Wilson's Intrigue

Humanities

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From Complexity to Simplicity

Felix Luo

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Cover design by Oscar Wong.

Editor's foreword

Welcome to Issue 7 of the Humanities Magazine. As editors of the Humanities magazine, we are delighted to continue running this great opportunity for students to explore their own interests beyond the curriculum and share these topics. Together, they make up a professional collection of insightful, thought-provoking articles that reflect the diverse talents and perspectives of our writers.

This magazine is the result of the effort and dedication of the editors, writers and designers of the magazine, and we hope that you appreciate all of the effort that comes together in this publication. The hours spent reading, writing, editing, designing, researching and revising are evident in the quality of the publication. Thus, we would like to thank our editors, writers and designers for their commitment and effort.

Firstly, we would like to sincerely thank Mrs. Berry, Mr. Vazquez, Mr. Ormonde, Mrs. Craigmyle, Miss. Denison, Mr. Lissimore, Miss. Waterhouse and Mrs. Fletcher for their kind contributions, including proofreading and suggesting edits for the writers, during the editorial process. We are incredibly grateful for their support and mentorship. In particular, we must thank Mrs Fletcher, the teacher in charge of the Humanities Magazine, who helped enormously with the logistical challenges and with proof reading.

In this edition, you will find a variety of articles covering history, economics, politics, philosophy, and more. Each piece offers a unique perspective and we strongly encourage you to read the articles on topics which you may not find particularly intriguing, as they may spark an interest.

Among the many outstanding contributions, the star article is titled "From Complexity to Simplicity" by Felix Luo. This piece explores the history and development of architecture from the very beginning of structures created by humans. He also thoughtfully contemplates the usage of more simple styles in architecture. For those who are not sure of what to read, we suggest starting with this!

As more issues are created and if you, reading this, are at all interested in showcasing your interest into a certain topic, please look out for announcements and notices on SMHW. Contributing to the Humanities magazine is an excellent way of showcasing your skills. This can significantly aid your university applications by demonstrating your dedication and the high quality of your writing.

Many thanks,

Oscar Wong, Co-Chief Editor, Head of Design
Kaivalya Pullakandam, Co-Chief Editor

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Over the Garden Wall: an in depth analysis

Written by Charles Hennessy Edited by Sanjiv Karthikeyan

Somewhere, lost in the clouded annals of history lies a show that too few people have seen - a brilliant show called '*Over the Garden Wall*'.

Before getting into this review, I would highly recommend that you watch the show before reading (**it will contain spoilers**). The show isn't very long (it's a miniseries, about less than 2 hours long) and is an absolute masterpiece of modern animation.

In my view children's media is often disregarded in society for being "subpar" or being seen as unable to have depth and proper emotional value. However, in my opinion, this is a misguided outlook to have. Anything can have depth, understanding and meaning, if passionately and well-written, and '*Over the Garden Wall*' is one of the greatest examples of this as anything. It contains some of the most complex and layered writing I may have ever witnessed in a TV show before and is genuinely a mind-blowing achievement, done by Patrick McHale and his team.

This review will cover specific characters and themes that stood out to me during the show. If I could, I would write dozens of pages about this, but alas, I have a word limit,

But anyway, without further ado, let's delve into the unknown...

Section 1: Dante's Inferno

It took me considerable time and effort to consider where to start for this review, having to analyse such a complex show like this. However, eventually, I realised that there is no better way of starting the show than to talk about one of its most famous themes - Dante's Inferno. If you don't already know, Dante's Inferno is part of a poem written in the 14th century, describing the journey of Dante (the poet), as he descends through the Nine Circles of Hell, guided by Virgil. At first glance, you may not see any relation at all to the show. However, having watched it now about seven times, I've spotted so many similarities between both pieces of art that I could even consider '*Over the Garden Wall*' to be a sort of modern parody of Dante's Inferno. I think this is also a perfect opportunity to give a brief overview of the show before I begin getting into deeper and more intense themes. Now, let's start with the basic plot. '*Over the Garden Wall*' follows our protagonist, Wirt, who is an insecure, "wannabe" poet, very similar to Dante in his poem. Wirt is trapped in a sort of purgatory state, and each episode, as they progress, represents each Circle of Hell, following the same order as Dante's descent.

Wirt essentially descends through the afterlife with his stepbrother Greg, after they get into an accident which involved them both drowning in a lake on Halloween night. Wirt grows against his character

flaws and begins to grow closer to Greg during the show and eventually guides them out of the afterlife after defeating the Beast - '*Over the Garden Wall*'s' representation of Satan.

Furthermore, there are many other parallels in terms of characters - both Greg and Beatrice act as sort of guides towards Wirt, in both a spiritual and physical sense, and can be seen as versions of Virgil and Beatrice in the Divine Comedy, who too are guides. Beatrice ('*Over the Garden Wall*') shares striking physical resemblance to Beatrice (Dante) as well. Also, in '*Over the Garden Wall*', as Greg accompanies Wirt through the Unknown, he teaches Wirt valuable lessons that eventually grow him into a better person, being always cheerful and uplifting, contrasting Wirt's awkward teenager tropes. We can therefore see Greg as a mental guide rather than a physical one. There are an abundance of similarities that each story shares, and I can't just list all of them because that would be boring. Just trust me when I say that the stories are almost direct parallels to each other at times.

I believe this to be a great celebration of the art that is the Divine Comedy by Patrick McHale. The show is an obvious homage to the poem and has even convinced me to read it! It's like he's spreading the word and appealing the old and almost forgotten story to a larger audience in the younger population of today. And with all this, he creates a powerful and moving story with an unmatched art style and soundtrack, perfectly encapsulating its themes and its relation to the Divine Comedy.

