

# LIKE, LITERARY

MINORITIES VS MAJORITIES

*LITERARY CRITICISM,  
PHILOSOPHY, CLASSICAL  
STUDIES, POLITICS & WORLD  
AFFAIRS, MUSIC, PSYCHOLOGY,  
PHYSICS & MATHS,  
MEDICINE*



**INTERACTIONS,  
CHANGES, COMPARISONS.  
WHAT WE FEEL TO  
BE PLACED IN CERTAIN GROUPS  
AT CERTAIN TIMES, AND HOW  
THEY SHAPE THE WORLD.**

**Edited by Phoebe Fox, Cover design by Harriet Thomson**

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## Editor's Letter

Minorities could be people, cultures, ideas, linguistics, opinions, and suppressed perspectives. Majorities might refer to what takes up space in society, social pressures, expectations, systems of power, things “everyone” does or “should do”, conformity, and the noise that often overshadows smaller things, but also things that bring us together: music, art, humanity. These concepts are in constant interaction, in opposition or tandem, changing one another, creating and breaking stereotypes, and shaping the world we live in. We are all placed in groups, whether we realise it or not. Yet, we all bleed red, and we all sleep under the same sky. It is when these groups, these minorities and majorities, intend to overpower that the balance of humanity and our freedom to be fluid between these groups is lost.

## Minorities VS Majorities

The issues we face today as young people and as society in general are mounting. Look at any news headline and you can see it. Yet words, ideas, understanding, empathy, and acknowledgement, although seemingly so simple, is what needs to be prioritised in an accepting world. I feel this theme allowed for the exploration of many thoughts and concepts, and despite the divergences between such different sections, from philosophy to medicine to music, there has been an unexpectedly exciting and uniting thread that has linked them together.

Thank you to the editors of each section for their organisation and commitment, and to their writers for their creativity and aptitude.

On a more personal note, from being asked to write for the Lit Mag at the end of class in Year 7 until now, English has always meant a lot to me, and it has been such an honour to be believed in and trusted to lead this year's edition. The loudest thank you is to Ms Roberts, for allowing our expression and for cultivating my passion – I hope this final edition makes you proud!

We hope you enjoy!

**PHOEBE FOX**

## Magazine Foreword

Envisioning and supporting Like, Literary over the last six years has been one of the great joys of my time at Stockport Grammar School. Seeing it grow and evolve from something we produced during Covid into the rich anthology it is today has been an absolute privilege.

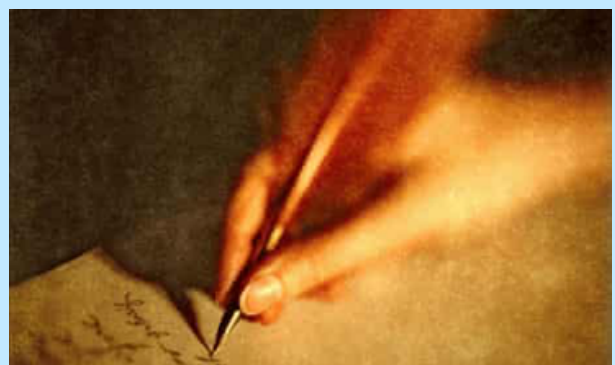
## 2026 Literary Magazine

Working with skilled, visionary Sixth Form writers and editors, and witnessing their passion and intellect brought to life on these pages, always reminds me of the breadth of talent we have here—and this year is no exception. I am immensely proud of this magazine in all its iterations, but I could not have hoped for a better finale as I pass on the baton.

Reading this edition, I was struck by the strength of its thematic approach and the compelling way the writers demonstrate how issues of minorities and majorities shape every aspect of our society. There is so much here to engage and challenge the reader: from social commentary to literary and musical criticism, from scientific inquiry to explorations of the ancient world.

This magazine is a symphony of life: sharply focused, expertly written, and beautifully edited by Phoebe. I hope you enjoy immersing yourself in the richness of these words, for, as Margaret Atwood reminds us, “a word after a word after a word is power.”

**MS ROBERTS**



# LITERARY CRITICISM

**Editor : MALAK HROO**

Literary Criticism, a space where voices meet, clash, and reshape one another, helps to structure different roles in our modern society, whilst simultaneously having the ability to reveal how power can be expressed through words within intricately crafted pieces, from classic novellas to foreign poetry. All of these reflect tensions between the significant and the marginal, the familiar and the overlooked. This section invites readers to better understand the inequalities of life as they are echoed in literature.

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Moore

## The Price of Romantic Idealism

In "White Nights", Fyodor Dostoyevsky evidently presents a complex and fleeting encounter between idealised romance and a bleak reality in mid-nineteenth century St Petersburg. The unnamed but self-proclaimed 'dreamer' wanders the city in perpetual solitude until he encounters Nastenka standing alone by a canal, weeping after being harassed by a drunken man. His intervention initiates a fragile companionship that unfolds across four luminous summer nights. The long days and short nights prevalent in the summer setting immediately establishes a contradiction whereby the Russian summer is physically bright yet undermined by the dark emotional weight of the narrative: solitude and unrequited love. As well as this, the 'White Nights' symbolise liminal space between day and night, which could be a reflection of the ease in which it is to confuse fantasy and reality, especially as a character facing dire psychological issues as a result of solitude. The interaction between literal light and emotional darkness showcases the central tension that Dostoyevsky deliberately illuminates: Imagined idealism of love versus

love when faced with the pressures of societal constraints.

Though written in the 1840s, a time where the social and political climate in Russia included rigid class structures, limited social and economic mobility, and the isolation of individuals, especially those who lie on the margins of society and therefore deemed minorities, critics argue that the text feels strikingly modern. In an increasingly urban society, intense but transient emotional connections are often made with strangers, whilst remaining fundamentally isolated within society. Dostoyevsky anticipates contemporary questions: is love sustained by emotional passion and intensity, or by social practicality and pragmatism? This can certainly be explored in many ways, including comparing the novella to a modern romantic tragedy: *The Great Gatsby* by F. Scott Fitzgerald.

The Dreamer's illusory behaviour could be justified as a way to compensate for his social isolation; the psychological response to loneliness in this case is escapism via imagination. A sense of security is created within him as a means to relieve him from the solitude that is suffocating him. Whilst this gives meaning to the dreamer as an



**... intense and transient emotional connections are often made with strangers...**



individual, it simultaneously places him outside of the margins of dominant rhythms of social life due to the fact that he is completely infatuated with his interior imaginary life, which is richer than his social life.

Love is idealised rather than enacted, and it could be argued that the dreamer falls in love with the idea of Nastenka, way before any reciprocal reality exists. This tendency is immediately exposed when he reflects that 'The most unexpected adventure happened to me' - (when meeting Nastenka the first time), a phrase that so simply and instinctively is able to be reframed from a completely chance encounter into something romantic and narratively significant. The dreamer views meeting Nastenka as nothing more than material to fuel a venture within his imagination. Through the characterisation of the meeting as an 'adventure', reality is dangerously elevated into a realm of fantasy. This is further reinforced when confessing 'I create entire love stories in my dreams', highlighting the extent to which the dreamer constructs his emotional life internally.

Many critics argue that the whole narrative of *White Nights* could also be a hallucination that stems from the dreamer's seclusion, using the fact that the dreamer says Nastenka's name a total of 138 times, but we never find out the dreamer's name, showing that his dreams are central to the over idealisation of other people. It could be argued that Dostoyevsky's existentialist philosophical views are reflected in the Dreamer's behaviour in the way that he creates meaning in his life through his thoughts, feelings and actions, which completely contradicts the passage at the start of the short novel, taken out of a poem called 'The Flower' by Ivan Turgenev, who is known for the popularisation of the concept nihilism. Perhaps this could suggest that the glimmer of hope that Nastenka provides

for the dreamer is nothing but transient, no matter how much meaning you may create in your life, disappointment and cynicism will always be proven correct, supporting the misanthropic view of nihilism that there is no objective purpose in life.

In contrast to the dreamer's out of touch, idealised notion of love, Nastenka embodies a more pragmatic and socially grounded approach, shaped by the constraints of the 19<sup>th</sup> century patriarchal society in Russia. Her emotional choices, ironically, are not actually mainly governed by her feelings, but more so by her necessity to have a sense of freedom and belonging in a social structure that unfortunately has no place for young and vulnerable women. Her confined domestic situation makes

This prospect seems even more urgent. When a lodger comes by her house temporarily, she quickly forms an attachment to him, which can be concluded to be rooted in what he represents – stability, security, and freedom. Unlike the dreamer's complete and unconditional devotion, Nastenka's love operates within clear boundaries of time and consequence, defined by the lodger's promise to return to marry her. This makes her intentions very clear that rightfully so, Nastenka prioritises emotional safety over intensity. Nastenka states, 'I love you because you have not fallen in love with me'. Her paradoxical confession exposes her desire for a form of affection that stays within safe boundaries within her control, therefore highlighting the incompatibility between her pragmatic emotional restraint and the Dreamer's consuming utopianism. Contrary to the dreamer, Nastenka is consequently positioned by the writer within dominant social order. The imbalance of emotional investment in this relationship finds striking

parallel to Tom and Myrtle's relationship in *The Great Gatsby*. In this novella, Nastenka's 'pretty small hand' suggests her vulnerability within the relationship, physically and emotionally, accentuating how the Dreamer's overwhelming emotional veneration compels him to assume dominance in Nastenka's life. Similarly, Myrtle's passionate attachment to Tom is brashly undermined when he violently asserts dominance when 'making a short deft movement [he] broke her nose with an open hand'. Both instances illustrate the consequences of uneven emotional investment: in each case, one party invests fully, while the other maintains and wields power to control the dynamic. Through these parallels, both Dostoyevsky and Fitzgerald explore how social, physical and emotional power can shape relationships, where emotional intensity flows to the detriment of the more vulnerable party (i.e. Myrtle's lower echelon background and the dreamer's social solitude and therefore extreme over-affection)

Ultimately, *White Nights* presents modern love as unevenly distributed, moulded as much as social practicality and belonging as by emotional extent. Love can be sincere but unsustainable in a world that values continuity and social order. This is captured in the novella by the dreamer: 'A whole minute of bliss! Is that really so little for the whole of a man's life?'. In societies that privilege emotional restraint, those who feel most deeply are briefly illuminated, their passion being intense but inevitably outnumbered. Love is presented as socially conditioned and idealised love is depicted as beautiful but extremely unstable.

**MALAK HROO**

## Goethe Poetry : 'Prometheus'

Johann Wolfgang Von Goethe, known to some as "Germany's Shakespeare", is regarded as one of the most influential European writers. Goethe's expertise situates him in the epicentre of German culture, especially considering his contributions to the Sturm and Drang movement, a proto-romantic movement in German literature from around the late 1760s and early 1780s. Literally translating to 'storm and stress', it prioritised individualism, passion and raw emotion over rationalism, often critical of the idea of minority and majority. Two of Goethe's most famous lyric poems stage this notion via different attitudes towards higher authority.



**... majority, is necessarily always absurd and wrong, for it is lazy...**



In a conversation with Friedrich Von Müller in 1829, Goethe is thought to have said, "Die Menge, die Majorität ist notwendig, immer absurd und verkehrt; denn sie ist bequem, und das Falsche ist stets viel bequemer als die Wahrheit." This can be translated as "The crowd, the majority, is necessarily always absurd and wrong, for it is lazy; and falsehood is always much more convenient than truth."

This is prevalent in one of, if not his most famous poem, 'Prometheus'. It was born out of the Sturm and Drang movement. Appearing in Vol II of 'Vermischte Gedichte' (assorted poems), the tale tells only half of a compelling, complex story until placed with its successor 'Ganymed'. The two should be understood as a pair, acting as each other's complementary antithesis.

Firstly, Prometheus adopts the voice of a titan addressing Zeus, who holds contempt towards his gods in the opening line, "Ich kenne nichts Ärmeres unter der Sonne, als euch, Götter!". He even rejects the conventional nature of a god, who transcends the planets, stars, space and time. Rather, he sees Zeus as beneath the sun; something not that he created but rather places him physically and metaphorically closer to humans on Earth. Prometheus grounds purpose and power in humans and nature - the lines "und meine Hütte, die du nicht gebaut, und meinen Herd, um dessen Gluth du mich beneidest" further supported this. He prioritises human labour and efforts over God's omnipotence. This could suggest that he feels he knows better than God and transcends God's moral implications.

This inversion of a classic understanding of God strips Zeus of his power. His repeated questions, "Ich dich ehren? Wofür?" shows his hesitation at worshipping Zeus. He questions his morality, which is conventionally granted by God himself, and therefore implies that Zeus is perhaps something not truly divine or benevolent. On the other hand, perhaps Goethe isn't trying to make us reject the notion of God as an unforgiving tyrant, but rather he is making Prometheus out to be a fool.

This idea is further supported in Prometheus' hypocrisy and idiocy. Although he condemns Zeus, he himself follows in his footsteps, assuming the role of a deity. - "Hier sitz' ich, forme Menschen nach meinem Bilde,." This echoes biblical creation, Prometheus painting himself out to be a more moral, guided figurehead/architect for humanity, assuming the role of a God despite condemning Zeus' superiority. This could also be interpreted as Prometheus' mocking of God.



Ganymed acts as a direct foil to Prometheus. The aforementioned accusatory line of Prometheus, full of resentment, juxtaposes Ganymed's closing exclamative, "Alliebender Vater!", assuring God's benevolence and submitting to his divine power. The poem is ended with a simple, yet powerful view Ganymed has towards God.

The natural imagery in Prometheus is representative of his contentious stance, with references to "Eichen und Bergeshöhn", "Disteln" and "Blüenträume reifen". Prometheus' disdain is so prominent it has caused a disturbance in nature. This directly juxtaposes Ganymed, illustrating beautiful floral imagery. The speaker notes to God, "Deine Blumen, dein Gras drängen sich an mein Herz". The flowers and grass literally press against his heart, stressing the idea of their closeness, intensified by "Umfangend, umfangend!". Prometheus' worship of nature over God, whereas here the natural world and God are intertwined, where nature, God's sacred creation, serves God, thriving in divine care. Ganymed does not call into question or contend God's law.



Both poems have clear links to Greek mythology; In the classical myth, Ganymede is presented as an object aligned to the divine, taken to Olympus in the form of an eagle, where he becomes the gods' cupbearer and is granted immortality. Prometheus was a titan, taking fire from the gods and instead giving it to the rest of early humanity.

Ganymede's devotion and loyalty to the gods brings him closer to them, away from earth ridden with sin, immorality and the notion that humans know better than god, which is rife in Prometheus. This is replaced with the gift of immortality seen in Greek mythology, alluded to when Ganymede exclaims, "Hinauf! Hinauf strebt's", conveying his excitement and willingness to achieve upward mobility, both literally and metaphorically. On the contrary, Prometheus asks the question, "Wer half mir wider der Titanen Übermut?". He believes that God has not aided him in any way and therefore does not deserve his worship, and the question remains unresolved, thus distancing himself further from God and heaven.

Moreover, Prometheus asks, "Hast du die Schmerzen gelindert je des Beladenen?",

questioning what good the gods have done for the common people, skeptical of the gods' doing. He not only becomes a critical judge before the gods in his scrutiny, but also makes outright derogatory, blasphemous claims, calling Zeus "Dem Knaben gleich". He attempts to belittle and emasculate Zeus. It could be argued that Zeus' lack of presence within the poem showcases Prometheus' foolishness even further; whilst Prometheus, accusatory, enraged, throws questions and assumptions at the supposed omnipotent, omniscient gods, they in return leave no reply.

Overall, both of the speaker's identities are shaped by their relationship with God - Ganymede becomes defined through his relationship with God whereas Prometheus is resentful without God. He prioritises selfhood and autonomy, however his heart seems cold, aggressive and hostile. However, when Ganymede surrenders to God, he does not lose. Rather he is rewarded by God, living what seems to be a peaceful, fulfilled life. Although Prometheus' rejection of and by God allows him to live off of his own accord, he is left completely isolated and grows bitter.

**ELLA HIGGINS**

## Exploring Childhood : Understanding Victor Hugo's "L'enfance" in context to his life

"L'enfant chantait, la mère au lit, exténuée, agonisait" (The child sang; the mother... on the bed, exhausted and dying")

These words begin Victor Hugo's poem: "L'enfance" ("Childhood"), a poem written for his collection "Les Contemplations" ("Reflections") published in 1856. Hugo remarks on childhood blitheness and innocence in comparison to a mother's suffering and agony. Unlike many of Hugo's more prominent and political work, "L'enfance" contains a certain sense of intimacy or a quieter perspective - it is a deeply personal and sad poem aligning with his pivot towards Romantic views: where children were believed to be uncorrupted, innocent and care-free.

The poem centres around a child who is singing, oblivious to his mother who is dying in bed. Hugo presents the child as unburdened and unknowing, which is tragically at odds with the mother who is acutely aware of her own impending death. There is a constant contrast between the child's singing and the mother's approaching death which evokes a sense of despair and poignancy which Hugo uses to emphasise the inevitability of death. The poem was based on Hugo's own experience after witnessing the death of Madame Ginestat who died of tuberculosis in 1855 - some critics suggest that Hugo wanted the poem to feel as though it foreshadowed his own daughter's later death. It seems that this poem reflects on Hugo's own personal life, given that he outlived 4 out of his 5 children, the description of the mother in "L'enfance" seems to echo a sense of desperation that you might expect from Hugo - The mothers focus on her own child rather than her own physical health.

As a whole, "Les Contemplations" consists of 156 poems, with memory and reflection being a key theme in the collection, it is said that parts of the anthology are dedicated to his daughter Leopoldine Hugo - who drowned

..in the river Seine. Notably, "L'enfance" was written significantly before many of the other poems in the collection (1835) but, although it is a small poem, it still shares a sense of sadness and reflection that was a common trope in the collection.

In "L'enfance", Hugo contemplates childhood innocence, drawing juxtapositions between the child and mother. Hugo chose to keep the characters anonymous to keep them as symbolic rather than exemplative, I suppose he wanted the poem to be part of a wider message about Childhood rather than just an anecdote. Hugo once said "Mothers arms are made of tenderness, and sweet sleep bless the child who lies within" as part of his book "Les Misérables" - his message on children and motherhood ring true to all aspects of his work. In "L'enfance", we see a mothering and maternal nature with "The poor mother by her darling's side" ("La mère, à côté de ce pauvre doux être") although "Pauvre doux" translates to "Poor gentle soul" - it is almost sad that the child is so oblivious to his mother's poor health - she seems to prioritise her child's wellbeing over her health.

"Les contemplations" as a volume was divided into "Autrefois" (Yesterday) and "Aujourd'hui" (Today) with his daughter's death dividing the two sections. There seems to be a distinct separation in themes between the two sections.

"Autrefois": In these poems, there is a joyful, nostalgic and romantic tone. They were written at the time of the start of his love affair with Juliette Drouet. There is a sense of freedom and innocence including the poem: "L'âme en fleur" ("The soul in bloom") depicting a time of youth and romance.

"Aujourd'hui": Following on from the death of his daughter, these poems are often darker

## Minorities VS Majorities

and melancholic. Many of these poems were written in his exile. Hugo consistently writes in mourning for his daughter, poems include "Pauca meae" which is often interpreted to mean "A few things left of my daughter".

Notably, "L'enfance" was written in "Autrefois" but, for me, the poem contains elements from both sections. The theme of childhood is reminiscent of the innocent, care-free ideas shared with many poems in "Autrefois" but the underlying tones of sadness are often associated with "Aujourd'hui". It is significant that Hugo should call these two sections "Yesterday" and "Today" - it indicates how he is reflecting on a lost, happier life and is currently trying to figure out his own path through loss and exile.

In terms of "Minorities and Majorities", "L'enfance" is simply a small poem in a large collection - it is combined with the other poems to reflect Victor Hugo's major shifts in his life: political and religious views along with his own personal circumstances. In the context of Hugo's life, "L'enfance" seems to reflect a sense of realisation, from the mother, about the preciousness and vulnerability of life - there seems to be an innocence coming from the child that reflects the blissful obliviousness of childhood. The poem is focussed in an intimate and personal setting, contrast to the grandeur of political works such as "Les Miserables", ironically both written by one of the most influential French writers of all time.

**THOMAS STANTON**



**... a sense of realisation ... about the preciousness and vulnerability of life...**



## The silenced majority's will through the voice of the spirited minority: An exploration of class, oppression and revolutionary idealism through Victor Hugo's *Les Misérables*

Victor Hugo's Magnum Opus, one of the most important French language novels in history portrays a France of 'Haves' and 'Have Nots' where the memories of revolution remained planted in many minds. Published in March of 1862 while Hugo was in exile in the Channel Islands, this novel acts as both a scathing critique of the rigid class system that had entrenched itself within France and as a manifesto for the Radical-Republicanism Hugo grew to embody. Victor-Marie Hugo, much alike his colleagues in the romantic & republican movements was raised in the upper-middle class, a royalist in his younger years, his politics shifted closer to republicanism, serving in the upper chamber during the July Monarchy & having been elected to the national assembly after the

1848 revolution, delivering denunciations of Child Labour, Slavery, advocating for universal suffrage. The coup of 1851 would solidify his revolutionary ideals during his exile first to Brussels then to Guernsey where *Les Misérables* was completed, a consolidation of Hugo's belief in the rights of the many against the abuses of the few

Hugo presents the brutality of the industrial class system chiefly through the characters of Fantine and Cosette. Fantine is victim to the abuses of many who have benefited from the system she fell victim to, from her abandonment by Felix Tholomyes, the financial manipulation of the Thénardiens and the cruelty of Inspector Javert, facing physical, sexual and emotional abuse. She is the crystallisation of the abuses women faced under the French Monarchy and rising capitalist system. Cosette suffers under the Thénardiens while being separated from Eponine and Azelma thanks to their differing degrees of privilege, being forced to work associated with the Novel coming from Hugo's deep distaste for the practice of Child Labour. This reflection of society is epitomised by the doll Catherine which is gifted to Cosette by Jean Valjean in the process of freeing her from her labouring, representing freedom and being unrestricted by the demands of labour.

The struggles of the rigid French class system and the autocratic system of post revolution and restoration France is further portrayed by the novel's protagonist Jean Valjean whose name reflecting his everyman nature is akin to the name John Smith in British vernacular. Valjean can appeal to the radical-republican, Classical-liberal and Christian-conservative. Yet Valjean truly represents Hugo's idealised citizen, a working to middle class, virtuous man, both pure and prosperous with his reputation as one who provides charity to his enacting of the last wish of Fantine to help Cosette or his rescue of Marius

from the barricade. This nature is affirmed by the silver candlesticks associated with him gifted to him after being stolen by him from Monseigneur Bienvenu being tied to ideas of purity and prosperity, both as Hugo's idealised citizen and republic.

Hugo places his greatest condemnation upon those who uphold the unequal and rigid social order, these figures Inspector Javert and the Thénardiens. Hugo himself even bore the brunt of having been hunted by the Parisian police himself in 1851 leading to his exile from France over the duration of the Bonapartist period. Hugo imbues this experience into his



**... Hugo places his greatest condemnation upon those who uphold the unequal and rigid social order ...**



presentation of Valjean through his constant sight of Javert and his movements throughout Paris while Javert pursues him. The greater degree of class-based condemnation, however, is levied against the Thénardiens, chiefly Monsieur Thénardier who represents the mainly capitalist petit bourgeoisie with his desire to acquire further wealth and status often standing in the way of his humanity. He exploits Cosette and Fantine and he pursues Valjean and Cosette referring to a 'hunting'. This dehumanisation foreshadows his future as a slave trader which represents the evils of the capitalist system.

Hugo's condemnation of Thénardier is best presented when he skulks through the sewers of Paris after the barricade. Thenardier's presentation as a cruel thief and hunter within the lowest realm of Paris reflects Hugo's own disdain for the image of the manipulative, capital obsessed petite bourgeoisie Thénardier represents within the class system.

In the presentation of class, Hugo demonstrates contrast within the bourgeoisie, through the group of gallants Fantine associates herself with while in Paris & the society of friends of the ABC who organise the barricade. Both of these groups reflect Hugo himself with Felix epitomising the Haut-Bourgeoisie with his name meaning 'Lucky' illustrating the luck of his class and people such as Hugo with him going on to live a prosperous life in spite of his mistreatments of others including Fantine setting off the chain of events leading to her demise. This being echoed in his eventual fate as a magistrate under Louis Philippe, this reflecting Hugo's past as a privileged royalist having been appointed to the Upper chamber by him, a king whose reign promised progress and change after the tyrannical Charles X yet failed and regressed into oligarchic governance. These privileged figures are contrasted by the ABC who represent the spirited minority who desire to lead the revolution against the anti-democratic order and serve as a voice for the majority, one of their members being Marius who serves as a more explicit parallel to Hugo himself with both being the sons of Generals and the events of the barricade being inspired by events Hugo witnessed while writing a play in 1832. The martyrdom of the ABC is the greatest tragedy of the novel enhanced by the senseless slaughter of Gavroche aged 12 who represents the hope and idealism of revolution.



