metastatic prostate cancer. The Food and Drug Administration initially approved it in 2011 to treat patients who failed to respond to previous chemotherapy. It does not cure anyone. The research suggests that in previously treated patients with metastatic prostate cancer, the drug extends life on average by four months. (Last year, the FDA approved giving abiraterone to men with prostate cancer who had not received previous treatment.) At its lowest price, it costs about \$10,000 a month.” Abiraterone is manufactured under the brand name Zytiga by Johnson & Johnson, who argue that the very high price is needed because “We have an obligation to ensure that the sale of our medicines provides us with the resources necessary to invest in future research and development.” Even though it doesn’t work. And in fact the argument, despite convincing many in America, doesn’t really hold water either. According to The Atlantic, the pharmaceutical companies make \$40-billion more in profits each year from their twenty best-selling products than the \$80-billion they spend on research. Pharmaceutical companies claim their research costs are higher than in other industries, but the company that spends the most on research and development each year is not a pharmaceutical company; it’s Amazon.

The slow and ponderous assessment procedures of the FDA are blamed in part for the runaway increases in prescription drug prices in the United States, something that Europeans (and especially people in the UK) view with some alarm. In fact, in a rare display of cross-party Congressional cooperation, Senators Chuck Grassley (Republican, Iowa) and Ron Wyden

(Democrat, Ore) co-sponsored the Prescription Drug Pricing Reduction Act, under which a cap would be applied to drug price increases in Medicare Part D (the optional federal-government programme to help patients pay for self-administered prescription drugs), requiring manufacturers to rebate in its entirety any price increase above the rate of inflation. Republicans on the Senate Finance Committee voted to remove the proposed price cap, claiming it would offend free market principles, despite support for it from within the Trump administration. In the United States, drug companies dictate the cost of drugs and any attempt to limit increases is fiercely opposed by the industry. Pharmaceutical companies even enlisted trades unions to oppose lower prescription charges on the grounds that it would threaten “millions of jobs”. Perhaps unsurprisingly, the Lower Drug Cost Act has been described as “socialist” by Republicans, despite the fact that it only provides the US government with the right to negotiate with the pharmaceutical companies over drug prices. This is the sort of one-sided pro-corporate thinking that many Europeans find scary and make them determined to keep their distance.

year declines in nine of the last ten months, with a 1.1 percent drop as of the most recent month. In June 2019, the United States saw the largest single-year drop (2.0 percent year-over-year decline) in prescription drug prices since 1967.” However, CBS Moneywatch reports that prices rose on more than 3,400 drugs in the first six months of 2019, by an average of 10.5%, five times the rate of US inflation. CBS claim that around forty or so drugs have increased in price by more than 100%, with one antidepressant, fluoxetine (also known as Prozac) rising by 879%. Pharmaceutical companies blame market conditions.

DRUG PRICE BORDER LOTTERY

Across Europe, despite the European Commission and the EMA, drug prices vary considerably, according to a recent survey of European drug prices by the US National Library of Medicines/National Institutes of Health in its PLoS One journal. An “almost eleven-fold difference was observed between Germany (€1451.17) and Croatia (€132.77) in relation to Interferone beta-1a 22 µg,”



However, media reports of soaring drug prices in the United States are firmly refuted by the White House. On its website it says: “Under President Trump, prescription drug prices are decreasing at rates not seen since the 1960s. In the eight years prior to President Trump’s inauguration, prescription drug prices increased by an average of 3.6 percent per year. Fast forward to today, and prescription drug prices have seen year-over-

it said. “Generally, prices were the highest in Germany. The cheapest drugs were found in various countries but never in the poorest ones like Bulgaria or Romania. Discrepancies in wages were observed too (the smallest minimum wage was €138.00 in Bulgaria and the highest €1801.00 in Luxembourg). Full price of olanzapine 5mg, however, was higher in Bulgaria (€64.53) than, for instance, in Belgium (€37.26).”

But it’s not only the rising price of new treatments that is affecting health care costs, according to the King’s Fund in the United Kingdom. “Primary care prescribing costs grew from £4-billion (€4.64-billion) in 1996 to £8.2-billion (€9.52-billion) in 2006, according to the NHS Information Centre in 2007. This was driven by both an increase in the volume of items provided – from around 485-million in 1996 to 752-million in 2006 – and an increase in the average cost per prescription item – from £8.26 (€9.59) in 1996 to £10.90 (€12.65) in 2006.” Those are old figures but the King’s Fund, in its report, says little has changed. “The most comprehensive snapshot of recent spending on NHS medicines shows that costs, based on list prices, rose from around £13.0 billion (€15.09-billion) in 2010/11 to £17.4 billion (€20.19-billion) in 2016/17 – an average growth of around 5 per cent a year. This compares with an average growth of the total NHS budget (not adjusted for inflation) of around 1.5 per cent a year over the same period.”

Meanwhile, the pharmaceutical companies don’t always play fair. Britain’s Competition and Market Authority (CMA) has taken legal action against three drug manufacturers for colluding to illegally raise the price of a drug to the NHS by up to 1,800%. The CMA has accused the South African drugs company Aspen of unlawfully agreeing to pay two rival companies to stay out of Britain’s market for fludrocortisone acetate tablets. That way, Aspen retained its monopoly. The prescription-only drug is used to treat Addison’s disease, in which the adrenal glands produce insufficient steroids, leading to a lack of appetite, weakness and “poor mood”. According to the NHS, there are around 8,400 sufferers in the UK. Aspen offered to pay some £8-million (€9.26-million) to the NHS and is likely to face a further fine of £2.1-million (€2.43-million) unless it can convince the CMA that it didn’t breach the law. The CMA further alleges that by paying bribes to rivals Amilco and Tiofarma in 2016, Aspen was able to boost the price of its fludrocortisone acetate tablets massively. They rose from £1.50 (€1.74) for thirty in early 2016 to £30 (€34.72) by later that year before settling down to £13.60 (€15.74). The CMA believes much of that price rise is because of the illicit deal. The

CMA's Executive Director of Enforcement said in a statement that "The CMA has today provisionally found that Aspen, Amilco and Tiofarma broke competition law by taking part in an illegal agreement which led to a significant price hike for a lifesaving drug. The NHS should not be denied the opportunity of benefitting from an increased choice of suppliers, and so potential savings on what it spends on essential drugs." So, one up for the UK government's price watchdog; it may not last.

AFTER THE DIVORCE

Despite denials from Boris Johnson and (belatedly) Donald Trump, US pharmaceuticals want to change the way NICE evaluates medicines and treatments to ensure "value for money". It's been claimed by American PR officials that US pharmaceutical companies are very interested in using a potential trade agreement between Britain and the US to amend the health technology assessment process, valuation and pricing used by NICE and the NHS to set drug prices in the UK. They're likely to get dearer as a result; patients in the US already pay more. There are other ways in which Britain leaving the EU could impact on health provisions. Professor Jean V. McHale, Professor of Health Care Law at the University of Birmingham, flags up the issue of recruiting and retaining nursing staff for Britain's NHS from around the EU. "Since the referendum, there has been

a huge drop in the number of nurses from EU countries on the nursing professional register," he says. The Royal College of Nursing has warned that this is a particular issue for nursing staff living and working close to the border between Northern Ireland and the Republic. Up until now, cross-border cooperation has been vital, says Professor McHale. "For example, children's cardiac surgery is no longer undertaken in Northern Ireland and children are instead transferred to a hospital in Dublin." It's by no means certain that Johnson's deal, in its bid to overcome opposition to an earlier plan to impose a physical border across Ireland, addresses this issue in the event of Britain leaving the EU on 31 January, 2020. "Once no longer part of the EU pharmaceutical regulatory structure," says Professor McHale, "the UK may no longer be seen by drug companies as a first priority launch market. This would mean that new drugs may be launched later in the UK than other EU countries, and patients could suffer as a result."

Some people in Britain have begun stock-piling against shortages, but that's not possible for ordinary citizens with prescription-only drugs, even if it's what hospitals and pharmacies are doing. The government has also said it will stockpile a six-month supply, although the storage facilities are likely to put up prices for the NHS. Brexit campaigners have dismissed fears, one of them even claiming that prescription drugs can be replaced with over-the-counter generics, not something the medical profession would advise (and not actually possible). Already, private companies are involved in providing care for the NHS, with £13.1-billion (€15.16-billion) being spent on private sector companies, almost 11% of the NHS budget. The fear of some observers is that a Trump-Johnson trade deal could introduce new guarantees about American companies gaining full access to the NHS. The enormous cost of Britain's health service has been a contentious issue from its inception. In 1950, just two years after the NHS came into being, the then Chancellor of the Exchequer, Sir Stafford Cripps, was warning that spending on it must be reined in because it was too expensive. In doing so, he fell out with its founder, Health and Housing Minister Aneurin Bevan, in a big way.