This theme is more important than that, though. By looking at Dante's character growth through his poem, we see him transform from a lost and misguided man, who believes his life is in ruin, to one who has connected with God. Essentially, Dante's journey through Hell, purgatory and heaven in the Divine Comedy changes him so that he breaks loose of his worldly problems and instead accepts God's will as a key part of his life. Wirt's journey parallels this in some way. At the beginning of the show, Wirt believes that his life is also in ruin. He exaggerates and overthinks all of his problems and his mental stability quite easily crumbles, as we see him give up and lose hope in episode 8. However, in contrast, Wirt's journey through seeing the bizarre and horrifying manifestations of the afterlife changes him not towards faith but towards being a better human being. He realises the selfishness that he has shown to his brother and stops overthinking things and putting his problems and his feelings over the priority of others. He begins to care more and essentially becomes more human. Whilst Dante's Divine Comedy is a sort of message from Dante to have more faith in God and his will, '*Over the Garden Wall*' actually aims for you to take away the message that you should learn to accept your humanly issues and live your life without regret for silly exaggerated problems, instead of breaking free of humanly issues and sin, like Dante says you should.

This is a nice message to take away from the show, as it can apply to any sort of audience, no matter what age. A child can see this and take away Wirt's growth as a thing of good, and they should aspire to be like him. An adult and especially a teenager would have this message really resonate with them as well, and we can therefore see how this piece of children's media has themes that are not only applicable to children but to everyone.

Section 2: The Old Black Train

Episode 9 of TV show 'Over the Garden Wall' (used under fair dealing)

Whilst the metaphor and surrounding imageries/theming of the old, black train are quite obvious and prominent throughout the show, to me they carry a certain emotional weight to them, which elevates the theme to be one of my favourite things to talk about when looking at the show on a deeper level. The train makes its on screen debut in the prequel-episode nine, being the thing that pushes the boys into the river and into purgatory, starting the entire plot of the show. However, an observant viewer would have realised that the train can be heard near the end of the intro to every single episode, except for the first one, with its defining horns. The old, black train, in my opinion, is a representation of the passage to the afterlife, in a similar vein to the myth surrounding Charon's boat in Greek mythology. However, rather than being literal like that, the train is very, very emblematic of this foreboding yet almost serene journey into death. The song that plays as the boys avoid the train and go tumbling down the hill into the river emphasises this severely. '*This journey is a long one; it'll take you all around. Life rushing by your window, before it lays you down.*'[1] I love this line from the song so much. Despite the fact that we only get to hear the first verse from the song in the show itself, this is probably one of my favourite songs from it and I would highly recommend checking the full thing out because I think it would help to understand what I'm trying to say better. Anyway, this line is honestly so beautiful. It makes me visualise this calm, empty train ride that is just racing through my memories and experiences, which I can see from a view outside the window. It's such a poetic image. I think it's interesting how the train contrasts itself by being both serene but also really sinister. In the image shown it is seen as this towering figure above the boys, with this piercing light, almost like eyes staring them down like some predator. However, it's also oddly otherworldly

and ethereal. The image just looks so beautiful in a way, which is an immediately present sensation as the song starts playing. A thing that further emphasises this beauty is that the train is a steam train rather than a more modern train that would have been more commonly seen at the time. It's old and has aged with time and, maybe this is just me, but it feels nostalgic in a way. This idea of age, I think, has a much deeper meaning though, as it's so weirdly emphasised. I think that it could be seen as this. In a time when death seems to be less of an immediate threat to us, we perceive it as a relic of the past, when in reality it's actually coming full steam ahead, constantly moving forward, knocking down anything in its way to reach its destination, like a train racing towards you throughout your life. This idea is a sort of warning in a way that you shouldn't take your life for granted. Obviously this theme is less for children, but it is an interesting idea to explore. Mortality is a theme that would especially resonate with older viewers and Patrick may be warning people to not waste their life in the way that Wirt does. Wirt spends so much of his time, as said before, making a fuss and amplifying his problems, so when he has a brush with death, he is taught not to waste his life, as death could be coming for him at any moment.

Once again, this core theme of not overthinking your problems is present; instead, you shouldn't dwell too hard on them. Move on and accept and live your life to the fullest, because you do not know when you will die.

Section 3: The Woodsman and the Lantern

This idea of wasting life, of humans' inability to recognise their own mortality and putting off problems is an omnipresent theme throughout the show, but is most interestingly explored in the parallel between the two characters of the Woodsman and Wirt. The Woodsman is primarily a representation of one's life if lost completely to meaninglessness. He is essentially Wirt but older, wizened and burdened with the acknowledgement of having ruined his life. The Woodsman has been wandering the Unknown for years, slaving away at the notion that his daughter's soul was placed into this lantern by the Beast and so he must forever keep it lit, if he wishes to keep her alive. Ironically, by keeping it lit, he must cut down 'Edelwood' trees, a fictional tree that can be grinded into oil. Unbeknownst to the Woodsman, however, is that these trees are actually made up of dead childrens' souls who have fallen and lost all hope at the hands of the Beast. However, in a complete turn of events, it is revealed at the end of the show that the Woodsman's daughter was never killed by the Beast, but has been eternally waiting for her father to return home.

'Everyone has a torch to burn, and this here's mine… This is my lot in life, this is my burden.' These are the words spoken by the Woodsman when describing the purpose of his seemingly endless wandering of the Unknown. They are very layered and with it you can discuss the dark and despairing psychology and grief of the Woodsman, but for the purpose of this article I will be focussing on the fact that the Woodsman is completely and utterly wrong in this statement. As speculation, the lantern may perhaps be a symbol for temptation and deceit, because this is exactly the effect it has on the Woodsman. It is this reminder of his failure as a father throughout the rest of his life, but with it he can cling onto this hope that he may perhaps be able to save his daughter. Hence, its temptation and hence why he completely misidentifies his burden. By using the excuse of the lantern, the Woodsman puts off actually dealing with his burden, which is grief. Instead he clings to false hope.

Through this, the Woodsman does not have to face reality; he does not have to face the rest of his life. 'She was never in the lantern, was she?' he says, but it seems as if he already knew this. He just didn't want to go 'back to that empty house.' The Woodsman was not ready to deal with his grief and by doing so leaves himself in the dark and actively disappoints his still-alive daughter. Similarly, Wirt does not want to deal with his inner embarrassments, social awkwardness and love life and by doing so leaves himself in the dark about the blatant liking his crush takes to him, actively disappointing her.