To conclude, *Les Misérables* represents the core ideals of revolutionary-republicanism, the condemnation of authoritarianism while serving as a representation of the voiceless within French society in that time from women to children to the working class. Its greatest tragedy being the failure of its revolution affirming Hugo's core belief that without the majority, the minority cannot succeed in revolution. Affirmed to Hugo by the failure of the 2nd republic leading to this novel's writing.

**JUNE MOORE**



# PHILO SOPHY

**Editor : KEVIN CHEN**

People claim the “Uselessness of Philosophy” due to mere arguments to questions that can’t be answered. The lack of concrete answers to unverifiable solutions of enquiries. However, Philosophy allows you to access the fundamental nature and understanding of the world we live in, from limits to our means of perception.

“There is only one good, knowledge, and one evil, ignorance”  
- Socrates

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**Is life meaningless or do humans fear the meaningless?** by Kevin Chen

**“Is equality compatible with treating minorities differently from majorities”** by Phoeba Dileep

**Are mathematical truths as objective as moral propositions?** by Ella Higgins

## Is life meaningless or do humans fear the meaningless?

What gives your life meaning? Love? Money? Friendship? A sense of meaning is what all human being craves and maybe even need. Throughout history, most people have believed in meaning with the exact meaning of life varying. Plato and Aristotle, two of the most influential people in western philosophy, believed in an “essence”, a certain set of core principles that is essential for a thing to be what it is. This “essence” is in us before we are born. This links into Aristotelian virtue ethics, the morally right thing to do is to be a good person and adhere to your essence even though you may not know. This viewpoint is known as essentialism which lays the groundworks for the belief that the human life has meaning that defines their purpose and was accepted by many throughout history.

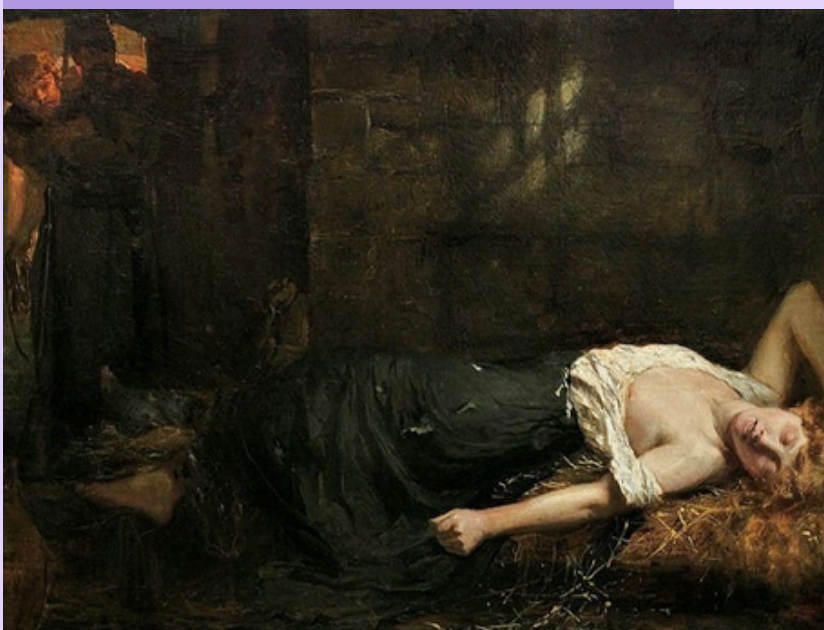
During the late 1800s people started to challenge this notion of a meaning to life with philosophers such as Friedrich Nietzsche thinking that nihilism was unavoidable due to the collapse of foundations that once gave

people meaning such as religion as science started to take over. This was called the age of Enlightenment. Furthermore, other philosophers such as Jeap-Paul Satre rejecting the belief of an essence existing prior to birth and that we ourselves work out and create our own existence which lays the framework for existentialism. The belief that life has no inherent meaning.

Nihilism is derived from the Latin word “nihil” which translates to nothing. Nihilism is frequently associated with an extreme pessimistic outlook on life with the most extreme denying: any meaning of life, moral value and knowledge. There are three main types of nihilism:

- 1) Existential nihilist – Life has no inherent meaning.
- 2) Moral nihilist - Morality is not real.
- 3) Epistemological nihilist – Knowledge is impossible.

It may seem to most people that hear this claim that it is absolute absurdity however, I argue that it should not be immediately dismissed as a rationally incoherent idea.



**.. believed in an ‘essence’, a certain set of core principles ... this ‘essence’ is in us before we are born ...**



### **Pure coincidence**

The universe is endless and constantly expanding, the rate of universal expansion is approximately 67 – 74 kilometres per second. That is around several light years in size annually! It is unfathomable to imagine the extent of which the universe is expanding with trillions and trillions of planets that may have life on it. We are so insignificant compared to the entire universe; no other planet (with our kind of technology) would notice if our species went extinct overnight. The creation of our human life was purely a coincidence: The big bang, evolution, meteor that wiped out dinosaurs and the cosmological positioning of our earth to be in the goldilocks zone (the region around a star where temperatures are “just right” allowing life to be able to survive) these are series of accidental events that has led to the flourishing of humanity. There is no inherent meaning to life, we happen to be at the right place at the right time to be able to live. Although theist may have a different account as they may believe in a divine being and that life is sacred because the divine being is the one that created humanity.

### **The moral system a social construct of our mind**

When we think of morality, we may think of it as “good” and “wrong.” However, what makes an action good or wrong? One answer could be that it is the recognition of society of what is “socially acceptable.” Morality is not universal; throughout history there have been actions that has been deemed morally permissible at that time but in this current era it would be frowned upon. For example, the segregation of people based on skin colour or child labour. But it seems that if there may be nothing of intrinsic value that makes an action good and wrong then the whole moral system is just a human construct. The whole notion moral system exists because humans generally agree that a specific action is right or wrong.

The moral system is contingent on there being humans to create it, it is totally coherent there being a moral system that says that: stealing, assault and murder is the right thing. Morality becomes arbitrary, morality is supposed to guide us in our actions and if we can just be changed by the will of society it becomes pointless.

### **No indubitable and infallible knowledge**

We mostly gain knowledge about the world through the senses although the senses are prone to error which raises the question, if we know any knowledge for certainty. Even the laws of physics such as Newton’s laws. Is that truly the laws of physics? Or is it an interpretation of the laws of physics that is prone to human error with the “real” laws of physics being unattainable and we have to find the inference to the best explanation through logical reasoning which can also be flawed. Science changes and as a result scientific theory change. Science can only give us speculations about the world and not truth of ultimate reality.

I reject that knowledge is impossible as I do not think knowledge should be defined as something indubitable and infallible. That is too strict of a criterion for knowledge. Therefore, we can still have knowledge that we are fairly certain of, but I do recognise that a posteriori knowledge (knowledge gained through the senses) has a possibility of being false. Moreover, I reject that morality is pointless as although morality may be a social construct of the mind it is still needed for society to function. Morality (I hope) evolves and improves throughout centuries to achieve a more civilised society. There is no point thinking of this too deeply, at the end of the day it does not really matter a whole lot. Live the life you want to live that

you genuinely believe is morally correct without any guilt towards you or any others.

“The literal meaning of life is what prevents you from killing yourself”

- Albert Camus

I argue Nihilism does not drag you into an endless abyss, quite the contrary, it allows you to stop wasting energy searching for answers in an answerless world. I do not want to be ignorant and lying to myself about there being an inherent meaning to life. I argue that you should create your own meaning to life, live your life authentically without any guilt to you and others. Existentialism doesn't paint a bleak picture of the world; it allows individuals to flourish and be a unique person. Philosophy is the pathway to unlock the truth of ultimate reality that science fails to accomplish, it is the cultivation of wisdom that allows you to recognise that nihilism gives you freedom and not be constrained by some predestined mission that you will fail to find.

KEVIN CHEN

## Is equality compatible with treating minorities differently from majorities?

In contemporary political and social debate, equality is often understood by this simple principle: that everyone should be treated the same. However, this proves idealistic in real-world scenarios as often societal choices are shaped by factors such as sex, gender, age, economic stance, sexuality, religion, race and various other factors which are often considered over skill. This raises the fundamental question that will be discussed: “Can true equality be achieved without treating different groups

differently, and if so, at what point does this become something closer to equity rather than equality? And does bringing in equity stray us further away from equality?” While some argue that equality requires identical treatment, others claim that fairness sometimes demands differential treatment to correct structural inequalities (equity) such as policies that are designed to support those disadvantaged. In this essay I will argue that equality is compatible with treating minorities differently as such treatment often aims to secure equal fair opportunity, but can become incompatible with our ideal concept of equality if it creates permanent advantage or reinforces social division.



**... fairness sometimes demands differential treatment to correct structural inequalities ...**



So, what could equality be + problems with both?

The concept of equality itself has evolved over time. The term originates from the Old French *égalité* and the Latin *aequalis*, meaning equal or even. In contrast, inequality refers to differences in rank, condition, or status. In modern political thought, equality is generally understood as the idea that all individuals deserve equal consideration and treatment. However, there are two main interpretations of how this should be achieved:

- 1) formal equality, and
- 2) substantive equality.

## Formal Equality

Equality as sameness.

This is the widely considered notion of equality. It requires individuals to be treated identically regardless of characteristics such as race, gender, or socioeconomic status. This idea underpins many legal systems, particularly through principles such as equality before the law and anti-discrimination legislation. At first glance, formal equality appears fair and impartial, as it avoids favouring any particular group.

However, formal equality has significant limitations. Critics argue that it ignores the fact that individuals do not begin from equal starting points. Historical discrimination and certain physical disadvantages mean that some groups face barriers that others do not. As a result, treating everyone the same may simply preserve existing inequalities rather than eliminate them. For example, if a physically impaired individual and a non-impaired individual were both given steps and told to go up them, despite both being in the same conditions, the physically impaired person would require a wheelchair ramp. The ramp would allow them to perform the task the same as the other individual, but it means that they wouldn't be starting off with equal treatment. In this sense, equal treatment in theory can lead to unequal outcomes in practice and this seems to suggest that this definition of equality is not enough to achieve a sense of fairness.

## Substantive Equality (or Equity)

Equality is fairness rather than sameness.

It recognises that because individuals and groups begin from different positions, they may require different treatment to achieve genuinely equal opportunities. From this perspective, treating minorities differently can



be justified when it aims to address historical injustice or structural barriers. Examples of this are positive discrimination policies, though the word 'discrimination' itself make the concept seem worrying, these essentially are policies such as access arrangements in exams, targeted scholarships or representation quotas in the workplace which give minority groups a better chance at securing positions and are examples of substantive equality in practice. These measures are designed to improve access to opportunities for disadvantaged groups and to "level the playing field." Equality of opportunity simply cannot exist where systemic obstacles persist and so by providing additional support to those who are disadvantaged, society attempts to ensure that individuals have comparable chances to succeed. In this context, differential treatment does not contradict equality; rather, it serves as a tool to achieve it. Importantly, the aim is not to permanently favour certain groups, but to correct imbalances that would otherwise continue. In the past where certain groups, e.g. the white male, were favoured, positive discrimination instead, reversed



this giving the lost opportunities back.

However, despite these justifications, differential treatment can become incompatible with equality if it creates permanent or unjustified advantages. If policies designed to support minority groups are maintained indefinitely without reassessment, they may begin to disadvantage others, including members of the majority. This raises concerns about fairness and merit, as opportunities may be allocated on the basis of group identity rather than individual ability. This can lead to members of the majority feeling like they've been 'robbed' and causing them to blame the minority groups which can lead to social divisions being reinforced, in which case we are back to where we started at, major divide between groups. For this reason, differential treatment must be carefully limited and regularly evaluated. Its justification depends on whether it continues to address genuine disadvantage and promote fairness. If it no longer serves this purpose, it risks contradicting the very principle of equality it was intended to support and may unintentionally diminish any form of social cohesion.

This makes it now challenging for modern societies, as they must find a way to balance fairness with social unity. Ignoring differences between groups can help reduce inequality, but maintaining the substantive equality stance for longer than needed can create new forms of injustice. I think that a possible solution is to view differential treatment as a temporary corrective measure rather than a permanent system. Policies should aim to remove barriers and expand opportunity, and as conditions improve, they should be reduced or phased out, this way long term resentment can be avoided but still provide equal opportunity for the less advantaged. Additionally, I think that it would be more effective in some cases to target more broadly, such as through socioeconomic factors like income, education, or location, rather than focusing solely on identity. This approach can help address inequality while reducing the risk of reinforcing divisions between groups by removing focus on identity based criteria which, though a disadvantage, should have never been recognised as one in the first place.

In conclusion, equality can be compatible with treating minorities differently from majorities when such treatment is designed to address genuine disadvantage and create fair opportunities. Substantive equality recognises that identical treatment does not always result in fairness when individuals begin from unequal positions. In these circumstances, differential policies can play a strong role in promoting justice and equal opportunity. However, such treatment can widen majority/ minority distinction within groups and cause further social division if not used with caution. Achieving equality requires a careful balance. Treating minorities

differently may sometimes be necessary, but only as a means of removing barriers and moving towards a society in which such measures are no longer needed. True equality cannot be achieved by chasing for an ideal definition without acting and nor can it be achieved through permanent preference, but by allowing every individual to have both a fair and equal chance of success.

**PHOEBIA DILEEP**

## Are mathematical truths as objective as moral propositions?

The debate around moral realism has existed for thousands of years, dating back to Plato; Platonism is the metaphysical view that abstract properties, for example numbers and mathematical objects, exist independent of our minds, despite being non-physical and intangible. This conception holds similar thought processes to that of moral realism. On the contrary, non-Platonists, or nominalists, reject the idea of mathematical objects altogether. Rather, they believe that statements about mathematical objects are an assertion of man-made rules we have constructed within the rules of mathematics, in the same way rules are composed in a board game.



**... maths can tell us what is the case, whereas morality and philosophy tells us what should be the case ...**



Moral emotivists often posit that our moral laws are merely expressions of emotion. For example, the statement 'the killing of an innocent person is immoral' shows contention with the act, not an innate quality and therefore cannot be verified. This view holds similarities to the metaethical one of the non-cognitivists' - moral judgements cannot be true, false nor classed as facts. Many who hold to these views would say that the aforementioned statement, 'killing innocent people is immoral', is true in the same way that 'chocolate ice cream is better than strawberry' is true.

So, to what extent are maths and morals intertwined, if at all? The two have stark distinctions; maths can tell us what is the case, whereas morality and philosophy tells us what should be the case. Maths could be said to deal with innate truths and falsehoods, whereas some aspects of morality seem ambiguous and unfixed, seemingly changing with time, places and cultures.

However, this lands us on a slippery, arbitrary slope; despite the normalisation of slavery during the transatlantic slave trade, and therefore being viewed as morally permissible to many at the time, most would agree that it was nevertheless immoral, despite widespread accepted ideas. This is prevalent in the philosophy of moral relativity, stating that moral judgements vary between societies, holding to personal standards and are not universally applicable or absolute. Instead, perhaps it is just our interpretation of morality that shifts, not the reality. Although someone may believe, or perhaps a whole society may believe that  $2 + 2 = 5$ , it is unchanging that  $2 + 2 = 4$ .

## Minorities VS Majorities

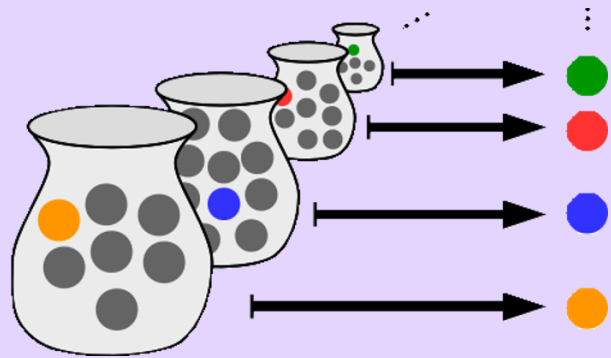
Is this even a fair comparison? Moral and mathematical principles do have their distinctions, as previously mentioned. When we go against both of them, we have very different outcomes; if we attempt to conduct scientific experiments or build infrastructure on the false basis that  $2 + 2 = 5$ , this infrastructure would collapse, both literally and metaphorically speaking. On the other hand, moral laws have no connection to the makeup or function of the universe. Although it is true that a society bound to the moral judgement 'killing an innocent person is morally acceptable' may also collapse, it could be argued that consequences will unravel regardless of whether moral realism is in fact true or not, and do not prove its legitimacy.

This can be whittled down to the idea of axioms and how they may relate to moral framework. In the equation  $2 + 2 = 4$ , our logical outcome of 4 is achieved via the set of axioms, and so deals partly with what logically follows from our axioms, but also the validity of them - are the axioms true? Is the objectivity of maths dependent on a set of determined axioms? Returning to the idea of rules within a board game, axioms can be considered the same, usually understood as, "a statement that is taken to be true, to serve as a premise or starting point for further reasoning and arguments." Taking into account the word's etymology, the Ancient Greek *áxios* can be defined as 'that which is thought worthy or fit' or 'that which commends itself as evident', which almost seems somewhat circular or self-validating in nature.

Many mathematicians avoid making a definitive claim on the Axiom of Choice, which, in simple terms, says that if you have a collection of groups, you can pick one item from each group, even if there's no clear rule telling you how to choose. The Axiom of Choice is controversial due to its seemingly

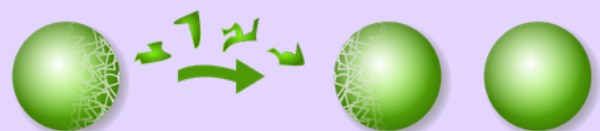
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unconventional and "unintuitive consequences as the Banach-Tarski paradox";



The Banach-Tarski paradox is a geometric theorem testing the notion that a sphere can be theoretically divided into a finite number of pieces and reassembled into two spheres identical to the original. This seemingly absurd conclusion relies on the axiom of choice. But why does this theorem seem so illogical and counterintuitive? Although it is a mathematically valid and real theorem, its detachment from physical reality makes it seem incoherent or implausible. Morality is also not physically realised, as seen in previous examples, but is still widely acknowledged, providing the blueprint for our laws, (even if the laws themselves may seem immoral) and everyday decisions.

The significance of this paradox is found not just in its unfamiliarity and difficulty to comprehend, but its surprising validity - even though the conclusions drawn seem incompatible with the real world, its strange axiomatic system makes this plausible. The misinterpretation and dispute over certain moral truths do not necessarily weaken their objectivity, but could actually reveal a lack of human understanding.



## Minorities VS Majorities

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Overall, both morality and maths are based on foundational principles that may not be proved themselves, though this does not undermine them. Even when considering scenarios such as the Brain in a Vat, a thought experiment suggesting a brain experiencing a simulated reality, calling into question epistemology as a whole, mathematics as we know it would remain unchanged. In contrast, moral claims are more difficult to underpin.

**ELLA HIGGINS**

# CLASSICAL STUDIES

**Editor : ROBERT MORRISON**

Throughout history, society has hunted desperately for power and control. From this, stemmed a great imbalance in the ancient world. Society often became split into two parts, those who held power, who oppressed others, who controlled others, and those who didn't, those who suffered, those who were excluded. Those who held power were often the majority in society. If not by numbers, then by power and status in society, and those who were not, became the societal minority. These came in a variety of forms, where the minority and majority opposed each other, from the oppression of the masses in Sparta, the repression of women in Ancient Greece, the exclusion of the foreigners through the barbaric image to the challenges of Roman citizenship. However, occasionally, these troubles align, like in the case of the wretched suffering that both the powerful and weak suffer in war.

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## The Oppression and Imbalance of the masses in Sparta

In Spartan society, there was great imbalance. The society was largely split into three opposing sections, the Spartiates, or the elite, and the Helots, or the slaves and the Perioikoi, or the workers. The minority, the Spartiates, who made up around 3-5% of the population, held all the power. They oppressed, controlled and feared their slave population, who made up around 90% of the populace. In many ways, this power-hungry, tyrannical elite is similar to modern-day oligarchies and governments. Power was held clearly within the minority, who used it as a tool to control the majority.

The Spartan ruling class, who held power over the working population, was made up of the all-male elite, who formed an oligarchy, monopolising all resources in the state. Additionally, these men were exclusively soldiers, having fulfilled their training in the agoge, a brutal and violent education system for Spartan youths, which almost served as a rite of passage, with those who failed becoming Hypomeiones, who lost their status

and governing power. The Homoioi, or the all male elite, did not need to work, but had to pay tax. Those who failed to pay tax also became the Hypomeiones. Military strength and wealth were used by the ruling class as a way to control their own. If you were rich, but not strong, or strong, but not rich enough, you were considered a failure. Twenty-eight chosen Spartiates formed the Gerousia, a council who joined the two kings and made political and military decisions. It is clear that these men held the highest of the high in terms of importance in Sparta.

Conversely, the Helots formed around 80-90% of the Spartan population, and were exclusively slaves. They were born as slaves, and lived as slaves, serving the Spartiates, and often died as slaves. They were mostly formed from the indigenous peoples of Messenia and Lakonia, which was one reason for their oppression, as the Spartiates thought of themselves as coming from Doric immigrants. There was a small possibility that these peoples could escape their slavery, usually through exceptional fighting in times of war. These slaves were not privately owned, as in many other cultures, but rather owned by the state, and were granted to the ruling class when they earned their citizenship.



**... these slaves were not privately owned, as in many other cultures, but rather owned by the state... granted to the ruling class when they earned their citizenship...**



The Perioikoi were the workers of Sparta, the traders and artisans, who were not Spartan born, like the Homoioi, but held legal protections, unlike the Helots. These men were also made to fight in wars, and were vital to the Spartan, war-focused society.

As part of the control and oppression that the Spartiates issued on the Helots, they forced them to fight in large scale wars, such as the Persian Wars, and parts of the Peloponnesian war, making up the Hoplites of the army. This meant two things for the Helots: many of them would die in wars, and so they could not generate large-scale revolutions, and it kept the men separated and away from Sparta, so that they couldn't rebel. When they did not fight, the Spartan army would return from wars, as in 464BCE, to quell growing rebellions, as the Spartans feared rebellion so greatly.

The Spartiates were terrified of the Helots, as they, according to Herodotus, outnumbered the 5,000 Spartans around 7 to 1, and therefore they frequently oppressed every facet of the Helots' lives, in order to crush the revolts. For example, the Helots were not allowed to have a say in military expeditions, a luxury reserved for the ruling class, despite the fact they often had to fight. They could own land, but not other Helots to work on their land, as they were given out by the state as almost rewards for the completion of the Agoge. Also, annually, the Spartan nobles declared war on their own Helots, which allowed for the murder of slaves. This instilled large amounts of fear and quelled the thoughts of rebellions, whilst leaving the Helot population weaker and weaker, preventing rebellions. Additionally, the Spartans made use of a secret police, called the Krypteia, who purged Helots who were deemed to be too dangerous to the Spartan security, in order to both instill fear into those who might have revolted, or to end uprisings that were in the making, further showing both the Spartan fear of the Helots, and the oppression that they

used against them. Perhaps the most common form of oppression that the Helots made use of was manual labour. In a similar vein to medieval serfs, the slaves were bound to their land, and gave over parts of their produce and crops to the state, which meant that those men could neither gain enough money to form large-scale revolts, and so that they could be kept weak and under the close watch of the Spartans.

Additionally, the Spartans made use of public humiliation to keep the Helots in check, in an attempt to remind the people of their lower social status, not to keep away revolts, but rather to maintain the strict social hierarchy. They did this by making them publicly drink non-diluted wine, which was seen as barbaric in Ancient Greece, as nobles drank their wine with water. Finally, by far the most violent and gruesome of all the tactics used by the Spartans, were the systematic massacres that they utilised. When, as they often did, the Helots became too scary, too powerful, to the Spartans, they were murdered en masse. Famously, in 425BCE, over 2000 Helots were butchered, having been cruelly tricked into thinking that they were being freed. This egregious tactic shows simultaneously the aggression, the fear, the oppression and the power that the Spartiates held.

Unsurprisingly, the Helots frequently revolted. In 665BCE, the first major revolt by the Helots began, after which, it is thought, led to the creation of the rigid army, as the Spartans were so scared of the threat that the Helots posed. In 464BCE, following an earthquake, both the Helots and the Perioikoi, revolted, hoping that in the disorder they might overthrow the Spartans. This fighting against the Spartans lasted for around a decade, after which the slaves were allowed to leave, rather than being granted

freedom. In 339BCE, a man named Cinadon attempted to overthrow the Spartan regime, which was ultimately unsuccessful. However, in 371BCE, when Sparta was defeated at Leuktra, Messenia was also liberated, freeing the majority of the Helots. Despite the rebellions, the Helots never held enough power to overthrow their government. They required external help, for their oppression was so stark. Even though they outnumbered their rulers by so much, they could not defeat them.

The imbalance of power between the Spartiates and the Helots manifested itself in the form of frequent, violent oppression. It was used by them in order to keep the numerical majority, the slaves, in check, so that the societal majority, the Spartiates, could maintain their power and exploitation of the poor.

