

LENSES

A hand is shown holding a camera lens in the foreground. The lens is held in a way that its circular opening frames a view of a sunset over a body of water. The background of the entire cover is a blurred sunset scene with a blue sky transitioning to orange and yellow near the horizon, and a blue body of water in the lower half.

St. Michael's Sixth Form Academic Journal
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CONTENTS

**05: RIGHT WINGERS: FOOTBALL
AND ITS FASCIST LINKS**

Gabrielle Carrido

**11: WOMEN AND THEIR
EMANCIPATION**

*(ENTRY IN AN EXTERNAL ESSAY
COMPETITION)*

Niamh Jones

**16: BREAKING THE CHAINS OF
ADDICTION: THE PROMISE OF
GENETIC ALTERNATIVES TO
OPIOIDS**

Jiya Sharma

**19: THE GENDER DATA GAP AND
HOW WE COME INTO CONTACT
WITH IT**

Cara Brett

**22: EPIGENETICS: BACK TO THE
FUTURE OF EVOLUTION**

*(ENTRY IN AN EXTERNAL ESSAY
COMPETITION)*

Ingrid McKendry

**25: COMPLICITY THROUGH
INACTION: IS IT EVIL?**

Eryn Dacoco

CONTENTS

29: RIVALS IN REFRESHMENT: THE COCA-COLA VS. PEPSICO SAGA

Jessica Sabapathy

33: THE ROLE OF ARTIFICIAL INTELLIGENCE IN MEDICAL DIAGNOSTICS: TRANSFORMING HEALTHCARE

Inaya Khalfan

36: QUALITY OF LIFE SENTENCE? - AN EXPLORATION OF THE ENVIRONMENT AROUND PRISONS

Alice Borthwick

39: THE TEN HALLMARKS OF CANCER: HOW THE DISEASE TAKES OVER THE HUMAN BODY

Giada Mei Wu

43: COMPLIANCE: WHEN IS IT COMPLICITY?

(ENTRY IN AN EXTERNAL ESSAY COMPETITION)

Alyssa Moniz

EDITOR'S NOTE:

Dear Readers,

We are delighted to present you with the 3rd issue of St. Michael's Academic Journal 2024, Lenses, featuring a final 11 captivating and thoroughly academic papers. We are sure that these articles will be of great enjoyment to our readers.

This issue features an array of political, social, literary, economic, scientific, technological and ethical articles, with topics varying from epigenetics, to moral debates about "complicity" and human rights; from the exploration of brand rivalries amongst some of your favourite drinks, to the discourse surrounding prisons in the UK; from opioid addiction and cancer, all the way to fascism and its pertinent manifestation in the prominent sport that is football. We strive to provide our readers with a genuine range of intellectual nourishment and food for thought that stretches beyond the curriculum whilst preserving its accessibility to all year groups with academic curiosity.

The aim of this Academic Journal is, as usual, to foster academic interest amongst all year groups, strengthen analytical skills and critical thinking, inspire others with the art of essay writing, and of course encourage everyone involved (both those writing and reading) to absorb these waterfalls of knowledge with an open mind, always being receptive to various points of view, an element which is key in academia. We hope that you find these articles thought-provoking and deeply informative, just as we did upon reading them for the first time!

Last but not least, we would like to wholeheartedly thank all of our exceptional writers who produced such excellent and thorough referenced research and papers for this journal. Their hours of dedication when researching, planning and writing their essays have truly yielded spectacular results. We would like to extend our sincere gratitude to Madame Gray, without whom this opportunity to run and publish the Academic Journal would not at all be possible. Thank you for the continuous guidance and support provided.

Again, we thank all of our readers for interacting with the perceptive content displayed in our school's Academic Journal on an intellectual level, not shying away from having complex and broad-minded conversations with those around you. We also hope that these exemplary papers will inspire more of you to conduct academic investigations and research into topics of your own interest that can be shared with the rest of the school body.

Many thanks and enjoy reading!

The Editorial Team. (Sivali Gutiérrez, Niamh Jones, Manasa Krishna and Maria Cook)

Right Wingers: Football and its Fascist Links

Mussolini's Azzurri, Hitler's DFB and Franco's Madrid

Gabrielle Carrido



'Keep politics out of football.'

This appears easy enough when a fan sitting in a pub posts some iteration of this idea on their Facebook page, usually in response to another controversy to do with gestures or badges or something a player has said.

Yet, it is an impossible task. To deny sport as a whole, not just football, of its social and political contexts and impacts is to undermine it completely as an integral part of culture. The complex relationship between sport and politics is one difficult to untangle, and one with much history behind it, spanning nations and continents. The Gaelic Athletic Association was founded in 1884 to promote and preserve Irish traditions and pastimes such as hurling in the face of the growing Anglicisation of contemporary Ireland. In the context of the Cold War, the early 70s saw the use of 'ping pong diplomacy', in which table tennis matches were significant in the easing of relations between the USA and the People's Republic of China. The 1982 Falklands War gave birth to a fierce and bitter rivalry between England and Argentina which spilled out onto the football pitch. Sport cannot exist alone in a vacuum where one can simply sit back and enjoy the experience

of elite sportspeople performing at peak physicality, whether it be a particularly satisfying pass into the opposition's box or an intense rally on the Centre Court. [1] All mediums of culture, from art to sport to literature, inherently carry a political undercurrent which includes our responses to them. So even if off-hand comments of indifference to politics made by the likes of John Stones and Emma Raducanu in recent weeks appear to try to extricate sport from its political dimension, it is frankly surface level and not feasible. [2] It is and will remain forever connected to society and its issues, as a reflection of all things good and ugly.

Sport has been used and manipulated in history as a tool of control and propaganda due to its intrinsic links with ideas of national prestige and strength. In the 20th century, various sports became more popular and in turn had to become more organised and regulated. The growth of sport as a branch of social culture was driven forward by the Olympic Games, in which nations could compete for glory and show their athletic prowess and ability. In the infamous 1936 Berlin Olympics, Hitler attempted to project the concepts of a strong, unified Germany and the excellence of his perfect

Aryan race to the rest of the world. African-American runner Jesse Owens' spectacular success in dominating the track and field events led to four gold medals and 'single-handedly crushed Hitler's myth of Aryan supremacy.' [3] The Nazi dictator then refused to present Owens his medals, overshadowing the sporting event with racist ideology and therefore denoting a political dimension. These Olympic Games were also broadcast worldwide on the radio, bringing a new, wider audience to sport as a whole. Football itself was also following an upward trajectory in popularity, caused by its sheer simplicity and accessibility and catalysed by industrialisation. It did not need special equipment or a specific place, and was not restricted to the leisure of the traditional elite. Clubs and teams were based on factories and other industrial workspaces, and many members of the working class would buy tickets to watch matches. It became known as the working man's sport. This link with the proletariat would later be exploited by dictators who recognised the power within the game and the masses. [4] In 1904, the International Federation of Football (FIFA) was formed as a governing body to regulate the sport and in 1930, the first World Cup was played in Uruguay. This formative period for the game coincided with years of political upheaval in Europe with the aftermath of the World War and the totalitarian regimes established in Italy, Germany and Spain.

Benito Mussolini was a republican who led the National Fascist Party to the heights of Italian politics in the 1920s. Following the march on Rome in 1922 in which King Victor Emmanuel III ceded power to him and his Blackshirts, he established himself as Prime Minister of Italy as well as 'il

Duce.' [6] As one of the premier fascist leaders in Europe, Mussolini's use of sport to further his political agenda would go on to be imitated by other dictators such as Hitler in Germany. Mussolini's 'cult of the leader' maintained the image of him being a virile sportsman who was powerful and athletic. He encouraged the revival of physical activity in the Italian curriculum after it had been shunned by both Italian royals and socialists. [10] His fascist ideology was underpinned by nationalism as well as the idea that personal well-being was a duty to the country, and il Duce sought to display this in the strength of the Italian national team, the Azzurri. Any sporting victories over traditional rivals such as France and Spain were paraded and celebrated as a portrayal of the superiority of the Italian people and their governing principles. Its domestic impact would also be important through creating a new found patriotism in uniting behind the tricolore and in turn behind the regime. [7] Football was able to rouse national passions without the use of religion or war, and fostered local and national loyalties amongst the masses; a true social phenomenon.

The close relationship Mussolini engaged in with football is clearly noted in the Fascist Party's material contributions to the expansion of organised football and its cementing as the primary leisure activity in the country. They funded and built football stadiums as 'monuments to their glory,' [8] such as the Stadio Olimpico which is rife with fascist iconography and designed in the fascist style harking back to grand Roman architecture. The construction of such stadiums injected life into Italian football, reinforced Italian industrial might and was also vital in pushing for the honour of Italy

to host the 1934 World Cup. The reformation of the top leagues, Serie A and Serie B, was also a facilitator in the development of Italian talent for the Azzurri. Mussolini also boosted the chances of victory at the 1934 World Cup by drawing out South American players with Italian heritage. The ideological motivations were to 'show the victory of the race' in emphasising blood purity, but the more practical concerns were to undermine the excellence of the national teams of Argentina and Uruguay while simultaneously ameliorating their own. The incorporation of South American members was also useful in promoting the fascist sentiment of Italian colonialism and the subsequent 'thriving diaspora'.

Delving deeper into the sport, Italy's style of play was a true reflection of fascism itself. Vittorio Pozzo's dictatorial control of the team as coach created a game emphasised on sacrifice and unity, and carried out through forcefulness and high physicality. On the pitch, there was an emphasis on defensive solidity and reactivity, the ramifications of which can be seen today in the glorification of Italian defenders such as Paolo Maldini and Fabio Cannavaro. Pozzo was also revolutionary in his development of man-marking, which demonstrated a sense of duty and discipline valuable to the sport but also the regime. [9] Under Pozzo's leadership, Italy achieved international glory in both the 1934 and 1938 World Cups, however without television, games were given a more nationalistic dimension as pushed by the regime's propaganda department. Football was crucial in consolidating regional and national allegiances that drew the masses together, and in turn created unity in support of the

regime that had so skillfully intertwined itself with the sport.