Therefore, we can once again see this theme about a fundamental human error. McHale is wishing for us to not waste our life dawdling over problems and instead learn to move on and accept the things that come our way. The lantern is the Woodsman's coping mechanism, but ultimately leaves his life in ruin.

'Everyone has a torch to burn, and this here's mine… This is my lot in life, this is my burden.'

Section 4 - The Beast

Episode 10 of TV show 'Over the Garden Wall' (used under fair dealing)

The Beast is such a great character in the show, as I love how he is left so ambiguous yet he already represents so much. The Beast, as said before, is essentially '*Over the Garden Wall*''s Satan figure, but he is used quite differently. Rather than him being this ruler of the afterlife that Wirt finds himself in, the Beast is a bit less powerful. He's rather just another being that is left to wander the Unknown, not too dissimilar from Adelaide or the frogs. However, he is sinister and cunning, which separates him from the rest, and has elevated him to this grand status, as he is known by everyone there, being this omnipotent, malicious presence. The Beast is seemingly a representation of the loss of hope, reflecting the 'Abandon all hope, ye who enter here'[2] quote, and utilising this, he turns people into Edelwood trees to be burnt in the lantern that sustains him. In reality, he is weak and a simple exhale against him could cause his existence to cease (as his spirit is maintained by the sustained flame of a lantern). However, he is devious and persuasive, possibly reflecting the form that Satan takes in the Garden of Eden. He essentially is the snake, tricking people into faltering their hope and securing their fate as trees for the forest. We never really know what he truly is though. Is he sent from hell or is he an unfortunate soul who perished in the mortal realm and was doomed to become this Beast in the afterlife?

He looks like a living shadow - pure darkness - reflecting his sinful being, and he also towers over most of our characters. He asserts himself over people and this may be because, if your existence is so fragile, like the Beast's, then you have to have confidence in all you do. You have to act the high and mighty, the merciless and powerful, and it works so well. We have no idea how long the Beast managed his act, but he is seen as a sort of legend by the people. He may have been a wanderer of the Unknown for centuries, deceiving people into preserving his own life. I love some of the shots with him as well, as his shadow-like appearance that looms over everyone makes him sort of blend in with the background. It makes him feel mysterious as he can seemingly appear anywhere, but I think it also makes him look like a product of the Unknown. Perhaps this shows that he is a creature born from the afterlife? It is uncertain and arguments can be made against it. One rather strange moment that stood out to me was when the camera zooms into the lantern's flame in episode 10, showing us the Beast's soul. It is this radiating depiction of him, doing this rather unsettling dance as ethereal echoes emanate from the lantern. It's honestly one of the strangest moments in the show and I was thinking perhaps it is a representation or moment from his past. An unrequited love? A previous memory? A buried desire or desperation? I think that the idea of light and dark imagery can come into play here to present a clearer image, because whilst the Beast is seemingly pure darkness, his eyes are glaringly bright and his soul is quite literally a shining light to misguide people through the forest. It is possible that this could demonstrate how he may have once been a being of light and joy, but was corrupted somehow and now resides, cursed to be demon, in the afterlife. This is pure speculation, and most things surrounding this character were left intentionally ambiguous so that you could come up with your own idea.

Conclusion

Overall, I believe '*Over the Garden Wall*'s key message to be ideas of mortality and human nature when it comes to overcoming difficulties in life. Whether it be Wirt's teenage angst about socialising and love, or the Woodsman's grief and longing over the loss of his daughter, Patrick McHale encourage us all to try and deal with our problems head-on, rather than allowing us to fall into the pit of despair and agonising over emptiness in life, because that would truly be a waste of something so precious as many of us forget how truly lucky we are to be alive. McHale does this through his cleverly crafted mini-series, filled with symbolisms, parallels, and most importantly a richly developed set of characters, who demonstrate their journey of discovering what it means to live.

From Complexity to Simplicity

Written by Felix Luo Edited by Sanjiv Karthikeyan

Dwelling made with mammoth bones. Reconstruction based on the example of Mezhirich. Exhibit in the National Museum of Nature and Science, Tokyo, Japan.

From as long as humanity has established itself, humans have always been searching for the perfect way of living – and this is not unusual for all animals to want some form of shelter, from the nest of the bird perched up in the tree outside of your house to the beehive that you'd rather leave alone for the chance you might be stung. Yet, humans have greatly changed their aspirations as time has progressed, beginning from the humble cave dwelling to the intricately designed pillars of the Parthenon to abstract yet elegant Sydney Opera House. So the question remains – why has architecture progressed in this way and has it risen to the best or fallen to its worst?

A Brief History of Architecture over Time

Humanity has always been innovative in its methods to house others of its kind. As early as Homo Sapiens began to roam the earth, shelter has always had one key purpose – to create a sanctity of living that protected us from the deadly forces of mother nature. It was also a method for early humans to socialise and eat with one another but also to help raise our children, especially as development took longer as our brains developed to become larger and more complex requiring more parental care and thus a longer span of protection which was afforded by shelter.[1]

Over time, humans began to move out of these caves and build their own shelters, however, they were limited by the resources available; as we were exposed to more readily available resources, new forms and functions of architecture arose, driving its evolution. One of the earliest human shelters (dating back to some 15,000 years ago), located in Mezhyrich, Ukraine, consisted of four huts made from 149 mammoth bones[2]. Definitely not the most glamorous household you may think of compared to your rather modern looking house you're probably sitting in right now. However, as humanity has progressed and the availability of different materials has become more abundant, architecture has become more of a tool of expression for the human nature.

There are so many different styles of architecture that have been developed throughout history but if I were to comment on and describe each architectural style that rose throughout human history in each corner of the world, this article would easily run over the word limit I'm forced to write at! I will talk about the most notable of them that have spearheaded humanity's development...

Neolithic

In this Neolithic period we see major developments in not just architecture but also human civilisation. In this period, architecture still has a large focus on functionality rather than form. However, by observing the architecture of the time such as the settlement of Skara Brae (~3100 BC) we can observe a development of community and organisation but also separation and privacy taking place within architecture[3] which has been principal throughout history – a means of creating an ordered society.