**ROBERT MORRISON**

## **Women as a statistical majority yet a societal minority in Greek tragedy - being a 'difficult woman in a man's world'**

The status of a Greek woman was determined largely by her class. Priestesses were held in the highest regard, yet the lowest class of women, the poorest women, had more freedom, as they had no choice but to go out to earn money in the markets and the farms. The hetairai, the companions of the wealthier male citizens, had the greatest social freedoms. These were educated women, often foreigners, who were able to mix freely with men, discussing philosophy, drama and politics.

Much of the evidence we have however, centres around the middle and upper classes. The commonly held view is that these women lived in total seclusion in women's quarters, with every aspect of their lives controlled by a male guardian. Such women were seen as subservient and submissive to men in a fiercely patriarchal society - a societal minority. The 'better' women were encouraged to keep a low profile, focusing on managing the home and raising children, and unable to leave the house without a male chaperone. They had no political rights and very few legal rights, and praise for women came from their excellence as a homemaker. In a speech prosecuting a woman for adultery, Lysias says:

'At first, Athenians, she was the best of wives; she was a clever and economical manager of the house, running everything meticulously.'



**The status of a Greek woman was determined largely by her class ...**



In his Funeral Oration, Pericles described the duty of women as:

'to be least talked about by men, whether they are praising you or criticising you.'

Greek tragedy offers us another view of women - those, that for a variety of reasons, rebel against the strictures imposed on them. While their voices are given to them by male playwrights, and we see them through the gaze of the male

characters, these women stand as a reminder of the difficulties of being a woman in a patriarchal society and as a warning of what happens when they try to break free.

Medea, as portrayed by Euripides, is an outsider. Brought to Greece from a barbarian land by Jason, the hero that sought the Golden Fleece, she has to learn to be a loyal and submissive Greek woman. In her homeland, she had status as a princess and the freedom that came with it; in Greece, her status is defined by her husband and she has to learn to submit to the will of men. As the Nurse says in the prologue, 'That's the best way for a woman to keep safe –

Not to cross her husband'

It is clear that Medea was 'smitten with love' for Jason, but for men, particularly those from the upper classes, marriage could be simply a contract, a way to ensure political and wealthy alliances, and to provide suitable heirs. And so Jason leaves Medea for the chance to ally himself with the royal family, by marrying the princess. As a Greek woman, which is how Jason now regards her, she has no choice but to submit and accept the situation. Medea, though, is no ordinary woman and refuses to bow to Jason's will. What follows is a terrifying example of a woman who will not accept her given place in society. By the end of the play, the princess, King Creon and Medea's own children have been slaughtered. Medea may be a lone voice, but she is a dangerous one.

Some modern scholars see Euripides as a proto-feminist, as he gives Medea a lengthy speech on the subject of women's lot in Greece. This is not wholly true – he is not advocating change, but rather looking at a woman's perspective on her situation and seeking the causes of Medea's actions and her struggle to take charge of her own life in a male dominated world. Among the complaints she lists:



'we have to buy a husband, at vast expense –  
to lord it over our body'

'When a man is tired of the company at home,  
He can go out and end his discontent, We women  
Must have eyes only for one man'

The disparity is clear – double standards and control. Even her 'safe' life at home is no such thing.

'I would rather fight three times  
In war, than go through childbirth once!'

Jason approaches life with logic – men and women have their distinct roles and for society to function effectively each must submit to what society dictates. As a privileged man he simply cannot understand why Medea wants something different and warns her:

'You'll be wiser to accept that what's best for you is not hurtful'

Oedipus' daughter, Antigone, too raises her head above the patriarchal parapet. Her brother has betrayed the city and so

must not be buried. She sees it as her duty to complete the ritual, and does so, despite it being an illegal act. Her sister, Ismene, begs her not to do it.

'Remember we are women,  
We're not born to contend with men'.

Antigone's strength of conviction brings her into conflict with her male guardians, who seek to put her in her place not just as a criminal, but worse than that, as a disobedient woman. King Creon talks of her in terms of needing to be controlled, as a spirited horse that can be broken with a bit, and fears emasculation through her actions.

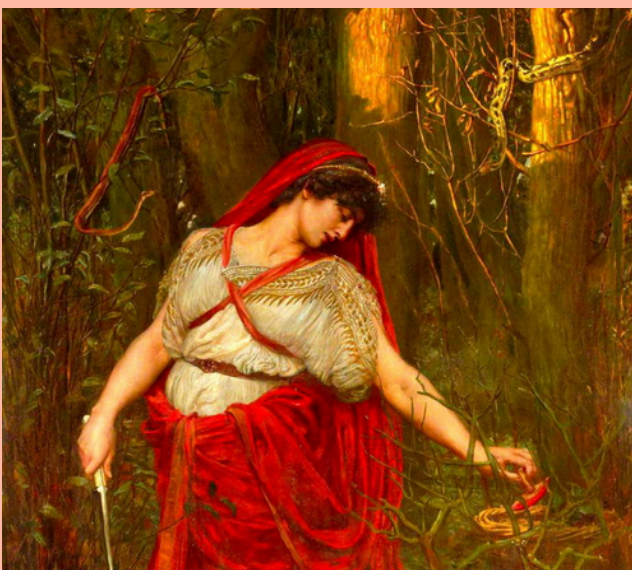
'I am not the man, not now: she is the man  
If this victory goes to her and she goes free'

To him, she is property. When Ismene begs Creon not to kill Antigone, his own's son fiancé, his reply

'There are other fields for him to plough'  
clearly shows a woman's role as a provider of children and thus dispensable and interchangeable.

Antigone chooses to die in the pursuit of what is right, Medea chooses to kill. But both are victims. To be a good Greek woman means to submit to the majority view. To be a minority takes courage.

**RACHEL JONES**



## The representation of Barbarians in ancient Greek myth and society

Throughout history, there have been minorities in society that have suffered as a result. One group that has been a minority are non-Greeks, and even today people suffer from not being a native of the country they are in. While people today may be more accepting, it was common for ancient Greeks, especially during and after the Persian wars, to see people from another country as barbaric. However, being a Barbarian, and being a non-Greek, were not synonymous. The Greeks defined barbarism as the opposition of the Greek way and life values, originating from hostility towards non-Hellenophones.

In Athenian society, people held a binary view of the world. This often meant that people were viewed as Greek, and civilised, and others not from Greece were viewed as different. The idea of non-Greeks being barbarians was initiated by the Persian wars, and Persians in particular were often viewed as barbarians. Before the Persian wars, being a barbarian simply meant not speaking Greek, so one couldn't compete in Greek life, such as festivals and worship of the gods. Homer stated that the Trojan allies were 'uncouth of speech' in the Iliad, which demonstrates the initial idea of what made a barbarian.

However, during and after the Persian wars, being a Persian meant being a barbarian, and this then evolved into any non-Greek being branded as a barbarian. Herodotus repeatedly refers to the Persians as

barbarians in his 'Histories', written after the Persian wars, which exemplifies how Greek society viewed non-Greeks.

Barbarians were not only seen as uncivilised, but also submissive, cowardly and their rulers were seen as tyrannical and oppressive. The treatment of barbarians and non-Greeks in the Athenian world was identified through exclusion from festivals and sacrifices, as well as through the cruelty of slavery. They were not allowed to compete, or even spectate, in events such as the Olympic, Pythian, Nemean and Isthmian games. Barbarians were commonly used as slaves and were seen as lesser and inferior in status and humanity to the Greeks. In 'Iphigenia in Aulis', Euripides remarks that it is 'a right thing that Greeks rule barbarians', illustrating the belief that Greeks are superior to barbarians and should have power over them.

Their depiction in Greek art also highlights the thought of them as submissive and other. In figure 1, the Greek, the figure on the right, is portrayed as dominant and brave, through his stance over the Persian and his choice of weapon. In contrast, the Persians are depicted as submissive, cowardly and indulgent. This is shown through the stance of the soldier, lying on the floor underneath the Greek, as well as having a curved sword, displaying cowardice as he does not kill his enemies quickly, and he is clearly inferior to the Greek. The Persian is also shown as indulgent through the patterns on his clothing and armour, as it shows a want for looks over practicality, like the Greek armour. While this may not present the Persian as inferior, it shows the difference between the Greek and Persian values, such as the Greeks' practical approach to armour, rather than the Persians' approach of style as well as pragmatism.



This kylix is a typical portrayal of Persians in Greek art, and it represents the stereotypes that the Greeks placed on barbarians, such as being luxurious and submissive to the Greeks. Additionally, barbarians were seen as different due to their religious beliefs and the different gods they worshipped. Barbarian religion is often presented as more spiritual than Greek religion, and therefore closer to the gods.

In Herodotus' 'Histories', he claims that during a Persian sacrifice, they make offerings to the sun and the moon, the earth and fire, and to water and the winds, which highlights their spiritual connection and also suggests they have a close connection to nature and respect it as the Greeks would respect their own gods. Their method of sacrifice, their rituals and their gods differ from the belief of the Greeks, so are viewed as strange and different. While this does not automatically present them as barbaric, and Herodotus does not call them that when referring to their sacrifice, it was clearly different, showing how the Persians are othered and excluded.

However, the Greeks' view of Persians and barbarians was not necessarily accurate to their actual nature. While they did worship different gods to the Greeks, they still carried out sacrifices to them, as Herodotus states in

1.131 and 1.132 of his 'Histories' saying 'These [Greek customs] are the customs, so far as I know, which the Persians practise' This shows that they are not that different from the Greeks, and certainly not as different as the Greeks often presented them as.. They also allowed people within their empire to worship their own gods, and did not force them to worship Persian gods, unlike the Greeks, where people were expected to take part in worship and religious festivals and sacrifices.

This is shown in the Cyrus cylinder, which says that Cyrus the Great restored the gods of the Babylonians, and was blessed by Marduk, the god of the city. Religious tolerance was an important policy throughout the reign of the Persian empire, and clearly shows how the Persians were far more accepting than the Greeks, who made those whom they conquered conform to their deities, or, like in the case of the Great Panathaneia, did not permit non-Athenians to partake in the festival. The Persian customs were not, as the Greeks portrayed them, different or more violent than the Greek festivals and customs, instead they were both similar in regards to practice, and far more accepting.



**... However, being a Barbarian, and being a non-Greek, were not synonymous ...**



In conclusion, non-Greeks were often viewed as barbarians and treated differently. However, despite this viewpoint of difference, they were similar to the Greeks in their sacrifices and worshipping of their gods, and

were much more tolerant of other religions than the ancient Greeks. The Greeks' obsession with otherness, with difference, held them back in relation to acceptance. The Persians, however, those who were excluded, were far more accepting, and perhaps, a more advanced society.

**SCARLETT CROSS**

## Roman Citizenship

Modern citizenship is usually understood as a fixed legal status rooted in nationality, borders, and cultural identity. In ancient Rome, by contrast, citizenship evolved as a flexible political instrument, gradually extended to integrate conquered peoples and reinforce imperial stability. The Roman model stands in striking contrast to contemporary approaches for example in Europe and the United States, where citizenship remains closely tied to nationhood and territorial belonging.

### Early Roman Citizenship: A Limited Privilege:

What did it mean to be a Roman citizen? Roman citizens enjoyed a series of legal rights that set them apart from non-citizens and shaped the entire structure of Roman society. They had the *ius suffragii*, the *ius honorum*, and crucial personal protections such as the right to a legal trial, the right to appeal a magistrate's decision, and protection from torture or summary execution. Citizens could make legal contracts, marry with full legal recognition, and pass on property and status to their children. These rights were not just privileges but tools of political belonging, binding individuals to the Roman state and reinforcing Rome's power across its expanding territories. However, these rights were not universal and were carefully guarded.

Yet even at this early stage, Roman citizenship was not defined by race or ethnicity. Rome

absorbed outsiders from an early period, granting citizenship to conquered neighbours or allies when and if this suited Roman interests. One of the most striking features of Roman citizenship is that it was not based on shared ancestry. Rome imagined herself as a community that could continually absorb outsiders; the historian Livy presents this as a principle rooted in the very origins of the city. In his account, Romulus, founder and first king of Rome, established an asylum on the Capitoline, deliberately opening Rome to fugitive slaves, criminals, foreigners, and displaced peoples of every kind. This early community, far from being a closed ethnic group, is portrayed as a deliberately mixed population formed through the incorporation of newcomers. The pattern continues with the Sabine women episode, where conflict is resolved not through domination but through political union and shared citizenship. From its foundation myths onward, Livy depicts Rome as a community that grows by integrating others into her civic body, transforming former strangers into Romans.

As Rome expanded across Italy in the fourth and third centuries BCE, it developed a complex hierarchy of legal statuses. Some communities received full citizenship, others partial rights (*civitas sine suffragio*), while many Italian allies (*socii*) remained independent but bound to Rome by treaty. These allies were required to provide troops for Rome but lacked political representation in Rome itself.

This imbalance eventually led to crisis. In 91 BCE, Rome's Italian allies rebelled in the Social War, demanding citizenship. Although Rome ultimately defeated the rebels, it conceded to their demands, so between 90 and 87 BCE, laws such as the *Lex Julia* and *Lex Plautia Papiria* extended Roman citizenship to most Italians.

This moment was revolutionary. By extending

citizenship to people with no territorial ties to Rome, the Romans broke the long-assumed link between citizenship and a single city-state. From then on, one could become Roman while remaining a citizen of one's own city, holding both identities at once. Citizenship and belonging were no longer defined by ethnic identity but by a political status detached from race or geography. This created a new model of citizenship: one that could extend across overseas territories and ultimately support the cohesion of the Roman Empire.

During the imperial period, Roman citizenship continued to expand beyond Italy.



**... Rome imagined herself as a community that could continually absorb outsiders ...**



Provincials could obtain it through military service or through grants from emperors and local magistrates. At times, entire communities were enfranchised as a reward for loyalty. By the second century CE, Roman citizens could be found throughout the empire, from Britain to Syria. Importantly, this expansion did not erase local identities. Roman citizenship functioned as an additional legal identity layered onto existing cultures, not a demand for cultural uniformity.

The process reached its culmination under the emperor Caracalla, who issued

the *Constitutio Antoniniana* in 212 CE. This edict granted Roman citizenship to nearly all free inhabitants of the empire. The edict marked a decisive shift: Roman citizenship became a universal, non-ethnic legal status, formalising an inclusivity that had already been developing and transforming the nature of belonging within the empire.

Far from weakening Rome, the universalisation of citizenship reinforced imperial cohesion. Roman law became truly universal, and the emperor ruled not over subjects but, in theory, over fellow citizens.

### **Roman Attitudes to Citizenship:**

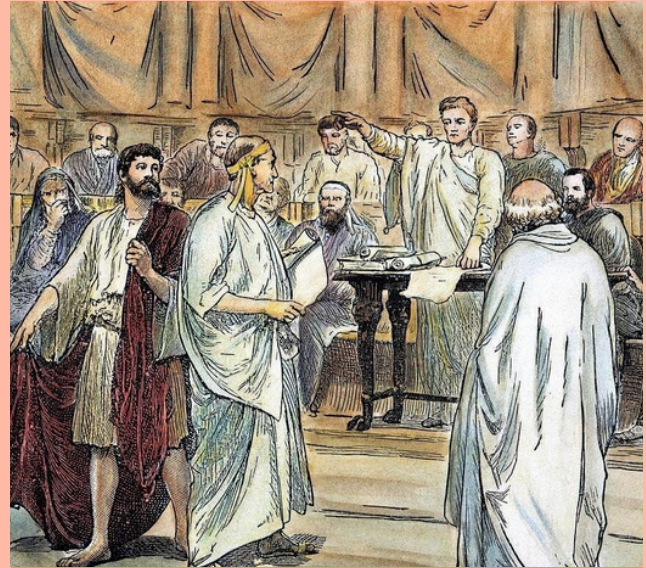
What is most striking about the Roman model is its pragmatism. Citizenship was never treated as a sacred marker of ethnic purity or national identity. Instead, it was a means of creating loyalty, stability, and shared legal norms. Roman citizenship was fundamentally “inclusive and expandable,” designed to integrate difference rather than exclude it.

This does not mean Roman society was egalitarian. Profound inequalities persisted, especially between free people and slaves, between men and women and political power remained concentrated among elites. Nonetheless, the willingness to extend citizenship on such a scale remains historically remarkable and probably unique.

### **Modern Attitudes:**

Modern debates about citizenship often adopt a very different tone. Citizenship is frequently framed as a scarce resource, tied to national culture, language, or ancestry. Immigration debates emphasise borders, control, and exclusion, and citizenship is often portrayed as something that must be “earned” through assimilation.

Unlike Rome, modern states tend to treat



citizenship as a marker of national identity rather than a tool of integration. The Roman experience challenges this assumption. Rome ruled a vast, diverse empire without insisting on cultural uniformity, instead using shared legal status as a foundation for unity.

The history of Roman citizenship reveals a society that understood inclusion as a source of strength. From its early expansion in Italy to the Edict of Caracalla, Rome repeatedly chose to broaden citizenship rather than restrict it. While modern societies face challenges very different from those of the ancient world, Rome’s example reminds us that citizenship can be imagined not only as a boundary, but as a bridge.

**EMANUELA ZANDA**

## **How Achilles’ isolation in the Iliad reveals the inescapable tragedy of war**

In Homer’s *Iliad*, Achilles is isolated from the rest of the Greek army for the majority of the

epic poem, placing him in opposition to the other heroes who fight through the poem. However the loss of his dearest companion, Patroklos, inexorably draws Achilles into the destruction and tragedy that war brings.

Achilles isolates himself from the rest of the Greek army in protest against Agamemnon, after a quarrel with him, withdrawing himself and his troops from battle. This places Achilles, Patroklos and his Myrmidons against the numerically larger Greek army. This isolation is emphasised by the loss of Briseis for Achilles, making him completely desperate, due to his sudden loss of kleos. This is Agamemnon physically taking away his prize and honour, humiliating him. Achilles, therefore, turns to his mother, Thetis, who is a sea goddess. He requests to make the Trojans gain the upper hand until Achilles returns to battle and asks Thetis to go up to Olympus and supplicate Zeus. Overall, this plants the seeds for the tragedy that Achilles faces.

Achilles is withdrawing himself from battle leading him to the early, honourable death that was prophesied to him by Thetis. He now desires the long and uneventful life that was also prophesied, as he cannot accept his own death and downfall that is brought on by the tragedy of war. Additionally, Achilles has lost all desire to become heroic, out of spite towards Agamemnon. However, it is the death of Patroklos that fully exposes the consequences of Achilles' isolation, plunging him into grief that cannot be contained.

When Achilles finds out about Patroklos' death and the loss of his armour, he is sent into instant lamentation. This makes Achilles tear his hair out and cover himself in dust, bringing Thetis and thirty-three other Nereids to mourn alongside. Achilles' extent of lamentation shows the recognition and acceptance of his fate and Achilles realises that due to Patroklos' fatal end, he realises the proximity of his fate.

Notably, Thetis and the Nereids act as if they are mourning Achilles' death, not Patroklos', revealing how both characters' deaths are inextricably linked, as Patroklos' death marks the end of the old Achilles, highlighting the immovable grief that he experiences. What follows is a new, detached, ruthless version of Achilles, whose sole priority is revenge on Hektor for Patroklos. The transformation he undertakes shows how his isolation amplifies the personal tragedy that he experiences, allowing his transformation to be so stark.



**... Achilles is isolated from the rest of the Greek army for the majority of the epic poem ...**



Achilles' isolation is stressed here as unlike the rest of the Greek army, who find out about Patroklos' death immediately, he learns later from Antilochos, who is sent to him after the Greeks recover Patroklos' body. This, alongside Achilles' refusal to return in Book 9, reveals however hard Achilles tries to remove himself from war, he cannot escape the tragedy which affects everyone. Despite Achilles' withdrawal from war, the death of his dearest companion shows the extensive impact of war, beyond the battlefield, deeply disconcerting Achilles and inevitably drawing himself into battle. The narrative that Homer pushes here

reveals his belief in how the consequences of war extend further than just the battlefield.

Achilles' return to battle shows the most primal, almost animalistic, version of himself as his fate is intrinsically linked to Patroklos'. This is immediately followed by Achilles' acceptance of his death, rejecting an uneventful life, instead choosing the short life that immortalises him as a hero. This places Achilles in tragic solitude as merely participating in war traps him in death's blackened jaws. Achilles' animalistic transformation is exemplified in his treatment of Hektor's body. Dragged by the back of Achilles' chariot, Hektor's body is abused and mistreated, setting Achilles out of the traditional Greek value of honouring the dead, where dead enemies are treated with ritual respect. This shows how Achilles has become a shell of his former honourable self, distraught by the loss of Patroklos, meaning that his revenge on Hektor is so violent and visceral, and almost divine. Achilles' treatment of Hektor's body reveals the true extent of Achilles' grief as he channels the pent-up anger and grief out onto Hektor. Even in revenge, Achilles still has unresolved grief, showing that his violence is a direct consequence of his loss and isolation. This is an attempt to cope with the loss of Patroklos as Achilles is trapped in a constant state of mourning. The state of constant mourning demonstrates the lack of closure, war and isolation imposed and Achilles still has unresolved grief from the tumult of war even after killing and abusing Hektor's body. The unresolved grief that Achilles experiences drives his vengeance but also foreshadows his imminent death, revealing the imminent nature of tragedy in battle.

The isolation and inescapable tragedy of war

that is described in the Iliad, has parallels drawn to struggles today. Conflicts like the Russo-Ukrainian war and the Israel-Palestine conflict show how Homer's work remains relevant, Refugees who escape the danger of war are still affected by war, through family or friends, experiencing profound grief and loss for those close to them, showing that withdrawal cannot escape personal suffering. Just as Achilles' withdrawal from battle cannot prevent Patroklos' death or the ensuing violence; civilians and refugees often remain entangled in the repercussions of war, even after escaping imminent danger. Homer's description of grief and vengeance shows the psychological toll of warfare, showing that war is universal, as many people today can relate to the Iliad. This inescapable tragedy presented shows how war rarely resolves issues, usually only creating deeply-rooted suffering.

Ultimately, Achilles' isolation, loss and rage reveal the inescapable nature of war's tragedy. Homer's vivid description of Achilles' intense loss, caused by both his isolation and the inevitable tragedy of war, reveals the visceral and far-reaching impact war has upon humankind and the suffering attached to it. In the Iliad, the consequence of war touches everyone, whether it is the parents of those fallen or even the companions of those lost on the battlefield, revealing how tragedy and grief are a universal feeling, even outside of war.

**ARTHUR MADDISON**

# POLITICS AND WORLD AFFAIRS

**Editor : ANNABEL BAGSHAW**

“We must learn the difficult lesson that the future of Mankind will only be tolerable when our course, in world affairs as in others, is based upon justice and law rather than the threat of naked power”

- Albert Einstein

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## Femicide in South Africa: The limitations and fragility of justice

On the 28th of April 2017, Karabo Mokoena was brutally murdered by her partner Sandile Mantsoe, sparking global outrage and later the declaration of gender-based violence as a national crisis in South Africa. Journalist Olorato Mongale covered the story, and later withdrew from reporting altogether due to the deeply traumatic nature of these cases and the fear that she would become a victim of the same violence. Eight years after this incident, South Africa mourned Mongale after she suffered the same cruel fate as Mokoena, the same fate she left her work in fear of. However these deaths are not isolated tragedies, they are part of a pattern expanding nationally and globally. A United Nations study states that approximately 137 women and girls were killed by partners or family members every day in 2024, which poses the question - how common must femicide become before prevention becomes more than a futile promise?

Femicide is an intentional killing with a gender-

related motivation, as defined by the UN Women organisation. It is driven by direct discrimination against women and girls due to stereotypes, unbalanced power relations or normalisation of violence. Fixed gender roles in specific areas result in the expectation that women should obey their male partners and family, and if women in these situations contravene they are often faced with physical violence. A survey conducted by Oxfam in the Solomon Islands reported that 49% of respondents agree that a good wife should obey her husband irrespective of whether he is right or wrong. Studies have also revealed that there is an underlying belief in certain areas that it is acceptable for men to discipline women if their behaviour transgresses social norms, the same Oxfam survey indicating that 65% of female respondents believe that it is acceptable for a man to hurt his wife if the housework is not done to his liking. This poses questions as to whether women have enough legal support and infrastructure in place to ensure that they are aware of their rights and also to defend them from domestic violence.

Following the declaration of gender-based violence as a national disaster in South Africa, mass demonstrations and protests



**... these deaths are not isolated tragedies, they are part of a pattern expanding nationally and globally ...**



from the public have led to governmental recognition and more plans for legal reform. Women for Change is a non-profit organisation raising awareness of gender-based violence against women and girls in South Africa, founded in 2016. In response to the exponentially rising rates of femicide they advocated for the largest GBV (gender-based violence) petition in South African history, one of the main driving factors for the declaration of femicide as a national disaster by Cyril Ramaphosa on the 20th of November 2025, but their aims extend further than that. This petition created the globally recognised 'Purple Movement', where social media users across the world changed their profile pictures to the purple to show the worldwide alignment in ensuring the safety of women and girls not just in South Africa, but everywhere. Days before the G20 summit, the founder of Women for Change, Sabrina Walter, organised the Women's Shutdown under international spotlight and encouraged women to lie down at the Union Building lawns in Pretoria for 15 minutes and withdraw their financial contributions to the economy. This was in order to honour the approximate 15 victims of femicide murdered every day in South Africa, and one woman every 10 minutes globally according to a UN study. Together, these efforts signal the refusal of South African women to become passive in the crisis which continues to threaten the lives of many, advocating for the acknowledgement of their own government that this issue only continues to become more pressing. Beyond the digital outcry and public indignation, the immense resolve of these organisations continues to fight for lasting, effective structural change.