DEEPER POCKETS

Could drugs become too expensive for British patients? If so, they wouldn't be alone: approximately one-third of the global population is unable to obtain the necessary medications, argues the PLoS One website, "and the price barrier is indicated as the main reason for this. Moreover, unaffordability of medicines is also related to the course and prevalence of serious and chronic diseases; hence, the World Health Organization (WHO) recommends that healthcare decision-makers should incorporate suitable solutions to administer pricing policies and to ensure access to medicines."

It seems extremely likely that a United Kingdom outside of the EU will have less clout in international trade negotiations and may be obliged to settle for a bilateral deal with the United States in which US pharmaceuticals gain more access to the NHS and more control over the prices they can charge. Worldwide, spending on pharmaceutical research and development (R&D) rose by 3.9% between 2017 and 2018 to \$165-billion (almost €150-billion); the amount spent on promotion, advertising, campaigns to protect market position, persuading doctors to switch to their drugs and so on is harder to pin down precisely, but most experts, including Ben Goldacre in his "Bad Pharma" book, reckon they spend at least as much as they do on research. The 17th century English poet and playwright, John Dryden, wrote:

*"Better to hunt in fields,
for health unbought,*

*Than fee the doctor
for a nauseous draught.*

The wise, for cure, on exercise depend;

*God never made his work,
for man to mend."*

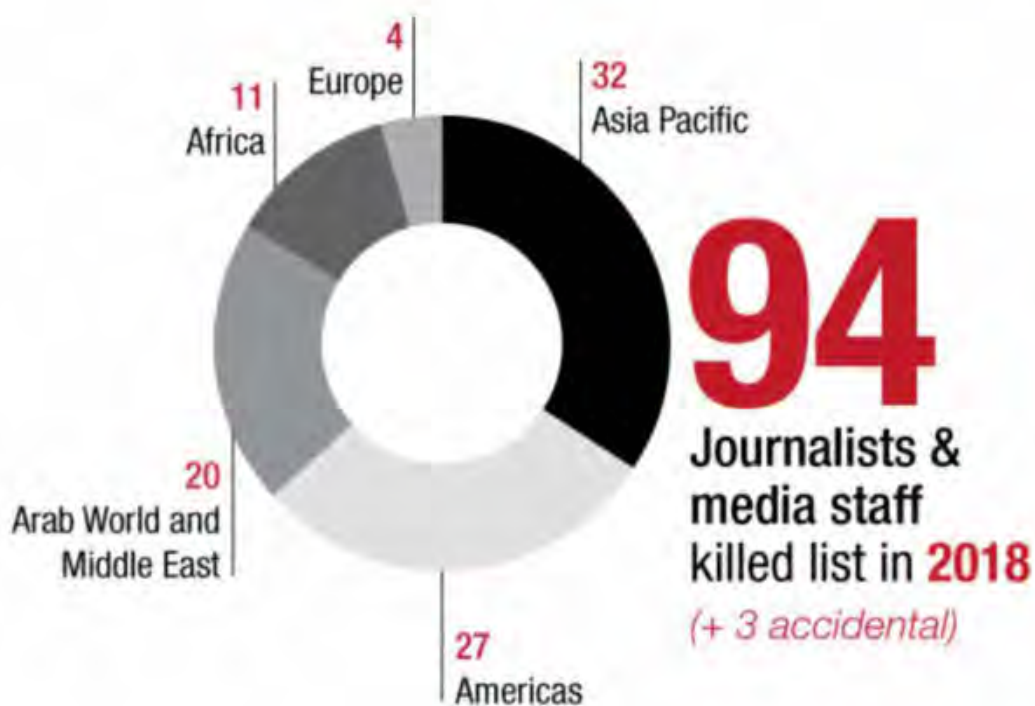
Unless you're feeling unwell, that is.

T. Kingsley Brooks



Boris Johnson protesting against hospital closures in 2006

© Wikimedia



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INTERNATIONAL DAY TO END IMPUNITY FOR CRIMES AGAINST JOURNALISTS

The EU reaffirms its commitment to protect journalists

The EU reaffirms its commitment to protect journalists and pays tribute to those who lost their lives for reporting the news. According to official statistics, over 1.000 journalists were killed in the world in the past 12 years. Not only in faraway warzones, but also - and predominantly - at home, even in peaceful Western countries. They were investigating issues that others wanted to keep hidden. Nine out of ten cases remain unresolved.

On November 2, the International Day to End Impunity for Crimes against Journalists, the EU reaffirmed its commitment to protect journalists and support media pluralism worldwide, and pays tribute to those who lost their lives in the exercise of their profession.

“Freedom of expression, in all its forms, is the very essence of democracy. Only with a thriving, free and independent media landscape, we can hold governments, businesses and society at large account-

able. And precisely for this fundamental principle, far too often, journalists are attacked, persecuted, harassed, or intimidated for carrying out their work”, the EU High Representative Federica Mogherini stressed in a declaration on behalf of the European Union. “Time and again, governments fail to protect journalists, hesitate to prosecute perpetrators or even perpetrate the crimes themselves”.

In 2018 alone, 94 journalists and media staff were killed in work-related incidents, as reported by the International

Federation of Journalists (IFJ). Hundreds more have been wrongfully imprisoned, some of them without ever having been tried in a court.

“Only last month we commemorated the killing of Saudi national Jamal Khashoggi, whose case still awaits court handling, and the murder of Maltese journalist Daphne Caruana Galizia in the midst of Europe, proving that no region of the world is immune to such crimes”, Mogherini said.

On November 2, the International Day



© Wikipedia

Jamal Khashoggi

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Contrary to popular belief, most journalists are not murdered or wounded far away from home, in the heat of war coverage, but suffer violence in their immediate surroundings. 93% of killed journalists were local journalists investigating local stories, according to #Keep-TruthAlive, a campaign developed by UNESCO to mark the date.

In December 2013, the United Nations General Assembly proclaimed 2 Novem-

ber as the International Day to End Impunity for Crimes against Journalists (Resolution A/RES/68/163). The chosen date commemorates the assassination of two French journalists in Mali on 2 November 2013. The Resolution urges the Member States to implement measures countering the current impunity for crimes against journalists, a reality that is still far from changing.

"When journalists are targeted, societies as a whole pay a price. Without the ability to protect journalists, our ability to remain informed and contribute to decision-making is severely hampered. Without journalists able to do their jobs in safety, we face the prospect of a world of confusion and disinformation." - UN Secretary-General António Guterres.

WHAT IS THE EU DOING TO PROTECT JOURNALISTS?

The EU is a leading global actor in the protection of journalists and the defence

of free and independent quality journalism, an essential ingredient of any fully-fledged democracy.

The EU-funded mechanism for Human Rights Defenders, a network that delivers fast and specific EU response to human rights activists, is ready to protect journalists facing imminent danger or threats worldwide.

Threats to media pluralism in the EU and neighbouring countries are consistently monitored and measured by the Centre for Media Pluralism and Media Freedom (CMPF)'s Media Pluralism Monitor. On top of that, in 2019 the European Commission has earmarked a budget of more than €8 million to support projects geared at promoting quality journalism and cross-border cooperation between media professionals, as well as funding cross-border investigative journalism.

Source : European Union External action



COUNCIL OF EUROPE

« Malta must establish accountability for the murder of Daphne Caruana Galizia »



On the occasion of the International Day to End Impunity for Crimes against Journalists, a panel discussion on "Safety of Journalists and Ending Impunity in Conflict Situations" was co-organized by the Permanent Mission of Greece to the United Nations, and by the United Nations Educational, Scientific, and Cultural Organization

The Government of Malta remains far behind in its obligation to ensure that investigations in the murder of Daphne Caruana Galizia are conducted in a prompt, effective, independent and impartial manner," said in a joint statement Dunja Mijatović, Council of Europe Commissioner for Human Rights, Harlem Désir, OSCE Representative on Freedom of the Media, David Kaye, UN Special Rapporteur on the Right to Freedom of Opinion and Expression, and Agnes Callamard, UN Special Rapporteur on extrajudicial, summary or arbitrary executions.

"Two years have passed. No convictions, no trials of ringleaders and masterminds. On the contrary, posthumous libel suits continue to target the family of Daphne Caruana Galizia and makeshift memorials of her are frequently removed. This only adds to the sorrow and pain of her family and loved ones.

To date, three men have been charged with the murder; after almost 20 months, they were finally ordered to stand trial. However, ending impunity requires holding

accountable not only those who carried out the murder, but everyone complicit in it, including the masterminds behind it. Those masterminds remain unaccountable for now.

The tragic anniversary of her murder reminds us of the costs borne by journalists, particularly those who seek to hold the powerful to account. Investigative journalism embodies the central values of access to information and robust reporting and debate to democratic society. Journalism, as Daphne Caruana Galizia and countless others around the world have practiced it, is a service in the public interest. Attacks on journalists not only deny their right to life. They deny the public's right to know.