Mesopotamia and Ancient Egypt

Mesopotamia is the world's earliest civilisation and also first social hierarchy and this is reflected in the building of the time. Compared to previously where development of buildings was for the sole purpose of shelter, we now can see the rise of grandeur and elaborateness in terms of architecture. However, most of this history is based solely on archaeological evidence and it is not to say that the smallest dwellings were for the poorest of people – in reality it is believed that all the houses were self-built and so it may actually be that the poorest houses were built with the most perishable materials and thus have no longer survived the test of time[4]. They used more complex materials compared to previously such as wood, stone, reed and mud brick and plaster[5] which has been used in a lot of infrastructure throughout time and even today! The key features defining Mesopotamian architecture were the use of courtyards and their longer rectangular shape, more similar to more modern architecture[6].

An architect's purpose is not just to create a building – it is to create a message, Ancient Egypt being a prime example.

Moving into Ancient Egypt, we see how far architecture has progressed over time. We can see that appearance and vanity are key in defining the Ancient Egyptian style. For example, large, monumental statues were used to display power and control over the poorer in society, exacerbating the social hierarchy of the time – status became the function behind the form of the architecture of the time. Such can be attributed to some particular pharaohs such as Pharaoh Ramesses II – art was used as a form of propaganda[7], not particularly uncommon in the entire span of human history. Pharoah Ramesses II erected some of the most noticeable statues of the Ancient Egyptian world such as those at the first peristyle court at Luxor, depicting his powerful figure in order to demonstrate his power over his citizens. Looking at Ancient Egypt, we also see some of the most infamous architectural feats of mankind, most famously the Great Pyramid of Giza, the last remaining Ancient Wonder of the World which, to this day, captures the awe of onlookers across the globe. Additionally there was also a great emphasis on religion, influencing architecture of the time to be decorated in such a way to appeal to the Gods, often decorated with statues of Egyptian Gods such as Anubis or Osiris, each of which corresponded with the development of Egyptian culture and architecture[7].

Classical Greek and Roman Architecture

An architect's vision is to create art rather than to solely create buildings. The functions of buildings are to create an air of awe and emotion which we see sculpted through the marble pillars of the Greeks and Romans...

Moving onto possibly the most famous style of architecture, Greek and Roman architecture is often associated with purity and strength. I believe that many people will often look towards these beautiful structures when they hear the term architecture in the first place and it's no surprise – the Greeks and Romans have produced some of the most renowned landmarks, great for an Instagram photo in the summer. But anyways, in this era of human history we can see the complexity of structure that has almost been lost in modern development. Their styles are accentuated by the marble pillars, beautiful marble statues and purity now associated with these civilisations. This style of architecture has been influential and has shaped the way that all of us live in the current day.

The rise of Greek and Roman signifies a turning point in human history, transitioning from the use of temporary materials (such as wood) to more permanent materials (such as stone) in order to create monumental structures[8]. We can also see how the building blocks of architecture shift with different cultures, not necessarily because of the inherent beauty of marble but also because of its abundance – we can see that form is also derived from the availability of resources. We also see an emphasis on aesthetics opposed to structure, fundamental in modern architecture today[8]. In this way, we can possibly classify this as the beginning of architecture being viewed as more of an art form by contrast to a *raison d'etre* (something with one single purpose – that is, in this case, to solely provide shelter or a place of work for humans). However, we can also admire the simplicity behind Classical Greek and Roman architecture – each element that these marvels consist of have a harmony and uniformity behind them, often focusing on symmetry and elegance. It is once you closer inspect these feats do you see the complexity they display – the carved designs that are etched into each stone pillar, every detail and proportion mapped onto each marble statue and the use of fluting (carving shallow grooves)[9] which just polishes off the already pristine monument that stands before us. Similarly, to the Ancient Egyptians, the Romans and Greeks were also heavily influenced by religion but also by nature. The Roman style was strongly influenced by the Greeks who

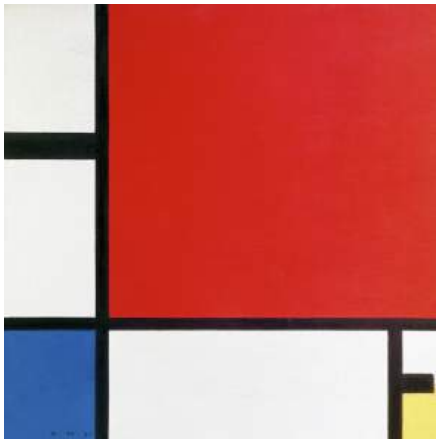
Neolithic excavations at Skara Brae on Orkney in Scotland

developed this form of architecture, each form being based on a specific type of pillar[10]. From these two civilisations the most astonishing works of man have been created, with two of the Wonders of the Ancient World being built by the Greeks, though destroyed.

The Bauhaus and Emergence of Modern and Contemporary Architecture

Arising from the prosperous years of the Weimar Republic, the Bauhaus ("School of Building") arose in Germany which was a turning point in architectural design. Their slogan was "Art and Technology – a new unity"[11], which linked to their goal of making everyday objects more interesting and more functional[12], eventually leading to the development of the saying "form follows function"[12]. This is a saying that I strongly agree with and will refer back to this later on in this article. We can see this commitment to simple, rational and functional design in almost all contemporary and modern design, ranging from desk supplies to contemporary architecture. Through the Bauhaus and many other contemporary architects from the 20th century such as Zaha Hadid and Frank Gerry, the London skyline and several other skylines in every country have been altered, for what I describe as, for the better.

Contemporary or Lazy?