Adolf Hitler was a growing far right political leader in Germany inspired by the success of Benito Mussolini in Italy. He was appointed Chancellor in 1933 and went on to establish and consolidate the Nazi regime throughout the 1930s and the ensuing Second World War. The regime flourished by weaving its way into all aspects of everyday German life, from family ideals to the school curriculum. He had a marked obsession with physical activity, placing it at the centre of Nazi education. He abhorred football but astutely recognised the power it wielded over the masses as well as its encouragement of identity and unity, wishing to exploit it as a means of propaganda. Minister of Propaganda Joseph Goebbels wrote, 'Winning a match is of more importance to the people than a capture of a town in the east,' following a particularly crushing defeat of the national team against Sweden. [5] The Deutscher Fußball-Bund, the German regulating body for football, was immediately used as an arm of the regime in its promotion of anti-Semitic ideas through the purging of all Jewish players and workers involved in this industry. Around 300 Jewish players disappeared without warning and little was done to investigate further into this matter. In actual games, the Nazis did not account for Germany's apparent bad luck and their efforts to control it floundered on the rocks of the game's nature of unpredictability. Goebbels sought to prevent defeat by any means, from discouraging games with significantly stronger sides to banning international games altogether in 1942, but was rather unsuccessful.

During the Second World War, the football that was played had an emphasis on quality rather than results and was determined to demonstrate that Germany could excel on the battlefields as well as the pitch. [5] This link between the war and the game was reinforced by the use of speakers in stadiums to announce battle outcomes as well as commentators using military terminology in describing the game. The regime was further bolstered through the players themselves. Players would undertake political indoctrination and they had to perform the Nazi salute before matches, including opposition players, as ordered by the Foreign office. [4] The latter caused many issues, with one particular case study being the 'Death Match' of 1942, in which a team of the USSR, FC Start, refused to do the salute, instead performing a Soviet salute. They also refused to purposefully lose, as ordered by an SS official who had paid a visit to their changing room before the match. Though they were physically weaker due to malnourishment and fatigue, FC Start's technical prowess on the ball gave them a 5-3 victory over the aggressive, dirty tactics of the Germans. This open defiance and refusal to comply with the regime would cost them their lives. Defeat in football was a personal attack on the Fuhrer as his theories of Aryan supremacy were challenged, showing the intractability of Nazism in the beautiful game.

Francisco Franco was a military general who led Nationalist forces to victory over the Republicans in the Spanish Civil War of 1936-1939. He then established his fascist dictatorship as the Caudillo, which would last until 1975. Like Mussolini and Hitler, Franco's rise was simultaneous with the growth in popularity of football and

naturally developed it as a tool of propaganda to bolster his regime despite his original indifference to the sport. Today, the 'El Clasico' fixture, any game played between the La Liga clubs Real Madrid CF and FC Barcelona, is embroiled in a cultural history dating back to Franco's rule. Insults toward Real Madrid fans in Twitter forums often hold a jeering distaste towards the club's Francoist history, with labels such as 'Franco's Madrid' to be surely cutting from Blaugrana supporters. In the Falangist era, FC Barcelona was symbolic of Catalan separatism and representative of the Catalonia region who are culturally and linguistically different from the Castilians in central Spain. In Franco's support of their archrivals Real Madrid, he showed the new Spanish state's lack of tolerance and acceptance towards Catalan sentiments. [13] This regime placed a strong emphasis on centralisation and the cultural and linguistic homogenisation of Spain, in order to create a strong, unified country as emphasised in totalitarian ideology. In the strict prohibition of regional languages different to Madrid's Castilian, clubs such as FC Barcelona and Athletic Club from Bilbao in the Basque region, were forced to adopt Castilian equivalents of their names. Barcelona had to drop the Catalan flag from their badge and Bilbao was dictated to abandon its traditional policy of only taking Basque-born players, which was and remains today an important tradition of the club. [11]

A specific case study in which the Francoist regime's favour of Real Madrid was explicitly seen was the 1943 semi-finals of the Copa del Generalisimo (formerly and now the Copa del Rey). The result was an aggregated 11-4 defeat of Barcelona by

Madrid, despite Barcelona winning a comfortable 3-0 victory at home in the first leg. The largest El Clasico defeat recorded in history is said to have been implemented by a particularly threatening visit from the director of state security to the Catalan side before the fixture, who then complied with the orders, conceding eleven goals. Fernando Castiella, Foreign Affairs Minister from 1957 to 1969, described Real Madrid as ‘the best embassy [they] have ever had,’ which makes concrete the links between club and regime. [12] It was an important cultural output and diplomatic tool in presenting an image of Spain that was wealthy and happy, especially under a dictatorship which was primarily inward-looking. The Caudillo’s support of Los Blancos, as overstated and exaggerated it may be, was deeply connected to the state’s desire for centralisation and Castilian superiority. If there were to be a dominating side in Spanish football, who could be more perfect than a team representative of Castilian royalism and conservative, traditional ideals and simultaneously a complete rejection of Spanish regional divisions?

Using these three subjects of the past, where the game had a tactical role in the machinery

of regimes, it is easy to see that the importance of football in the field of politics is not to be understated. From specific players to whole national leagues, there will always be a political undercurrent to the sport. It is in the blatantly racist use by the media of Arsenal winger Bukayo Saka as the face of English inadequacy or defeat. It is in Iran’s refusal to sing their anthem at the 2022 World Cup in solidarity with protests and human rights movements roiling their home country after the death of Mahsa Amini. It is in a neo-Nazi gesture with ultra-nationalist connotations made by Turkish player Merih Demiral at the 2024 Euros. It is in French superstar Kylian Mbappe’s encouragement of young people to go out and vote against the alarming rise of the far-right in France. Being a global phenomenon drawing together all people and in turn their politics and cultures naturally accompanies the enthronement of football as the biggest sport in the world. This mix cannot be dismantled or underestimated, and with football representing a microcosm of sport as a whole, we can understand that sport remains and will always remain a mouthpiece through which politics speaks.

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Women and their Emancipation

Essay Question: Evaluate the role of the individual and the collective in the emancipation of groups facing oppression, using at least two detailed examples.

Niamh Jones



I, like every woman before me, has experienced inequity by nature of my biology. Women have been repressed, discriminated against and persecuted throughout history and remain so today, derived from the notion that they are in fact this separate entity being a woman, a position that has been established in our society as inferior. However, individuals and collective bodies since predated times have challenged this position and continue to do so today through the emancipation of women. Emancipation can be defined as the process of giving one social or political freedom and rights, but what defines complete political freedom. Have women truly been emancipated in a world where women and girls are still subjected to gender based violence? Where in 2020, 47,000 were killed by their partners or other family members? What truly defines complete political freedom and rights for women can be subjective and is a nuanced concept, however the progress and success that both individuals and the collective have achieved is significant and cannot be denied. I believe that both individuals and the collective in the role of the

emancipation of women are simultaneously reliant on each other and intrinsically linked. From individuals; ideas are able to emerge, provide inspiration and galvanise wider support. However, without a collective body, these ideas cannot be moved or implemented in a way that ensures a lasting impact or radical change. However it is my contention that when these two bodies do not work together as a cohesive unit, groups of women in society can become sidelined.

The emancipation of women continues to remain paramount and of crucial importance today. The origins of discrimination are rooted deeply in our history; individual and collective bodies of women have advocated for change for centuries. However, as expressed in Virginia Woolf's 'A room of one's own', it is clear that a significant part of our heritage has been unwritten and erased, and we are missing many unfilled heroes of our past. Over centuries, women have been depicted to be weak, solely dependent on the male and devoid of basic

human rights. In the 15th century, the inquisitor Jacques Sprenger published the '*Malleus Maleficarum*', where he referenced the sacred texts that described the first woman, who, created from a defective rib of Adam, is therefore considered an imperfect being. In the Middle Ages in Europe, women who revolted against this 'traditional' image or whose actions did not align with how men wanted them to behave were branded as witches, synonymous with satan and consequently burned alive. Since biblical times, women have been battling against subservience which subjected them to inequality and curtailed their rights. Notwithstanding this, women's resistance has been an ongoing and determined fixture throughout history, and individual and collective bodies of women have been campaigning against injustice for centuries. There are, and have been, women in every generation fighting to subvert these societal norms. In 1852, Persian born Fatimih Umm Salamih, was murdered after challenging women's inferiority and the rules placed against them at the time. Consequently, her body was dumped in a well but her actions and last words prevail and hold significant weight. "*You can kill me as soon as you like, but you cannot stop the emancipation of women.*". It is clear women's actions, big or small, have all played a significant role in the movement for women's emancipation. Individually and collectively, their words and aspirations are proof that they have not existed quietly and their emancipation can be credited to the work of individuals and collective bodies of women alike.

In 1793, Olympe de Gouges, a political

activist, *femme philosophe* was condemned to death and executed by guillotine, accused of failing to acknowledge the "*benefits of her kind*", for her unrelentless campaigning for the rights of women and her stance challenging the perceived intellectual capacity of women at the time. In '*Declaration of the Rights of Women*' she drew attention to the fact that whilst The French Revolution was advocating for liberty and equality, this did not in fact apply to women. Her call for women to band together to end rights that were made exclusively for men is a rallying cry that remains a goal of modern feminism today. Gouges' - often entitled as a founder of modern feminism - role in emancipating women cannot be understated. Her contemporary views and revolutionary arguments not only shaped women's rights in 18th century France, but gave women insight and aspiration around the ideals of egalitarianism between sexes. In addition, it galvanised further ideas and contributions such as Simone de Beauviour's, who recognised her in '*Le Deuxième sexe*' [The Second Sex] as well as formulating later feminist theory.