On the anniversary of the murder of Daphne Caruana Galizia that shook people in Europe and beyond, we urge the Government of Malta to uphold its obligations to respect and ensure freedom of expression and press freedom, and to investigate the murder of Daphne Caruana Galizia, in accordance with the standards of international human rights law, such as those of the International Covenant on

Civil and Political Rights and of the European Convention on Human Rights.

We call on the authorities to do their utmost and to speed up the process of establishing accountability and shed the full light on this horrendous crime. This must become Malta's top political priority.

The echo of the explosion that killed Daphne Caruana Galizia is still ringing in our memory with the ultimate question: When will justice be served, and bring a little comfort to her loved ones? The Government of Malta owes an answer to Daphne, her family, Maltese society and all journalists around the world."



Dunja Mijatović, Council of Europe Commissioner for Human Rights

© Council of Europe



A JAMES BOND-LIKE SUBMARINE FOR THE ROYAL NAVY

SubSea Craft reveals the VICTA Class – a revolutionary Diver Delivery Unit

SubSea Craft has revealed the full details of its VICTA Class Diver Delivery Unit (DDU) at Defence and Security Equipment International (DSEI).

This revolutionary craft combines the speed, range and capacity of a Long-Range Insertion Craft (LRIC) with the stealth and versatility of a Swimmer Delivery Vehicle (SDV).

Specifically designed around the operator, its 30 knot+ speed, 250 nm endurance and 2-minute transition between surface and sub-surface, enables delivery of 8 operators and their equipment to their objective, 'mission-ready' before recovering them. Offering leading-edge design and manufacture and providing truly formidable operational flexibility, VICTA opens up potentially game-changing tactical and strategic choices in maritime, joint and special operations.

DEFENCE APPLICATION

Easily transportable to and within an operational theatre, and inter-operable with the most commonly employed lift assets, VICTA is designed to operate independently of costly strategic platforms, particularly from surface vessels and ports of opportunity. Its compatibility with a standard ISO shipping container means it can easily and discreetly be moved to an area of operation, whilst equally, it can be lifted within the cargo bay of standard air-transports, most typically, the Lockheed C130 Hercules, or underslung from heavy-lift helicopters, typically the Boeing CH-47 Chinook.

PROPULSION AND CONTROLS

Propulsion is provided by a 725 hp Seatek diesel engine, powering Kongsberg Kamewa waterjets. Twin Marine Propulsion 20 kW electric thrusters propel the craft sub-surface while four vertically-mounted Copenhagen thrusters provide accurate slow-speed depth control.

The craft is fully fly-by-wire and will be 'flown' under water, with roll and pitch control through forward and aft hydroplanes while control in both dimensions is exercised through the same purpose-built steering columns, giving the pilot a common interface for both surfaced and sub-surface running.

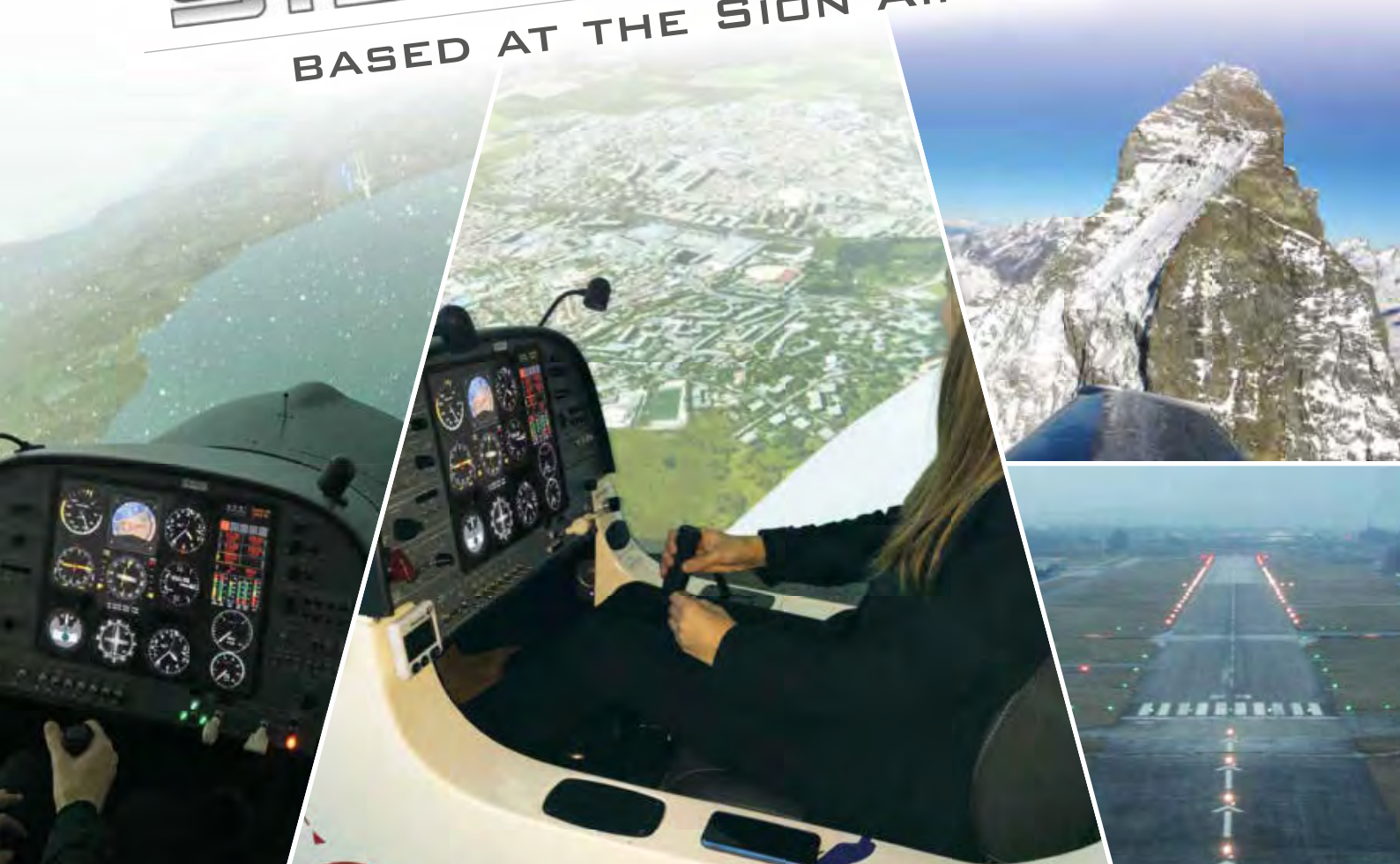
Graham Allen, Chairman of SubSea Craft, says: "VICTA adds a unique new dimension to maritime operations. For the first time, defence and security organisations can deploy a craft that travels at speed over remarkable distances on the surface, before diving to approach their objective, unseen. VICTA will transform capabilities in high-risk environments."

A Royal Navy source said to the Mail Online: "For decades, we've been waiting for a vessel to be developed which is effective on the surface of the water and below. The enemy won't be able to see or hear us coming. Given the threat to British ships in the Strait of Hormuz, its arrival is very timely."

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BY PUSHING A BUTTON PASSENGERS WILL BE ABLE TO AUTOLAND AN AIRCRAFT WITHOUT THE PILOT

A new system developed by Garmin revolutionises the aviation industry with the first Autoland system for general aviation aircraft

The new technology enables, in a case of emergency, anyone in the airplane, to press a button that will land the airplane to a full stop whatever the weather condition, the terrain and any other obstacles.

As soon as activated, the system takes over the calculations for a flight plan to an airport and initiates the approach to land automatically on the runway. This without any human intervention.

It can also activate itself automatically if the system detects an emergency situation.

"The vision and development of the world's first Autoland system for general aviation was a natural progression for Garmin as we looked at our

aircraft systems and existing autonomous technologies and recognized it is our responsibility to use these building blocks to deliver a technology that will change lives and revolutionize air travel," said Phil Straub, Garmin executive vice president and managing director of aviation.

The pilot may also, at any time, deactivate the autoland system with a single press of the autopilot key. In case of an accidental deactivation, there will be a message on the flight display enabling the passengers to reactivate Autoland.

According to Garmin, Garmin Autonomi, a family of automated flight technologies, encompasses Autoland, Emergency Descent Mode



Phil Straub

© Wikimedia Commons

(EDM) and Electronic Stability and Protection (ESP). These technologies add to the safety enhancing tools and capabilities of a Garmin-equipped flight deck. For example, in the event an aircraft loses pressurization, EDM is capable of automatically descending the aircraft to a preset altitude without pilot intervention to help avert hypoxic situations.