Piet Mondrian's Composition with Red, Blue, and Yellow (1930)

Look at the painting above. Many of you readers may find this abstract artwork by Piet Mondrian as simple, boring or even stupid – I can even assume that some people may have the phrase "a child could have done that" lingering at the back of their throats. However, what I see is something that is meant for the soul. Something whose aesthetics gives the eyes' gaze an image to comfortably rest on. Something that satisfies humanity's desire for control. However, that is just my viewpoint. To be frank, everything that is in relation to aesthetics has an air of subjectivity around it. For all I know you could be thinking that there's no way that I could actually hold such a belief about such a boring, simplistic painting. Hence it is surely unreasonable to assume that the development of architecture, or art in general, has changed as human attitudes towards certain artistic styles have changed – everyone has their own personal beliefs and views and thus it is impossible for everyone's preferences to be so homogenous in such a way that it changes the entirety of humanity's development. In fact, there have been many famous figures that greatly disliked this modern style, even other artists, that have been strongly against this approach towards art. For example, Claude Monet, who pioneered the Impressionist movement, often seen as the beginning of modern art in the mainstream, was greatly criticised by many critics at the time such as Louis Leroy who described Monet's painting "Impression, soleil levant" as unfinished, actually coining the term "impressionism" as an insult to describe his works[13]. Therefore we see that contemporary art and architecture has not been welcomed by the most warming of hands. Many people criticise the "lack of human warmth"[14] associated with the contemporary style but I wholeheartedly disagree with this. In fact, I believe in the complete opposite of this – contemporary architecture greatly appreciates the human condition, sparking emotion from the aesthetics and form that is entirely unique to contemporary architecture.

"the kind of society that, retrospectively, came to be called modern [...] [that] emerged out of the discovery that human order is vulnerable, contingent and devoid of reliable foundation"
(Zygmunt Bauman)

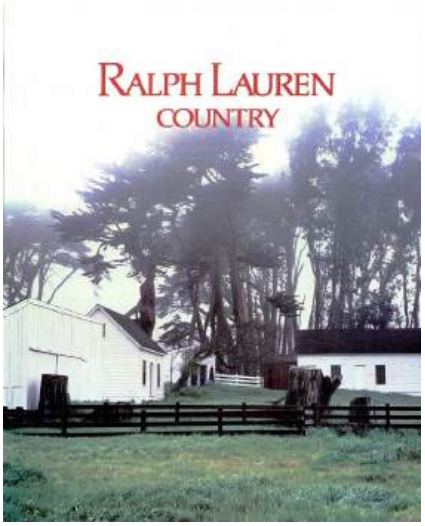
So why has Architecture Changed?

Architecture has developed alongside civilisations and as Jeremy Till describes, architecture is dependent on many different factors, from the ethical to political to religious[15]. However, contemporary architecture seems to have moved away from being indigenous to a particular group and has been spread worldwide in its architectural ideas. As you may remember earlier, the phrase "form follows function"[12] greatly aligns with the contemporary architecture of today, particularly minimalist architecture. Although some people may argue that minimalism seems to lack the creative flair as, for example the Greeks and Romans, seemed to possess through their structural designs, I believe that there can be a complexity seen within the style that greatly resonates with those who understand it. Its complex use of form, shape and colour achieves a final product that speaks to the person implicitly rather than explicitly while also achieving its purpose – to provide the person with a place that comforts and nurtures their soul. "Form follows function". Although contemporary architecture may no longer include the decorative pillars and extravagant statues, contemporary architecture is, what I believe to be, a master of aesthetics and sustaining the human condition in a way that was not previously achieved centuries before creating.

So although contemporary architecture may not seem as elaborate on the outside as the grandeur architectural feats of our past, I hope you will still appreciate and now understand the true complexity and beauty that lies behind the strange arrangement of shapes that make up our buildings of today. "Rome wasn't built in a day" (clichéd but true in this case) – our society of today has built upon all of the architecture of the past and so before you throw more criticisms towards contemporary architecture of today just remember that it still incorporates the beauty of the ancient world, just in a way that hides under the visual perception at a glance.

How Ralph Lauren created the Old Money Aesthetic

Written by Jack Ramsay Edited by Ishan Dey



1. Ralph Lauren advertisement from 1989/90

2. Ralph Lauren and Polo Ralph Lauren in Vogue Italia, February 1989

3. Ralph Lauren advertisement, ca. 1986

The ”Old Money Aesthetic” is a clothing style inspired by the way those who possess inherited wealth dress - or is it?

Dressing as those who would have inherited wealth seems to be rising in popularity with the #OldMoney having almost a million posts tagged to it and #OldMoneyAesthetic having 360,000. On TikTok, the hashtag #OldMoney has over 446.7k posts. On the surface, the old money aesthetic is about dressing like those who have inherited wealth. This includes the preppy clothing style - inspired by Ivy League and East Coast elite culture, characterized by tailored clothing, polo shirts, blazers, loafers -the use of old or classic brands and does not bear any loud brand patterns harking back to the “golden age” of fashion. However, upon closer inspection, this current trend was fabricated more than 60 years ago through careful advertising to sell the dream of a certain Ralph Lifshitz.

Ralph Lauren (born Ralph Lifshitz) is credited on Wikipedia as “an American fashion designer, philanthropist, and billionaire businessman, best known for founding the brand Ralph Lauren.”[1]. However, this clothing powerhouse was never concerned with fashion in the first place in an interview with Charlie Rose in 1993, differentiating his clothes as selling an idea or a dream rather than just a garment. This is illustrated creatively with this advertisement (1) put out by Ralph Lauren. Displayed are no clothes or anything being sold for that matter, just the beautiful view of a country house located on a farm. Incorporating what we confirmed earlier about Ralph Lauren wanting to sell a dream, it is clear from this advertisement that Ralph Lauren wanted his brand to be associated with his dreams - be it the romanticisation of living in the country on a farm, a manor with an MGB sports car, a ranch in the West or in the South of France as a person with inherited wealth. Ralph Lauren served as the connection between the people and these dreams by selling the clothes to match his romanticised ideas. One should remember though that this is a romanticisation of the lifestyle and clothes of these different aesthetics be it American Western or yachting in the South Of France - Ralph Lauren himself would have never experienced this growing up as he lived in the Bronx in New York City, coming from anything but Old Money with his parents’ humble professions of an artist and a house painter.