Simone de Beauviour, a French philosopher and feminist, is regarded as a key individual in the movement for emancipating women worldwide. Her book, '*The Second Sex*', said to have sparked the second wave of feminism, a collective body contributing to a movement attaining more political freedom and rights for women than ever before, ensuring education and employment were core entitlements for women. It was a movement claiming landmark victories that included the passing of the Equal Pay Act in 1963, and

Roe v. Wade in 1973. De Beauvoir famously wrote, "One is not born a woman, but becomes one," Women and men alike aren't born with this idea of sexism, it is learned and cultivated through society which moulds our beliefs to cater to societal expectations. In 'A Room Of One's Own', Woolf similarly expresses this concept in the quote "Great bodies of people are never responsible for what they do." Here, I believe, she is asserting that it is not men that women should feel anger with, despite society automatically elevating men onto a pedestal. Emancipation shouldn't be the reallocation of rights and political freedom from men to women, but recognition that they should be of equal status.

Feminist collective movements of the 20th century not only drew upon ideas from Simone De Beauvoir but also American feminists such Gloria Steinem and Betty Friedman. They themselves were influenced by females that came before them, such as Olympe De Gouges, to Fatimah Umm Salamih and it continues through history, with generations of women, within their own capacity, advocating for their emancipation. Olympe De Gouges and Simone de Beauvoir's visionary ideas were able to inspire generations of radical thinkers and mobilise masses of people globally to fight for women's rights and shape the course of history. However, it is through the work of collective and mass bodies of women, drawing on the ideas of the women before them, that the second wave of feminism was mobilised and rapidly progressed. De Beauvoir herself made reference to women's difficulty to emancipate themselves and view themselves as the

focus and the norm, "*He is the Subject. He is the Absolute. She is the Other.*" Simone de Beauvoir, 'The Second Sex'. In a society where we are perceived as inferior and the object, not the subject, women should band together as a collective campaign in order to catalyse change.

Friedman's book, 'The Feminine Mystique', building on the foundations of de Beauvoir's work, had an enormous influence. It is heavily critical of the ideal of women's sole duty of motherhood which Friedman claimed, isolated them, and as a consequence of the resulting furore, brought feminism to the attention of many housewives and mothers. Second wave feminists' (who built on ideas explored by feminist literary critics) goals of social equality aligned with women's reproductive and political rights as central concerns and were somewhat achieved with the availability of the contraceptive pill and legalised abortion along with the legalisation of the equal pay act 1963. These cataclysmic advances must, to some extent, be attributed to the individuals whose words changed the course of history. Their fierce activism which can be demonstrated in their protesting. Thus the 1968 Miss America Pageant was disrupted with the aim of getting wider recognition of the broader problem; the contribution of women fitting limited roles in society to the exploitation of women in society as a whole. From these illustrated examples of individual thinkers and collective movements in feminism that it is clear they are interdependent and simultaneously salient in the emancipation of women, with both holding significant weight and forging the 20th century feminism movement. Without these influential

thinkers, philosophers and writers who voiced women's oppression or their visionary leadership, it is possible that the second wave of feminism would not have occurred and females wouldn't have access to the same rights that we do today. However it is also important to consider that without collective groups of people; moving forward these ideas, creating powerful forces for change, grassroots activism, and lobbying, that these ideas would remain radical words on paper lacking .

However, when individuals and collectives are not able to work together productively as one cohesive body, groups become marginalised and segregated from these movements. Sometimes individuals end up making collectives that are regarded as exclusive, who only seek to emancipate similarly like minded individuals of the same class or race as them and consequently, isolate certain sectors of society. This is demonstrated in the second wave of feminism, where despite many women gaining more autonomy over their rights and political freedoms, these rights and freedoms were only granted to a certain type of woman; white and middle class. Whilst the second wave of feminism was occurring, African American women were fighting for freedom from racial oppression as well as for their rights as women. In 1969, Frances M. Beal, a black woman and feminist, published '*Double Jeopardy: To Be Black and Female*,' which described African American women's experiences in the feminist movement and proposed that the white women's liberation movement negated the race and class aspects of oppression that black women face. In 1969, that same

year, Betty Friedman stepped down from the organisation she founded, the National Organization for Women (NOW), as they decided to embrace a more diverse membership. Despite this organisation accomplishing many successful campaigns and winning court cases for women, encouraging them to band together, challenge the system and lobby for gender equality, the concerns of black women were frequently sidelined and Friedman continued to write exclusively about white, middle class well educated women.

Another example that illustrates individuals and collectives not working together as one is the suffragette movement in the early 20th century. Whilst the suffragettes are recognised for their relentless and sometimes violent campaigning in order to secure the women's vote. The leaders of the suffragettes, Emmeline and Christabel Pankhurst, had an ideal of the type of woman who would be part of, and benefit from, this movement. The recruitment of well-educated middle class women not only curated their image and helped ensure more press coverage, it simultaneously resulted in the dismissal of working-class women as the weakest in society, effectively asserting feminism as an exclusive movement. Yet Sylvia Pankhurst held different beliefs to her mother and sister and believed strongly in the emancipation of all women, not just the type of woman that the suffragettes had recruited. She believed that if the vote was only granted to such a narrow group of women then it wasn't true liberation or social change and that working class women, such as Annie Kenney, should've been at the forefront of the movement. As

a consequence of her differing views, Sylvia was expelled from the women's social and political union (WSPU).

I argue that the most successful individuals and collectives in reaching female emancipation are those who aim to emancipate all women, and such examples of clashing ideologies regarding this isolated group of women who aren't white or of middle class, emphasise how important it is for these two groups to work together cohesively and learn from each other. This is integral to the emancipation of women and an issue that dominates feminism today and is why the idea that women are fully emancipated is not convincing. Whilst there are women in the world who are oppressed; all women

are oppressed. Individuals and collective movements have been an integral part of the feminist movement and remain so today, with females such as Malala Yousafza, who was shot in the head by the Taliban in Pakistan, continuing to inspire a new generation of women and bring awareness of conflicts and the treatment of women in developing countries today. Females will continue to inspire, write and campaign for their emancipation and without either one it is possible that I, as a female, would not have the education to write this essay or topical examples to draw on; it is from their codependency and unity that women are able to be successfully emancipated.

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Breaking the Chains of Addiction: The Promise of Genetic Alternatives to Opioids

Jiya Sharma



Have you ever felt threatened by your regular use of “harmless” painkillers? If not, maybe this dive into the world of opioid abuse and alternatives can encourage you to do so.

The opioid epidemic is “the rapid increase in the overuse, abuse, and overdose deaths attributed either in part or in whole to the class of drugs called opioids,” which are highly addictive drugs used for chronic pain relief. [1] The opioid epidemic’s origin dates all the way back to the late 1990’s when the number of opioid prescriptions surged, due to around 100 million people in the United States becoming affected by chronic pain. This historically marked the beginning of opioid abuse. One of the most concerning issues surrounding opioid abuse are its severe withdrawal symptoms. Over time, individuals that are initially prescribed opioids such as Oxycontin or Codeine to manage pain, find themselves becoming psychologically and physically addicted and therefore eventually fall prey to a variety of unpleasant withdrawal symptoms once their prescription runs out. These symptoms start off as minor muscle aches, anxiety and excessive sweating, but have the power to develop into high blood

pressure, abdominal cramping and dilated pupils according to how long the individual has been in contact with the drug. Due to prescription rules making the drugs difficult to obtain, the addicts then end up using illegal opioids such as heroin which may be more easily accessible. According to Wikipedia, “A 2020 review of the opioid epidemic in paediatrics stated that there were 4,094 opioid overdose deaths in people ages 14–24 in 2017.” It is immensely heartbreaking that young people are suffering the consequences of such early exposure to opioids, therefore research into opioid alternatives has the power to turn numerous lives around.

Gene therapy would be significantly cost effective as an opioid alternative; considering that foundation level research into it has already been carried out by experts in the field, and some form of application of the research has been completed. A particularly fascinating gene therapy approach has been carried out by a team led by Drs. Prashant Mali and Tony Yaksh at the University of California, San Diego. [2] An article surrounding their investigation written by Dr Brian Doctrow, clearly explains the basis of their research. The proteins that control pain sensation in

our bodies are called voltage-gated sodium channels. They carry out this function by regulating the flow of sodium ions into certain nerve cells. According to the article, voltage-gated sodium channels, also known as Nav1.7, can be disabled by a genetic mutant which leads to individuals becoming unable to feel pain. However, this genetic mutant can also affect other proteins which share numerous similarities with Nav1.7. The team developed two approaches for inactivating Nav1.7 through turning off the gene that encodes it. The first approach involved the use of a modified form of the CRISPR gene editing system. The researchers used a dead version of the enzyme Cas9 and fused it with a protein called a repressor, this gave the resulting molecule the power to locate and bind to its target DNA and then turn off the gene by blocking gene expression; all without the alteration of the DNA sequence. The second approach involved the use of an older gene editing tool called zinc finger proteins that work similarly to the Cas9 enzyme. They were also fused to a repressor. The fact that zinc finger proteins are built on the scaffold of a human protein gives it the potential to one day be used in humans and also has a lower probability of being rejected by the immune system. Both approaches managed to alleviate chronic pain in mice

for a period of time and therefore showed promising results.

Another gene therapy investigation has been carried out [3] by researchers from the Nuffield Department of Clinical Neurosciences at the University of Oxford, along with colleagues at Cambridge University and Barts and the London School of Medicine and Dentistry. This approach was through chemogenetics which is a process that may have the ability to silence human sensory neurons.

To conclude, in the long term, research into zinc finger proteins would be more cost effective due to there being a lower probability of rejection from the human body. This contrasts with the CRISPR system, a foreign protein which comes from bacteria; although it may be cheaper due to being more recent, additional research on its resulting immune response would reduce its cost effectiveness. Furthermore, gene therapy holds great power and any data obtained would be highly influential in other aspects of healthcare. Therefore, even if gene therapy isn't successful towards opioid alternatives, further research would not be a waste of money and resources, since any conclusions would form the basis of further ongoing research within the world of gene therapy.

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The Gender Data Gap and How we Come into Contact with it

Cara Brett



Intrinsically, data is seen to be paramount to real world issues and helps us to understand common failings within societies. Too often, women are neglected when it comes to statistics and data collection. Why is it that we live in a society that fails to provide even a car which adequately protects women? UN Women [1] states that “Gaps in gender data and the lack of trend data make it difficult to monitor progress for women and girls.” suggesting women are unable to thrive or reach potential as they are continuously neglected by ‘neutral’ statistics. All throughout the world, women and girls are failed by the automatic and universal conformity to believe that whatever is male, is universal.