ESP further enhances the Autonomi suite by working to assist the pilot in

avoiding unintentional flight attitudes beyond that for normal flight. ESP works in the background while the pilot is hand-flying the aircraft to help pilots avoid inadvertent flight attitudes or bank angles. Should the pilot become inattentive while hand-flying the aircraft and exceed pre-determined pitch, roll or airspeed limitations, Garmin ESP activates and the pilot will feel pressure on the flight controls that guide him/her back to a recommended flight limit.

Autoland will soon be available as part of the G3000 integrated flight deck on the Cirrus Vision Jet and the Piper M600, pending Federal Aviation Administration (FAA) certification.

The first aircraft that will be able to use the Autoland system as part of the integrated flight deck will be the Piper M600 and the Cirrus Vision jet pending the Federal Aviation Administration certification.

James Lookwood



AUTOLAND SYSTEM



© Garmin International



© Femern A/S

THE WORLD'S LONGEST ROAD AND RAIL TUNNEL

*Fehmarn Belt, an 18km-long tunnel
between Denmark and Germany*

The **Fehmarn Belt Fixed Link** (Danish: *Femern Bælt-forbindelsen*, German: *Fehmarnbelt-Querung*) is a planned immersed tunnel that is proposed to connect the Danish island of Lolland with the German island of Fehmarn, crossing the 18 km (11 mi) wide Fehmarn Belt in the Baltic Sea, providing a direct link between northern Germany and Lolland, and thence to the Danish island of Zealand and Copenhagen, becoming the world's longest road and rail tunnel, potentially a major connection between Central Europe and Scandinavia, and shortening the travel time between Denmark and Germany to just 10 minutes by car and seven minutes by train.

The tunnel will replace a well-used ferry service from Rødby and Puttgarden, currently operated by Scandlines, a route known in German as the *Vogelfluglinie*

and in Danish as *Fugleflugtslinjen*, literally "the bird flight line" (in both languages this an idiom for "direct line", akin to the English *as the crow flies*).

Fehmarn is connected by the Fehmarn Sound Bridge with the German mainland, and Lolland is connected by a tunnel and bridges with Zealand via the island of Falster, connecting with the Swedish mainland via the Øresund Bridge. Although there is also a fixed connection between Zealand and Germany, via the Great Belt, Funen, and Jutland, the Fehmarn Belt Fixed Link would provide a more convenient and faster direct road and rail route from Hamburg to Copenhagen, Sweden, and Norway, comprising a four-lane motorway and two electrified rail tracks.

The construction of the tunnel between Denmark and Germany will be carried

out in several phases over a number of years.

Comprehensive planning work, along with feasibility and environmental studies have been carried out in connection with preparations for the construction of the Fehmarnbelt tunnel. The construction of the tunnel and associated landworks will begin when final approval of the project is received from the Danish political parties supporting the project, when contracts have been signed with the contractors and when the German authority's approval is available.

The project is divided into several phases. This will ensure an efficient and continuous building process. Some phases will overlap so that several activities can progress at the same time:

1. SITE PREPARATION:

An area east of Rødbyhavn will be prepared for the construction project. The area includes the location for the production of the tunnel elements and accommodation for the construction workers. The work includes the preparation of roads to and from the production facilities.

2. CONSTRUCTION OF THE PRODUCTION FACILITIES AND ASSOCIATED WORKING HARBOUR:

A factory will be built east of Rødbyhavn for the manufacture of the 89 steel-reinforced concrete elements from which the tunnel will be constructed. Accommodation for the tunnel workers will also be built.

3. CONSTRUCTION OF A WORKING HARBOURS:

Working harbours will be built on both Fehmarn and Lolland. This will be used for the shipping in of the large quantities of building materials to be used for the construction. The working harbour in Rødbyhavn on Lolland will by far be the biggest of the two, as the production of tunnel elements are taking place on Lolland. It is anticipated that the Danish working harbour will receive approximately six shiploads a month. The harbour will also be used for when the finished tunnel elements are towed out to the Fehmarnbelt.

4. DREDGING WORK WILL TAKE PLACE IN THE FEHMARNBELT:

The dredged trench from Denmark to Germany needs to be 17.6 kilometres long, up to approximately 90 metres wide and 16 metres deep. This is where the tunnel elements will be immersed, connected and covered. Surplus material from the dredging will be used for the construction of new coastal areas near Rødbyhavn and to a limited extent on Fehmarn.

5. BUILDING THE PORTAL FACILITIES:

Construction of portal facilities on the Danish side and on the German side comprising the down/up approaches to the tunnel. The portal facilities will

connect the tunnel railway and motorway with the upgraded and partly newly built roads and railways in the hinterland.

6. PRODUCTION AND ASSEMBLY OF THE TUNNEL ELEMENTS:

The tunnel elements will be produced at the factory in Rødbyhavn and towed out to the Fehmarnbelt on an ongoing basis. Contractors will immerse the elements one by one and assemble them from the coasts and out toward the middle of the belt from both the Danish and German sides.

7. INSTALLING THE TECHNOLOGY AND EQUIPMENT:

Femern A/S will build the motorway and railway installations and all necessary technical and mechanical equipment in the tunnel.

8. TESTING AND OPENING:

Equipment and safety and contingency procedures will need to be tested and approved before the finished tunnel becomes operational. The affected land and coastal areas will be re-established, while the tunnel element factory and working harbour will be demolished.

9. NEW RECREATIONAL COASTAL AREAS:

Most of the dredged soil from Fehmarnbelt will be used to build new recreational areas of the coasts of Lolland and Fehmarn. The new landscape will be shaped by beaches and dunes as well as both wet and dry natural and grazing areas of both recreational and biological benefit. The new land areas will be built from the dredged soil from the construction of the tunnel, production sites and work harbours. Some of the land area to be established on Lolland will compensate for the loss of existing natural areas arising from the project.

The land areas will be created on an ongoing basis as the soil from the seabed is dredged. On both Lolland and Fehmarn, they will generally extend around 500 metres into the Fehmarnbelt. This is about the same distance from the shore as the piers of the existing ferry ports at

Rødbyhavn and Puttgarden.

The Fehmarnbelt link will be the world's longest immersed tunnel, but the techniques are proven. The Øresund tunnel was built in the same way.

The project will be divided into a number of phases to ensure efficient and seamless construction. Some phases will overlap so that several activities can run at the same time.

THE FEHMARNBELT LINK IN NUMBERS

The Fehmarnbelt link will be an 18 kilometre long immersed tunnel. It will be the world's longest of its type for both road and rail.

- The Fehmarnbelt tunnel will comprise a four lane motorway and two electrified rail tracks.
- The tunnel will consist of 79 individual elements, each 217 metres long, and 10 special elements with a lower floor for the use of the tunnel operation and maintenance equipment.
- A tunnel element weighs 73,000 tonnes. This corresponds to 14,000 elephants.
- The amount of steel used in the tunnel is equivalent to about 50 Eiffel Towers.
- Up to 3,000 people will be directly employed in building the Fehmarnbelt tunnel.
- It will take about 8.5 years to build the Fehmarnbelt link
- It will take ten minutes to travel from Denmark to Germany by car and seven minutes by train.
- Motorists will be able to drive at 110 km/h in the tunnel. Electric trains will be able to go through at 200 km/h.
- The construction budget for the Fehmarnbelt link is DKK 52.6 billion (2015 prices) in the construction law.

The Fehmarnbelt link will be user-financed. Revenues from the link will repay the loans that financed construction. This is the same model that financed the Storebælt and Øresund links. (Sources Wikipedia and femern.dk)



© Femern A/S

3D graphic of special element



© Wikimedia

THE RESULTS ARE IN

*The UK's National Cyber Security Centre
prevented 600+ attacks*

Every year, unseen to the naked eye, the security of countries, organisations, and especially individuals across the world face the invisible threat of cyber crime. And in today's highly digitised world, it's a threat that is growing exponentially alongside our growing dependence on the internet. Enter cyber security. Both a theoretical discipline and practice, at its core, cyber security is about protecting devices and online services from threats. It has been tipped to become one of the most in-demand jobs of the future, with it being listed as the number one concern of US CEOs in a recent survey by think tank The Conference Board.

THE STATE OF CYBER SECURITY

Cyber attacks are often spoken of in terms of their effect on states or businesses, but they are perpetrated on individuals as well. Many of these attacks are due to easy-to-crack passwords or email scams asking for money; low in sophistication but high in exploitation.

But many are not so primitive. In the first quarter of 2019 alone, a **McAfee Labs Threat Report** - by the makers

of popular McAfee anti-virus software - indicated an incredible rise of 118% in RansomWare attacks, a type of malware that encrypts a user's device, only decrypting upon receipt of a demanded sum of money, usually in BitCoin. These attacks can be crippling, particularly for those who cannot afford to pay.

The fact is: anyone with a device connected to the internet should care about cyber security.