However South Africa's increase in the legal framework attempting to reduce gender-based violence, protect survivors and increase governmental accountability for these unresolved issues may be the starting point

for a more safe and responsive community in the face of violence. In 2020 the South African government released the National Strategic Plan on Gender-Based Violence & Femicide, highlighting the most prevalent patterns within the wider issue in order to produce a multi-sectoral and coherent framework policy. Despite these positive changes, most recent statistical reports find that femicide is around five times the world average, and estimating that around 95% of cases go unreported. The gap between legislative reform and lived experience remains drastically different, whilst measures on paper do exist women are yet to feel as if their own government actively seeks to protect them from harm, and primarily preventing such dangers.

These statistics and poignant facts seem to reflect to an international audience that the issue of solving the femicide crisis is not solved through lack of legal intervention, policies or public revolt and awareness, but perhaps instead through the consistent transformation of these promises into protection for women not just in South Africa. According to the United Nations Office on Drugs and Crime, tens of thousands of women are killed each year by partners and family members because of their gender. Today, only 29 economies globally have enacted laws specific to femicide and created specific legislation calling for the national recognition of it as a severely punishable crime. The persistence of these killings highlights the difficult truth that legal framework and governmental acknowledgement is not enough to solve this alone. Without consistent enforcement, adequate funding, support and a deeper shift in societal attitudes towards gender and power stereotypes, even the most progressive laws become redundant. The recurrence of stories of gender-based

violence in news headlines expresses to all readers that ending femicide is not a question of whether more solutions exist, but if international communities can act collectively enough to make these solutions possible.

**ANNABEL BAGSHAW**

## In the Shadow of the Japanese: Meditations on the Indigenous Ainu

I think it's interesting that when people talk about indigenous communities, a few countries come to mind. Notably, the struggles of the natives of Northern America, and often, those who live in South America - the ones assimilated by the Conquistadores in their conquest. But most don't realise that indigenous peoples are more widespread than many realise. In particular, I'd like to look at the struggles of the Ainu community, as of 2019 they are an officially recognised indigenous group of Japan.

The Ainu are not strangers to confinement; they have been slowly pinned under the oppressive thumb of the Japanese government for centuries, and only in recent years have they seen a rise in equal rights - it is telling of the extent of their suffering that many are not currently even aware that Japan is home to an indigenous group that number just over 25,000 at best estimate. Onwards from the 14th century the government of Japan began its colonialism spreading upwards towards Hokkaido, and this period is noted by small skirmishes between the Ainu, defending their land, and the militarised forces of Japan. Because, it must be noted, the Ainu are not Japanese. They are a culture and people in and of their own right - scholars have debated on their origin; Caucasian, Mongolian, etc. but many now believe, and supported by the Minority Rights Group, that the Ainu are an isolated people.

The existence of their own language that is seemingly unrelated to other forms of speech around the globe supports this concept. The slow overtaking of southern Hokkaido grew to a run in 1899 when the Hokkaido Former Aborigines Protection Act gave the Ainu land to farm on of their own, but due to the fact the best land had been taken by the Japanese, essentially removed the Ainu from their ancestral lands to the mountainous regions in the centre. From this point and just before it, in the Meiji Restoration Era, the Japanese government was not subtle in their wishes. Japanese were told to settle in Hokkaido, and laws were passed to outlaw cultural practices of the Ainu, to ban traditional fishing and hunting and to restrict the teaching of the native language of the Ainu in schools all-together. What was a thumb pressing down slowly turned to a fist slamming the last remnants of a dying culture into a pulp as the population of Hokkaido numbered in the millions, but with very few being Ainu, it was a sharp contrast to their hold on the land beforehand.



**... what was a thumb pressing down slowly turned into a fist...**



This was, as can be seen, the lowest point for the Ainu in terms of their freedom. With pressure from the government and low recognition from the Japanese who now stood in their homes, any concept of power for the Ainu seemed to be stuck in limbo. But following on from WWII, things began to change for the better. In 1947,

the constitution of Japan was ratified, which allowed the Ainu to protect themselves with equality under law - at the end of the 20th century, in 1991, the Japanese government begrudgingly accepted the recognition of the Ainu as an ethnic minority to the United Nations in report. From here on, efforts were taken by the general populace in areas to promote Ainu cultural identity, and with the passing of the 1997 Ainu Culture Promotion Act, the Ainu language was funded as a separate course for schools which wished to teach it outside the curriculum. And in 2007, as Japanese ambassadors signed the UN Declaration on the Rights of Indigenous People, one of 144 member states which did so, the Ainu were officially recognised as an indigenous group under Japan.

But revitalization does not fix matters so easily, and the large acts of promotion the Japanese government likes to promote in an attempt to collide with the 21st century's democratic and free speech oriented approach is, as Professor Kunihiro Yoshida puts it, "very symbolic, but not so meaningful". In 2018, as an example, Hatakayama-Ekashi, a member of the Ainu, was interrogated for 3 days straight by Hokkaido Police, and denied access to his phone. His crime? He caught a salmon as part of the traditional and annual kamuycepnomi, the ceremony which welcomes the return of the fish as they travel upstream, without a permit. Unlawful harm of fauna is no laughing matter, and these acts are in place for a reason, but when they prevent indigenous communities who interact with these animals in ways that, frankly, show more compassion and far less harm than the mass extermination of animals done by fishing conservatives (for example), it raises the question: why does Ekashi need a permit when, as someone who is as much a part of the natural processes in Hokkaido as the fish, he is integrated into the living world?



On the 6th July 2020, he stated "It's not an issue of this ending without charges being pressed. The issue is that I cannot accept the situation in the first place. I plan to continue taking salmon for this ceremony as long as I am alive, and I am going to fight even harder for our indigenous rights.

The Ainu are not Japanese. They are an independent group of people, a culture within their own right. From the invasions of their cultural lands in the 1400s to the passing of the Ainu Promotion Act in 2019, the Ainu have without doubt struggled against the wave of colonialism in a section of history and prejudice oft ignored by scholars and historians which focus on other, more western-focused countries and their issues. And like most indigenous groups, to believe that the current laws and acts truly grant the Ainu or other indigenous communities the full rights and equality they deserve is delusion. We have improved, but not succeeded - by criminalising cultural acts of identity, we run the risk of self-presenting as the oppressors of the past.

**LUCA SCORER**



## An opinion on transgender athletes

In recent years, the issue of transgender people in sport has become a topic at the forefront of global culture wars, along with many others surrounding the rights and lives of transgender people, with claims from both right wing politicians and 'radical feminists' claiming up to thousands of women and girls have lost medals, or even been put into physical danger because of transgender women competing. But how true are these claims, and what do efforts to prevent this actually result in?

Before continuing, I would like to clarify the terms used in this article to help make it accessible for people who do not already know much on this topic. The terms 'transgender man', 'trans man', and 'FTM' all refer to people who have transitioned from female to male, so someone who was assigned female at birth, but now lives as a man. Similarly, the terms 'transgender woman', 'trans woman', and 'MTF' all refer to people who have transitioned from male to female, so someone who was assigned male at birth, but now lives as a woman. The term 'cisgender' refers to anyone

who lives and identifies as the gender they were assigned at birth, this is often used as a prefix e.g. 'cisgender woman' or 'cis man'.

Opponents of transgender people competing in sports often argue that due to going through male puberty, trans women have a biological advantage over cis women, and therefore unfairly win titles that they believe should have gone to cis women. SheWon.org, a website 'dedicated to archiving the achievements of female athletes who were displaced by males in women's sporting events and other types of competitions expressly for women', went viral in 2024 after Fox News reported 'Biological females have lost nearly 900 medals to trans athletes: UN report' a statistic which originally came from the website. Now (as of 25/02/2026), the website claims 3,200 cis women have lost 4,730 'medals, records, scholarships or other opportunities' across 1,985 competitions across 53 sports.

Trans men face similar but different issues, such as rules forcing people to play in the gender category they were assigned at birth, preventing them from competing against other men, however they are also often barred from competing in the female category if they have undergone any medical transition, such as testosterone, due to claims of unfair advantages. This results in barring trans men from competing unless they sacrifice potentially life saving medication. Unfortunately, the erasure and invisibility of trans men is a significant issue both within and outside queer spaces, making sources on both sides difficult to find.

But is there any truth to these claims?

Firstly, SheWon.org deliberately misconstrues already unreliable information to push their anti-trans agenda. The website is attributed to Alliance Defending Freedom, an organisation which has advocated for the criminalization of homosexuality and the forced sterilization of trans people. The information on the website is also, largely, crowdsourced, and while they claim to verify these sources, no attempts are made to say how they confirm that it was indeed a trans woman who won the medal, in their 'about' section they claim conformation comes from 'reliable sources', though this is never elaborated on. Instead they '[speak] directly with affected athletes or their families and reviewing event footage when available' and look at instances 'when male athletes publicly share photos of themselves with women's trophies', suggesting that they base at least some of their information on their own and others perceptions of what cis women and trans women look like, something that will be further discussed later in the article.

The website also includes multiple instances of 'sports' where no reasonable person would claim any sex-based 'biological advantages' such as poker, darts and billiards, and a section for 'non-athletic' events, including a Jeopardy! contestant and a woman who won a Hot Dog eating contest after a radio DJ joked about her being trans, despite her later clarifying that she is, in fact, a cis woman.



**... But is there any truth to these claims? ...**



This further proves the website's bias and unreliability, preventing it from being an accurate source, even in cases where a trans woman did actually beat a cis woman.

Secondly, multiple recent studies directly contradict the claim that trans women have a biological advantage over cis women due to their assigned gender at birth. A 2021 study published in the Journal of Sports Medicine has found that there is no scientific evidence to support attempts to ban transgender women in sports. Another from 2024 corroborated this and found that in some areas, such as lower-body strength and lung capacity, trans women performed worse than cis women. Another study, published in the British Journal of Sports Medicine in February 2026, concluded that 'while transgender women exhibited higher lean mass than cisgender women, their physical fitness was comparable'. So while it is true that there have been few studies on the topic, there is little evidence to support the claim that trans women have a biological advantage over men, the basis of most calls to exclude them from women's sport.

Furthermore, these attempts at demonising trans women often largely affect cis women, especially cis women of colour. Frequently, claims that cisgender women are in fact transgender are based on nothing but the physical appearance of the woman. Any woman who naturally deviates from eurocentric and traditional views on how women should look and present themselves, could potentially be faced with ridicule, invasive investigation into their personal lives and history by members of the public, and potentially violating genital inspections. This can clearly be seen in cases such as Imane Khelif, an Algerian

professional boxer who faced an online harassment campaign following false claims she was transgender during the 2024 Olympics. Similarly, multiple cisgender athletes, such as Caster Semenya, have been banned or forced to take hormone blockers, due to having naturally higher testosterone levels than what World Athletics believe is 'normal' for a woman to have.

In conclusion, I believe that claims that transgender women are 'stealing' medals from cisgender women are baseless, that rulings forcing people to compete in sex-based categories based on their assigned sex at birth or hormone levels are discriminatory, affect far more than just the trans women they often claim to target, and are unfounded. Instead, in my opinion, they are often based in the misogynistic view that men are inherently better at everything than women, proving that instead of wanting to 'protect women and girls' like many with these views claim, they are instead looking for an acceptable minority to discriminate against, to further their other bigoted views.

**REBECCA COOK**

## How ethical are the cobalt mining operations in the Democratic Republic of the Congo?

The DRC is located in central Africa and is best known for its vast amount of cobalt hidden in the earth, with the borders of the DRC covering the mineral practically entirely. The nation has been mining cobalt for about one-hundred years now and it has remained its most prominent exported good and has created a vast wealth for the country. Cobalt is a key material in the creation

of mobile phones, so without it our society would collapse due to the reliance we have obtained from mobile phones. Most citizens of the DRC dedicate their working life to mining and extracting cobalt, making it one of the greatest job creators in the nation.

Now, when we look at the conditions of the cobalt mining and we zoom in on cobalt itself we can start to realise why the mining is so unethical. Firstly, cobalt is harmful when inhaled or ingested, meaning any workers with any residue left on their hands may have serious risks to their life. This is made even worse by the fact that workers in the DRC having no protective equipment from the harmful element, being made to work in their bare hands and feet to find it in the ground, with them also typically having no equipment to mine with and still using their hands. There are also lots of times where young children have been found working in these environments, damaging the future generations greatly. The pay of these workers is abysmally low with it being 3-2\$ for adults and 1-2\$ for children, with the minimum wage being 5\$. Finally, the cobalt mines have, on many occasions, displaced locals without compensation for housing loss. Causing the homeless population of the country to skyrocket.

This does not match well with international



laws and UN guidelines with 1998's human rights act directly opposing some of the practices being followed in the DRC such as child labour laws violations, pay laws and many more. The UN however has taken very little action against this humanitarian crisis due to multiple factors. Sovereignty rights (a country's right to govern itself), prioritizing of other crisis's happening such as the neighbouring genocides such as the Rwanda genocides in the 1990s and finally, reluctance for cobalt imports to reduce, as the DRC supplies 70% of the cobalt for countries like the USA, meaning that very little action has taken place to combat this.

However in the country there has been many actions of rebellion with an armed rebellion currently taking place in the countries known as the M23 rebels with them taking action in 2011-2012 and restarting their campaign against the government of the DRC in 2022, with Félix Antoine Tshisekedi Tshilombo condemning them and making no effort to re-integrate with them. The M23 rebels are backed with funds and supplies from the rivaling government of Rwanda, however, the M23 rebels have also been reported to have committed equal atrocities with them committing horrible acts in their conquered regions such as Goma, Bukavu, and parts of North and South Kivu. Latest reports of the events in the DRC suggest that the government of the nation is trying to rope the USA into their war with M23 in an attempt to overwhelm them and defeat them with a unilateral ceasefire taking place in east DRC.

Now the question of ethics here is how we weigh the need for cobalt in this modern day society and how bad the humanitarian issues are. As discussed earlier, cobalt is a vital resource in the creation of mobile phones and is vital for modern technological advances and without it we would find it very difficult to

progress as a society, with even limiting the supplies having more potentially catastrophic consequences. However, we cannot ignore the issues in the DRC involving the workers and displaced locals as it is in direct violation of international law and human rights acts. In the novel *Cobalt Red* by Siddharth Kara there are many recounts and interactions with the local workers with one being "Now you understand how people like us work?" "I believe so." "Tell me." "You work in horrible conditions and—" "No! We work in our graves." This shows with first hand experience the passion the workers feel against this.

The way we need to work towards a solution is through unified action and through supporting the workers for better working conditions and condemning the private companies and state action. Luckily organizations such as PACT an NGO (a non-governmental organization) working in the cobalt industry to try and reduce the child labour and poor working conditions since 2003 helping over 25,700 people with this statistic being recorded in 2024. As citizens we can only support these organizations and call for our governments to act against this crisis and hope that the problem is resolved. Hopefully this article has shed some light onto the problem and helped you to become more informed on the matters in the DRC and central Africa with there being many more issues at hand in that country.

**DANIEL STOREY**

## Should sex work be legal?

First of all, it's important to establish that sex work 'being legal' comes in many different forms,

each with varying degrees of effectiveness and regulations. The most common in the world today is abolitionism, though there are quite a few others. Prostitution under abolitionism is technically legal, but the laws surrounding it aim to prevent and criminalise it, generally by targeting related activities such as soliciting, or brothel ownership. The Nordic Model, where it is illegal to purchase sex, but legal to sell it falls under abolitionism. Whilst the goal of abolitionism is to reduce exploitation of sex workers without punishing them, there are many areas of the world where this method falls short. One such way is that since paying for sex services people are already liable to be prosecuted for a crime, they are far more likely to be disrespectful of the worker's boundaries, even to the point of assault, which leads to the figures of violence committed against sex workers massively increasing. Ultimately, the safety of the sex workers under abolitionism depends on the laws and protections put in place by individual member states.

The main issue with the laws around sex work, is that they often involve little to no input from actual sex workers. Most sex workers do not wish for their profession to be illegal, as it often increases the risk that they are put in rather than protecting them. In addition, the class of people who make up the greatest number of sex workers are single mothers, who often rely on prostitution as a way of supporting their families. Even with legal systems that punish the consumer rather than the provider, still put the sex worker at risk, as a person who is. Furthermore, in places where sex work is completely banned, or organised prostitution (such as brothels or soliciting) is banned, sex workers are incredibly isolated, as they have no one that they can turn to for support or that they can report any cases of abuse or assault to. Important- this is not to say that organised prostitution can not

also be harmful or exploitative, simply that it provides a level of security that self-employed sex workers do not have.

It also bears mentioning that many of the reasons that people argue against prostitution are illegal in their own right. Things like human trafficking, underage sex, assault, amongst others, are all things that are not solely related to sex work and would not see any great change to the legality of those things if the laws around sex work to change. Many other people disagree with sex work due to finding it degrading, objectifying or coercive. Whilst this can certainly be true in a lot of cases, it is worth noting both that sex work becoming legal will not change any of this, and that there are people who voluntarily join the profession, and that their decision and bodily autonomy should be respected. To expand, even those who find sex work disgusting or degrading, must also recognise that whilst making sex work legal might seem like it's 'enabling' sex work, it is vital in order to increase the safety and wellbeing of the sex workers themselves. Furthermore, there is a great demand for sex work. Because of this, there can be a lot of money in the profession, and when regulated and done safely, it can be a good way for people with limited prospects to make a better life for themselves, or even become high-end prostitutes, that can them live a kind of lavish lifestyle they would never have been able to otherwise.

All this being said, we must further recognise that there are many people that go into sex work when they would really rather not, either due to indoctrination or limited options. This is of course, not something that should be happening- however. It does happen, and it will continue

to happen for a long time to come, simply due to the nature of society as a whole and the high demand for sex work. It is because of this that sex workers need more protections instead of less. These sex workers of now, deserve unions, access to specialised healthcare, support both mentally and physically- all things they cannot fully receive whilst sex work itself is still a punishable offence. Even regardless of that, sex workers who became them entirely voluntarily, still deserve all of those things. Therefore, I believe that although things like human trafficking should absolutely be punished and removed from modern society, sex workers themselves should be protected by law rather than punished, and be able to operate freely.

**SOPHIA ST. CLAIR**

## **Behind the Burka : A look into the History of woman's fashion in Afghanistan**



Vibrant, exotic and stylish are not three words which would typically be used to describe woman's fashion in Afghanistan; however,

pre-Taliban rule the capital Kabul was an exotic destination for fashion loving tourists. Known as the 'Golden age' of fashion in Afghanistan, the 1960s blended Western influence and traditional Afghan styles, allowing fashion and self expression to bloom. Mini skirts walked along side Partugs (traditional loose, baggy trousers) and Perahans (long, loose fitting overdresses) along side sleeveless tops.

In 1969 fashion magazine Vogue arrived in Afghanistan, models were photographed among the ancient ruins and neon bazaars. Between these pictures the featured designer was Safia Tarzi, a young woman from Kabul. She helped push Western



**... Vibrant, exotic, and stylish ... allowing fashion and self expression to bloom ...**



influence through blending traditional Afghan fabrics and embroidery techniques such as Zardozi with Western silhouettes like tailored coats and mini dresses. One of her more well-known influences is the Afghan coat. Traditionally made from sheepskin and fur-lined, Tarzi refined the silhouette and added luxurious finishing. Spotted on the Beatles and other pop artists, demand for the coat grew internationally, and with it grew the fashion industry in Afghanistan.

Then on the 27<sup>th</sup> September 1996 the Taliban seized control of Kabul. Almost overnight fashion shifted from self-expression to forced uniformity. The blue burka became



the new visual shorthand for female oppression in Afghanistan. Previously optional, it coexisted with the rich fashion of the cities and represented community belonging and cultural tradition. The legal enforcement changed the symbolisation; it was now a loss of control and freedom, which robbed independence and safety from the woman and girls of Afghanistan. The elimination of fashion as a self-expressive tool demonstrated how clothing could be turned into a mechanism of ideological enforcement. The religious meaning had been twisted into enforcing the gender hierarchy.

After the 9/11 attacks, the United States and allies invaded Afghanistan and forcibly removed the Taliban. Women returned to schools and jobs, re-entered media and arts, and fashion began to re-emerge into urban spaces. Free from the burka, women in cities began to explore fashion once more. Tailored trousers, coats and other Western silhouettes began to appear. While the fashion still remained relatively modest, women were free to wear colourful headscarfs rather than burkas, these were paired with playful fashion choices rather than forced upon them. Despite the newfound freedom in cities, rural areas remained under conservative influence,

the burka was still worn widely and fashion remained highly conservative. Where previously fashion events happened often with the cities, post the Taliban downfall they were very restricted due to safety risks.

In 2021 the Taliban re-entered Kabul. The Afghan government collapsed. They re-instated control. All the progress to freedom made was destroyed. The burka was reinstated and along with it was the oppression of women. The burka again was no longer a religious choice but a symbol of lost freedom and highlighted the forced control over women's bodies.

Everyday woman's freedom in Afghanistan slips farther away, freedom, culture and expression continue to be punished. Yet, despite the danger posed toward them, protest movements exist and people combat the monstrosities in many ways. For instance, started in 2021 by Bahar Jalai, the #DoNotTouchMyClothes movement. Around the globe Afghan women posted photos wearing beautiful traditional clothing, rich in colour and embroidery, to help raise awareness and show strength and unity among the force.

Young designers pull inspiration from their heritage and fight through the power of creation. They create noise through fashion and continue to draw eyes to the humanitarian issue, so we never forget it.

**GEORGINA VINCENT BELL**



# MUSIC

**Editor : ELENA PATSIAS**

“Music expresses that which cannot be put into words and that which cannot remain silent”  
— Victor Hugo

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## Born in the USA - An overlooked portrayal of discrimination

Born in the USA in 1949, Bruce Springsteen was raised in a working-class area of New Jersey, which can be guessed from his raw portrayal of working-class struggles in many of his songs. From buying his first guitar for \$18 aged 13 to being referred to as “The Boss” by Barack Obama in 2009, Springsteen’s love of music exploded into an undeniable talent with his global sales exceeding 140 million. Released in June 1984 as the title track of Bruce Springsteen’s seventh most successful studio Album, “Born in the USA” is widely recognised as one of the most misunderstood rock songs of all time.

Upon hearing the first strike of that iconic synth riff coupled with that almost militaristic drum beat, it is clear that we are not just listening to a song, we are being called into action. However, many people have lost themselves in the refreshing simplicity of the chorus and so the song has frequently been mistaken for a patriotic anthem, most famously by right-wing politicians such as

Ronald Reagen and Pat Buchanan but its messages drive much deeper that Springsteen is commonly given credit for.

*Born down in a dead man's town  
The first kick I took was when I hit the ground  
End up like a dog that's been beat too much  
'Til you spend half your life just to cover it up  
now*

Upon hearing Springsteen belt out the first verse with what has been rightly described as a “force-of-nature” power, we can tell that he is not simply promoting a tale of blind patriotism. In fact, he is relating to us the tragic experiences a Vietnam War Veteran faced upon returning home. Through the immediate use of juxtaposition, we are planted into the life of a man with nothing. No hope for change, equality or freedom. We feel his frustration at a harsh start in life as he likens the beginning and the end of life, implying that to him, they are no different. Also, violent animalistic imagery is utilised to foreshadow the hardships our protagonist has yet to face.

*Born in the USA  
I was born in the USA  
I was born in the USA  
Born in the USA, now*



**... one of the most  
misunderstood rock  
songs of all time ...**



However, this first bleak verse is immediately contrasted with a surging chorus. Reading the lyrics on the page here does not give credit to power nor influence that the chorus has over the listener. I think it can be agreed that it is the use of a driving snare drum combined with striking synths and Bruce's ragged voice that creates this engulfing atmosphere. Which unfortunately, can be and has been mistaken for Bruce displaying a sense of unwavering pride for his country that led to him being misviewed as an American Idealist figure. The constant interruption of this narrative for the chorus "Born in the USA" is the protagonist's incessant reminder to the listener of his similarity to all other Americans and in a way encapsulates his disbelief that despite belonging to the same country, he has experienced such hate and isolation.

Misfortunes amount for the protagonist in the second verse where Springsteen directly addresses the Vietnam War for the first time:

*Got in a little hometown jam  
So they put a rifle in my hands  
Send me off to a foreign land  
To go and kill the yellow man*

To this day, The Vietnam War remains one of the most controversial conflicts in history and it led many Americans to question their Government and its policies. Many thought the USA's involvement was immoral as the USA was not directly threatened by Vietnam but others agreed that its involvement was necessary in order to stop the spread of Communism. The passive voice of the second line encapsulates the lack of choice this man had in his involvement in the War. Springsteen clearly spells out the reason behind the soldier's enlistment as being an alternative to criminal punishment, not as a sense of duty for his country. Moreover, Springsteen's blunt depiction of the soldier's orders suggests his disapproval of how the USA tried to contain communism, promoting his anti-war beliefs.