As women, there are failings within our everyday life which are unaccounted for and, if not changed, can have devastating consequences. Healthcare. Something considered accessible and available for everyone, men and women alike. However, this is not always the case. [2] Would it shock you to know that women are 2x more likely to experience adverse drug reactions to medication than men? Or that cardiovascular disease is the number 1 leading cause of death in women but studies mostly focus on male symptoms

and physiological states, leaving women undiagnosed and untreated? Or even that women compose 70% of chronic pain patients and yet studies and research circulate around evidence drawn from male mice and human males? This consistent male bias creates a whole world of consequences which look unfavourably on women, however unconscious this bias may be. Female exclusion from medical research can result in poorer care and help for women in need and can subsequently result in lower survival rates for those suffering. It is even historically said that women’s health was diluted to just ‘reproductive health’ [3] which neglects real health problems as well as stripping women of basic humanity and instead reducing them to their ability to conceive. It is predominantly clear that throughout time and evolving societies, women have been forgotten and are forced to live in a world which is unable to cater to their basic needs due to an inherent male bias.

Women as a whole are forgotten when it comes to data collection, but it is also important to note the lack of research and data surrounding specific groups of women. Without dividing and focusing on key groups of women and people, data fails to take into account the impact of

factors such as age, ethnicity or geographical location can have on worsening this bias. [4] Older women, for example, are often hidden in what little data has been gathered due to a specific focus on women considered to be of reproductive age. A greater emphasis needs to be placed on finding this more nuanced data as it is critical in making society safer for all women, not just a specific demographic. In her defining book, *"Invisible Women"*, [5] Carolina Criado Perez discusses in detail about how "seeing men as the human default is fundamental to the structure of society". Her book looks at different structures within societies and reveals how this data gap permeates everything, but her critical idea is that, in life, humanity is considered unequivocally male. We are refusing to acknowledge half of humanity and refusing to acknowledge a new perspective of humanity: the female perspective. Building transport links which do not take into account the hidden work of women, or allowing public spaces to be in a male bias with the facade of gender equality or even a lack of safe and accessible toilets for women in developing countries that reduce the risk of sexual violence. [6] An article in the Guardian in 2016 found that it is due to this lack of trend and statistical data that we are unable to build cities and urban areas which conform to the needs of women. Without collecting this data we are unable to even understand the real impact the location of schools or water resources have on women, particularly those in developing countries, drawing them away from employment and education. The consequences of this invisibility of women feeds into the inability for women to maximise their

potential, denying them sometimes of the same opportunities afforded to men.

As women it is also very evident and common in our lives to experience unwanted attention and harassment when we are simply going about our everyday lives. In a study conducted by the UK branch of UN Women, out of 1000 women, seventy one percent reported experiencing sexual harassment in public. Even somewhere as prestigious as the workplace is not safe from the ongoing threat of unwanted harassment. It is said that as little as 3% of incidents of sexual harassment in some industries are reported and even if it is reported, victims still report a persistence of this harassment and can even experience some form of retaliation from the perpetrator. [7] These statistics can seem especially harrowing considered this is only seen to be an estimation of the true extent of this problem. This suggests a strong hesitation of women to report crimes such as these. The reasons for this can include stigmas, shame and occurrences of victim blaming. This tendency to place blame on the victim is a societal issue which insinuates that the problem and cause of sexual harassment is due to what a woman was wearing at the time or how they looked. It is this fundamental lack of data which results in public spaces to be deemed unsafe and perpetuates fear among women everywhere. It is vital to provide safer environments for women in terms of reporting these acts of violence so that more can be done to ensure that perpetrators are punished and so women do not have to inconvenience themselves in order to avoid places, such as the tube during rush hour, due to fear of what might

happen as these places should be safe and accessible to all.

Ilaria Esposito for the Women's Budget Group reflected on the fact that "Due to the lack of comprehensive and disaggregated data on the experiences of girls and women, we face a gender data gap that makes it difficult to measure progress towards gender equality accurately and to design policies and programs that effectively address

gender-related issues." [8] As women, it is our human right to be able to live in a world which is appropriately designed in our favour, instead of accepting the unanimous decision that whatever is inherently made for men is suitable for all. The perspective and experience of half of the world's population should never be ignored and only a complete commitment to understanding the view of women everywhere will ensure this gap of data is bridged.

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Epigenetics: Back to the Future of Evolution

Ingrid McKendry



Why did the giraffe have a long neck? No, this is not the start of a bad joke. This question sparked the first theory of evolution over 200 years ago and is now making a comeback with new breakthroughs.

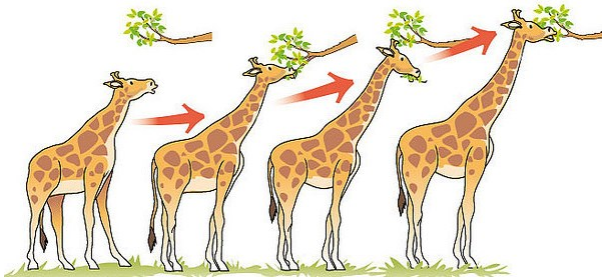


Figure 1 - Lamarck's theory of evolution

In 1809, a French biologist, Jean-Baptiste Lamarck, proposed the first mechanism for evolution. [1] He believed that the long necks of giraffes evolved when their short-necked ancestors stretched to reach the leaves on tall trees and passed this onto their offspring. Over many generations of neck elongation, the giraffes we know today evolved - with a better chance of survival due to greater access to food. Lamarck believed that changes during an animal's lifetime were passed onto its offspring, and this was how the observable physical properties (phenotypes) of organisms changed throughout the ages.

Of course, we know today that Lamarckism is flawed. The arrival of Darwin's revolutionary 'On the Origin of Species' in 1859 soon discredited Lamarck's theory, leaving it forgotten and even laughable for another century. Darwinian evolution was reinforced through Mendel's discovery of genes in 1866 since traits could be directly inherited through the passing of the genome from parent to offspring. But are we determined solely by the sequence of bases in our genes?

Consider this: during WWII, the Nazis cut off food supply to the Netherlands, quickly causing the Dutch Hunger Winter of 1944-5. A Dutch epidemiologist, Lumey, analysed thousands of genomes and medical health records and found that although there was no genetic mutation, babies in the womb during the famine were more prone to obesity than siblings born before or after the famine. [2] The answer to this mystery, and many others, lies in epigenetics...

'Epigenetics' is a broad-reaching term, first coined by Waddington in 1942, which describes factors beyond the genetic code influencing gene expression. [3] The epigenetic toolkit includes modifying genomic DNA (for example adding a methyl

‘cap’), mechanical tightening around structural histone proteins, and non-coding RNAs. Notably, these impede gene transcription and translation, without altering the identity of the base pairs that make up the DNA. [4] Consequently, epigenetic markers regulate which genes are turned on and off, like a switch.

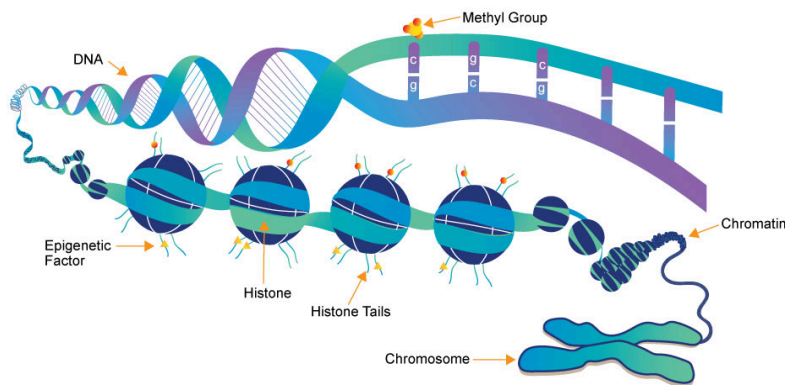


Figure 2 - Epigenetic factors

Epigenetic developmental switches can alter the expression of genes after sensing variations in the surrounding environment (phenotypic plasticity), as well as being spontaneous. Epigenetics can act as a biological memory of early environmental experiences during development like malnutrition. Lumey’s Dutch Hunger Winter study, found epigenetic DNA methylation silenced insulin growth factor 2 leading to higher birth weights.

One of the most hotly debated areas of research is whether epigenetic changes are heritable. Examples of epigenetic inheritance are extensively documented in bacteria, protists, fungi, plants and certain invertebrate animals more than two decades ago but it remains a puzzle, particularly in mammals. [5] There is strong evidence for transgenerational epigenetic inheritance in

Caenorhabditis elegans (roundworms). In 2011, Stanford researchers uncovered mutations capable of extending their life span up to 30%. Intriguingly, roundworm descendants without these mutations continued to show longer life spans for up to three generations due to epigenetic histone modifications. [6]

On the other hand, many organisms undergo reprogramming of the genome during development in which DNA methylation is wiped clean and started afresh to a totipotent state for the next generation. Yet in 2023, Salk researchers showed epigenetic DNA methylation of *Ankrd26* and *Ldlr* genes created mice that were obese or had high levels of cholesterol, and these epigenetic modifications not only re-emerged after being wiped out during reprogramming, but were passed on for three to six generations - something scientists once thought impossible. [7] The findings are profound but the implications on human evolution are unclear since mechanisms can vary greatly between species and likely evolved independently.

Today, this exciting new field of epigenetics has plenty of puzzles and a plethora of possibilities impacting development, health and evolution. However, it is astounding that 200 years ago, Lamarck proposed something tantalisingly close to epigenetics - a theory where a giraffe's adaptations to their environment were hereditary.

Perhaps it is time to credit Lamarck alongside giants like Darwin and Mendel, as part of our growing understanding that the building of a phenotype is a combination of both nature and nurture.

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Complicity through inaction: Is it evil?