So in order to create a safer internet, the UK established the National

Cyber Security Centre (NCSC) in 2016. The agency is 'the UK's independent authority on cyber security'. Their recently released **Annual Review 2019** documents the agency's growing relevance in startling detail.

A YEAR IN CYBER PROTECTION

With their remit to 'make the UK the safest place to live and work online,' it's the NCSC's job to provide guidance on the issue of cyber security;

to respond to any incidents within the UK; to advance cyber security knowledge and capability; and to reduce risks by securing both private and public networks. They do this by working with law enforcement, academics and research institutes, as well as agencies and practitioners internationally.

This year, together with their collaborators, they prevented more than 600 cyber attacks, predominantly targeting five particular sectors: the government, academia, information technology (IT), managed service providers, and jointly in fifth place, transport and health; all industries crucial to the successful functioning of the UK. This brings their total to over 1,800 incidences supported, to use their turn of phrase.

Among the attacks highlighted, the fraudulent use of stolen credit cards was among the most prevalent. In response, the NCSC launched Operation Haulster, its intention to flag suspicious intention and activity of the stolen cards.

The success of the operation - over one million cards were flagged - is just one example of the agency's success

to date. Another particularly impressive achievement was the removal of 177,000 phishing URLs, with 62.4% being removed within 24 hours.

While it's clear that activities against both countries and businesses are only rising, so too are cyber criminals ramping up their attacks against the average individual.

FOSTERING A SAFER ONLINE FUTURE

Creating a safe online environment is no easy feat. It's technically difficult, and it takes much more than just good anti-virus software. It's also educating the public about what makes good 'internet hygiene'. Because despite a growing awareness of safe online practices, the NCSC's analysis of the most commonly occurring passwords hacked by cyber criminals reveal a startling lack of forethought. The most used password globally continues to be '123456' at 23.2 million breaches. The second most common? '123456789'.

It's this lack of understanding - partly negligence, partly naïveté - that hackers love to exploit, and that the NCSC

has begun to address. But a big part of the complication comes from the different levels of entry for society: young people are far more likely to have at least a basic understanding of how to appropriately live life online than their elders.

In order to set good habits early, the NCSC created CyberFirst, a program introducing young people to cyber security. And it tackles more than one issue: it educates youth on how to safely operate online; it creates career opportunities for the next generation of IT professionals; and with CyberFirst Girls Competition, it encourages the participation of young women in careers traditionally filled exclusively by males. This year, 11,802 girls participated in the competition, and 2,614 young people engaged with the CyberFirst program.

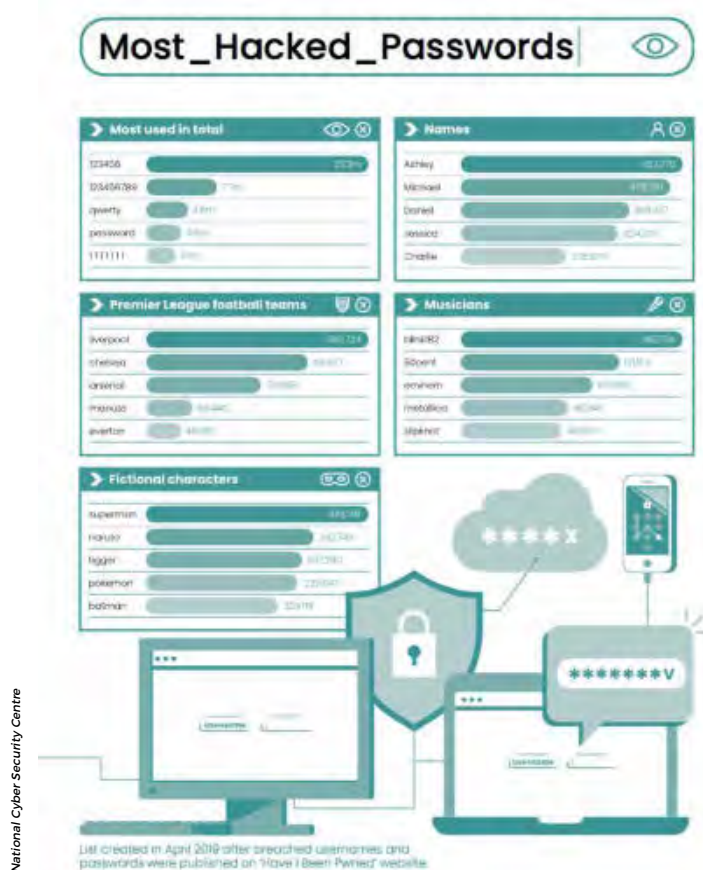
For small business owners too - another stratum of vulnerability to cyber criminals - there are options. The NCSC simulates cyber exercises for themselves, and over 2,886 participated in 2019.

It's a start. And it's a good one. For those members of society already set in their ways - and of course, those much more likely to have much more to lose - the NCSC has created online resources and information packs specifically for individuals and families; 37% of whom, as part of their 2019 Cyber Survey, agreed that losing personal details or money over the internet was unavoidable these days. Such resignation is telling.

The good news is that, even if individuals fall victim to such schemes, there are options. The NCSC supports victims of cyber crime - they assisted 900 victim organisations in 2019 alone. Their website houses advice and step-by-step guidance as to what to do in the unfortunate event of a successful attack.

At a time when rapid rates of technological change mean the average consumer cannot keep up, it's a comfort to know there is a national watchdog. For those of us outside of the UK, such a pioneering approach may just herald things to come in our own home states. After all, the internet is a global phenomenon, and policing cyber criminals is a boon to us all.

Chloé Braithwaite



Hacked Passwords

CyberFirst Girls Competition 2020

The CyberFirst Girls Competition aims to support girls interested in a career in cyber security. The NCSC will once again be running the CyberFirst Girls Competition in 2020 but this year, the format has been slightly altered..

Each year, improvements are made to the user experience of the competition, and this year is no exception. To encourage and recognise participation from all parts of the UK, the online qualifier round has been extended to 10 days and a semi-final round has been introduced.

The competition is aimed at Year 8 girls in England and Wales, Year 9 in Northern Ireland and S2 in Scotland. A deliberate shift in age group was made in 2018 to give as many girls as possible the opportunity to find out more about cyber security with a view to potentially influencing the subjects they take at GCSE (or equivalent).

The content for each category of the competition is consistent with subjects within the Computer Science syllabus from both the National Curriculum and Scotland's Curriculum for Excellence. However, the competition will contain some advanced cyber topics that are not covered in traditional education but will seek to stretch the lateral thinking and additional cyber knowledge of the teams.

WHAT YOU NEED TO KNOW

- Teams are made up of up to four female students in Year 8, S2 or Year 9 (NI).
- Teams need to be supported by a responsible adult appointed by the school who is aged over 18 years and who can act as the team guardian.
- Team guardians do not need to have any cyber knowledge or be an IT or computer science teacher. Their role is to register the teams and facilitate access to the competition.
- Schools can enter as many teams as they like if they fit the qualifying criteria (see above).
- The semi-final round will be self-funded by the school.

- The Grand Final will be fully funded by the NCSC.

ABOUT CYBERFIRST

CyberFirst began as a programme of opportunities to help young people explore their passion for tech by introducing them to the world of cyber security.

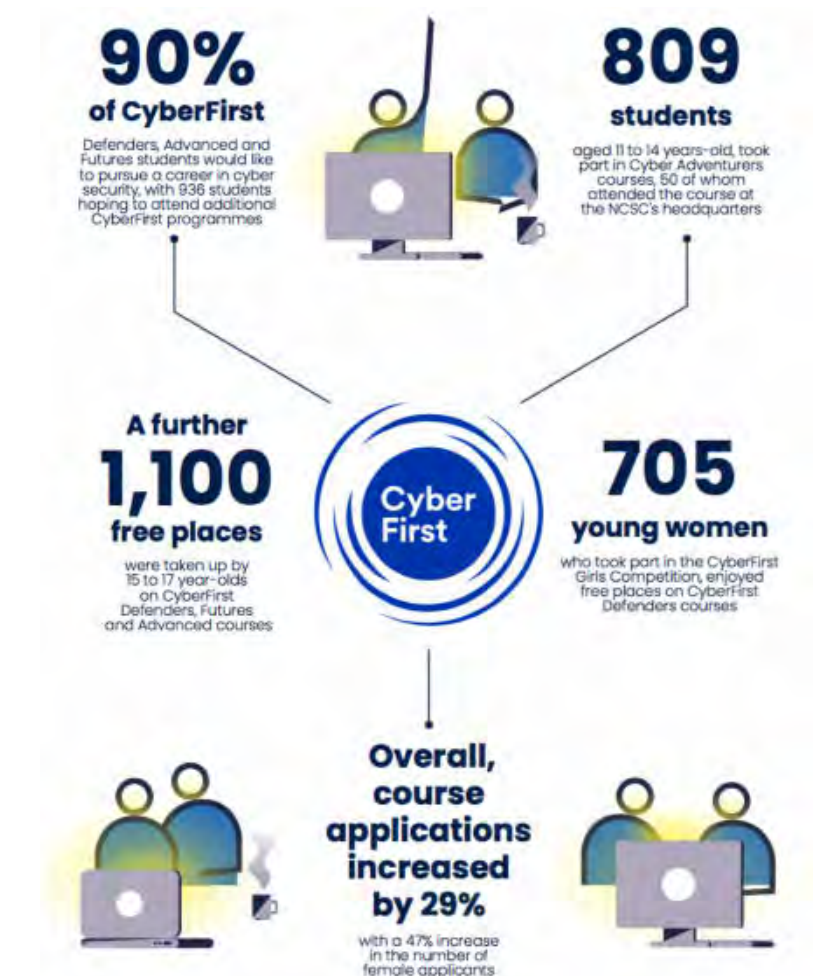
CyberFirst covers a broad range of activities: comprehensive bursary and apprenticeship schemes; a girls' only competition and school's development courses at UK universities and colleges. There's even Cyber Discovery; our online extracurricular programme. Each activity is designed to seek out people with potential, offer-