After past US wars, veterans were treated as heroes but veterans of the Vietnam War suffered greatly upon their return home as they reportedly received verbal abuse from anti-war protestors who on occasion spat on them and called them "baby-killers". Throughout the song, I think it can be agreed that in no way is Springsteen advocating for war nor celebrating the conflict by his choice to portray the veteran empathetically, but instead he is humanising the men and women who fought in this war and were badly discriminated against for it despite often not having a choice.

In the next few verses, Springsteen centres upon the losses of this Veteran in order to demonstrate that for many it was not a choice to fight in the war but an obligation.

*Come back home to the refinery  
Hiring man said, "Son, if it was up to me"  
Went down to see my V.A. man  
He said, "Son, don't you understand, now?"*

The use of direct speech Springsteen chooses to include here cleverly conveys the lack of support and welcome these soldiers faced upon their return home. The soldier's lack of response amplifies his despair and sense of hopelessness as he faces unemployment because even V.A (Veteran Affairs) have no benefits to offer him.

*I had a brother at Khe Sanh  
Fightin' off them Viet Cong  
They're still there, he's all gone  
He had a woman he loved in Saigon  
I got a picture of him in her arms now*

Here the tone shifts slightly as Springsteen moves away from economic hardships and chooses to highlight the emotional impacts the war has had on this man as he reflects on the loss of his brother. The monosyllabic line

“They’re still there, he’s all gone” encapsulates the protagonist’s grief and is amplified by a timely pause in the vocals after this line. Springsteen's last line before the final chorus “Nowhere to run, ain’t got nowhere to go” summarises the sense of abandon the veteran feels. Springsteen uses this double negative to reiterate the impacts that the War had on the lives of these men and women and in a wider sense, the futility of war and its profound losses. Many veterans suffered from PTSD after the conflict so this could also refer to the loss the protagonist feels within himself as he cannot escape from the horrifying images and memories of the past.

Springsteen is not the first nor the last to feel the need to express his opinions on The Vietnam War through music as it has been a central theme in songs including “19” Paul Hardcastle which focuses on the shockingly low average age of soldiers in the War and “Fortunate Son” Creedence Clearwater Revival which draws upon the injustice of the military draft in relation to the social hierarchy.

However, Springsteen’s 1984 hit centres upon the overlooked mistreatment and abuse endured by a select minority of Vietnam War Veterans from the US public despite them also being “Born in the USA”. Throughout the song, he alternates sinister verses with the iconically ironic chorus in order to criticise what it truly means to be American. He challenges the patriotic values of many American citizens who are keen to support their country but not all its people. Ultimately, “Born in the USA” encourages us to confront the values we hold and the true reasons behind conflict. As with any timeless track, “Born in the USA” still rings true today as ever with the divided world we live in at present and it is both a protest and a reminder of the far-stretching impacts of war on all fronts and how easily the people wish to place the blame on a select minority.

**ELENA PATSIAS**

## The Man

Released in 2019 on Taylor Swift’s seventh studio album Lover, ‘The Man’ has amassed over a billion streams worldwide, and remains one of Taylor Swift’s most political statements through her music. Both the lyrics and music video cover the inherent objectification and sexualisation of women in society and the sexist double standards female singers are held to in the industry, critiquing the patriarchy and toxic masculinity. Women remain a minority in the world; held back by lack of education, restricted by the gender pay gap and limited by impossible expectations the world imposes on them.

‘The Man’ explores Taylor Swift’s life as her male alter ego Tyler Swift as he moves through the world, highlighting the double standards in society by showing his anti-social behaviour, rude interactions and hedonistic lifestyle that reap no consequences. The verses list things that Swift herself has been criticised for in her career, yet - told from the perspective of the male version of herself - emphasises how men not only get away with but are praised for these behaviours, achievements and attributes.



**... the inherent objectification and sexualisation of women in society ...**



For example, in verse two, Swift contrasts the negative reception the world has

towards successful women to the applause men receive for doing the bare minimum. She expresses anger about her hard work, “good ideas and power moves”, being reduced to nothing more than “what [she] was wearing, [and] if [she] was rude”.

In the bridge, she then reverts from Tyler’s perspective back to her own, directly addressing the famous men and the openly luxurious and promiscuous ways they live, asking them how it feels to be able to escape onslaughts of public disapproval, and even be admired for it. The comparison highlights how headlines regarding male celebrities are often debating which model might get with next or where they’ll choose to spend their fortunes, whereas every time she finds herself in the news, they are speculating if she’s pregnant, when she’ll settle down or when she might get married - and even now, when she has started to do just that, they are attacking her for the decision.

She goes on into the chorus to say, “I’m so sick of running as fast as I can, wondering if I’d get there quicker if I was a man”. This line has been used in feminist speeches around the world, as it encapsulates the frustration women feel in the industry and in society as a whole, summing up the impacts of being underestimated and undermined just because of their gender, held back by a world built for men to excel and succeed, lamenting that “if [she] was a man, then [she’d] be the Man”.

“I’m so sick ... cause if I was a man, then I’d be The Man”, is perhaps the most impactful line of the song, summarising the frustration expressed not only by Swift but by women around the world. This applies particularly well to Swift who - whether you’re a fan or not - is one of the most successful singers of the twenty first century, if not all time. She has won 690 awards: including breaking 118 world records, winning 40 American Music Awards,



14 Grammys and being named woman of the decade; the Eras Tour broke the record for the highest-grossing tour ever and cemented her in the Songwriters Hall of Fame.

Yet despite dominating the industry for almost twenty years, Swift is still discredited, diminished and debased unabashedly, lamenting in her song that if she were a man, “every conquest [she] made would make [her] more of a boss to you”. She points out the standards she is held to in comparison with her male counterparts, singing “it’s all good if you’re bad and it’s ok if you’re mad [but] if I was out flashin’ my dollars, I’d be bitch not a baller, they’d paint me out to be mad, so it’s ok that I’m mad”. These two lines bring attention to the fact that instead of being applauded for her achievements, she is constantly dragged by the press and criticised where male celebrities would be celebrated and showered with praise. They highlight how Swift has fought to build everything her music stands for, standing strong against relentless assaults from the media, despite her male counterparts being miles ahead for comparatively little effort or hassle.



In conclusion, 'The Man' is Taylor Swift's most explicit musical confrontation of the misogyny she is subjected to in the musical industry, directly criticising the impossible standards she is held to and sexist stance media takes when reporting on her achievements. Whilst she is a minority herself, Swift has dominated the majority of the charts for the last twenty years and will most likely continue to do so for the rest of her career.

**MOLLY KEENAN**

## Walls Come Tumbling Down

Music has always been a way to express emotions, passions, criticisms, and more, acting not just as a composition of sweet-sounding notes, but an outlet of protest, dressed up with a memorable, catchy beat, appealing to the masses to display a message who might otherwise turn away, fusing accessibility with a deeper message. Paul Weller was most famously a member of 'The Jam' and 'The Style Council', eventually earning himself the nickname, the 'Modfather'. He became a master at creating energising pop and soul songs which simultaneously act as interference to social complacency where defiance should triumph.

Paul Weller's songwriting is famously rooted in English society and his experience growing up in a working class background in Woking, which would help shape his success and directly engage with these cultural fractures. His move towards a more vocally socialist attitude emerged in the 1980s, from becoming vegetarian due to his thoughts on animal rights to his interest in the Campaign for Nuclear Disarmament (CND) and fundraising efforts regarding the effects of the miner's strike via 'the Council Collective', which in particular sent proceeds to Welsh taxi driver David Wilkie's widow after her husband was killed during said strike. His activism in music has even extended to his featuring on Band Aid's 'Do They Know it's Christmas?'

The Style Council's ninth single 'Walls Come Tumbling Down' begins with a rising soulful synth keyboards broken by a drum-heavy introduction, assuring the confident and unapologetic tone Weller was hoping to encompass. Overlaying brass sounds add to the soul feel common in much of the style councils music during the 1980s, securing the band's "sophisti-pop" genre categorisation. The punching rhythm is built by Steve White on drums and Mick Talbot's soulful keyboard arrangements, providing the perfect instrumentals for Paul Weller's candid lyricism, forming into one beloved protest song. The context of the song finds itself in the aftermath of the aforementioned miner's strike, born into a divided Britain marked by polarisation and division.

At this time, Britain was under PM Margaret Thatcher's conservative government, which largely contributed to the incident of the miner's strike. Policies placed great emphasis on privatisation, and less on industries such as coal mining. Thatcher's intensifying of

tensions between the government and the labour force earned a place in Weller's biting musical critiques. The early 80s witnessed a deep recession, however a decade boom would follow, which Britain was experiencing the birth of by the time the song's release in 1985.

Weller presents himself as a relatable speaker, acknowledging that "we've always been taught to rely upon those in authority" showing understanding of passive acceptance due to social conditioning and societal norms. He positions himself below this "authority", standing with the ordinary citizen. The verb "taught" implies that this has been systematically, purposely bred, reinforced and normalised by the oppressive institution itself. He suggests we have been fed a lie that the powerless majority must rely on a minority of people in one governing body to make decisions and run effectively, which may actually be contradictory, and therefore deeply ironic.

The pre chorus' rhetorical question, "are you gonna try and make this work or spend your days down in the dirt?" is confrontational and forces listeners to make a decision, one clearly more favourable than the other. Weller supposes that in a government system, our options for politicians and representatives may come down to "the lesser of two evils", however we could annihilate the "evil" entirely by relying upon ourselves and making a greater, more unbreakable joint effort. He pits a miserable defeat against determination and grit.

Dee Cee Lee provides powerful backing vocals with the encouraging affirmation, "you can actually try changing it", "it" being an England ridden with distress and division due to increasing unemployment (surging over 3 million in 1983) and Thatcher's controversial

economic policy. The listener is directly addressed, showing the band's drive to make an actual change and attempt to get through to the average citizen. Lee returns with the lead vocal line in the chorus, "Governments crack and systems fall 'cause unity is powerful", suggesting that corrupt higher establishments crumble when met with large collective opposition which otherwise supports them. This is arguably one of the song's most memorable lines, almost adjacent to a catchy, powerful slogan, encapsulating the main agenda; When the common workers who run society and ensure the smooth running of the government unite despite their differences, Weller's idea of social success is achieved.

Although Lee's backing vocals do not lead the song, she is tasked with the core message. Her quieter echoing voice in the background is what drives the song, reassuring the notion that maybe the most repressed voices in society can contain the most powerful messages, with no single leader carrying the track completely. Those marginalised and demeaned have the power, but they can only actualise this once they work hard to come together.

He accounts that the togetherness essential "is threatened by those who have or who have not, those who are with and those who are without". Here there is lots of simple juxtaposition, such as the classic "have" and "have not"s, or those who are "with" versus "without". Rather than standing against a higher force which we would hold accountable, society tends to fault other people who are also repressed by it. Even though we may share common goals, the effects of oppressors divide us, turning our union into a fragmented pillar of defiance, which of course will inevitably collapse.

## Minorities VS Majorities

This song also is a prime example of why we cannot assign the familiar connotations of 'suppressed', 'weak' and 'powerless' to minorities, and words such as 'ruling', 'dominant' and perhaps 'elite' majority. In this case, the majority are the common people, who are forced to coalesce in order to gain prevailing power. However the ultimate upper hand is placed on the higher government body, a minority of people who rarely fully represent people's ideas. Although the minority is technically outnumbered, they retain assigned, established supremacy.

One of my personal favourite lines, "the class war's real, not mythologised" is sung by Weller just before what the listener wrongly anticipates to be another rendition of Dee Cee Lee's chorus, but rather we are met with a shift in harmony, which serves to shock listeners out of a reverie of denial and complacency, providing further confirmation of this aforementioned claim that class war divides us. The force of this punchy, short, yet loaded line, is granted by its abruptness. This also helps to demonstrate the depth of the issue, separated not just by disagreements and disputes, but also financially.

Weller's allusion to the Old Testament book of Joshua (6:1-27) compares the battle of Jericho, around 1400 BCE, to an early 1980s Britain at the prime of Thatcher's rule. In the biblical story, the Israelites conquer the Canaanite city of Jericho.



**... we have been fed a lie that the powerless majority must rely on a minority of people in one governing body to ...**



After six days of marching, led by Joshua, seven times on the seventh day, Joshua ordered the Israelites to shout and priests to blow their horns, leading to the fortified walls of Jericho, up to 25 feet high and 20 feet thick, to collapse. This simile suggests that when Britain's working class unite against a ruling class "Like Jericho, walls can come tumbling down". Their success was achieved not via one individual, but solidarity.

Ultimately, 'Walls Come Tumbling Down' serves not as an angsty, rebellious ballad from Weller, but rather a device to steer others towards what he believes will most benefit society, or rather fuel those already converted to stand up.

The brassy joyfulness of the song turns it into an optimistic, hopeful anthem to nurture the ideas Weller places in our minds. Instead of wallowing in self pity, complaining about injustice or the dysfunction within society, he wants to take action, from words to instrumentals that celebrate unity and expression. John Leland of Spin called the song a brassy take on the sort of '60s soul pop Elvis Costello mined on Get Happy!!, but Weller's reading suffers from its 'look at me' ebullience. Limp stuff.", ultimately taking this instrumental to be more gaudy than sincere or strong.

The song resonates with the average person, who may lack complex understanding or commitment to such political affairs. It poses a simple yet serious topic of complacency and societal obedience.

**ELLA HIGGINS**

## How Soon is Now - The Smiths

*I am the son and the heir of a shyness that is  
criminally vulgar.*

*I am the son and heir of nothing in particular.  
You, shut your mouth.*

*How can you say I go about things the wrong  
way?*

*I am human and I need to be loved  
Just like everybody else does.*

*I am the son and the heir of a shyness that is  
criminally vulgar.*

*I am the son and heir of nothing in particular.  
You, shut your mouth.*

*How can you say I go about things the wrong  
way?*

*I am human and I need to be loved  
Just like everybody else does.*

*There's a club if you'd like to go,  
You could meet somebody who really loves  
you.*

*So you go and you stand on your own  
And you leave on your own*

*And you go home, and you cry, and you want to  
die.*

*When you say it's gonna happen now, well,  
when exactly do you mean?*

*See, I've already waited too long, and all my  
hope is gone.*

*You, shut your mouth.*

*How can you say I go about things the wrong  
way?*

*I am human and I need to be loved  
Just like everybody else does.*

The first issue with this essay is that we're talking about the wrong part of the song. As brilliant as the poetry printed above is, the music that stands behind it encapsulates the feeling far better than language ever could. For that reason, I cannot kid myself (or you, the reader) into thinking I'm at all qualified in explaining said music. You'll have to listen to the song for that, if you haven't already.

The second issue is that the existence of this essay at all is purely for my benefit. Reading this will do you no good as the exercise of analysing song lyrics is an inherently selfish act, as most things tend to be. Me telling you what to think does nobody any good, but I'm going to do it anyway because I want to. I'm hoping to remind you that thinking for yourself, just for the purpose of thinking, is still an option in the age of the internet. I've overthought this song until I've inserted meaning where there is none, and now I'm going to over-explain it to you, with too many commas. Thank you endlessly for reading this long and boring disclaimer portion, I hope you enjoy this long and hopefully less boring essay.

With the title of this song being a question in itself, you might expect a clear answer by the end. As we hear the last extended dregs of instrumental fade out, we're burdened with the impossible task of attempting to answer it ourselves. My attempt starts in the beginning, naturally.

The first line immediately offers us an insight into the narrator's personality. This shy, introverted type. However we can dig much deeper here. Calling himself the 'son and heir' of this shyness suggests he never asked for it, rather he inherited it. Clearly, this character isn't

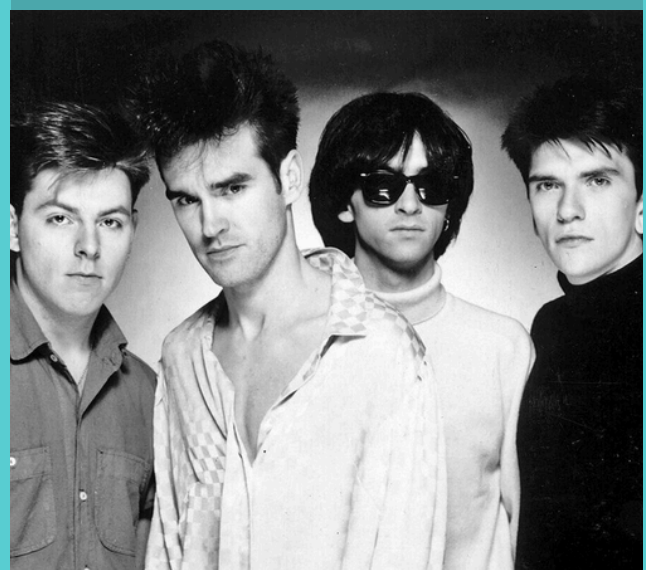
the proudest of this personality trait, claiming that it's outside of his control, shrugging off the shame that comes with this shyness. He calls it 'criminally vulgar' here, perhaps giving us the reason he's so ashamed - he sees it as offensive to possess at all. Though this line could also be read as sarcastic, it being that absurd that his shyness could be construed as so undesirable that it's appalling to the average person. This sarcasm could show the narrator's distaste in the idea, finding it ridiculous that this trait he never wanted or asked for is a topic most people would scoff at. He further explores how harmless this trait is in the next line, highlighting just how ridiculous it is to him that someone could take such great offence to it, reducing aforementioned shyness to 'nothing in particular'.

The phrase 'You, shut your mouth' comes off as defensive, the pronoun 'you' suggesting he's directing his message to someone, or a group of people. The narrator is in utter disbelief at the idea of someone not understanding his point of view, and he's frustrated by that harsh truth - shocked that someone would dare suggest he's wrong in the ideology he's so fixed on. The ideology that being human naturally entitles us to love. That if everyone else manages to find love, then, what on earth could be stopping him? Perhaps these other people are suggesting it's his introverted nature that's standing in the way, and that's what the narrator finds so offensive. He can't fathom that he might have to work for it, put himself out there, be proactive in his own life and future. So he immediately rejects the idea, not wanting to admit his own flaws.

You might see this as him being stubborn in his views and not seeing reason, hanging on to that last desperate hope that he still has a chance to find love - just because he is in

denial that he might not. That any human is entitled to love simply because they are human. Or, you might feel he makes a valid point here and everyone does need and deserve love. That we shouldn't need to change ourselves to fit the moulds and norms of our ever-turbulent society. That to change ourselves is to lose a little part of our natural selves. To quote another Morrissey-penned lyric, love is natural and real, so why should we as people have to strip ourselves of our natural qualities to find love and acceptance in a world that's getting less and less natural and real? Hopefully something to think about there.

Section two of this song might be the most Morrissey-esque verse ever written. The line 'There's a club if you'd like to go, You could meet somebody who really loves you' could be read as the narrator paraphrasing something that he feels has been incessantly repeated to him. The societal pressure he feels to socialise and make some effort in achieving this love and acceptance he so clearly craves. This is followed by the narrator reciting the steps he feels he will have to endure if he follows this advice, 'So you go and you stand on your own, and you leave on your own, and you go home, and you cry, and you want to



die'. Here, we get the idea that he has tried and tested the method of stepping outside of his comfort zone. He knows the drill at this point, trying to overcome his shyness, and find connection - only to be met with failure. He can't quite find it within himself to interact with others the way most people manage so naturally, so he ends up alone, feeling worse than he did before he attempted going out at all.

From this we can begin to understand why he seems so dejected and acts so hard done by. We can criticise this point of view all we want but at the end of the day, he tried, failed, and was left worse off by the end. Why would anyone in their right mind ever want to try again? He does the same thing over and over and knows just how unproductive it is to expect a different outcome. So he stops trying altogether, dimly aware of his self-sabotage but vehemently denying that his loneliness is a product of his own stubbornness. This gives us a further explanation of the narrator's feelings of contempt at the idea of taking initiative that he expressed in the first verse. Now, the obvious course of action here would be to change something, in order to get a different outcome, like stepping out of your comfort zone. Not standing on your own, but instead, making a real attempt to interact with people. But at this point we can safely assume the narrator is a bit thick and will not take any advice no matter how obvious it seems to most.



**... we shouldn't need to change ourselves to fit the moulds and norms of our ever-turbulent society ...**



In the final section of the song we address the title. In the line 'When you say it's gonna happen now, well, when exactly do you mean?', our narrator seems to be talking back to whoever has been reassuring him that he will find someone. He's latched on to the supposed guarantee here of finding love, and ignored the fact that he has to be proactive in this goal. With this mentality we can understand the hopelessness in this last verse. He wants the happy ending, but doesn't fancy the graft that goes into it. So he's blocked that part out and is now at a loss for how to get to the ending he wants so badly. The real tragedy here is that we know exactly how he can work towards the love he craves but he just won't, in favour of waiting for the world to catch up to him. But the world waits for no one. And eventually our narrator will run out of trips around the sun, likely regretting never doing anything about it when he had the chance.

For the last time, he sings 'I am human and I need to be loved', but this time, he has already given up. He's no longer pleading his case. His voice is clear and longing on the word 'loved', abandoning the uncertain wavering tone he's had through the rest of the song. By now, he's self-soothing, in the only voice he'll ever know intimately. His final declaration, this time, directed towards himself.

**ANNALISE HYNES**

# PSYCH OLOGY

**Editor : MOLLY KEENAN**

The science of Psychology is the key to not only understanding, but also navigating society; from discovering our music tastes to finding who we are, it helps us become considerate and empathetic members of our community. Research from psychologists across the field, for better or worse, has helped us to care for those with speech impediments, phobias and other mental health issues, as well as giving us insights into bizarre phenomena like dreaming. The articles written for this section encapsulate the ways the study of psychology has allowed us to support both the minorities and majorities in society and highlight the ways we can improve our lives.

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## In Your Wildest Dreams : The Psychology Behind Dreaming

99% of the population claim to have dreamt at least once in their life, 85% of people report having occasional nightmares, 60% have had recurring dreams and 51% of people have experienced lucid dreams; which begs the question: what is dreaming and why do we do it?

The majority experience dreaming for approximately ten minutes per night, seeing successions of images, emotions, ideas and scenarios they often forget by morning. These nonsensical imaginations of the mind have been studied by scientists since Sigmund Freud, the neurologist considered the founding father of psychology, brought attention to their importance in his work on psychoanalysis. In the centuries succeeding his research, scientific advances have sought to solve the mystery our minds create whilst we sleep. Yet still: we have no idea.

Neuroscientists and psychologists have been working since the late nineteenth century to

answer the mystery of why we dream; conducting experiments, researching and, in more recent times, taking images of the brain whilst we sleep: to no avail. It would be unfair to say they have made no progress, as they have proposed several promising theories, yet, after 140 years of debate, investigation and exploration, we still have no concrete proof for why we dream. The general consensus, however, is that dreaming seems to be a by-product of mental housekeeping, taking place in our sleep when the brain cleans up after the day, processing emotions, storing memories, removing unnecessary information. This ensures the general upkeep of the Central Nervous System - including the brain, spinal cord and neurons - which are essential for neurological function. The sleep stage known as REM is when the majority of this maintenance is carried out and when the majority dream. It can happen at any point in the night, but the dreams with no rhyme or reason we so closely associate with the concept of dreaming occur in REM sleep. REM stands for Rapid Eye Movement, and during this stage, your heart rate, blood pressure and breathing rates increase, your muscles lock - preventing you from acting out your dreams - and, like the name suggests, your eyes begin to move rapidly.



**... scientific advances  
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One of the main factors supporting this argument, is the fact that, despite every person having incredibly different experiences, the majority often dream about similar themes. How many times have you dreamt about falling, flying, running but not going anywhere and losing your teeth? Thanks to recent developments in brain imaging technology, we know that during vivid dreaming like this, the Right Inferior Lingual Gyrus is actively sending impulses - as proven when the area lights up on the scans. The Lingual Gyrus integrates visual and emotional experiences, and, along with the Amygdala and Hippocampus - which deal with emotion and memory - it is thought to potentially be involved with this strange sensation. The RILG is located in the Occipital Lobe, where we receive visual stimulation from our environment, and could be argued to have the most influence over our dreams. Evidence for this comes from the development of coloured television and the seemingly correlational change in the format of our dreams.

Before the 1950s, most people reported dreaming in black and white, yet by the 1960s - coinciding with the rise of coloured TVs - an increasing number of people reported beginning to dream in colour. Whilst there is no concrete proof for this cause and effect, a study done on college sophomores in 1942 found that 70.7% never saw colours in their dreams, but when the study was conducted again sixty years later, that number had dropped to only 20%. Another twenty years on, when all TVs are now in colour, 12% of people still say they dream in black and white, showing the immense and complex variation of dreams. Even more remarkably still, people who have damage to their RILG sometimes report no longer being able to dream at all; emphasising this region's importance.