We can now start to draw the parallels between the invention of the Old Money aesthetic and Ralph Lauren. What people perceive to be the way that people with inherited wealth dress is in fact a romanticisation of the clothing that someone would dream them to wear - that someone being Ralph Lauren. This is evident from the various advertisements put out. Displayed are two adverts (2 and 3) from the Ralph Lauren catalogue dating back to the 1980s. Looking upon these outfits with scrutiny, they are hopelessly impractical and not something someone could wear in day to day life, let alone someone that came from inherited wealth. But if we take into account that Ralph Lauren is selling an idea, then the advertisements make more sense. Clearly in the first one the clothes are only half the advertisement with a sports car and two dogs also occupying the centre stage. The second picture also is supposed to convey the image of success - represented here through the businessman, his loud tie, draping suit and executive office behind him.

So since the “Old Money Aesthetic”, particularly in the eyes of Ralph Lauren, is not a valid representation of what those of inherited wealth wear, does this make it deceitful and one should not pursue this style in their own clothing? Absolutely not. The romanticisation of lifestyles is what produces some of the best work seen in fashion. Furthermore, despite being inspired by wealthy older people, the “Old Money Aesthetic”, many younger people have been inspired by it and are wearing old money clothes themselves or are formulating their own style inspired by the “Old Money Aesthetic”.

«Poetry»

A selection of poems from an upcoming anthology written by Wilson's students. They centre around the theme of death

Chamomile

By Kaloyan Yunchov

She plucked chamomile from meadows, and gardens,
And she'd go with her friends, picking chamomile,
To put in the tea she'd serve us when we came home.
I always thought it a bit vanilla,

But learned to cherish its simplicity;
The chats we'd have - when she'd look at me with
Bright, inquisitive eyes which fed me -
Stuffed my pride and kept me talking, showing off
And, with the occasional sip, letting her speak.

These chats were mostly monologue - selfish I know,
But when I indulged her she would go off,
Trashing your every decision;

And that's the image I had of you, in my mind,
A vase beaten by her derision.
Every time I visited, she beat you until,
Eventually, I picked up a sole remnant,
Of the ceramic chef-d'oeuvre you once were.

And I could feel myself being fired,
My flesh transmuting from lumpy clay,
To a pot, with your sherd stitched onto me,
Destined to be an urn
Or broken,
For a mother (not my own)
To take
Break,
or plant chamomile in.

Five Poets Dying

By Boyan Xiang, Quang Tran, Kaloyan Yunchov, Charles Hennessy, and Nihithan Vasudevan

Now I wish these days
Could be everlasting, but
I know they will fade

Despite facing the end, I
Never know when to begin. ***- Boyan***

A butterfly rears
Its head to the sun above.
The summer sun beats

Broken body, broken wings
Flutter into the next fall. ***- Quang***

These overcast days,
I feel free to be here now,
Before the solstice.

You only live once, like me,
But a season's a season. ***- Kaloyan***

"Live in the moment!"
was said, permeating through
society as a knife.

Memories left in far-flung
centres of peoples' skin, gone. ***- Charles***

The pale swain lulled me
Cushion pressed against me soft
Sinked adrift in clouds

Soaked up with milky glint tears
In its bosom I found hope. ***- Nihithan***

Paper Found at Sea

By Charles Hennessy

I was 37 years old
when I decided to leave my family,
destined for a life at sea.

To feel the calm force of tides,
running down my throat as
vibrations from the eternal waters.
And staring into the fish's eyes,
one can imagine his own soul.

Since birth, since I first took those steps,
away from my mother along the sedimentary
grains of long preserved pasts,
I found myself surveilled by the
bitter tranquility of everything
about the ocean. And at that time
my mind surrendered away from shore.

The liberty of my ocean was pleasant.
I gave to it my life on parchment
and it reciprocated my love.
My vessel was another remnant long
forgotten in the backwaters of
some simple, juvenile sanctuary
and for my money, which would have been
spent on my youngest child's next birthday,
I bought it.

And stalking through broad sunshine,
in desolate, green pastures,
slides, swings, see-saws,
swathed a lifeless fog.

In distant legends one must hear singing
that rings across the mind as a hand,
alluringly divine,
a charity from God
to liberate your expression
and, in bliss, drain it
in a comforting embrace.
My voice came in sharp blindness.

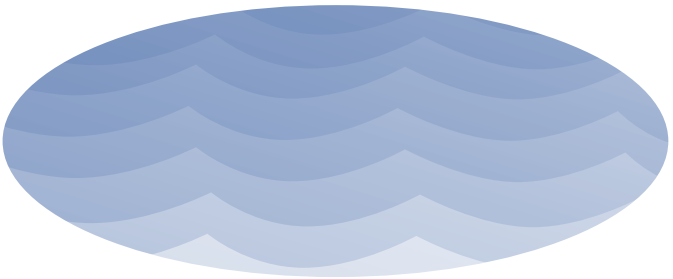
No one to call for, no one in my life worth looking to,
I reached my hand into the fog,
which sung quieter and quieter,
swaddled in the rose thorns of fathers, until
I spoke back.
Twenty seven years later,
the fog came again today.
It sung a melody which joined the stars,
who danced in the pattern of ripples,
looking down at me as they
died away into morning.

The fog revealed to me those backwaters
which prevailed in my own tempest.
It established itself a guardian.
And from within that dense, unpropitious
veil, something observed through my own veil,
thoroughfared through my eyes.

The fog blinked twice
and outstretched from the pupil,
reached a hand - dark and precious.
And the hand, dripping in tears,
presented to me myself.
Dead.

So, I crawled in, and the eye shut.

I'm sorry dear, but he's long gone.
Perhaps one day we'll see him,
passing along the shore, the ghoul
who left our world to rot,
but his carcass lies on the seabed.
He never even reached the boat.