Eryn Dacoco



'The ones who walk away from Omelas' is a short story written by Ursula LeGuin describing a utopian town throughout its "Festival of Summer". LeGuin creates an idyllic scene, with residents in a state of permanent euphoria and an environment of vivid colour and melodious sound. However, the writer uncovers the town's fatal flaw: a sole child is kept in a basement and they are tortured and abused. Everyone is aware of it. The maltreatment of this child is dependent on whether the town can stay utopian or not. LeGuin cleverly draws on the ideology of utilitarianism and uses the city of "Omelas" as a microcosm for society today in order to pose the question of whether complicity through inaction is inherently evil.

LeGuin begins the story by describing the harbour that "sparkled with flags", the painted houses, the lush greenery and the lively procession, however, notably focuses on the youth and the old, explaining how they weaved through the streets merrily. She follows how "women carried their babies and chatted as they walked" and how boys and girls exercised their horses "naked in the bright air." She focuses especially on the unknowing freedom given to these children and the

chance given to the elderly to be able to grow old without limitations. Through this, emphasis is further placed on the tragedy and utter immorality of keeping the child in the basement. The use of the semantic field of light and paradisaic imagery for the first half of the story lures readers into expecting Omelas to follow suit into classic literary tropes of what a narrative about a "picture perfect" place might be about. However, she dispels these expectations, saying: "Omelas so far strikes some of you as goody-goody. Smiles, bells, parades, horses, bleh. If so, please add an orgy", and turns all expectations of the direction of the narrative on its head. The readers are thrown into reality and are directly addressed, giving them the autonomy to taint and pollute their own perception of Omelas, both to understand its imperfections and to ground the story into a real life context.

'The ones who walk away from Omelas' could be read in the wider historical context that it was written in. Published in 1973, [1] the short story was written in the USA in the backdrop of the Vietnam War (1955-75) and the Civil rights movement. Public opinion towards American involvement in the Vietnam War soured as

years passed, [2] totalling to nearly 60,000 deaths by the end of 1975 according to the Defense Casualty Analysis System (DCAS) file on the war. The Vietnam War became a moral dilemma, many being appalled by the astounding violence and brutality of the conflict. Others, however, thought that the war was becoming an oppressive conflict against Vietnamese independence and an unneeded foreign intervention in a civil war. The massive loss of life became inexcusable, with chants such as [3] “bring our boys home” echoing in the streets. [4] Some even liken the story of the child in the basement to the Vietnam War itself and its central motive: purposeful suffering for the advancement of political ideology and the greater good. This is the foundation of the utilitarian ideology: the most ethical choice is one that will produce the greatest good for the greatest number. [5] LeGuin challenged the school of thought which traditional sci-fi follows (materialism, realism and naturalism), and based her science fiction novellas on idealism, forwarding the belief of the power of the human mind and its ability to shape society and the world. [6] In a speech in 2014 for the National Book Foundation, Ursula states, “I think hard times are coming when we will be wanting the voices of writers who can see alternatives; can see through our fear-stricken society and its obsessive technology. We will need writers who can remember freedom: the realists of a larger reality.” Ursula uses this allegorical story of the city of Omelas to point towards the significance of liberty and to portray individuals as instruments of profound change and justice.

Is it fair for us readers, then, to criticise the people of Omelas for deciding to stay in the city despite knowing that a child suffers for them? Is it realistic to say that we wouldn't do the same as them? LeGuin specifically notes that “they were not barbarians...Yet I repeat that these were not simple folk, not dulcet shepherds, noble savages, bland utopians. They were not less complex than us.” She makes us cooperate in the creation of this world and equates us to its people until we recognise them simply as a reflection of ourselves. Despite some inaccuracies, we function in a society that is in no way different to Omelas. We are served with an argument that limits our logic to a point that it breaks (*reductio ad absurdum*) and the state of our world is simplified into its barebones where we can fully explore the direction of our own moral compass and question if, like the people of Omelas, we would walk away or stay complicit and accept this reality. Throughout history, war and conflict has been a prime example of being “permissible” if viewed through the utilitarian lens. The lack of acknowledgment of this loss of life on an individual basis rather than a singular “unit” will only result in a misconception of humans as tokens on a scale and lead to a cruel misjudgment of the value of life. Readers are put into an omniscient position, deciding which lives are more worth living than others.

By the end of Ursula's short story, we read of those who reject Omelas and walk away, leaving readers to speculate their mysterious fate. Though initially we may praise their admirable decision, on closer inspection, rejection and abandonment is the “same side of the coin” to inaction and

compliance to the city's "term". Paul Firenze, a professor of Ethics and Philosophy in the Wentworth institution of Technology, wrote in his critique of [7] "The Ones Who Walk Away From Omelas" that: "Perhaps they might try to reconstruct a society based on all the good things in Omelas, only without the one obviously bad thing—the suffering child. Call it New Omelas. But in creating New Omelas they have not done away with the very thing they most reject—the child's suffering. They have merely left it behind in the hopes of not contributing *directly* to its suffering. But it is unclear how this walking away absolves them of responsibility any more than those who remain." Firenze argues that there is no difference in whether one leaves or stays in Omelas and that there is great irony in the fact that the problem stays unfixed: they stay abandoned and the suffering of a child becomes a perpetual loop. This moral shackle will *always* chain those who leave, tethering them to the city forever. He believed that staying in Omelas was the more "morally right" conclusion to the story, where residents could actually make a difference and vocally oppose the system. The child was less like the sacrificial lamb but "A call to live a moral

life, not simply for oneself, but for others. And I think ultimately this is the source of their [people of Omelas'] moral strength, and therefore the source of their genuine happiness." It is a call to savour the opportunity of living in a way that the child never could.

This contrasts with initial impressions of LeGuin's tone in the last paragraph, characterising the people who walk away from Omelas as righteous and strong in resolve, writing: "The place they go towards is a place even less imaginable to most of us than the city of happiness. I cannot describe it at all. It is possible that it does not exist. But they seem to know where they are going, the ones who walk away from Omelas." The crypticness LeGuin adds regarding their future makes their decision to leave noteworthy, portraying their mission as heroic and commendable, and a show of a brave rejection of happiness for what is good. Ursula urges us to never stay complaisant in what is morally wrong and to use our voices to create change. She leaves readers not with a solution, but with an open-ended dilemma: Are you any different to the people of Omelas?

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Rivals in Refreshment: The Coca-Cola vs. PepsiCo Saga

Jessica Sabapathy



“Coca-cola or Pepsi?”

A question that seems so inconsequential, and yet it is one that we have all come across at least once in our lives. A question that, when asked, compels an opinion from anybody and everybody, whether you are one to crack open a can on a scorching summer’s day or someone who prefers the natural refreshment of a cool glass of water. This rivalry seems almost ingrained in our culture, with websites and quizzes suggesting that we are ‘bold and daring and like to be number one,’ or ‘patient, dedicated and comfortable’ depending on our answer. Nevertheless, it is evident that this rivalry is one of the fiercest and most polarising amongst brands, and in this essay I am going to provide a breakdown as to why that is.

Origins of the Rivalry:

This almost never-ending rivalry between the two beverage companies first set in motion with a confrontation between their founders when John Pemberton, the founder of Coca-Cola, created the drink in 1886. [1] It was only a few years later when Caleb D. Bradham invented Pepsi - a drink that, with no discernible difference to Pemberton’s, would erode into Coca-Cola’s profits and take hold of their

market share in the fizzy drink industry. And so, it was then that the so-called ‘Coca-Cola and PepsiCo Saga’ began.

Marketing wars:

Coca-Cola initially dominated the market with their genius marketing campaigns that built a strong brand loyalty amongst their consumers. One being their association with Santa Claus in the 1930s which embedded the company into American culture, essentially positioned themselves as the face of the beverage industry. After all, *‘you can never beat the original’*.

However, with PepsiCo’s ground-breaking marketing strategies, they eventually caught up. The tension between the two brands had already been rising when the firm launched the ‘Pepsi challenge’ in the 1970’s. This kickstarted the marketing wars between the firms and firmly declared Pepsi as Coca-Cola’s adversary in the form of a blind taste test. [2] The campaign was a pivotal moment, successfully persuading many Coke drinkers to switch their demand to the close substitute, Pepsi. This not only boosted their profits and market share but also sparked a series of retaliatory campaigns from Coca-Cola. Now coupled with both firms pushing for international

expansion, their determination to be global market leaders and objective to profit maximise, the stage had been set for decades of fierce competition.

Oligopoly Dynamics:

As this feud only grew and grew so did the rival brands, with the two ending up with a combined market share of 65.3% as of 2020 [3] and by having a 2-Concentration ratio greater than 60%, it was official: both companies had formed an oligopoly in the carbonated soft drink sector worldwide - a market dominated by only a few large firms. This Oligopoly, that the two firms had produced, created a market which alternative brands had no hope of even entering, let alone competing within. [4] As a result of this, the two beverage giants have shaped the beverage industry to what it is now, with an increased incentive and resolve to generate strong product differentiation to set the two brands apart.

Tactics used in the race to the top:

Within such an imperfectly competitive market, such as this, market share is always up for the taking and who that is, well, that's up to the incumbent firms to decide. The firms must answer the question: Who wants absolute dominance most?

With such high levels of uncertainty, it is then that these firms must engage in interdependent strategic decision making, in which the understanding that 'each and every move by a player attracts retaliation' is imperative. [5] Tactics such as the effort put into branding, advertising and business expansion become the very core for the non-price battle between the two rivals. In the case of Coca-cola, the company had

used its super-normal profits to reinvest back into the company to increase brand awareness and to achieve dynamic efficiency through product innovation and sponsorship. This is why Coca-cola is the longest standing partner of the Olympic games, starting with the 1928 Olympic games in Amsterdam. [6] It is also why the company has satisfied the changing wants and needs of their consumers by producing more than 3,000 beverages, from diet and regular sparkling beverages to still beverages. [5]

On the other hand, for PepsiCo their most effective strategy was their cost leadership strategy with their main aim being to produce their products with the lowest cost of production. By being able to sell their drinks at a price equal to or close to its market price, Pepsi was able to enjoy more profit by exploiting economies of scale. [7]

Game Theory in action:

If you're wondering why Coca-cola and PepsiCo can't just team up instead of competing through expensive price and non-price strategies, you would not be wrong. After all, we do this after a long three hour game of monopoly when we all just want to take the easy way to victory. However, the Game Theory and the Prisoner Dilemma can tell us why, as rational players, that is not possible.