ing the support, skills, experience and exposure needed to be the future first line of defence in our CyberFirst world.

GIRLS COMPETITION

The NCSC has been working hard to get more girls interested in a career in cyber security. The CyberFirst Girls Competition provides a fun and challenging environment to inspire the next generation of young women to consider a career in cyber security.

The competition is a team event, with each made up of four female students from Year 8 in England and Wales, Year 9 in Northern Ireland and S2 in Scotland.



Students National Cyber Security Centre



© chiron.org.uk

ROBOTS SET TO REVOLUTIONISE UK CARE SYSTEM

The UK is moving one step closer to developing robots capable of providing support for Britons and making caring responsibilities easier, thanks to a £34 million government investment.

With one in seven people in the UK now expected to be over 75 years old by 2040, so-called “care robots” could help provide the UK’s dedicated adult social care sector with more assistance for those who need it most.

The government has launched the UK’s biggest research programme entirely dedicated to making autonomous systems safe and trustworthy for public use with investment that could help develop robots to one day fulfil tasks such as helping an elderly person up after a fall and raising the alarm, delivering food to an older person at mealtimes, and even ensuring they take crucial medication at the correct time.

Autonomous systems are currently built across industries to solve challenges, but in order to be used by people they need to be designed to be safe, keep data secure and have a clear set of rules in order for them to make effective decisions.

This cutting-edge programme will undertake research into their design, for example ensuring robots are better protected against cyber-attacks and that they demonstrate principles like respect, fairness and equality enabling them to eventually be used in environments such as care homes and hospitals. It will provide developers, policy makers and regulators with access to world-leading experts, as well as the to the latest information and guidelines around this technology. In the healthcare sector, resulting applications, such as care robots, could work in tandem with professionals to assist

and complement their work, and help relieve pressures.

Science Minister Chris Skidmore said: « A staggering one in seven people in the UK are now expected to be over 75 years old by 2040. As our society ages, most of us will have to care for a loved one, whether it’s a grandparent or a parent or a partner ».



© gov.uk

Science Minister Chris Skidmore

It's vital that we meet the needs of this ageing society, and through cutting edge research like this we will ensure that as technology advances, the UK leads the way in designing and adopting it, growing our status as a global science superpower. »

This announcement follows previous government investment in a Bristol-based project which has already developed a prototype of a robot called **CHIRON** - designed to support older adults with mobility and other ageing-related impairments. The robot could eventually assist with anything from bringing a tray of food or drink to a patient, to helping those with mobility issues to their feet from their chair. The latest phase of the project in the **Bristol Robotics Laboratory** is conducting research to ensure that these robots are trustworthy and safe for use.

Praminda Caleb-Solly, Professor of Assistive Robotics, Bristol Robotics Laboratory said:

« Assistive robots can provide essential support for those who need help carrying out everyday tasks - so they can maintain their independence for as long as possible. But making sure we can trust these robots by reducing the risks associated with this technology is essential. Unlocking their full potential means they could assist with anything from physiotherapy, to assistance for older people with mobility issues, improving people's quality of life significantly. »

The impact of the government-backed autonomous systems programme could also be substantial for the transport sector – where lack of public trust is also a key challenge. Self-driving cars alone are expected to create an outstanding 320,000 UK jobs, and deliver £51 billion in economic benefits. By developing safer systems, self-driving vehicles could be widespread on our roads in just a couple of decades, revolutionising journeys, improving road safety, reducing congestion and making transport more accessible for people with mobility issues.

Funded through the government's **Strategic Priority Fund** and delivered by **UK Research and Innovation (UKRI)**, the £34 million investment will help tear down public trust barriers by ensuring autonomous tech-

nologies like robots and self-driving vehicles are shown to be ethical, viable and safe.

The programme will look at developing reliable autonomous systems across all sectors - from automated personal shoppers, to robots that select the best mortgages, by bringing together researchers and experts, as well as involve the general public so that their needs are understood. Ethical and legal considerations will be incorporated when developing autonomous systems, so that new advances will be more resilient to cyber-attacks and be as safe as possible for consumers.

Examples of existing care robots:

- **PARO** is an advanced interactive robot developed by AIST, a leading Japanese industrial automation pioneer. It allows the documented benefits of animal therapy to be administered to patients in environments such as hospitals and extended care

facilities where live animals present treatment or logistical difficulties and has been found to reduce patient stress and improve their relaxation

- **PEPPER** is the world's first humanoid robot able to recognise faces and basic human emotions and has been adopted by over 2,000 companies around the world. In the Healthcare sector, Pepper can improve awareness of prevention care and reduce anxiety on treatment and disease. Last year, the government also launched the **Centre for Data Ethics and Innovation** aiming to give the public a voice in how data-driven technology is governed and promoting the trust that's crucial for the UK to make the most of AI and data-driven technology.

Source : Department for Business,
Energy & Industrial Strategy,
UK Research and Innovation



Paro



Pepper

INNOVATE UK FUNDS DESIGN OF CHIRON CARE ROBOTICS



© chiron.org.uk



© chiron.org.uk

The project ran from March 2016 to February 2018 and has resulted in a prototype modular robotic system with the brand name of JUVA.

Juva doesn't have one body, but many. A set of intelligent modular robotic systems, located in multiple positions around one's home; Juva could help with personal hygiene tasks in the morning, help one get ready for the day and even provide support in preparing one's favourite meal in the kitchen.

Juva's various components can be mixed and matched to enable the customer to undertake a wide range of domestic and self care tasks independently or enable a care worker to assist an increased number of customers.

WHO IS INVOLVED?

The project is being managed by a consortium led by Designability. The key technology partners are Bristol Robotics Laboratory and Shadow Robot Company, who have considerable expertise in conducting pioneering research and development in robotics.

Award winning social enterprise care provider, Three Sisters Care will bring user-centred design to the very core of the project. Smart Homes & Buildings Association will work to introduce the range of devices that will create CHIRON and make it an indispensable presence in our homes.

WHY IS IT NEEDED?

In less than 20 years' time the number of over 65s in the UK, currently at 10 million, will have risen to 17 million. Yet estimates show that there will not be sufficient care workers to tend to this ageing population.

The demand on the existing healthcare services will require fresh ideas and perspectives for how these challenges are faced. The long term care market is currently worth over £20 billion to UK economy. It is expected to grow up to 50% by 2020.

The funding for this project has been awarded by Innovate UK's Long Term Care Revolution **SBRI national challenge** which aims to revolutionise long term care in the UK through business-led innovation. It is a two year project aiming to finish in February 2018.



LEONARDO DA VINCI

The Louvre pays homage to a genius

To commemorate the 500-year anniversary of the death of Leonardo da Vinci in France, the Musée du Louvre is designing and holding a major retrospective of the painter's career. The exhibition aims to illustrate how Leonardo placed utmost importance on painting, and how his investigation of the world, which he referred to as "the science of painting", was the instrument of an art through which he sought to bring life to his paintings. Alongside its own collection of five paintings* by Leonardo, the largest in the world and 22 of his drawings, the Louvre will display nearly 120 works (paintings, drawings, manuscripts, sculptures, objets d'art) from some of the most prestigious European and American institutions, including, the Royal Collection, the British Museum, the National Gallery in London, the Vatican Pinacoteca, the Biblioteca Ambrosiana in Milan, the Galleria Nazionale in Parma, the Gallerie dell'Accademia in Venice, the Metropolitan Museum of Art in New York, and the Institut de France. *The *Mona Lisa*, however, will remain on display in the galleries of the permanent collection.