The Tears of Prince Rupert

By Nihithan Vasudevan

Our greyed-out lives, cracked of stone:
Some days, a pall of colour floods the cataract,
Through a window, streaked in raindrop fall,
Clinging to love - true love - the kind that lives,

And all our eyes are glass,
Like marbles tumbling down their course,
Wherever that course may lead,
But it never lasts, a see-through, fragile memory,
Our greyed-out eyes, bereft of this love,

And the sands melt and coalesce into our vision,
Where from thence is borne man's first tear,
Streaking the concrete in raindrop fall,
And this glassy tear shall not crack,
It can only either endure (like a man)
or be instantaneously shattered.

Do the benefits of using AI outweigh the risks?

Written by Krish Thakkars
Edited by Gabriel Gardiner

The integration and utilization of Artificial Intelligence (AI) into current-day economics has given rise to a new wave of innovation, suggesting the way we understand and engage with economic ventures is actively being reshaped. In today's world, the use of AI in daily economics is becoming increasingly important; the main contributor to the UK's economic gains between 2017 and 2030 will come from consumer product enhancements stimulating consumer demand (8.4%)[1]. Harnessing AI-based technology has the potential to revolutionize economic analysis, policy-making, and business strategies, particularly through the use of machine learning algorithms and advanced data analytics. This can allow businesses to gain a deeper insight into complex, modern economic phenomena, make more accurate predictions on market trends, and make more optimal allocations of resources. Indeed, it is predicted that by 2030, the UK will see an impact as large as 5% of GDP from AI[2]. This combination of standard economic theory and the vast computational capability of AI holds the assurance of global economic expansion, increasing technical efficiency, and addressing some of the more persistent challenges in today's global economy. The several ways in which AI is succeeding in the field of economics, from data-driven decision-making to policy formulation and beyond, begets several advantages to economic agents. However, this also elicits certain ethical questions, along with trade-offs, costs and externalities that require consideration.

On the one hand, economics investigates how to allocate limited resources efficiently, make predictions for the future and analyse the distribution of wealth in a market, where as on the other hand, AI is the simulation of human intelligence processes by machines[3], where computational abilities hold the promise of improving the efficiency of tasks. AI can be used in a variety of ways to supplement decision-making, policy formation, and analytics, arguably what economics is primarily centred around in today's age; what particularly stands out with respect to AI is the vast multitude of ways in which AI has the capabilities to perform human-level tasks at much quicker, more efficient ways. The analysis of data from previous economic ventures is what economists primarily use to inform their decision-making since this helps to establish the incentives of market participants and understand how firms and individuals will behave in various situations[4]. AI can predict economic trends by analysing extensive, complex, large datasets (something human workers would never be as efficient at), allowing the conclusions made to be more accurate to assist governments, financial institutions, and enterprises in making well-informed decisions. AI has the ability to quickly process and analyse large sets of economic data, identifying correlations and patterns which might not be apparent through traditional human-based methods, which is essential for economic research and analysis. Indeed, according to the Bank of America, global revenue associated with AI software, hardware, service, and sales will likely grow at 19% per year, reaching $900 billion by 2026, compared with $318 billion in 2020. According to some estimates, AI will contribute more than $15 trillion to the

global economy by 2030[5].

To increase forecast accuracy, AI models also take into consideration a variety of variables and indicators, and are highly fast and proficient, which adds to the reliability of the analysis performed by the machine learning 'bots'; this significantly reduces the human error and time-lags associated with research. AI also has the slightly unsettling yet highly useful capability of predicting human behaviour and decision-making in markets, more commonly known as behavioural economics (which is becoming increasingly important, given it can understand the daily life decisions of consumers in markets[4]). AI-powered algorithms can analyse consumer behaviour and preferences, allowing businesses to tailor marketing strategies and prices to up-to-date consumer needs, helping maximize profits. Finally, other uses of AI also include optimizing global trade operations, aiding in logistics, risk-management, and ensuring the efficient flow of goods and services in an interconnected world economy.

Therefore, AI offers numerous advantages to current-day economics, from better data analysis and forecasting to enhanced resource allocation, more informed policy decisions, and the stimulation of innovation and economic growth. As AI continues to develop, its role in economics will also expand and deliver even more benefits.

However, despite the numerous ways in which AI can help our growing economies advance, the utilization of this new, growing technology also brings about numerous challenges, externalities (effects on people not directly involved with the decisions of these businesses, i.e. third parties) and costs that require addressing. The application of AI into an economy can also cause major concerns over the costs of production, since the new and developing technology can be quite expensive to run. Indeed, OpenAI spends up to $700,000 a day maintaining its underlying infrastructure and server costs[6] – this means that as more businesses and firms utilize AI in their operations, the risk of cost-push inflation (caused by rising prices of raw materials and other costs of production for businesses) increasing will become more prevalent, especially given how our current economy has been struggling with inflation for an extended period; this inflation will negatively affect consumers and the prices they pay for goods and services, which is considered an externality since these consumers are not directly involved in the business's decision to use AI. Furthermore, the use of AI in marketing products may also not be as effective as marketing via human ideas and inputs since AI lacks the creativity and innovation humans have.

The use of AI also has ethical implications that require addressing. As we have established, AI-based technology is being used increasingly by firms because of their superhuman intelligence and efficiency, which creates a major disadvantage for manual laborers and machine operators. Since AI provides businesses with a more optimal means of production, this creates a huge threat of job displacement for manual workers being replaced by automation, causing inequality. For example, AI could replace the equivalent of 300 million full-time jobs (according to a report by Goldman Sachs)[7]. The replacement of human capital by AI will also spur society to consider what sort of work is being undertaken to produce goods and services consumed daily. Despite the promise AI holds of improving productivity substantially, the ethical consideration of whether it is manual human labor or digital software that is used in production still requires consideration. This can quite negatively impact the general image of firms' branding. Additionally, the displacement of jobs due to AI may disproportionately affect workers in geographic regions or industries, which could potentially exacerbate nationwide unemployment disparities. Despite the main objectives of firms and the government in today's economy being to maximize profit and economic growth, it is still necessary to address these concerns. Businesses need to consider the wider ethical and societal implications of implementing AI. They have to make sure this technology is applied lawfully, equitably, and without aggravating social or economic inequality; they also need to consider how their AI applications can affect the environment. For example, as datasets and models become more complex, the energy needed to train and run AI models increases, which increases their carbon footprint and aggravates climate change[8].