Essentially the game theory between Coke and Pepsi describe four possible scenarios in which Pepsi decides to lower their prices and Coke retaliates equally, or Pepsi lowers their prices and Coke does not and vice versa.

The prisoner's dilemma is probably the most famous game theory of all time and acts as a framework to help us understand the importance of evaluating another player's decision when making our own. [8] In the best case scenario, both players would decide to not cut their price. This implicit agreement would allow Coke and Pepsi to enter into a joint venture to maximise both their profits as all consumers are forced to pay higher prices. However, with such high uncertainty, if one firm, i.e. Pepsi, cuts their price and Coke doesn't, Pepsi can steal a significant amount of market share and erode into the profits of Coca-cola. So the dominant strategy for Coke would be to cut prices, as it is the best decision for the firm to make regardless of the strategy Pepsi chooses to take.

Inevitably, as a rational player, Pepsi would adopt the same strategy as they, too, aim to make the optimum decision and minimise their risks given the circumstances. This causes Nash

equilibrium to set in, which is a case in which both players (Coke and Pepsi) choose their best strategy given the strategy all other players have chosen.

This turns out to be a lose-lose situation as, by doing this, both firms end up competing away the profits that they would have otherwise obtained if they did not team up. [8]

Future Outlook:

Although Coca-cola won the battle in this rivalry, with a higher market share of 46.5%, it is the consumers who have won the war. The contention between these two brands have spurred innovation, fueled marketing genius and has helped to push each other to improve quality, performance and variety for their consumers.

With a developing society and the creative disruptions of ever-changing technology, it will be interesting to find out how the Coca-cola and PepsiCo saga pans out in the future.

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The Role of Artificial Intelligence in Medical Diagnostics: Transforming Healthcare

Inaya Khalfan



The recent rapid growth in the usage and accessibility of Artificial Intelligence (AI) has left many sectors of society to explore what its impact will look like; how little or how much, positive or negative. The reality is that it has already been implemented and used in many ways, one of those being healthcare. Diagnosing and predicting medical problems is an aspect of public health that AI has already revolutionised. What does this look like? How does it work?

AI's Machine Learning (ML) technique, [1] and its subtechnique, Deep Learning, have been used in the diagnosing aspect of healthcare. It has reduced the workload of physicians, decreased errors and times in diagnosis, and improved performance in the prediction and detection of various diseases. [2] The learning methods of machine learning are categorised into: supervised learning, unsupervised learning, and reinforcement learning. Plainly, a high volume of data is fed into the algorithm, which is then processed, grouped, and classified. The data is split into two sets: training and testing. The more training data, the higher the accuracy of the AI's assessment. The testing data is then fed into the model, at which point, the

statistical accuracy can be calculated. This would work by using a high volume of past patient data for a specific condition or disease. An example of this is detection of Rheumatoid Arthritis of the knee. [3] This is one of the cases in which a medical professional's diagnosis would come after the condition has presented itself, which is of little help. Early detection through scans had been attempted, however, despite many physicians' continued effort, a distinction was difficult to make. It was found that when scans of the knee joint - 3 years prior to presenting development of bone damage, and after doctor diagnosis - were fed into an ML model, a pattern of osmosis was determined which allowed AI to distinguish the signs of the condition that would present itself later. [4] [5] This is just one of many examples of how using AI can predict the development of diseases with unprecedented accuracy and remarkable efficiency.

Nonetheless, this prompts the question of how the introduction of AI has influenced and will continue to impact doctors. What about their jobs? What of their job descriptions? It's important to understand that despite the revolutionary nature of these AI models, a doctor's job would not

become obsolete - they would instead be *aided*. A doctor would be able to recognise the judgement made by the AI and check, first and foremost, if the diagnosis is correct (as far as they understand). They would then also need to discern a treatment plan. [6] The AI would enable the doctor to focus their efforts on their role of patient care and support, allowing their efforts to be more widely spread in the long run, ultimately helping a greater number of people. A case in which the importance of the synergy of AI and doctors is demonstrated is in the detection of sepsis. Creatinine is a waste molecule that is filtered out by the kidneys, and with sepsis, this filtration stops due to deterioration of the kidney. Because high creatinine levels are also an indication of many other diseases and problems, this information alone is not enough to assuredly diagnose and treat sepsis. This is where AI comes into play. A model was created that would take into context this increase in creatinine as well as other distinguishing characteristics of sepsis. [7] This is done very efficiently, and the concluding prognosis of the AI can help doctors administer the right drugs early enough. In the case of sepsis, mortality increases by 7-8% with every hour delay in treatment. [8] The diagnosis made by the AI can alert doctors to give the right treatment to patients with sepsis, likely saving their lives. The same process may have been delayed by many hours had the medication been given only after the doctor themselves had realised the conditions of the patient, thus potentially costing a

life. This is one of many cases where a patient's disease can be recognised and treated before the deterioration of their condition and mortality. [9] This is not only economical, with the time and money saved on treatment of more severe cases, but will significantly reduce patient suffering. [10]

Naturally, there are some challenges, the main one in this case being the lack of sufficient amounts of data to be able to train the algorithm to enough accuracy. Furthermore, for many rarer conditions, AI may not be able to assist with diagnoses. However, this means that the accuracy of AI can only increase with a wider access to data and increased input; the efficiency means that doctors can concentrate their efforts on assessing the rarer cases.

In conclusion, AI is a powerful tool for diagnostics in healthcare. It is one that experts from varying fields (outside of medicine) need to come together to create and adapt; they ought to implement these AI models for varying medical conditions. Along with the recommended check up tests, these models will help to predict who will be impacted by certain diseases, notably aiding their recovery process. The next steps in this regard are to widen the accessibility of these tools and to support their implementation in areas deprived of healthcare and doctors. Artificial Intelligence's eventual broadened impact on humans and their maladies will be massive, and hugely positive.

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Quality of Life Sentence? - An Exploration of the Environment Around Prisons

Alice Borthwick



There are more prisons in London than any other county in the UK, such as the well known Pentonville and Wormwood Scrubs. There are eight in total in London, including the country's most concentrated number of Class A and B which are the highest security providing refuge to only the most dangerous prisoners.

In the UK as a whole, 43% say they would not want to live near a prison, however it should be noted that only 38% actually check to see if a prison is nearby. This essay explores the quality of life of people who live surrounding prisons, debating whether the positives outweigh the costs and delving into whether there are any solutions to the issues that people face.

The housing prices around prisons are well known for being low, for example in the Caledonian Road area, next to the Class B prison Pentonville, the average house price is £376k on Roman Way, whereas less than 500m away is Mountford Crescent where the average house costs £6.9 million! The effect appears only in the prison's immediate vicinity, showing as an

anomaly in house value. People are deterred from buying a house in this area because even though the price is lower, the ability to sell if needed would be very difficult.

The families of an inmate often have to move, as despite policy aims to do so, prisoners are rarely incarcerated near their home address so they may move to make visiting more practical and will likely buy/rent homes near the prison. These temporary resident families could take away from the community aspect of the area due to the fact that once the inmate gets out the family is likely to move back to where they originally lived. They might not be living there long enough to make connections with people around them, and they may choose to keep to themselves because of the stigma of being a prison family.

However, other households who live near prisons are usually long term residents because of the difficulty of selling homes or buying comparable homes for a similar price. This could have some positive aspects as it means they can build a

community of people they will end up knowing for an extended period of time.

Generally, although the community aspect of the direct surroundings of prisons may be better, if you own a house near a prison you can expect to make less on property compared to a similar property elsewhere and you can also expect some loss in rental income, and it should be noted that this price disparity is only for houses directly around prisons, a couple of streets away the prices are far less affected.

Another deterrent to living near a prison is the worry of high crime. Prisons are usually located in lower income areas where crime levels are already heightened, so it opens up the question as to whether the antisocial behaviour and crime in an area is due to the prison itself or just because it's in an income deprived area.

Another concern about living near a prison might be the worry of escaped prisoners. Whilst people may be more worried about living near a high security prison such as Belmarsh which is London's only Class A, they would be less likely to see prisoners due to the high level of security. An interviewee reports that he 'was not worried' about living near Wandsworth prison, even after the extremely rare escape of the prisoner Daniel Khalife. He said that 'anybody who gets out, they're not likely to hang around here'. Even in this unlikely situation, those living near still felt relatively safe.

Those who live near lower security prisons such as Class C and D are actually more likely to come in contact with prisoners as they are given more freedom in the

neighbourhood. Some feel that halfway houses, which are community facilities for individuals that are attempting to return to society, are the worst to live next to. There is a perception that the level of violence and drug use is increased, due to the establishments not being high security and those living there having more freedom than prisons. Although living near a high security prison could be worrying for some people as they are scared they will come across prisoners, those who live near lower security prisons are actually more likely to come into contact with prisoners in their neighbourhood more often.

Some decide against living near prisons because of the additional noise pollution in these areas. Many report that the only complaint of living near a prison is this factor, describing the worst time of day as being the shift change. When the prison guards switch over, which happens a few times a day, there is an influx in traffic and busy streets. Not only this but many prisons have alarms that are frequently tested including the nighttimes, causing disruption in the local surroundings because of how loud it is.

However, it is important to realise that almost everywhere in London is prone to disruption and noise pollution in some way or another. It's a densely populated city and there are a multitude of causes for noise complaints such as dogs barking, parties and traffic. It's also important to realise that while a lot of these factors can't be controlled, the decision whether to live next to a prison can be, which is why many choose to avoid it.