The extraordinary renown of this endlessly curious artist, who quickly came to be seen as the embodiment of universal genius and knowledge, the nearly surrealist aura of the *Mona Lisa*, and the considerable literature that has been amassed from his lifetime to today, provide an ambiguous and fragmented vision of Leonardo's relationship to painting.

The exhibition is the culmination of more than ten years of work, notably including new scientific examinations of the Louvre's paintings, and the conservation treatment of three of them (the *Saint Anne*, *La Belle Ferronnière*, and the *Saint John the Baptist*), allowing for better understanding of Da Vinci's artistic practice and pictorial technique.

The exhibition also aims to shed light

on Leonardo's biography through the exhaustive reexamination of historical documentation, breaking with the canonical approach to the life of the Florentine master based on six chronological periods punctuated by his geographical movements and turning to a selection of keys that provide access to his universe. Thus emerges the portrait of an exceptionally free-spirited man and artist.

The exhibition concludes with a virtual reality experience developed in partnership with HTC Vive, allowing visitors to get closer than ever to the *Mona Lisa*.

Exhibition curators : Vincent Delieuvin, Department of Paintings, and Louis Frank, Department of Prints and Drawings, Musée du Louvre.

LAYOUT OF THE EXHIBITION

LEONARDO DA VINCI (1452-1519)

Lionardo di Ser Piero da Vinci was born to Ser Piero in the town of Vinci (near Florence) in the early hours of 15 April 1452, and died in Amboise (in the Loire valley of France) on 2 May 1519. He is one of the most prominent figures of the Italian Renaissance and the ultimate icon of European painting.

During Leonardo's youth in Florence, he was apprenticed to the sculptor Andrea del Verrocchio. Around 1482, he moved to Milan, where he painted the *Virgin of the Rocks*. While in the service of the Duke of Milan, Ludovico Sforza, he created the Last Supper – a work that made him one of the most famous artists of his time. In 1500, he returned to Florence and produced a series of masterpieces: *Saint Anne*, the *Mona Lisa*, *The Battle of Anghiari* and *Saint John the Baptist*. In 1506, he went back to Milan, where he stayed until the election of the Medici Pope Leo X in 1513,

which led him to move to Rome. He left Italy for France at the invitation of the French king François I in 1516, and spent his last years in Amboise, on the banks of the river Loire.

The essence of Leonardo's revolutionary approach to painting can be summarised as follows: to reproduce the reality of life within an infinite space made up of light and shade, he developed a uniquely free style of drawing and painting that enabled him to endow his figures with the nature of movement. He aimed to make painting a science

encompassing the whole physical world, able to express the truth of appearances. Leonardo ushered in a modernity that would surpass antiquity and pave the way for future forms of art.

LIGHT, SHADE, RELIEF

In 1464, the young Leonardo began an apprenticeship in Florence with Andrea del Verrocchio, an accomplished draughtsman and one of the greatest sculptors of the 15th century. While in Verrocchio's workshop he studied the sculp-



Virgin of the Rocks, 1483 - 1486



Study of a warrior's head for The Battle of Anghiari, c. 1504



© RMN-Grand Palais (musée du Louvre) / René Gabriel Ojéda

The Virgin and Child with Saint Anne, c. 1503



© RMN-Grand Palais (musée du Louvre) / Michel Urtado

La Belle Ferronnière, also known as Portrait of an unknown woman, 1490

tural nature of form, movement (on which reality depends and all narratives are constructed) and chiaroscuro (the use of light and shade to create a sense of drama). His prime source of instruction was *Christ and Saint Thomas*, a monumental bronze sculpture cast by Verrocchio for the Florentine church of Orsanmichele. In this work, Verrocchio – who was also a painter – demonstrated a profoundly pictorial conception of sculpture, from which Leonardo drew the basis of his own art: the idea that space and form come into being through light and exist only in the play of light and shade. Leonardo's monochromatic *Drapery Studies*, painted on linen after clay figures covered with pieces of cloth dipped in clay, resemble Verrocchio's studies for the figures of Christ and Saint Thomas and were inspired by this innovative perception of space.

The Annunciation, the Madonna of the Carnation and the Portrait of Ginevra de' Benci reflect Leonardo's transition from sculpture to painting. This shift was boosted by his interest in the work of his contemporaries at a rival Florentine workshop run by the Pollaiuolo brothers, and in the innovations brought to Florence by Flemish painters – three quarter view portraits and the use of oil.

FREEDOM

Around 1478, building on what he had learned from Verrocchio, Leonardo began to explore new paths. To grasp the truth of form – which is illusory, being constantly broken apart by an ever-changing world – the painter needed to acquire an intellectual and technical freedom that would enable him to capture its very imperfection. In his drawing, this was expressed as a violent attack on form – a direct juxtaposition of incompatible states that sometimes produced nothing but black. This approach, required by the absolute necessity of conveying movement, was described by Leonardo as *componimento inculto* – 'intuitive composition'. *The Madonna of the Cat and the Madonna with a Fruit Bowl* are the first remarkable illustrations of this new compositional style.

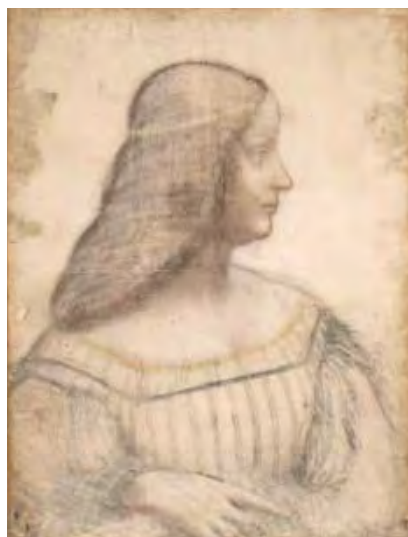
Leonardo's art was transfigured by the freedom he found in *componimento inculto*. The reflectogram of *The Adoration of the Magi* shows a tumultuous charcoal and brush drawing with dynamic lines, chaotic washes, constant reworking and superimposition of ideas – pentimenti that plunge the protagonists into a turbulent, murky darkness. This creative freedom fostered a tendency to incompleteness which would become a characteristic of Leonardo's painting, exemplified by the poignant figure of Saint Jerome. This creative period continued in Milan, where Leonardo moved to in 1482 and where he painted the *Virgin of the Rocks*, the *Portrait of a Musician* and *La Belle Ferronnière*.



Study of hands, 1474

SCIENCE

For a person with extraordinary analytical vision, drawing is more than the mere reproduction of forms; it is also an expression of relationships between forms or, to put it differently, an act of thinking. In Leonardo's case, this intelligence was self-aware. Moreover, it was accompanied by a constant questioning of the world – an insatiable need to understand, which became a desire to demonstrate, then a systematic investigation of every aspect of the physical world. The result was a vast compilation of notes, studies, experiments, reflections and theories in which writing and drawing were inextricably linked; this body



Portrait of Isabella d'Este, c. 1500

of work, though often wandering and imperfect, nonetheless represents one of the most fascinating chapters in the history of natural philosophy.

The comprehensive nature of Leonardo's quest for knowledge stemmed from the fact that he was no longer content to study appearances; in order to convey their truth, he needed an understanding of phenomena from the inside – an awareness of the laws that govern them which, like Pythagoras and Plato before him, he regarded as fundamentally mathematical in nature.

LIFE

Leonardo's rigorous scientific approach encompassed every field of knowledge, engendering an endless, multifaceted labyrinth in which the painter seems to have ultimately lost his way. This disappearance is illusory, however, as it was science itself that gave the artist the freedom to master shade, light, space and movement. In his painting, the turbulence of *componimento inculto* gave way to the merging of forms and the eradication of boundaries, made possible by the revolutionary medium of oil. The freedom acquired through knowledge of the natural sciences elevated painting to the status of a divine science able to recreate the world and, most importantly, convey movement – the essence of life and the defining characteristic of every living creature.

It was during these years of scientific inquiry that Leonardo painted the *Last Supper*, *Saint Anne*, the *Mona Lisa*, *The Battle of Anghiari*, *Salvator Mundi* and *Saint John the Baptist*. This period saw the dawn of the modern style, when the grandeur of Renaissance art was seen, by contemporaries, as having surpassed the nobility of antiquity.

Source : Le Louvre



Head of a woman, also known as La Scapigliata, c. 1508

PRATICAL INFORMATION

Opening hours: From 9 a.m. to 6 p.m. (closed Tuesdays). Night opening until 9:45 p.m. on Wednesdays and Fridays. Additional night openings on Saturdays and Sundays for the exhibition only.

Admission:

€17 (collections + exhibitions)

Compulsory time slot booking:
www.ticketlouvre.fr

Also available at FNAC (165 outlets in France), and www.fnac.com, www.carrefour.fr, and www.francebillet.com.