The dreams which happen in NREM sleep - Non Rapid Eye Movement sleep, which is

essentially the rest of the sleep cycle - are often more coherent and can involve real people, places, times and even reflect real memories. They are theorised to be less rooted in emotional regulation and more closely linked to memory consolidation and integrating information. However, dreams can be influenced by more than just the brain's chosen maintenance activities and the experiences you had during in the day; they can be affected by medication, sleep disorders and even your lifestyle choices! Habits like drinking alcohol, eating before going to bed and having an irregular sleep schedule can negatively impact your REM sleep, leading to more erratic dreams and even increasing the likelihood of nightmares. In general, disrupting your sleep pattern is not advisable, it causes your brain to overcompensate the next time you enter REM sleep - known as REM rebound - and also means you'll feel worse in the day.

All of these factors can impact our sleep and heavily influence our dreams.

In conclusion, whilst the mechanics of dreaming are still widely unknown, the majority can continue to live healthy lives in an effort to support our body both in sleep and when awake, in the hopes of continuing to experience the nightly entertainment dreams provide. For the minority, who can only wish to do the same, they can dream on.

**MOLLY KEENAN**

## **“It’s more than just noise” : The Psychology of Music in Daily Life**

Music is present in almost every aspect of modern life, from background playlists in cafés to the music people listen to on their way to

or while studying. It plays a far more significant role in the lives of children and teenagers than is often assumed, ranging from early childhood songs to the music teenagers listen to through headphones. Music can influence emotions, learning processes, attention, and even shape social relationships. While the majority of people listen to music simply for enjoyment, psychological and educational research suggests that music can affect how young people regulate their emotions, maintain concentration, and engage in learning. It can also contribute to the development of cognitive schemas and support the formation of social relationships. As children grow into teenagers, music often becomes more personal and influential in shaping their identity and behaviour, therefore, it is important to research and understand the effects music can have on young people.



**... music often becomes more personal and influential in shaping their identity and behaviour...**



### **Music and Emotional Development**

One of the most notable effects of music is its ability to influence emotions. For adolescents, music can be a powerful tool for expressing and managing feelings. Young children often use music to experience joy, excitement, and calmness, while teenagers frequently turn to music to cope with stress, sadness, or frustration. Research from Harvard Medical School shows that music can trigger emotional

responses as rhythm and melody interact with multiple brain areas. Sound waves enter the ear, strike the eardrum, and are converted into electrical signals that travel to the auditory cortex, where frequency, amplitude, and temporal patterns are processed. Music also affects the amygdala, which processes emotions such as fear, anxiety, and aggression. Overactivation of this system may contribute to anxiety and depression, which affect about one in five young people aged 10–18. Different types of music influence emotional responses in different ways; a meta-analysis of 104 randomized controlled trials found that slow-tempo music (60–80 beats per minute) significantly reduces anxiety and stress, while faster-tempo music (over 120 beats per minute) can increase arousal, improve mood, or distract from anxiety, though it may sometimes increase stress.

### **Music and Cognitive Schemas**

Schemas are mental frameworks that help individuals organise information and understand the world. Music contributes by introducing patterns, structures, and sequences that the brain can recognise and remember. Songs often include repetition, rhyme, and rhythm, strengthening memory and supporting learning. For younger children, educational songs about the alphabet, counting, or days of the week help organise information into memorable patterns.

For teenagers, music also supports the development of cultural schemas and identity. Exposure to different musical styles and lyrics introduces social values, traditions, and cultural expression, influencing how adolescents interpret experiences and form personal identities. However, some music contains violent, misogynistic, or aggressive messages. Adolescents, particularly aged 10–17, are highly impressionable, and repeated exposure to such content

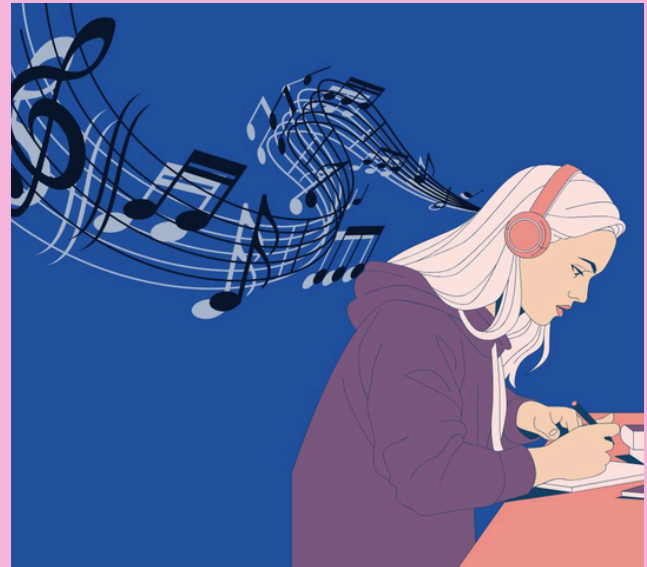
may normalise sexist or aggressive attitudes. A study by Sarah M. Coyne and Laura M. Padilla-Walker (2015) found that listening to aggressive music predicted higher aggression and lower prosocial behaviour one year later, even after controlling previous behaviour.

### Music and Overall Development

Music also contributes to cognitive, social, emotional, and physical development. Activities like singing, playing instruments, or participating in ensembles encourage coordination, listening skills, creativity, and teamwork. For younger children, music supports language development, auditory processing, and motor coordination. Rhythm-based activities enhance timing and physical coordination, while singing improves vocabulary and pronunciation.

For teenagers, music often becomes a means of self-expression and identity exploration; it fosters social connections, improves communication skills, and builds confidence through collaborative performance. The Venezuelan youth orchestra programme El Sistema provides evidence of these benefits. A randomised study by Xiomara Alemán and colleagues followed 2,914 children aged 6–14 and found that participants demonstrated improved self-control and fewer behavioural difficulties than non-participants, highlighting music's role in promoting social development, discipline, and behavioural regulation.

In conclusion, music is far more than background noise. Psychological research shows that it influences emotional regulation, cognitive development, and social behaviour in the majority, if not all, of children and teenagers. Through rhythm, melody, and lyrics, music shapes how young people process emotions, develop mental frameworks, and form their identities. While it can support learning, creativity, and social connection,



music may also expose listeners to messages that influence attitudes and behaviour. Understanding these effects is essential to encourage positive musical experiences. Ultimately, music is a powerful psychological and social force that shapes how the majority of young people think, feel, and interact with the world.

**AVA MUNGALL**

## Psychologist to Psychopath

Psychologists aim to study human behaviour and the mind to understand and explain behaviour and feelings. Supposedly, they do all of this to help people and better people's lives. But how far are they willing to go and at what point is this willing to help causing more harm than good?

There are a number of studies done by psychologists that raise this concern. Some of these studies are: the Stanford prison experiment (1971), Milgram's obedience study (1961), little Albert (1920) and the monster study (1939).

## Minorities VS Majorities

The Stanford Prison Experiment, by psychologist Philip Zimbardo, in short, assigned 24 male college students randomly to either guard or prisoner and placed them in a 'prison' in order to investigate the effect of situational factors on people. After only 6 days the experiment was terminated after multiple participants became increasingly violent, as well as many participants suffering extreme stress. Although this study led to the reforms within the prison system, was the level of suffering they endured worth it? One of the 'prisoners', Richard Yacco, said that during the investigation he asked Zimbardo if he was able to quit and Zimbardo replied that he "can't quit" and that he "agreed to be here for the full experiment".

This experiment was flooded with ethical issues from clear lack of protection from harm to no right to withdraw. Zimbardo was too fixated on his discoveries that he was reluctant about ending the study and the study only ended when his girlfriend, Christina Maslach, confronted him about how immoral the experiment was and she insisted that he terminate his study. Psychopaths feel no remorse or emotion and in this case Zimbardo felt no guilt for what he was doing and felt no empathy for his participants, due to his desire for results. This raises the question: is Zimbardo simply a psychologist or could there be underlying psychopathic behaviours?

Another potentially psychopathic study is by Stanley Milgram, who set up his obedience



**... how far are they willing to go and at what point is this will to help causing more harm than good? ...**



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study in order to test the 'Germans are different' hypothesis that was created to explain the horrific war crimes of the Nazis. He took 40 American male volunteers to Yale University, where they thought they were partaking in an experiment testing the effects of punishment on learning. Milgram got the participants to 'shock' a confederate (an actor posing as another participant) when they gave incorrect answers to a memory test. Similar to Zimbardo, when participants wanted to finish, the researcher would give them direct orders to continue (verbal prods).

During the experiment many participants showed signs of distress, e.g. sweating and stuttering, as they believed they were shocking someone. Participants were denied informed consent and their resulting lack of knowledge led to psychological harm, as they thought they were truly causing harm. There are also inconsistent reports about Milgram's debriefing, one participant, Bill Menold, is said to have gone to an electrician after the experiment to ask how much damage he caused through the shocks, as he was that concerned about the other 'participant'. These inconsistencies suggest that some participants may not have been aware of the deception and were living with the guilt of what they had done. Milgram's decision to not debrief his participants fully also gives itself up to the idea that he had little emotive care for his participants and that he felt no remorse, potentially labelling him as a psychopath.

In 1920, Watson and Raynor conducted an experiment to investigate whether a child could be classically conditioned to fear a neutral stimulus (something which they have no feelings towards). In order to do this, they took 9-month-old Douglas and presented him with the neutral stimulus of a white rat and other animals, and found he behaved neutrally with all of them, even showing interest in the

rat. At 11 months, they then paired this with an unconditioned stimulus (something which they naturally have a reaction to) of a loud noise by striking steel bars behind his head. This caused the white rat to become a conditioned stimulus with the conditioned response of fear (something they have learnt to associate a response with). The researchers then went on to see whether this conditioning would further to other animals e.g dogs, even extending to other fluffy things like father Christmas' beard.

There are lots of experiments performed on children and this raises the question of consent, as they were so young to be unable to consent themselves, leaving it up to their parents. In this particular experiment, there were no attempts made to counter-condition him, leaving him with the phobias until he tragically passed away at 6 years old. Watson and Raynor clearly didn't see any importance in returning Douglas back to the unconditioned state, showing that once they had their evidence for their theory they didn't care about Douglas himself. This lack of empathy is consistent with the traits of a psychopath.

The Monster study was conducted by Dr Wendell Johnson, at the University of Iowa, in order to find out why children develop stutters. Johnson took a group of 22 orphans, some of which had speech impediments, splitting the children into two groups; mixing children with and without speech difficulties. One of the groups was then labelled as 'stutters' and one as 'normal speakers'. Throughout the experiment the children were visited by a Johnson's team : 'normal speakers' were praised whether they had a stutter or not and the 'stutters' were criticised for their speech and told things like, "you must try to stop yourself immediately. Don't ever speak unless you can do it right". At the end of

of the study they found that of the 6 children who were falsely reprimanded for their speech, 5 developed speech problems with some even stopping speaking. Many of the children were left with these speech problems and unresolved psychological trauma – one of the participants later said the study 'ruined her life'.

Again similar to little Albert, there is ethical concern with performing experiments on children who can't give consent and this is exaggerated by the fact the children in this study were orphans so had no one to defend them. Some of the workers at the orphanage revealed later they weren't aware of what the researchers were doing to the children. Once again there seems to be a complete lack of care around the impact their research had on people's lives.



**... This lack of empathy is consistent with the traits of a psychopath ...**



In conclusion, sometimes the desire to be helpful seems to temporarily cloud Psychologists judgement, leading them to conduct experiments which harm a minority, believing their findings may benefit the majority. They are not necessarily Psychopaths, but merely people who think they see the bigger picture and as a result don't see the damage in effecting a minority for a majority to benefit.

**ABIGAIL SULLIVAN**

# Why Do We Remember Negative Comments More Than Compliments

It seems to be human nature to remember negativity more than anything else, and the majority can become heavily affected by the words and experiences we perceive to be criticism. They can have large impacts on our mental health and how we move through the world, also affecting our perceptions of ourselves and others, so the question is: why do we remember negative comments more than compliments?

A key reason for this, is due to the role of negativity bias, which is the psychological tendency for humans to notice, remember, and become affected by negative experiences more strongly than positive ones. This can occur even when the positive experiences are more frequent. An example of this could be that you just wore your new outfit to school: all of your friends compliment you, but one person says it looks ugly. Even though almost all of the comments were positive, you keep thinking about that one negative comment all day. That is negativity bias. Since your brain gives more attention to the one minor negative thing rather than the majority of positive ones. Another example could be you get praised by your teacher for your test, but then later on you read the comments telling you how you could improve, leading you to only remember the criticism instead of your achievements later on

.Psychologists believe this bias developed as a survival mechanism: early humans who paid closer attention to danger were more likely to survive, therefore, it is adaptive. Because of this, our brains treat negative information as more important and store it at the forefront our memory, meaning when we hear a negative



comment, it can cause stronger emotional reactions, it causes us to reflect on it repeatedly. So, by triggering stronger emotional responses, such as embarrassment or worry, our body causes the brain to store negative experiences more vividly. This is because the brain treats them as important lessons, helping us recognise and avoid situations that could hurt us again. As a result, one hurtful remark can overshadow many kind ones, not because it is truer, but because our brains are wired to prioritise potential threats.

Another key reason negative comments stay in our minds is confirmation bias, which is the psychological tendency for people to notice and remember information that supports their existing beliefs about themselves. If someone already feels insecure about their appearance or abilities, they may be more likely to focus on negative comments because they confirm what they already believe. An example of this is: imagine someone already feels unsure about how they look, even if many people compliment them, one negative comment may stand out more because it supports the doubt they already have. Or a student could receive positive feedback on their work but notice one comment

suggesting improvement. If they already doubt their abilities, they may focus on that criticism because it feels more believable.

Negative comments can also feel like a form of social rejection. Humans naturally want to feel accepted by others, so criticism can sometimes make us feel embarrassed or excluded, especially because belonging to a group has always been important for survival, the brain treats these moments as significant. Throughout human evolution, being accepted by a group increased the chances of survival, while rejection could leave individuals more vulnerable. Because of this, the brain may interpret criticism as a threat to social acceptance, which makes negative comments feel even more significant. This is another reason negative comments can feel more powerful and remain in our thoughts for longer.

The status of a Greek woman was determined largely by her class. Priestesses were held in the highest regard, yet the lowest class of women, the poorest women, had more freedom, as they had no choice but to go out to earn money in the markets and the farms. The hetairai, the companions of the wealthier male citizens, had the greatest social freedoms. These were educated women, often foreigners, who were able to mix freely with men, discussing philosophy, drama and politics.

Overall, there are several psychological reasons why people remember negative comments more strongly than positive ones. Negativity bias causes the brain to prioritise negative experiences, while strong emotional responses make these moments easier to remember. Confirmation bias can then reinforce this by making criticism feel more believable than praise. By understanding this bias, we realise that such negative comments are not truly representative of us and is just how the brain works, therefore we can reflect and interpret our feelings by prioritising the overlooked positive comments.

**EASON FONG**

## Between the Crowd and the Self : The Psychology of Identity

Who are you?

It sounds like an easy question, but when you actually stop and think about it, it's not. Identity isn't just something that comes from within; it's shaped by your thoughts and feelings, but also by the people around you, the groups you're part of, and how others see you. There's always this quiet tension between wanting to fit in and wanting to be yourself, and that tension is a huge part of how identity develops.

One of the main ways psychologists explain this is through Social Identity Theory, developed by Henri Tajfel. He was interested in how being part of a group changes the way we see ourselves and other people. To test this, he created something called the minimal group paradigm, which essentially showed how easily we fall into group thinking, even when the groups themselves mean almost nothing.

In his studies, people were split into groups based on really trivial things – for example, basing them off which painting they liked more. The groups had no history and no real importance, but even so, people quickly



**... There's always this quiet tension between wanting to fit in and wanting to be yourself ...**



started favouring their own group. When they had to give out rewards, they consistently gave more to people in their group than to those outside it.

What's surprising is how little it took for this to happen. There was no real reason for loyalty, just the idea of "us" and "them". That alone was enough. On one hand, this helps people feel connected, but on the other, it can lead to bias and stereotyping. Usually, the majority group ends up setting the standard for what's seen as normal, simply because it's more visible and influential.

This tells us something important: identity is closely tied to group membership, even when those groups are random. In real life, though, groups are far more meaningful. They're based on things like culture, gender, nationality, beliefs, and shared experiences and these things can shape not only how we see ourselves, but also how other people see us.

If you're part of the majority, identity can feel pretty straightforward: society tends to reflect your experiences back at you, so everything feels like it fits. Because of that, you're less likely to have your identity questioned, and it can start to feel invisible, like it's just "normal." But that sense of normality can be misleading. It's still shaped by social expectations, even if you don't notice it.

For people in minority groups, identity can feel more complicated. When your experiences don't match what's considered 'the norm', you become more aware of the difference, making navigating things like life harder – especially if there's pressure to conform or to hide parts of who you are. Yet, at the same time, it can also lead to a stronger sense of identity. When you know you don't fully fit the default, you're more likely to think about who you are and what matters to you. Instead of just absorbing what's around you, you're actively making choices about how you present yourself. That kind of reflection can

make identity feel more intentional, even if it's not always easy.

Seeing identity as something shaped by social factors helps explain why people feel such strong connections to their groups, even when the differences between groups are small. It also shows why inclusion matters. When people feel accepted for who they are, they're less likely to feel like they need to change or hide parts of themselves

But identity isn't completely controlled by society. People aren't just passive. They can reflect on the groups they belong to, question expectations, and decide how they



**... identity is closely tied to group membership, even when those groups are random ...**



want to express themselves. Identity is more like a two-way process, shaped by both the individual and the world around them.

In the end, identity forms somewhere between belonging and difference. The majority offers stability and shared expectations, while minority experiences can encourage reflection and change. Both play a role in shaping who we are and Tajfel's research shows that it doesn't take much to create a sense of group identity. The more important question is what we do with that.

Whether you feel like you fit in or stand out, your identity is always being shaped by the interaction between you and the social world, it exists in that space between wanting to belong and wanting to be yourself. We are influenced by the groups we're part of, often without realising it, but we also have the ability to step back and question those influences. The same processes that bring people together can also divide them, sometimes for no real reason at all. So maybe the real challenge isn't finding a single, fixed answer to "Who are you?". Maybe it's about deciding, over time, how much of who you are comes from the crowd, and how much comes from the choices you make for yourself.

**AMAYA GRIMES**



# PHYSICS

# MATHS

**Editor : JOSHUA CLAUGHTON**

From the first moments of the universe to the technology we use every day, Physics and Mathematics is the explanation of how we got to where we are today. It explores the journey from the tiniest building blocks of matter to vast galaxies, helping us understand not only what the universe is made of, but how it works. The path to discovery is not shaped only by the biggest breakthroughs. Often, the smallest details and overlooked ideas. The most success in understanding how we got to where we got today lies in understanding both the Majorities and Minorities of a problem. Just as a puzzle cannot be completed without every piece, true understanding comes from exploring both the major and minor parts of a problem. When we learn to see the whole picture, the explanations as to how we got to where we are today start to emerge. This section explores the relationship between the small and the large, the simple and the complex. From the search for the smallest theoretical particles and the origins of the universe to modern innovations in cybersecurity, transportation, and mathematics, it demonstrates how ideas that seem distant from everyday life often shape the world around us in powerful and unexpected ways.

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**The God Particle Unveiled: How the Higgs Boson Shapes Reality** by Ibrahim Chaudry

# Is Voting Ever Mathematically Fair?

In a typical democracy, the winner of an election is chosen as the candidate that has the majority of votes. This typically is ruled as gaining more than 50% of the total votes. With only two choices, the voting is simple: The winner is the candidate with the most votes. However, with three or more choices, the winner is often more difficult to identify. The study of this in mathematics is called Voting Theory, and it studies how group decisions are made when there a number of alternatives from which to choose.

A famous example of this was the 2000 US Presidential Election. The three main candidates were George W. Bush, Al Gore and Ralph Nader. Many Nader supporters preferred Gore as their second choice. However, with the votes split, Bush had the majority. As a result of this, Bush won the election. If Nader had not run, many of those votes would likely have gone to Gore, resulting in him gaining the majority and winning the election. This raised an important question: Should the presence of a candidate with little chance of winning be able to change the winner? Most would say in order for the election to be fair, no. However, the solution to this problem is more complex than it seems.



With multiple options, different voting systems can produce completely different winners from the same set of votes. This means that sometimes the result depends more on how votes are counted, rather than what people want. This blurs the line between identifying who has the majority, arguably making it difficult to end up with a fair vote.

Imagine a year group chooses their favourite ice cream flavours:

*A = Chocolate B = Vanilla C = Strawberry*

Number of Students	1st Choice	2nd Choice	3rd Choice
40	A	B	C
35	B	C	A
25	C	A	B

We assume that other conditions of A, B and C (CBA, ACB and BAC) are negligible as they show the same results as the above. The total number of students are 100.

Typically, a majority is defined as:  
 $Number\ of\ Supporters / Total\ Voters < 1/2$

In this example, the most number of votes was 40 for a combination. This accounts for 40% of the vote, which is less than 50%, and thus, to identify a winner in this situation, we cannot identify a Majority to determine an outcome of the vote.

When we compare the results between flavours, we can also don't get a conclusive result.

A vs B  
 Number of students that prefer A over B: 40 + 25 = 65  
 Number of students that prefer B over A : 35  
 This means 65 > 35, therefore A wins

A vs C  
 Number of students that prefer A over C: 40 + 25 = 65  
 Number of students that prefer C over A: 35 + 25 = 60

This means  $60 > 40$ , therefore C wins

B vs C

Number of students that prefer B over C:  $40 + 35 = 75$

Number of students that prefer C over B: 25

This means  $75 > 25$ , therefore B wins

In conclusion:

$A > B, B > C, C > A$

As you may have noticed, we end up in a loop, and thus there isn't a clear winner. This is called a Condorcet Paradox. This means this method can't be a good way of determining who is the majority in the problem.

$A \Rightarrow B \Rightarrow C \Rightarrow A$

Now if we consider only the first choices of the students, we also struggle to arrive at a conclusion.

If we were to say that the ice cream flavour with the most votes wins, the Chocolate ice cream wins with 40% of the votes. However, if we considered those that didn't like Chocolate as a flavour,

$A': 35 + 25 = 60$

This gives,  $60 > 40$ .

Therefore 60% of students preferred a flavour other than A and thus become the majority, yet the minority, A still wins as it received the most individual votes. This means that we can't use this method as it doesn't represent the majority of students.

One other thing to take note for these set of results, a tiny minority can control where the majority lies.

If just 6 students switch from support for A to B, the outcome of the vote would change from A to B. This means in this scenario if only 6% of voters changed their minds, the entire

result can be changed. Thus, if the majority remains fixed, then the minority of students governs the result of the vote. This can be regarded as unfair, and thus has to be removed in order to create a fair vote.

These findings lead to the development of Arrow's Impossibility Theorem. The theorem states that a voting system cannot simultaneously satisfy all reasonable fairness conditions. These include, every voter should influence equally the outcome, not one voter should decide the result of the vote, and if every voter states that  $A > B$ , then the outcome of the vote should result in  $A > B$ . These three conditions can't be achieved simultaneously, and thus a truly perfect voting system is mathematically impossible.

In all, many people believe that the Majority should determine the outcome of a vote. However, mathematics reveals that this is never truly possible. These issues appear in national elections, rankings, sports tournaments and more. This is a prime example of how Minorities and Majorities can equally influence the outcome of a vote. Even if the cultural norm places more emphasis on the Majority, it is always important we consider the Minority.

This means, the next time you vote for a class representative, remember the results may depend not only on who people support, but also on how the votes are counted.

**JOSHUA CLAUGHTON**

## The Birth of Our Universe: the Major consensus vs Minor gaps

The ongoing question that inspires research, science and stories: how did our universe come to be? The existence of humans occupies a mere 0.002% of that believed of the universe and so, with some data being unavailable to us, confirming the answer to this question is a grand ambition. Perhaps the complete answer hasn't yet even been theorised? Perhaps our brains are simply incapable of comprehending the whole truth? Nonetheless, for decades scientists have racked their incredible brains in an attempt to solve this persistent problem. What we are left with today is a major theory sewn together by the thread of knowledge and modern science. The universe is a vast place, more so than we may know, in which complex phenomena occur, all of which must be able to align with the universe's creation. The Big Bang theory is remarkably well known and was constructed with a foundation of experimental proof, however, some answers remain a mystery.

The product of decades of deduction, is the



**... The universe is a vast place ... in which complex phenomena occur, all of which must be able to align with the universe's creation ...**



Big Bang theory, a widely accepted concept. This theory refers to the idea that, approximately 13.8 billion years ago, the universe began to expand from a state of unfathomable heat and density known as a singularity. Although it is critical to note that the singularity still causes a breakdown of physical theories. It is suggested that the universe continues to expand and in turn all that occupies the space grows further and further apart.