Many in political power have proposed solutions for the disruption that prisons can cause in London, and concluded that the best decision would be to move all London prisons to rural areas, where they wouldn't cause disruption to those living nearby. However the flaw in this suggestion is that prisons were initially built in London so that families of local inmates could easily see them on visiting day to maximise their rehabilitation process. Other solutions include moving the prisons to less densely populated areas of London, which does make sense. And yet, urbanisation invariably continues to fill all undeveloped areas, and a prison could be surrounded. An example of this is that when Pentonville prison was built, they chose Caledonian Road to build it on, because during the Victorian times it was very sparsely populated. However, as time progressed and urbanisation took place due to the expansion of London, more people moved into this area.

We cannot foretell which areas in London will urbanise and therefore it's hard to know where we should put prisons. The most ideal locations would be accessible by public transport and not surrounded by housing, so that inmates are still able to get visits, but also that communities aren't disturbed by the prison. Somewhere on the rural-urban fringe on a brownfield site would be the best location, as this is less appealing for housing development due to its former industrial use.

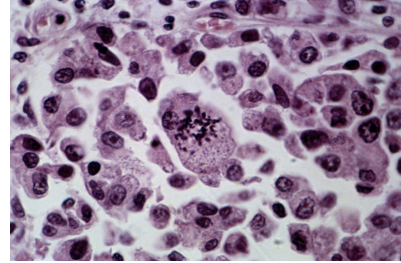
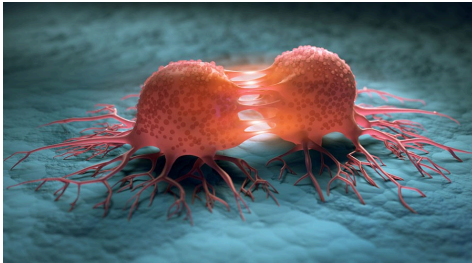
To conclude, whilst we can come to the agreement that prisons are necessary, it is difficult to find a location where building a prison would be welcomed. It's hard to balance accessibility for prisoners' visitors with a location that doesn't cause noise pollution, lower house prices and a fear of crime.

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The Ten Hallmarks of Cancer: How the Disease Takes Over the Human Body

Giada Mei Wu



Cancer is a disease that humans have coexisted with since ancient times, claiming on average 10 million lives per year worldwide today. [1] However, a large proportion of people are unaware of what exactly causes cancer to develop. The disease has ten hallmarks that enable it to colonise the human body, by preventing the immune system from carrying out its necessary functions, and allowing damaged cells to become even more damaged. These damaged cells tend to undergo uncontrollable division, resulting in a tumour being formed. Understanding the ten hallmarks is crucial to being able to develop drugs to combat cancer and save lives.

Cancer cells distinguish themselves from healthy cells, as they function otherwise. There are many variations in the shape and size of cancer cells, which have a larger nucleus than normal, as well as disorganised and abnormal chromosomes due to mutations in the DNA. This allows for many of them to continue to grow and divide into clusters of cells with no boundaries.

Cell division is a key process for the growth of organisms and the replacement of damaged or lost cells. This process must be thoroughly supervised to ensure cells are dividing in a controlled and safe manner,

which is where monitor proteins come into play. These are “tumour suppressors”, that supervise the “worker proteins” as they carry out the necessary processes for cell division, ensuring that unnecessary or excess growth does not occur. This system ceases to function correctly due to mutation: either in the worker proteins that do not allow them to respond to the monitor proteins, or in the monitor proteins that no longer allow them to control the worker proteins, thus allowing a cancer to develop due to the cell’s ability to evade growth suppressors.

In order to understand how cancer cells can uncontrollably divide, it is important to understand how a healthy cell grows, divides, and dies in a process called the cell cycle. The cell cycle is split into 4 phases. G1 is the cell growth phase, when the cell develops the size of its proteins and organelles in preparation for cell division. All of the cell’s DNA is then copied in the next stage - the S phase, before another cell growth phase (G2), in preparation for the M phase. This is where the cell undergoes mitosis, producing two genetically identical daughter cells. Checkpoints between each of these four phases are vital for safe division of healthy cells. These checkpoints work not unlike traffic lights - if a cell DNA is damaged or changed, the checkpoint

proteins give a red signal to halt the cell cycle, giving the cell time to repair damaged DNA. In some cases, the damage is too harsh and cannot be reversed, so cell death is activated. This ensures that only healthy cells are able to divide, and that damaged cells are not replicated.

If checkpoints do not work, damaged or mutated cells are able to avoid immune destruction and bypass the body's defence system. When a cell with damaged DNA undergoes cell division multiple times, a new cell with cancer causing DNA is likely to be produced due to accumulated mutations in the DNA. These new cells exhibit a lot of further DNA damage, leading to more genome instability and mutations. As these cancer cells divide more, they gain other capabilities. An example of this is when cancer cells spread to other parts of the body via the lymphatic system or blood stream, forming new tumours in a variety of other tissues around the body, subsequently causing further damage; in other words, the cell is activating invasion and metastasis.

Sometimes, cell checkpoints work too well and allow the cancer cells to thrive, by halting their division to fix any damage caused by the cancer treatment, helping the cancer survive and rendering the treatment ineffective. Consequently, researchers have been developing new drugs with the intention of preventing the cancer cell's checkpoint proteins from working. These "checkpoint inhibitor" drugs target and block checkpoint proteins on cancer cells so that they cannot perform regular checks during the cell cycle, preventing them from achieving cell proliferation, ergo killing the cancer cells. [2]

When a cell's DNA is healthy and unhindered, the checkpoint proteins send the cell a green signal, for it to keep dividing. In cancer cells, these checkpoint signals go haywire due to the changes in the DNA, causing the green signal to stay on indefinitely, triggering continuous and uncontrolled replication of the cancer cell. This sustained proliferative signalling leads to the formation of a tumour, and can occur due to various changes in the cell's behaviour. Often, the cancer cell forms their own growth, or "green" signals, and are able to do so due to their changed DNA. Other times, the cells express many growth signal sensitive proteins on their cell surface membrane, and therefore respond excessively to the growth signals from surrounding tissues, enabling replicative immortality of cancer cells, as they are constantly being instructed to grow and replicate. Furthermore, the conversion of proto-oncogenes to oncogenes causes sustained proliferative signalling, and will lead to cancerous growth. Proto-oncogenes control cell division, and become oncogenic when deregulated. There are three ways in which this deregulation can occur: The genes may move to a different part of the chromosome - gene translocation, there may be multiple copies of the gene present in the genome - gene amplification, or changes in the DNA sequence can take place - this is simply known as mutation.

In a cancer-free body, all cells that divide are healthy. However, this cannot mean that DNA mutation never occurs: when our immune system identifies damaged cells with the potential to cause harm, they trigger a "self-destruct button" within the cell. This is a process known as apoptosis, which plays

a key role in preventing tumour formation by ensuring only healthy cells can survive. Apoptosis is controlled by a protein known as P53, often referred to as the “guardian of the genome”, as it protects and monitors cell health. It is the tumour suppressor protein that halts the cell cycle when DNA damage or mutation is detected at a checkpoint, so any damage can be repaired. If the damage is beyond repair, P53 triggers apoptosis and the cell self-destructs and will be removed from the body. The P53 protein is crucial in preventing cancer; over 50% of cancers display abnormalities in P53. In the rare case that an individual only inherits one functional copy of the P53 gene from their parents (known as Li-Fraumeni syndrome), that individual is predisposed to developing cancer. In cancer cells, apoptosis, or the “self destruct button”, can be viewed as broken or jammed, hence they are able to resist cell death, and continue replicating. Due to the significance of apoptosis in the maintenance of healthy cells, finding out how to turn back on the apoptosis signal is key for effective cancer treatment.

Cancer cells are capable of hijacking the immune response to inflammation created by the tumour to aid their own survival and growth. When there is an inflammation in healthy tissues, infection-fighting immune cells sent by a functioning immune system engulf and destroy foreign intruders. Whereas in a tumour promoting inflammation, the immune cells that normally target unfamiliar invaders are corrupted by cancer cells in the more complex, tumour microenvironment. [3] This results in the immune cells being incapable of destroying the cancer cells, as they have been transformed into tumour-promoting immune cells. These new,

corrupted immune cells secrete pro-survival, pro-migration, and anti-detection factors, subsequently allowing the tumour to survive, grow, and spread throughout the body via metastasis. [4]

For a solid tumour to grow beyond a few millimetres in size, it requires a reliable blood supply for the cancer cells to carry out their functions. To do this they promote formation of new blood and lymphatic vessels from a pre-existing vasculature, that are essential to meet the oxygen and nutrient demands of the tumour, via a process known as angiogenesis. This is a critical process in both the survival and growth of the tumour, as a lack of sufficient blood supply often halts tumour growth, potentially leading to tumour shrinkage and death of cancer cells. Without inducing angiogenesis, tumours can grow to a maximum of 1-2 mm³ in diameter before death.

Cancer cells divide significantly more rapidly than healthy cells, hence they require more energy to carry out cell division. [5] In addition, cancer cells are typically located in anaerobic conditions, and consequently need to be capable of releasing energy without oxygen; to do this, they break down glucose into lactic acid via anaerobic glycolysis. Glucose enters cells via glucose transporter protein channels, which selectively facilitate glucose molecules to enter. Cancer cells produce more glucose transporter proteins, with the purpose of more glucose entering to be used in anaerobic glycolysis. Once the glucose has been broken down into lactic acid, various metabolic pathways are able to rapidly produce ATP, releasing energy in the process. These metabolic pathways are usually under strict surveillance, as they require highly specific enzymes to process

the molecules to each step. [6] In cancer cells, these enzymes are often over-expressed or mutated, allowing for them to deregulate cellular energetics and produce enough energy to sustain the tumour, despite being in anaerobic conditions.