Further information: www.louvre.fr/en

#ExpoLéonard

Bank of America is the lead sponsor of the "Leonardo da Vinci" exhibition. Additional support is provided by Kinoshita Group, Bouygues Bâtiment Ile-de-France, AXA, Deloitte, and Lusi. Virtual reality experience developed in partnership with HTC Vive Arts.

TIMELESS CHIC

Standout Fashion and Beauty trends

By Clara Bauman



The puffer jacket with style : a user manual

Good news: feeling the cold and being stylish are compatible. And how's that ? Well, by going for a puffer jacket...but not any old model !



An high-octane model to defy the cold and grey skies
(woolrich.eu)



Wraparound like a cloud but as becoming as an overcoat
(arket.com)



Daringly printed fabric to make it the focal point of your outfit
(scotch-soda.com)



Glossy, for that touch of elegance
(tommy.com)



Advent Calendar: now's the time !

Advent Calendar: now's the time !

A definite yes to Advent calendars, especially to the one by L'Occitane en Provence, for the sheer pleasure of discovering a small treasure each day. In all, 24 miniatures of the brand (hand cream, shower gel, lip balm...) make up this attractive box set in festive colours.

(loccitane.com)



Jean Paul Gaultier goes out in the snow

This winter, the iconic bottles of « Le Mâle » et « Classique » perfumes have arranged to meet in the mountains, but only for a limited period. Nestled in a snow globe, the bottles are outfitted with a sailor stripe top, a bustier and a red and white scarf... 'so Christmassy'!

As for the fragrances, they remain true to their original compositions : oriental fern for him and oriental floral for her.

(jeanpaulgaultier.com)

TIMELESS CHIC

Standout Fashion and Beauty trends

By Clara Bauman

Taking to velvet (without looking like a sofa !)

As if it wanted to redeem itself for having spoilt our childhood looks, velvet is back and setting the trend. Except that this time around, it knows how to endear itself.

Inspirations and shopping ideas.

Yes, we have been unfair towards velvet. And no, it's not too late to realise that it is really...

Velvety shopping



(fredginger.com)



(pepejeans.com)



(patriziapepe.com)



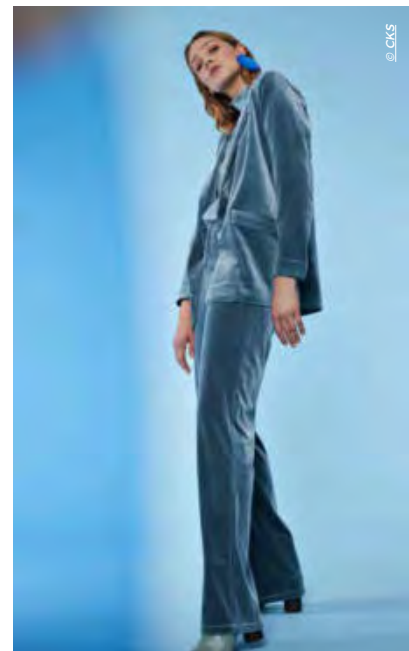
(uniqlo.com)



(loisjeanstore.com)



(pepejeans.com)



stylish at CKS - (cks-fashion.com)



cool at LOIS - (loisjeanstore.com)

Style tips

To be avoided

- Thick ribbed corduroy on parts of the body we're sensitive about (buttocks, prominent thighs...)
- The total-velvet look unless you opt for the trouser suit...by far the least risky choice.

To be adopted

- In combination with a comforting type of material (a collar in 'shearling', a thick but soft sweater) or offbeat (silky shirt, printed animal patterns...).
- High or low-cut boots (in patent leather, or why not a python skin pattern) or just sneakers.

BOOKS

AGENT RUNNING IN THE FIELD

By: *John le Carré*

A NEW NOVEL FROM THE #1 NEW YORK TIMES BEST-SELLING AUTHOR JOHN LE CARRÉ



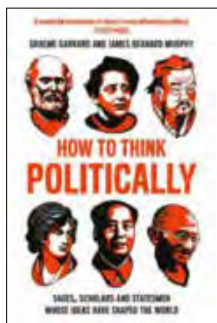
Nat, a 47 year-old veteran of Britain's Secret Intelligence Service, believes his years as an agent runner are over. He is back in London with his wife, the long-suffering Prue. But with the growing threat from Moscow Centre, the office has one more job for him. Nat is to take over The Haven, a defunct sub-station of London General with a rag-tag band of spies. The only bright light on the team is young Florence, who has

her eye on Russia Department and a Ukrainian oligarch with a finger in the Russia pie. Nat is not only a spy, he is a passionate badminton player. His regular Monday evening opponent is half his age: the introspective and solitary Ed. Ed hates Brexit, hates Trump and hates his job at some soulless media agency. And it is Ed, of all unlikely people, who will take Prue, Florence and Nat himself down the path of political anger that will ensnare them all. *Agent Running in the Field* is a chilling portrait of our time, now heartbreaking, now darkly humorous, told to us with unflinching tension by the greatest chronicler of our age.

HOW TO THINK POLITICALLY

By: *James Bernard Murphy, Graeme Garrard*

SAGES, SCHOLARS AND STATESMEN WHOSE IDEAS HAVE SHAPED THE WORLD



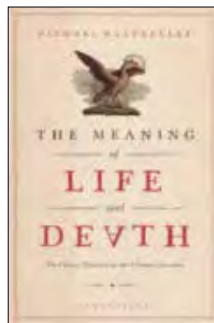
What is truly at stake in politics? Nothing less than how we should live, as individuals and as communities. This book goes beyond the surface headlines, the fake news and the hysteria to explore the timeless questions posed and answers offered by a diverse group of the 30 greatest political thinkers who have ever lived. Are we political, economic, or religious animals? Should we live in small city-states, nations, or multinational empires? What values

should politics promote? Should wealth be owned privately or in common? Do animals also have rights? There is no idea too radical for this global assortment of thinkers, which includes: Confucius; Plato; Augustine; Machiavelli; Burke; Wollstonecraft; Marx; Nietzsche; Gandhi; Qutb; Arendt; Nussbaum, Naess and Rawls. In each brief chapter, the authors paint a vivid portrait of these often prescient, always compelling political thinkers, showing how their ideas grew out of their own dramatic lives and times and evolved beyond them. Now more than ever we need to be reminded that politics can be a noble, inspiring and civilising art. And if we want to understand today's political world, we need to understand the foundations of politics and its architects. This is the perfect guide to both.

THE MEANING OF LIFE AND DEATH

By: *Michael Hauskeller*

TEN CLASSIC THINKERS ON THE ULTIMATE QUESTION



What is the point of living? If we are all going to die anyway, if nothing will remain of whatever we achieve in this life, why should we bother trying to achieve anything in the first place? Can we be mortal and still live a meaningful life? Questions such as these have been asked for a long time, but nobody has found a conclusive answer yet. The connection between death and meaning, however, has taken centre stage in the philosophical and literary work

of some of the world's greatest writers: Fyodor Dostoyevsky, Leo Tolstoy, Søren Kierkegaard, Arthur Schopenhauer, Herman Melville, Friedrich Nietzsche, William James, Ludwig Wittgenstein, Marcel Proust, and Albert Camus. This book explores their ideas, weaving a rich tapestry of concepts, voices and images, helping the reader to understand the concerns at the heart of those writers' work and uncovering common themes and stark contrasts in their understanding of what kind of world we live in and what really matters in life.

THE SORCERER'S APPRENTICE

By: *John Richardson*

A MEMOIR OF PICASSO, PROVENCE, AND DOUGLAS COOPER



John Richardson's riveting memoir about growing up in England and, at twenty-five, beginning his twelve-year adventure with the controversial art collector Douglas Cooper. With a new introduction by Jed Perl, here is John Richardson's richly entertaining memoir of his life with the brilliant but difficult British art expert Douglas Cooper—a fiendish, colorful, Evelyn Waugh-like figure who single-handedly assembled the world's most important

private collection of Cubist paintings. John Richardson tells the story of their ill-fated but comical association, which began in London in 1949 when Richardson was twenty-five and moved onto the Château de Castille, the famous colonnaded folly in Provence that they restored and filled with masterpieces by Picasso, Braque, Léger, and Juan Gris. Richardson unfurls a fascinating adventure through twelve years, encompassing famous artists and writers, collectors and other celebrities—Francis Bacon, Jean Cocteau, Luis Miguel Dominguín, Dora Maar, Peggy Guggenheim, and Henri Matisse, to name only a few. And central to the book is Richardson's close friendship with Picasso, which coincided with the emergence of the artist's new mistress, Jacqueline Roque, and gave Richardson an inside view of the repercussions she would have on Picasso's life and work. With an eye for detail, an ear for scandal, and a sparkling narrative style, Richardson has written a unique, fast-paced saga of modernism behind the scenes.

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- Proposes various treatments using organic essential oils
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