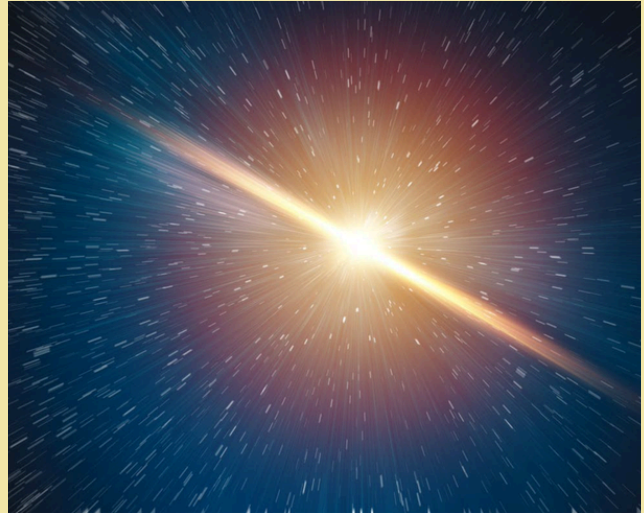
The initial idea of an expanding universe was established by Alexander Friedmann in 1922, having derived the Friedmann equations. Such equations were formulated using Einstein's General Theory of Relativity and they are relevant to the way in which the universe expands and contracts relative to its matter and energy content. In 1927 Georges Lemaître proposed his theory having first believed that an atom was the fundamental beginning of the universe as opposed to a singularity. Support from other leading scientists of the time such as Edwin Hubble allowed this theory to be explored further.

In 1929 Hubble had observed that galaxies appeared to be racing further from earth at a dramatic pace. Light emitted from a certain place can be calculated through the spectrum of light that reaches earth. Red shift is the result of light emitting objects travelling away from the point of detection because the light waves are stretched with the expansion of space in which they travel. This means the light appears more from the red side of the visible spectrum of light. Galaxies that were further away seemed to be travelling with a greater velocity. This information was extrapolated and so it was theorised that if these objects were moving further away then at some point they must have been gathered at a particular point, a source, a singularity. By tracing this source of evidence back to the singularity, a single collection of matter and energy, the big bang theory is reinforced.

Alongside these ideas of physical space, cosmic background radiation, otherwise known as CMB, was discovered in 1964 by Robert Wilson and Arno Penzias and provided additional evidence for this developing theory. CMB was detected as a form of radiation that had no specific source but rather appeared to be distributed across the

sky with the same intensity regardless of location and time of day or year. It was deduced that CMB was from outside our galaxy and with more modern technology and imaging that the uniformity and slight diversions of intensity corresponded with models of the Big Bang which revolved around temperature and density throughout the past. In conclusion, CMB came from a time where the universe was very dense and hot plasma and subatomic particles which then cooled to form neutral atoms out of the protons and electrons. This allowed photons, which had previously been constantly scattered by this plasma, to move freely through space. Photons are light particles which are a part of the electromagnetic spectrum of radiation and they are stretched as the universe expands. This extension leads to the formation of a spectrum that mainly consists of microwaves which are a longer wavelength form of the electromagnetic spectrum. These microwaves are blackbody thermal emitters which are recorded and analysed. They demonstrate an even distribution suggesting a vast and uniform expansion from a source. In this sense, the idea of the universe developing from a single point is supported as the distribution of CMB can be explained.

Whilst these different forms of proof are supported by direct evidence, the Big Bang theory relies heavily on a number of assumptions. Primarily, the universality of physical laws is vital and is the idea that the laws of physics established here by scientists apply the same anywhere and everywhere throughout all space and time. Additionally, the cosmological principle states that the distribution of matter in the universe is isotropic (same value in all directions) and homogeneous (same value in all locations) when viewed on a large scale. This essentially translates to; no anomalies or structural inequalities are apparent from a large-scale



This essentially translates to; no anomalies or structural inequalities are apparent from a large-scale view because matter and energy are uniformly distributed from the big bang. These conditions are required so that the mathematics of general relativity may apply.

Furthermore, even if there is concrete evidence in support of the big bang and the conditions of laws and principles are satisfied, some questions are yet to be answered. The true origins of the universe are undefined: it is unknown what there was before the universe, what is outside the universe and what truly caused the big bang. Expansions of the big bang theory are explored, such as the concept of a multiverse where the big bang is simply amplified; our universe is indeed just a bubble in the expansion and there are endless universes beyond what we can observe.

With time we will satisfy more curiosities. For now, this theory, constructed over 100 years, is the best answer we have as the major consensus overwhelms any minor gaps or questions remaining.

**ELLA MERRYWEATHER**

# The Problem of Average User

Why the threats that matter most are the ones that never fit the pattern.

Most cybersecurity systems are built around an assumption about how people behave. This “average user” keeps their software up to date, ignores suspicious emails, and follows whatever security advice they are given. If a system protects the majority of users for most of the time, it is usually judged a success. In practice, this way of thinking can be misleading, because the most serious problems tend to come from the situations that do not fit the average at all.

The split between majority and minority is easy to see in network data. Almost everything that happens on a network is ordinary. People log in, send messages, browse the internet, and open files as part of their daily work, and this routine activity makes up the vast majority of what a security system observes. Genuine attacks are rare by comparison. They form a small minority of events, yet they are also the most damaging.

Because attacks are so uncommon, many systems are trained mainly on this majority of normal data, and the result can look impressive. A system that labels almost everything as safe will usually be correct, simply because most activity really is



**... They form a small minority of events, yet they are also the most damaging ...**



harmless. The danger is that this creates a false sense of security. Missing a single serious attack can cause far more harm than correctly handling thousands of routine actions. Minority events are rare, but their impact is often severe.

Anomaly detection shows the problem clearly. These systems are designed to flag any behaviour that differs from the normal pattern. That sounds sensible, but unusual is not the same as dangerous. Some people work late, travel often, or rely on specialist tools that their colleagues never touch. When a system is tuned for the majority, these users are easily mistaken for threats. It then produces a steady stream of false alarms, and over time security teams begin to ignore the warnings altogether.

Attackers, by contrast, almost always operate in the minority. They avoid normal behaviour on purpose and look for rare weaknesses, unusual settings, and mistakes that developers never expected. These edge cases are often skipped during design and testing because they affect so few people, yet that is exactly why attackers seek them out. A system built only for common threats will struggle against anything new or creative.

Human behaviour complicates matters further. Many security rules assume that users understand technical risk, can recognise a phishing email, and manage their passwords sensibly. Real users vary enormously. Some are far less confident with technology, and everyone makes mistakes from time to time. Attackers tend to target these people first, because they are the easiest to exploit. A system designed only for the average user overlooks the very differences that matter most.

Security is also commonly judged by broad statistics such as detection rates or system uptime. These figures can look reassuring, but they rarely tell the whole story. A system can

perform well almost all of the time and still fail during a single targeted attack. For the organisation on the receiving end, that one failure can outweigh every occasion on which the system worked as intended.

For these reasons, the focus of modern cybersecurity is slowly shifting. Methods such as penetration testing and red teaming exist to explore rare and unexpected scenarios on purpose. Rather than asking how secure a system is on average, security professionals are increasingly asking how it behaves under pressure and in unfamiliar conditions. This approach uncovers weaknesses before a real attacker can.

Designing with minority cases in mind does not make a system weaker. More often, it makes it stronger. When developers account for unusual behaviour, rare attacks, and a wide range of users, the system as a whole becomes more reliable. Many features built to handle a difficult edge case end up improving security for everyone.

The idea of an average user is convenient, but it does not match reality. Real threats rarely follow the rules, and the people most at risk are seldom average. By paying attention to the minority rather than the majority, we can build systems that are better prepared for genuine attacks and safer for everyone who relies on them.

**DEMIAN DOMANSKY**

## The Minorities of Mathematics That Moves the Majority

People usually see railways and aircraft as a very ordinary mode of transport, but in the area of a railway system or an aircraft that not most people would see is where mathematics

explains the truth and governs them. Here, the minority shines and the mathematics is the force responsible in making these modes of transport safe, reliable and efficient.

### **Invisible Maths - where most people who uses mode of transport will not see**

Behind the screens of a train cab or an aircraft cockpit, mathematics silently works. Tiny errors are already corrected before humans even notice. Its presence although is invisible, despite it ensures stability and safety. The ultimate shining point of mathematics is where numerous numerical methods such as differentiation, geometry, risk assessment calculated from probability and multiple numerical approximations methods being processed and happening in a blink of an eye, yet ensuring we have a high efficiency and reliable operation.



**... Tiny errors are already corrected before humans even notice. Its presence although is invisible, despite it ensures stability and safety ...**



On the ground, geometry silently provides the calculations in the train and aircraft to work safely. People see a train ride through Europe or Asia or an Airbus A350 cruising from London to Hong Kong seems ordinary, where they never see the trigonometry and the curve ensures the calculations on the train to communicate efficiently and collaborate closely, resulting the train remains on the tracks or aircrafts climbing

and descending slopes on approaches, flaps angle and shape to ensure there is enough lift or methods to maximise fuel efficiency comes from every careful geometric calculation done on the ground.

### **Specialised Knowledge - where minority are not taught at school**

The majority of the mathematics used in railway and aviation extends beyond what most people encounter and learn from school. A language which is spoken by engineers, mathematicians and controllers, helping us to monitor all the data and the numbers behind all the mechanics system. This specialised mathematical language allows experts to analyse movement, tilting, risk assessment and maintain the stability of the entire structure. It does not demand any attention, thriving inside silence and ensuring the outcome is correct, which makes the ordinary extraordinary. Although it is only understood by a minority of people, it ironically acts as the backbone of the system. It remains subtle, humble and carrying the base of every journey without asking anything in return. Maths acts as the universal language between engineers and controllers, spoken by a minority, but trusted and utilized by majorities.

Have you ever wondered why can a train company or an airline company run punctually and with high reliability? Graphs, modelling and transformations shines here where it monitors data, the mathematical models help organisations to predict passenger demand, optimum schedule and resource management while balancing quality of service simultaneously. All of these combined for one purpose. Efficiency. Normally, we choose which one to travel with based on whether it is the most affordable one. However, the calculation behind the values enables them to attract customers to travel with the company, helping business and the overall economy of a nation to have economic activity. This not only ensures that customers can choose the most optimal



option to travel from one city to another but also demonstrating that maths help transport companies function effectively with high reliability.

### **From equations to reality, how the magic of maths drives rail and air travel**

Why does some trains and aircraft travel fast but some travel slow? Mathematics is the hidden motor driving behind them. From high-speed trains such as the Shinkansen to local commuter trains or single engine aircrafts like the Cessna 172 to superjumbo jets like the Airbus A380, maths combines equations and mathematical methods to bring them into reality.

In rail travel, taking the Shinkansen (also known as the Japanese bullet train) as an example, this is where aerodynamics, fluid dynamics, fluid mechanics all combining together to help engineers to develop the shape of the body and nose of the train, directly influencing the maximum operation speed of the train, creating a safe and rapid travel between cities,

Why does the Shinkansen always run on

time? Reliability of the shinkansen network is not achieved by chance. Behind them, precise and accurate optimization algorithms and calculations design the perfect timetable, minimizing delays and determining how trains can share tracks safely while simultaneously reducing the energy consumption to a minimum. Mathematics therefore works by delivering punctuality and efficiency that passengers often take for granted.

Additionally, the different shapes of trains are designed through specialised mathematics and were engineered to be used in their intended purposes. The magic behind it is maths and physics combined together, where aerodynamics, fluid dynamics and mechanics maths merged together to form a miracle. This requires accurate and precise mathematical model and numerous high complexity mathematics before even a prototype is being made. Although only minority understands the meaning behind these calculations, but it applies into railways and relied upon by the majority every day.

Ever wonder what is behind every aircraft taking off, cruising, descending or landing? Air travel relies on a specialised kind of mathematics that most people would not encounter. Stretching beyond the syllabus of either A Level or GCSE, equations such as trigonometry and fluid dynamics, collaborated with multiple differential equations and transform them from uncertainty into safety and control. Ever wonder why flight routes are curve instead of a straight line? Geometry is the language behind every air travel planning but it works in silence, while passengers gazing through the window or relaxing in a premium cabin.

Combining with modelling techniques, it collaborates strongly with the controllers and by using numerical methods and specialised waves to ensure there is no collision between aircraft mid-air and are a safe distance between aircraft flying

across the globe. Although the maths used in mode of transport seems majority, but the number of people that understands it and speaks it are a minority, yet ensuring every journey can bring passengers who are either watching a film or sleeping slicing from continents to continents in the least possible time and maximising the fuel efficiency of each aircraft.

Ranging from the tiny Cessna 172 to the gigantic Airbus A380, the fluid dynamics governs how air travels over the wings, engines and fuselage. Yet these theories are never taught in school due to complexity, yet using the mathematical models tracing air currents, lift, drag and stability.

Systems predict how air behaves before even aircraft leave the production line for service, ensuring the efficiency is the highest as possible. Every theory behind a smooth flight, there are uncountable physics and mathematics blending together that works silently, shaping motion through collaboration between physics and math that happens in a blink of an eye, without being noticed.

In the end, trains arriving at stations or aircrafts touching down on the runway, it might seem ordinary thing happening around the Earth every day. However, behind the normalities, it lies a minority of knowledge, which it thrives in silence, specialised and precise. It moves us, no matter on the ground or in the air, without asking to be noticed. In its quiet work that nobody notices, the ordinary becomes possible, making the ordinary extraordinary.

**CHUN KA LEONG**

# The God Particle Unveiled: How the Higgs Boson Shapes Reality

The Standard Model of particle physics encompasses the properties and interactions of the fundamental constituents of all the visible matter in the universe. It constitutes an array of exchange particles; which in effect mediate the force between particles, and elementary (or fundamental) particles – which cannot be broken into anything smaller as their name suggests. This matrix of particles is the best description to physicists of how physics works on small scales. The Standard Model also successfully articulates the results of myriads of accelerator experiments, such as those at the Large Hadron Collider (LHC) at CERN, to a very high degree of precision. However, for quite some time, the Standard Model resembled a jigsaw puzzle with one piece missing: the Higgs Boson. It or something capable of replacing it, was essential for the calculability of the Standard Model and its consistency with both theory and the experimental data obtained from colliders. Many questions in particle physics are related to the existence of particle mass, the “Higgs mechanism”, which consists of the Higgs field and its corresponding Higgs boson and is said to give mass to elementary particles.

## The History of the Higgs Boson

In the early 1960s, physicists had a promising theory of electromagnetic interactions between charged particles and a rather descriptive model of the weak nuclear force – an interaction at play in many radioactive decays and in the reactions that make the sun shine. At this point in time, they had identified similarities in the structure of

these two fundamental interactions but a unified theory at the deeper level seemed to require that the particles be massless even though real particles in nature have mass.

## The Brout-Englert-Higgs (BEH) Mechanism

In 1964, theorists proposed a solution to this puzzle, a concrete model known as the Brout-Englert-Higgs (BEH) mechanism. The peculiarity of this mechanism is that it can give mass to elementary particles whilst retaining the structure of their original interactions. Particles that carry the weak interaction would acquire masses through their interaction with the Higgs field, as



**... The matrix of particles is the best description to physicists of how physics works on small scales ...**



would all matter particles. The photon, or quanta of light (little packets of light containing energy), which carries the electromagnetic interaction remains massless even through interactions with the Higgs field as it passes through it. In the history of the universe, particles interacted with the Higgs field just 10-12 seconds after the Big Bang. Before this phase transition no particles had mass: they all sped around at the speed of light in spectral play; soaring through the boundless void that we call space. Stars, planets and life could only emerge because particles gained their mass

from the fundamental field associated with the Higgs boson. The BEH mechanism implies that the values of the elementary particle masses are linked to how strongly each particle couples to the Higgs field; they are proportional. The BEH mechanism has other implications - that the weak interaction was mediated by heavy particles, the W and Z bosons and that the new field itself would materialize into another particle. The mass of this particle was unknown, but researchers knew it should be lower than 1 TeV.

An eV is an electronvolt which is the amount of energy transferred when an electron moves through a potential difference of 1 Volt.

$$V = E/Q \text{ rearranging gives } E = QV$$

This is equivalent to The charge of a single electron x 1 volt.

$$\Rightarrow (1.6 \times 10^{-19}) \times 1 = 1.6 \times 10^{-19} J$$

$$\text{As the prefix Tera- denotes } 10^{12}, 1 \text{TeV} = 1.6 \times 10^{19} \times 10^{12} = 1.6 \times 10^7 J$$

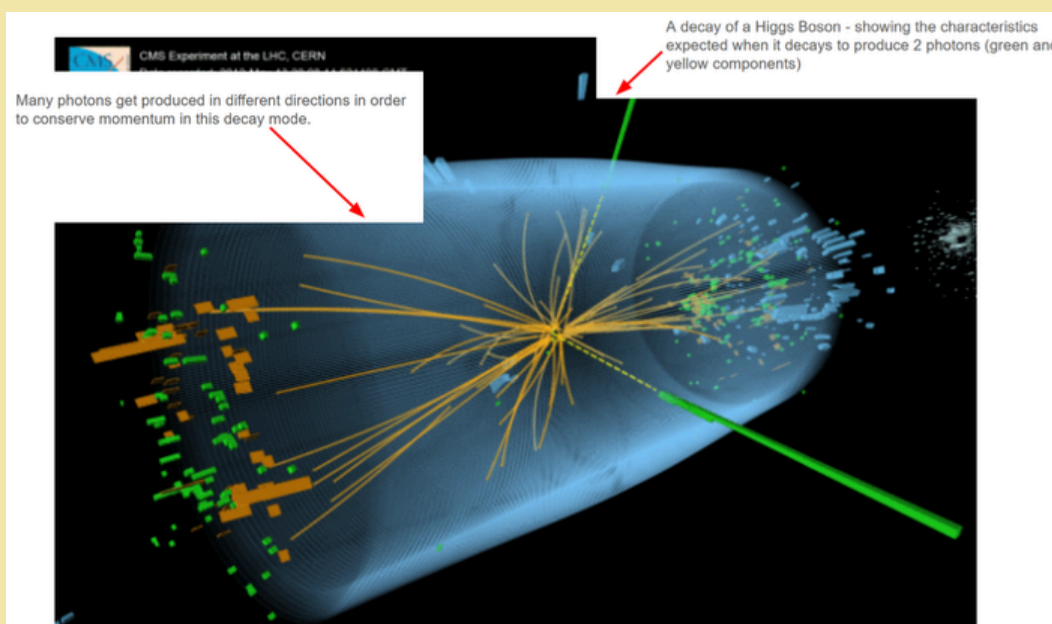
### Statistical analysis to prove the “Higgs-like” particle

The Large Electron-Positron collider (LEP) which

operated at CERN from 1989 to 2000, was the first accelerator to gauge the potential mass range of the Higgs boson, where the mass should be larger than 114 GeV. A positron is the antiparticle of an electron, with a +1 relative charge. As Higgs bosons are extremely rare, sophisticated analysis techniques are required to spot the signal events within the busy backgrounds from other processes going on simultaneously in these particle interactions. After signal-like events have been identified, powerful statistical methods are used to quantify how significant the signal is, and if it is. As statistical fluctuations in the background can also look like signals, stringent statistical requirements are made before a new signal is claimed to have been discovered. The significance is typically quoted as  $\sigma$ / sigma, or a number of standard deviations of the normal distribution.

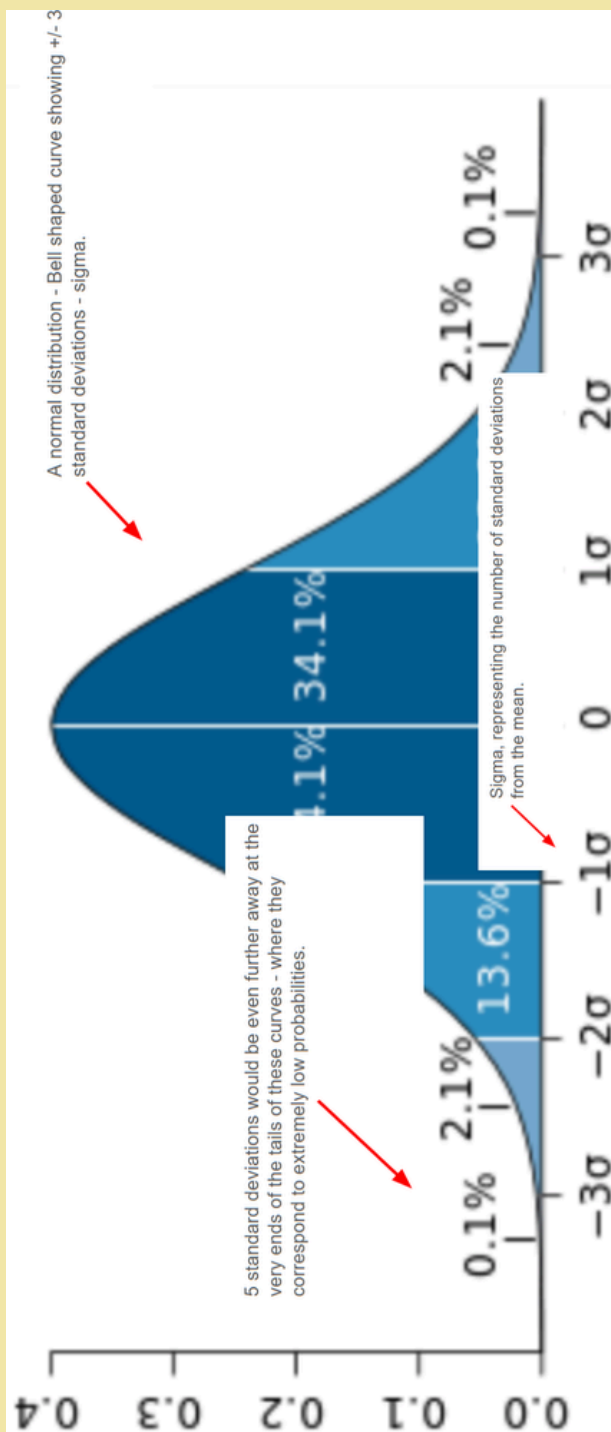
In particle physics, a significance of  $3\sigma$  is referred to as evidence, while  $5\sigma$  is referred to as an observation, corresponding to the probability of a statistical fluctuation from the background of less than 1 in a million. As with any experiment, there is always a chance of error. Background noise (other events going on apart from the thing we are looking for) can cause natural differences in the data as well as systematic error (ones that are present with

every observation) caused by faulty equipment/small mistakes. The 5-sigma rule enables physicists to determine if an anomaly is indeed a result, as with more data, the statistical significance passes the 5-sigma threshold to then



announce the discovery of the Higgs boson, as well as other particles as a matter of fact. By having an observation beyond that 5-sigma threshold, it essentially means that the chance of having that observation purely due to random error is insignificant and extremely low.

One of the first things to check to confirm that this “Higgs like” particle really is the Higgs boson, was to check spin. Spin is a quantum-



mechanical property of particles, a form of intrinsic angular momentum – of which all particles that make up matter possess. Fundamental particles such as quarks and leptons have a spin of  $\frac{1}{2}$ , and all the force carrying bosons have a spin of 1. However, the Higgs boson is unique in that it has a spin of 0 – making it the only known elementary particle with no spin. The spin of the Higgs boson was established through looking at its decay modes: where it would mainly decay into a pair of bottom/b quarks, and sometimes photons, muons and Z bosons. Through rigorous testing and careful analysis of correlations in data, a particle doing such could be confirmed to be a Higgs Boson.

### A minority with a major impact

The Higgs boson has an indirect impact on our lives, it is part of the answer to why we and what we interact with has mass, it underpins the whole of the Standard Model like a piece of a puzzle, spurring our curiosity and creating a more accurate picture of the universe around us. Since humanities dawn, curiosity is what has fuelled scientific advancements. In searching for something so small, infrastructure at the LHC has pushed the limits of technology: Extremely high energies were required to accelerate particles to near light speed, unexpected precision in detecting collisions was vital, and unparalleled computational technology was required to map and record many of the anomalous collisions observed each second. Several of these technologies are implemented in improving modern day technologies such as touchscreen interfaces, in healthcare for cancer treatments via Positron Emission Tomography (PET) for imaging and diagnosing conditions of the brain and heart, for aerospace technology and much more. For a small particle, it has a very, very big impact in our lives.

**IBRAHIM CHAUDRY**

# MEDICINE

**Editor : GIULIA BURNS**

Medicine is perceived as a science of universal truths: a diagnosis applies, a treatment works, and a body responds. Yet the history and practice of medicine reveals something more complicated. Behind every patient lies a set of assumptions about whose bodies are studied, whose experiences are measured, and whose stories become the standard. The theme of majorities and minorities invites us to look closely at these assumptions: at the populations that dominate medical knowledge and the smaller, sometimes overlooked groups that challenge or refine it. From historical biases in research affecting entire populations to the intricate roles of microscopic organisms and cellular origins, and even the stories held within our teeth, we see how both widespread patterns and subtle details are crucial for a comprehensive view of well-being and the future of medicine.