It is imperative for the public to grasp how these hallmarks allow cancer to thrive and

rapidly corrupt the body, hence the importance of an early diagnosis. Signs that an individual may be afflicted with cancer include fatigue, visible abnormal growths, and unexplained weight loss: spotting these symptoms early and seeking immediate medical attention is crucial for effective cancer treatment and survival. [7]

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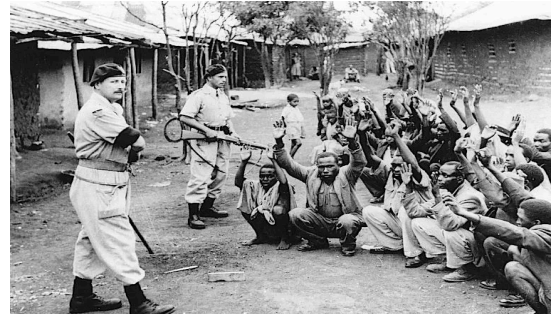
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Compliance: When is it complicity?

Alyssa Moniz



Given the identical prefixes, the dichotomy between compliance and complicity is quite tough to grasp. Yet, there is a clear difference between compliance and complicity with regards to human rights. Compliance is the cornerstone of international humanitarian law, denoting its adherence to the rules and regulations for the greater good. Complicity, on the other hand, entails the involvement in, or support of, human rights violations. It is assumed that states comply with the agreements that serve their immediate interests over the collective, [1] with the rational choice theory affirming that states are rational and self-interested. With this, most countries comply with this protection of human rights, [2] as the benefits outweigh the costs. The rule of law ensures that all citizens are treated equally before the law - viewed as normative. However, countries may become complicit when their interests override the protection of these rights - a phenomenon observed across generations. Ultimately, the critical point at which compliance transitions into complicity depends on discerning how self-interest influences decision-making amongst relative parties.



Complicity in the Past:

Historically, sovereign countries have had the right to make legislation, given its legality within the framework of their jurisdiction. Countries ensure that the legislation that is passed complies with the law, yet there can be loopholes around technicalities - like human rights obligations - that hinder aims from being met. This was exemplified in the colonial era, with private companies benefiting, either directly or indirectly, from the abuse of human rights. The theory of '*Baasskap*' prevailed during the apartheid in South Africa, where the minority white population dominated the political and economic spheres of the country. This '*Baasskap*' ideology was compliant with the legal system, although it enforced racially discriminatory laws that further segregated the native people. This can be said to have directly contributed to the systematic oppression that the native population faced, thus being complicit in it. Countries that traded with companies that operated in South Africa during this period can be said to have indirectly supported this oppression from which they benefited. Switzerland, for example, made attempts to distance itself from the apartheid regime, yet still left room for leeway. The country imposed legal

measures in adherence with its condemnation of the apartheid system, imposing a cap on annual investments in South Africa in 1974. Nevertheless, Swiss companies regularly found ways to bypass this investment cap, with over 10% of all foreign investments in South Africa being from Swiss companies between 1979-90. [3] Although these Swiss companies were compliant with the law, their actions directly benefited from the oppression of the native South Africans, making them complicit in its perpetuation. This leads to the debate about the extent to which self-interest can shift before it poses significant ethical dilemmas.

It was not only private companies that benefited from human rights abuses during the colonial era. The government at the time of the British occupation of Delhi in 1803 is described as a diarchy, [4] with the Mughal Empire submitting to the British Empire to retain its throne. The Mughals' self-interested act of complying with the British Empire to work within it is argued to have made them complicit in the devastating effects of the colonial period. There have been claims that the British Empire brought some benefits to India by modernising the country, such as the introduction of railroads to connect the country. These railroads, however, had been explicitly introduced by the British to not only extract resources to take to England, but also to be able to transport their troops freely to rid any possible dissent, thus furthering colonial rule by maintaining control of everything. [5] The self-interested motive always prevailed, with the Indian people suffering as a result of economic exploitation, famine, and other methods of suppression. The Mughal

Empire which complied with the British can be argued to have allowed this oppression to occur, directly benefiting from these human rights abuses for their safety.

Periods of oppression in the past can be said to have only been possible with the acquiescence of others. [6] The Holocaust is a clear example of this, for the genocide of millions of innocent people would not have ceased without direct action, and this did not occur until it was too late. If the people had stood up for the rule of law, murders on the scale of the Holocaust would not have been possible. [7] This involved the bystander effect, where individuals in occupied Germany were - at the time - less likely to offer help to the victims in those circumstances. Evident also is the distinction between active and passive bystanders, with the active bystanders aiding the Nazi regime in identifying and reporting Jewish people. The effects of the Holocaust were not only the result of the direct perpetrators against the victims, but also the bystanders who witnessed the atrocities and did nothing about it. There are different arguments as to why individuals stood by the atrocities, some being the general anti-Semitic sentiment, and others being the deep fear of the Nazis. Here one can see self-interest being placed above the needs of the collective; thus, the main reason for the bystander effect both then and now is the overall inclination to turn away from those in need. This is apparent in the famous quote by Pastor Martin Niemöller "First They Came," which expresses how Germans had been complicit in the imprisonment of their Jewish neighbours through their silence. Although complying

with the authority of the Nazi Party, the aftermath of the Holocaust resulted in a plethora of guilt, not only from the perpetrators but the bystanders themselves. [8] This concept of guilt can be seen today as well, when compliance with one law results in being complicit through another law, potentially having a devastating impact on the victim, the perpetrator, and anyone else involved.

Complicity in the Present:

The question of whether human rights are apolitical, and an individual state's stance on this, can affect complicity. A central concept of human rights is that they are inalienable; [9] they cannot be 'taken from or given away by the possessor', as asserted repeatedly in the 1948 Universal Declaration of Human Rights. Human rights are also declared to be 'universal', meaning that everyone is entitled to these rights simply for being a human. The UDHR ensured that international bodies monitored these early ideas of human rights, and it was the first occasion in which the organised community of nations had made a declaration on fundamental freedoms. Generally, it can be said that the UDHR is complied with so that countries can demonstrate a commitment to human rights within the international community, yet this can be inconsistent with adherence becoming an ongoing challenge. War-torn countries may often struggle to uphold human rights, with limited resources hindering their ability. This can be said for any country in different types of conflict. During the COVID-19 pandemic in 2020, the UK government banned a meeting of groups of more than six people in England. This has come under scrutiny post-pandemic, as it can be argued that the

government has abused the rights of individuals by arbitrarily establishing rules that infringe on Human Rights doctrines. [10] However, in the interests of public health, it must be seen as necessary to comply with restrictions in concern to the country's health. Bentham's doctrine of utilitarianism opposes actions that cause harm, and it is the ethical question of what is seen as more harmful - compliance to human rights or compliance to public health concerns, both resulting in the complicity of the other.

In the pursuit of national security, countries often prioritise their interests, which can lead to the abuse of power and complicity in actions undermining ethical norms and human rights. The dichotomous response to Hamas' attack on Israel on October 7th was justified by Hamas as retaliation against Israeli actions and rejecting its right to exist. It can be said that Israel, perceiving the West Bank as a critical security buffer, aims to prevent Palestinian territorial integrity, viewing anti-Israeli groups like Hamas as significant threats. This has prompted Israel and its allies to justify bombings as self-defence under Article 51 of the UN Charter, which inherently permits self-defence to take place if an armed attack occurs against a member of the United Nations. This justification, however, can be contested since the threat "emanates from a territory it occupies". [11] Western governments have condemned Palestinian groups whilst cautiously criticising Israel, appearing hypocritical given their rejection of Israeli settlements under the 1949 Fourth Geneva Convention of 1949, which prohibits transferring an occupying power's

population into occupied territories. [12] The UK supports Israel's right to defend itself, provided that it is within international humanitarian law bounds, yet its government lawyers have indicated that Israel has breached this law in Gaza. [13] Scottish National Party MP Steven Bonnar argued that if Israel has breached this law in Gaza, the UK risks complicity "in a humanitarian catastrophe" due to military support, violating international humanitarian law. The UK's compliance in upholding Israel's right to self-defence, therefore, is leaving it complicit in Israel's actions of violating international humanitarian law. Thus, the UK's stance leaves it complicit in the erosion of human rights.

In the context of international agreements, it is recognised that compliance does not necessarily imply complicity. While some countries say that they adhere to these agreements, their actions may not actually reflect this genuineness. It is this misuse of power that leaves states complicit in abuses, and this may result in the weakening of the state's authority. The Chagos Archipelago has been at the centre of a protracted legal and political dispute between the United Kingdom and Mauritius since the decolonisation process in the mid-20th century, with the establishment of British Indian Ocean Territory (BIOT) allowing for the UK to lease the strategically located island of Diego Garcia to the United States for the construction of a major military base. Mauritius' consistent challenge of the legality of the UK's action is because the detachment of the Chagos Archipelago from its territory violated international law and the right to self-determination. The

International Court of Justice's advisory opinion in 2019 affirmed that decolonisation had not been lawfully completed, with the UK's continued administration being constituted as a "wrongful act." Despite this, the UK's position is complicated due to its long-standing agreement with the United States, which maintains a strategically important military base on Diego Garcia. Although the UK is willing to comply with the ICJ and engage in negotiations with Mauritius, this would leave them complicit for failing to adhere to their agreement with the United States. Yet if the UK were to uphold this agreement, they would be complicit in the wider human rights violations that have taken place as a result of their occupation of the Chagos Archipelago. This leaves the UK in a position where they need to make a choice on which action would leave them the least complicit in the future.

Complicity in the Future?

It is difficult to determine what the relationship between compliance and complicity will look like in the future. Upon reflecting on history, the best cause of action to break this relationship is through the actions of the body politic. The prolonged apartheid in South Africa persisted due to widespread compliance among Afrikaners, resulting in their complicity in the injustices that occurred. The compliance to the British Empire by the Mughals in India left them complicit in the societal disorder. As seen in the Holocaust, it was the compliance of the bystanders not taking action against the Nazis which allowed for murders on that scale to occur. The self-interest of these groups is something that can be said to be

inherent in human beings. At the same time, human beings are argued to be ethical creatures, possessing the inherent qualities to question the power that other groups have over them. This can sometimes be for their protection, but other times for abuse. Utilitarianism is

therefore significant when discussing the line between compliance and complicity, since it is the greater good that ultimately determines whether something is compliant or complicit. Thus, when actions violate inherent rights without restraint, compliance becomes complicity.

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