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# How Sex Inequality in Medical Research Shapes Health Outcomes

Medical research has long been fundamental in the advancement of our knowledge and understanding of the human body, yet its history reveals a persistent and overlooked bias – the systematic underrepresentation of women in clinical studies. This sex inequality in research is not merely a matter of fairness but rather that it has tangible consequences for health outcomes. From differences in disease presentation to variations in drug metabolism, men and women can experience the same condition but in profoundly different ways. Yet, much of what we know about diagnosis, treatment and prevention is derived predominantly from male-focused studies. The resulting knowledge gap contributes to misdiagnoses, ineffective therapies, neglect of sex-specific conditions, the delegitimization of symptoms and heightened risks for women, highlighting a critical and urgent need to re-examine how sex is integrated into medical research. Understanding these disparities is not only

essential for advancing scientific rigor but ensuring equitable health care for all. When the majority group becomes the medical standard, minority groups are put at risk.

## The Historical Exclusion of Women in research

Women have always been poorly represented in Medical research before the 1970s, but progress was further set back in response to the thalidomide tragedy of the 1960s. Thousands of pregnant women across Europe and Australia took thalidomide for morning sickness, which caused severe birth defects, and sometimes death, for their babies. In 1977, the Food and Drug Administration (FDA) created a policy to exclude women of reproductive potential/childbearing age in early-phase clinical trials due to potential fetal harm. The intent was protection; the effect was systematic neglect. Even after the ban was lifted in 1993, the legacy of exclusion remained engrained in institutions. Today, pharmaceutical companies and clinicians continually sideline women in trials, citing concerns about pregnancy risks and hormonal fluctuations. A Harvard Medical School study found that women, as of 2019,



**... when the majority group becomes the medical standard, minority groups are put at risk ...**



were still substantially underrepresented in clinical trials for leading diseases.

Furthermore, the root of this bias also traces back to how women have always been regarded as 'smaller men', assuming that drugs tested on male bodies would work the same way in females. However, women have distinct hormonal cycles, metabolic rates, immune responses and fat distribution, all of which affect how they absorb, process and respond to drugs. The result? Women experience adverse effects from medications at nearly twice the rate of men. These attitudes are not only held towards human females but also animals used in research. Female animals have often been excluded as researchers have said that the menstrual cycle and varied release of hormones in rodents, introduced too many variables into a study, therefore females could not be studied.

### **Health Consequences of Male-Centred Research**

Sex inequalities, especially in cardiovascular health, manifest as significant disparities in disease prevalence, symptom presentation, diagnosis and treatment with women often experiencing more health outcomes despite having a lower initial risk compared to men. While men generally have higher cardiovascular disease (CVD) mortality, women face under-recognition of symptoms and are less likely to receive the recommended care.

According to the National Institutes of Health (NIH), Women are 50% more likely to have their heart attack misdiagnosed, often because their symptoms are deemed 'atypical' compared to the male-defined norm. Women who have experienced a heart attack often present with symptoms like back pain, nausea and fatigue rather than the classic chest pain, leading to a misdiagnosis.

Treatment disparities mean women with established CVD are less likely to be prescribed statins (lipid-lowering therapies) or aspirin and less likely to receive specialised pacemakers or implantable cardioverter defibrillators, despite often deriving greater benefit. Moreover, women exhibit higher rates of complications after procedures, such as bleeding and vascular damage due to smaller vessel size.

### **Endometriosis: The Missed Disease**

Endometriosis is a chronic gynaecological condition in which tissue similar to the lining of the uterus grows outside the uterus, commonly on the ovaries, fallopian tubes, pelvic peritoneum (covers the floors and walls of the pelvis), and sometimes on the bowel or bladder. These lesions respond to hormonal changes during the menstrual cycle, which can lead to internal bleeding, inflammation and scarring. As a result, people with endometriosis may experience severe pelvic pain, painful periods, pain during or after sex, chronic fatigue and difficulties with fertility.

Despite affecting around one in ten females, the condition has historically been understudied and poorly understood. Endometriosis is frequently misdiagnosed as irritable bowel syndrome, pelvic inflammatory disease or even normal period pain due to overlapping symptoms, a lack of awareness and the highly invasive nature of laparoscopy, which is used to diagnose the disease. Diagnosis can take an average of seven years. Moreover, research into Endometriosis is significantly underfunded globally and scarce primarily due to historical neglect of women's health, societal stigma surrounding menstruation causing it to be dismissed as a 'women's issue', leading to symptoms being disregarded and the disease to be overlooked by researchers and funders.

There is no known cure for this disease, however there has been increased investment in the UK and Australia into the field, which has given way to studies intent on finding disease modifying treatments that could offer a functional cure or long-term remission.

Ultimately, sex inequality in medical research is not just a historical oversight but a continuing driver of unequal health outcomes. When women's bodies, symptoms and conditions are underrepresented or dismissed and male bodies are treated as the universal standard, the consequences are debilitating. From the misrecognition of heart attack symptoms to the chronic neglect of diseases such as endometriosis, the evidence makes it clear that research bias translates directly into clinical harm. Addressing this inequality is not simply a matter of representation, but of scientific accuracy and patient safety. Until medical research fully reflects the biological realities of both sexes, true equity in healthcare will remain out of reach.

**GIULIA BURNS**

## The effect of endosymbiotic cell theory on modern medicine

Endosymbiotic cell theory explains that organelles (parts of complex cells), such as mitochondria and chloroplasts, once existed as tiny bacteria. Eventually, a larger cell engulfed them; however, instead of digesting them, they lived together, forming a mutually symbiotic relationship. Over time, they became permanent parts of the cell, benefiting them in many ways.

Evidence supporting endosymbiotic cell theory

theory includes the fact that organelles such as mitochondria and chloroplasts have their own cell membrane, just like a prokaryotic cell [A small, simple cell with no nucleus]. Additionally, each mitochondrion has its own circular DNA genome [All the genetic material in an organism], like a bacterium's genome, but much smaller. This DNA is passed from a mitochondrion to its offspring and is separate from the "host" cell's genome in the nucleus. Furthermore, they multiply by pinching in half, which is the same process used by bacteria. Every new mitochondrion must be produced from a parent mitochondrion in this way; if a cell's mitochondria are removed, it can't build new ones from scratch.

Endosymbiotic cell theory is very important, as it explains the origin of eukaryotic [A type of cell that has a nucleus] organelles but could also be used to explain other features of the cell, such as the flagella [A long tail-like structure that helps cells to move], cilia [Short, hair-like structures that help cells move things], or even the nucleus. Additionally, this theory has been so important in explaining natural selection (a form of evolution), where a cell may gain an advantage by containing mitochondria, a source of energy that allows it to outcompete other species or simply allow it to avoid its own extinction, establishing a



**... Every new mitochondrion must be produced from a parent mitochondrion ... it can't build new ones from scratch ...**



whole new domain of life by relying on each other to survive, where neither would be able to survive on their own, and this makes it able to produce millions of descendants by cooperating together.

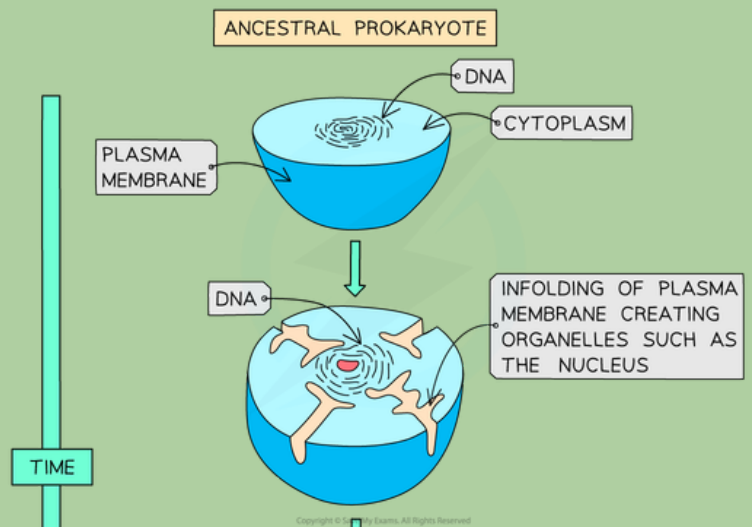
**The importance in the origin of antibiotics**

In October 2011, the World Health Organization announced that for the first time tuberculosis [A serious bacterial disease that mainly affects the lungs] cases were finally on a decline after 20 years from the migration of people out of Africa. This was all because of the discovery of the aminoglycoside antibiotic streptomycin [A specific antibiotic used to kill bacteria and treat diseases], which could be used as a cure. This drug works because an early bacterium, which could use oxygen to release energy from sugars, was engulfed by another bacterium. Through the process of endosymbiosis, this eventually evolved into the eukaryotes, and the engulfed bacterium evolved into a cellular organelle, the mitochondrion, while the relatives of the engulfed bacterium remained single-celled and evolved into modern bacteria.

**The importance in mitochondrial diseases**

The theory explains why mitochondria have their own circular DNA, which replicates independently of the cell. This helps to clarify why mutations in mitochondrial DNA can cause diseases and why they are inherited maternally, mainly affecting tissues with high energy demands. It also explains why mitochondria are especially vulnerable to certain drugs and environmental factors, leading to the growth and progression of mitochondrial disorders.

**The importance in the evolution of pathogens and symbiosis**



The link between vaccine resistance and endosymbiotic cell theory [The idea that parts of complex cells were once free-living bacteria taken in by a larger “host cell”] is based on the fact that they are both driven by the same evolutionary mechanisms. Random mutations allow a pathogen to evade detection from your immune system and to survive and spread. In endosymbiosis, random mutations allow some engulfed bacteria to survive inside host cells, leading to the benefit of the host cell to survive and reproduce. This is the same evolutionary process that allows pathogens to evade vaccines and build complex life.

**The importance in cancer research and cellular metabolism**

As the energy source for the cell, the mitochondrion, through its role of ATP (energy) production, can be regarded as the guardian of well-regulated cellular metabolism; the integrity of mitochondrial functions, however, is particularly vulnerable in cancer due to the lack of superstructures such as histone and lamina folds [Structures that help to package and protect DNA] to protect the



mitochondrial genome [DNA inside of mitochondria] from unintended exposure [DNA being left unprotected or damaged], which consequently elevates risks of mutation, leading to cancer [A consequence of a build up of mutations]. In cancer, the mechanisms responsible for enforcing quality control surveillance for identifying and eliminating defective mitochondria are often poorly regulated, reflecting a breakdown in the evolutionary control systems that originally evolved to regulate an internalised bacterial endosymbiont.

**WILL JONES**

## The effect of diet on health

In the modern day, diet is evolving to become one of the most prevalent topics in healthcare. With obesity rates growing every year and various diseases being linked back to food, medical experts are increasingly questioning what effect food is playing in our society.

One word that is starting to appear more and more is 'microbiome.' Specifically the gut microbiome. Although many assume all bacteria to be bad for you, our gut (digestive system) has trillions of bacteria, with each

person having their own personal set of bacteria specific to them, like a fingerprint. These bacteria help with the breakdown of molecules like carbohydrates whilst assisting your immune system. Around 80% of your body's immune system cells live in your gut and so this gut bacteria helps to train your immune system to recognize certain and reduce the number of dangerous pathogens from entering by occupying space and consuming nutrients. Research with the gut microbiome has shown that if you have an imbalance in 'good' to 'bad' bacteria in your gut (Dysbiosis) you could be more prone to sleep problems and greater inflammation (of the gut), leading to diseases such as colon cancer.

Furthermore, having more 'bad' bacteria is associated with eating more ultra processed foods (UPFs). These are foods which are manufactured industrially such as fast foods and sugary drinks. They contain high amounts of additives and emulsifiers used to extend their shelf life.

One study carried out in 2024, looking at more than 100,000 adults found that those who ate more unhealthy foods had a higher risk of getting type 2 diabetes. This correlated with the fact that the emulsifiers reduced the number of 'good' or healthy bacteria in their gut. Despite this, there is not enough research to prove which emulsifiers are causing this as there are so many in our foods. The emulsifiers in our food have been approved by the Food and Drug Administration (FDA) because they do not cause DNA damage, however none of them have been tested for the effect of the gut microbiome. The consumption of UPFs continues to rise and with it the increase of disease.

From research in 2025, an estimated 11 to 15

million deaths occur due to unhealthy diets such as low fruit consumption and high salt consumption causing cardiovascular disease, the leading cause of death world wide. So what is the solution? By increasing the consumption of whole foods, such as vegetables and fruits, it allows 'good' bacteria in your gut to thrive. However, the promotion of a healthy diet is underadvertised worldwide. Currently, UPFs are cheap, easy to access and convenient, meaning their popularity continues to grow. On the other hand, healthier options are the opposite, taking up time to prepare and are potentially more expensive. The pricing of these foods needs to change in order to make them more accessible to a wider population of people. For example, on a national level, a higher tax could be placed on sugary items. Furthermore, healthier food could be promoted more in the school system, allowing people to understand the effects of food on their health at a younger age.

With the healthcare system struggling, more attention needs to be paid to prevention of health problems on an individual level. Despite the lack of research in the gut microbiome, it has already proven to play a key role in the general health and wellbeing of people. It seems the promotion of a healthier diet and reducing the consumptions of UPFs have the potential to have a big impact on reducing disease in the population, and further research should be focused on this area.

**SAM HILL**

## Teeth are time capsules

If only teeth could talk to tell the engraved stories in stains, indentations, discolouration, cracks and chips. People say "hair holds memories" but they can never be recollected

like dentists do with teeth. The mouth exposes a lifetime of experiences from the sports you play to your personal occupation. So teeth are not just things to be cleaned, fixed or replaced: They are biological records.

A dentist is meeting a new patient. But before the medical questionnaire has even finished, they can tell that this patient is most likely a student, is not lactose intolerant or a vegetarian, snores in their sleep and most likely possesses a microwave. All of this can simply be read from a patient's oral condition. With childhood progressing to adolescence and eventually adulthood, teeth continue to change. Incisors' edges become flatter, cuspids lose sharpness, and microscopic cracks form under repeated mechanical load. Despite a level of wear is normal as we age, the pattern and severity of it may also mirror lifestyle factors and routine stresses. Clinical surveys showcase a considerable portion of adults that reveals measurable levels of tooth wear prevails and increases with age. Normal constant contact between teeth during chewing and parafunctional habits like grinding/bruxism can contribute to these changes.



**... If only teeth could talk to tell the engraved stories in stains, indentations, discolouration, cracks and chips ...**



Mechanical wear only tells part of the story; chemical wear, especially erosion from acidic exposure, also alters oral surfaces. Consistent consumption of acidic foods which is common in many modern diets

## Minorities VS Majorities

accelerates enamel loss. While usually not immediately painful, it can leave a distinct imprint on teeth that can be seen easily during clinical examination. These wear patterns serve as apparent signs of cumulative exposure to environmental and behavioural factors and habits of daily routine.

Restoration like fillings and crowns also contribute to the record embedded in our mouths. The type, and condition of dental restorations reflect frequent care and access to services. These patterns correlate with socioeconomic factors like income, education, and access to healthcare, illustrating that teeth can show wider inequalities in health and wellbeing.

Teeth also absorb stains and residues everyday from substances like tea, coffee, tobacco, or spices creating colour and textural changes. As cosmetic dentistry often focuses on removing such stains, they can also be recognized as markers of routine, habits and cultural practice. What in one frame of reference is an aesthetic blemish, may simply be evidence of customs of daily life in another.

What makes teeth stand out from other body tissues is their durability. Unlike bone, which remodels over time, enamel does not regenerate when lost or altered. Once changed, structures conserve their form unless artificially restored. This resistance to change is what transforms teeth into time capsules: they can't adapt to change in circumstances, but they preserve traces of those circumstances with time. If teeth could talk, they would not ask for perfection, they would offer consistency as they present cumulative evidence of wear, repair, and exposure without judgment.

Understanding teeth this way can reshape our depiction of oral health in a holistic context.



. The idea that the mouth is separate from the rest of the body is getting increasingly outdated. Research shows that oral conditions are associated with a range of systemic health outcomes. For example periodontal disease which affects tissues surrounding and supporting teeth and is highly prevalent globally has been linked to increased risk of cardiovascular disease, diabetes, and detrimental pregnancy outcomes.

These links underline oral health theories as integral to overall health care rather than an isolated domain. Observational studies have found many associations between oral health conditions and noncommunicable diseases such as rheumatoid arthritis, and respiratory conditions. These relationships aren't always consistent but they emphasize shared risk factors that deserve attention in dental and medical contexts.

These links matter particularly in higher education years, where routines are in flux: stress academically, irregular sleep and diet changes influence oral health. These may not result in prompt symptoms, but they can leave traces that accumulate and become visible orally and throughout the body's broader health status.

Essentially, framing teeth as time capsules could encourage people to approach teeth as

archives of personal experience and reflections of environment and access to care. This invites us to think of oral healthcare as intertwined personal experiences and overall wellbeing.

**NOOR ALHAMWIA**

## The importance in biotechnology and gene therapy

Endosymbiosis is very prominent in biotechnology for the engineering of enhanced organisms and the development of gene therapies by leveraging specialised organelles [Parts of complex cells], such as the mitochondrion or the chloroplast. "Designer endosymbionts" are free-living bacteria transformed into modified organelles within host cells to create more beneficial metabolic pathways, such as the enhancement of photosynthesis in the case of chloroplasts. And because endosymbionts [Organisms that live inside of other organisms and benefit from it] are physically isolated within a host, they provide a highly secured system for this metabolic engineering. This process can also be used for increased growth rates and biomass production, therefore explaining how agriculture has relied on endosymbiosis for over a century.

To conclude, endosymbiotic cell theory may initially seem to be a very small, distant, evolutionary concept with minimal relevance to modern medicine. However, a deeper understanding of how it actually works and what it explains can reveal that it actually underpins some of the most fundamental processes in human health and disease. The origins of antibiotics, mitochondrial diseases, the evolution of pathogens, cancer research and gene therapy are just some of the reasons as to why this theory has a much wider effect on medicine as a whole than most people initially think.

## From Gut To Mind: Microbiota's Role in Neurological Disease Pathways

Small microscopic entities known as microbes have a population of hundreds of billions, or perhaps even trillions, residing in our alimentary canal. A healthy immune system, efficient digestion of ingested food, the creation of vitamins and the synthesis of certain enzymes are all thanks to the commensal flora which sparsely inhabit the regions of our stomach – due to the presence of concentrated hydrochloric acid, which denatures microbial enzymes and cell-surface proteins of these “friendly” bacteria.



**... a deeper understanding ... can reveal that it actually underpins some of the most fundamental processes in human health and disease ...**



However, there are myriads of these microbes lodged in the endless nooks and crannies of our duodenum, ileum and colon, where the pH is higher such that they can thrive. This microbiota has a huge role in regulating our metabolic functions, for example with the breakdown of non-digestible substrates such as fibre into useful products, where although we lack the necessary enzymes to digest it directly, it can still be converted into very short chain fatty acids, which can then be assimilated. These bacteria also form part of the first line of defence of our immune system - the barriers; they can provide

colonization resistance, preventing disease-causing microorganisms, known as pathogens, from causing infection by synthesising anti-microbial molecules that are designed to destroy the “harmful” bacteria, as well as depriving them of space and nutrients to replicate.

So, what happens when this healthy gut bacteria dwindles away and its diversity diminishes in our intestinal tract? Will there be a consequential expansion of Patho-biomes as the bad bacteria start proliferating the areas once inhabited by the commensal flora? This process is known as bacterial dysbiosis which insinuates the change of beneficial bacteria into bad bacteria in a bacteria-rich region. Gut dysbiosis and the dysregulation of the internal intestinal environment has an intrinsic impact on our neurological system and has been strongly linked to having a causal relationship with the incidence of neurological diseases, such as Parkinson's, Alzheimer's, Multiple sclerosis and many more.

### **The Gut-Brain Axis (GBA)**

The Gut-Brain axis (GBA) is a bilateral communication network between the gastrointestinal (GI) tract and the central nervous system (CNS). Think of it as a two-way highway in which the gut can interact with the brain and the brain can also send down signals to the gut, thus controlling the gut microbiome. Pathogenic changes in the Microbiome-Gut-Brain Axis plays a major role in the development of neurological disorders. It starts with changes in lifestyle choices (stress, sleep, environment etc.) which causes this disturbance in your microbiome – its constituent populations of pathogenic bacteria will increase as the diversity of your friendly bacteria subsides. Once this effect sets in, it rapidly augments the intestinal permeability of the gut lining as its barrier function starts to disappear. The intestinal

lining starts to open as a result and microbial products from pathogens start to enter your system, it results in the inflammation of the intestinal barrier. This breach is linked to the change in the blood-brain barrier permeability, thus resulting in neuroinflammation and hence neurodegeneration and the conditions that follow.

### **The gut-brain connection: Alzheimer's disease**

Research conducted through several clinical trials has demonstrated that in comparison to control sex and age-matched individuals, Alzheimer's patients have altered gut microbiomes through microbial dysbiosis that displays a distinct bacterial composition consisting of a greater abundance of pro-inflammatory bacterial taxa (groups) and significantly decrease in anti-inflammatory taxa and hence the diversity of healthy bacteria in the gut region.

### **Is it a coincidence or a causal relationship?**

A study was conducted to investigate this relationship; it was a 12-week, randomized and controlled clinical trial. Half of the patients got a placebo (milk) - the control group and the other half received a probiotic supplement (milk containing many bacteria of beneficial value). This trial was executed as double blind - which in this case meant that neither the two groups (either receiving the bacteria or not) nor the scientists or doctors that carried out this trial knew which person was in which group. After this 12-week intervention, compared with the control group, the probiotic treated group (the one that received the milk) showed improvement in cognitive function as well

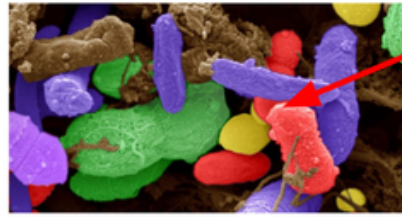
as their metabolic outcomes. This had the knock-on effect of warranting further study to assess if the impact of probiotics has a clinically major impact on the condition of Alzheimer's patients.

### Importance of preclinical work in medicine - The triple transgenic mouse model

Preclinical work in medicine allows us to validate concepts we derive from experiments, proof of principals we discover, enabling us to translate them over to conclusions in our analysis of data. By using an animal model – the triple Transgenic 3xTG Mouse Model for Alzheimer's Disease, we can determine the quoted causal relationship in another fashion as opposed to the probiotic clinical trial. The mice in this model express 3 mutant genes – human transgenes which are human genes artificially transferred from humans into the mouse's genetic arrangement. These mice recapitulate specific aspects of neurodegenerative progression of Alzheimer's disease, including age-dependent cognitive decline, accumulation of plaques and age-dependent inflammation. Thus, these triple transgenic mice can serve as valuable tools for investigating and dissecting the molecular mechanisms involved at different stages of Alzheimer's disease, which essentially enables us to derive new interventional conception strategies to help treat this disease in humans.

### The effect of bacterial dysbiosis on a cellular level

The image below compares the state of intestinal epithelial cells in an environment of commensal flora (good bacteria) to the right hand side showing an intestinal epithelial cell of which is plagued by a pathogenic

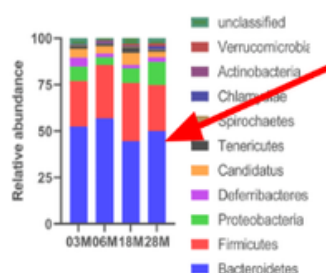


SEM (Scanning Electron Microscope) Image showing the 3D surface of Friendly bacteria in our gut lining.

microbiome. We can clearly see the difference in mucus lining levels, which has depreciated through the lack of commensal flora on the right epithelial cell. The pathogenic microbes instigate inflammation and when they proliferate this barrier, microbial antigens and pathogens pass through the leaky epithelial cells, stimulating an inflammatory response here from the granulocytes (the type of white blood cells that are responsible for an inflammatory response). This is then linked to the increasing permeability of the blood-brain barrier - an agent for the increasing incidence of neurological disorders.

### A minor correlation with a major impact

A seemingly nuanced relationship between populations of gut bacteria, the brain and the central nervous system can have catastrophically large implications to our health. From inciting multiple sclerosis to Alzheimer's, it can be concluded with no doubt of the quintessential role commensal flora play in maintaining our neurological health and preventing the development of these disorders. Although it is inevitable that the microbial environment of our gut will change with age, it is up to controlling our lifestyle choices and general health to reduce these shifts in our gut microbiome, to mitigate the



The variations in the presence of bacterial taxa due to the differences in age of mice containing the transgenic genes. By the colour coding shows the shifting of the microbiome in the guts of this mouse. The diversity of commensal flora is changing.

prevalence of neurological disorders in our population. This can have substantially positive impacts on a global scale: from reducing treatment costs for healthcare systems, as we become more able to spot neuropathological progression by changes in the gut microbiome in patients, which intrinsically reduces the burden of conducting heavy treatment plans to only implementing minor preventative strategies. It also grants patients better quality of life as better treatment plans are composed through earlier diagnosis of neurological disorders.

**IBRAHIM CHAUDRY**