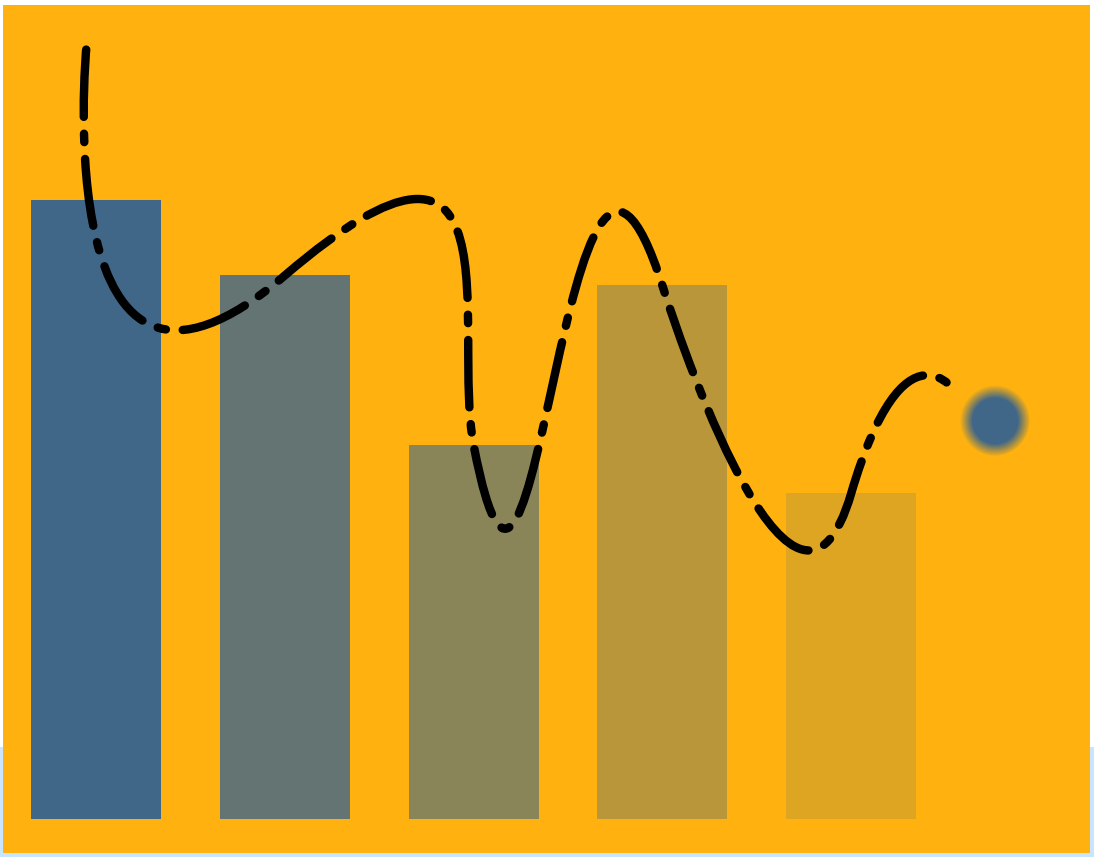
There are also concerns associated with the accountability and transparency of using AI. It might be difficult for "the layman" to grasp AI and machine learning algorithms since they can be opaque and sophisticated, which will give rise to concerns about accountability, bias, and fairness due to this need for more openness. Henceforth firms will have to be willing to explain how their algorithms work, which could create extra time-lags and issues. Finally, collecting and analyzing such copious amounts of data can raise concerns over security and privacy; mishandling and misuse of this data can cause privacy breaches and further risks. As a result, there is a need for some form of regulation to be implemented to businesses and their use of AI, to ensure this practice is sustainable and ethical, as well as preventing privacy concerns and ensuring it grows at a rate that businesses and the economy are able to keep up with in the future. Further expenditure into research and development may be required, as it is preferrable that AI systems self-regulate rather than requiring regulation from humans.

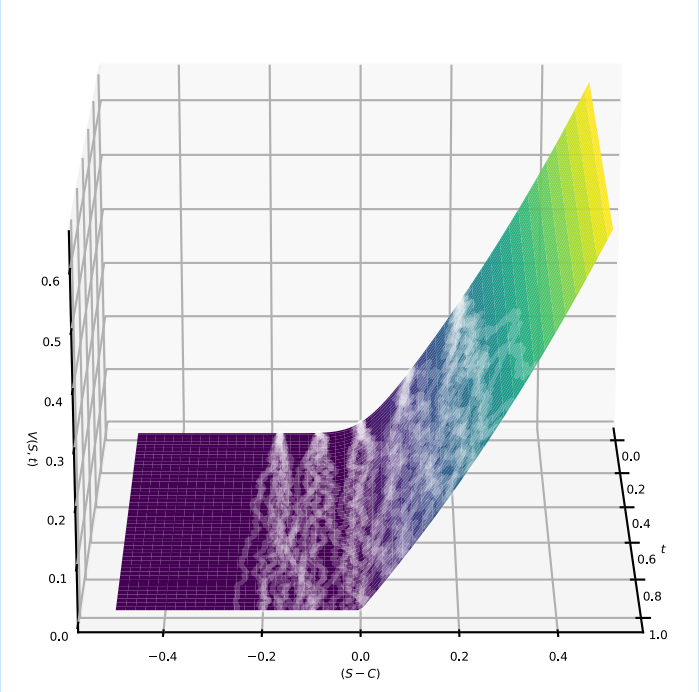
In conclusion, AI has the potential to reshape and advance modern economics, offering numerous advantages ranging from improved data analysis and forecasting to enhanced resource allocation, more informed policy decisions, and the stimulation of innovation and economic growth. As AI continues to evolve, its role in economics is likely to expand and deliver even more benefits. However, it also poses several challenges and disadvantages that need to be addressed through careful planning, ethical considerations, and appropriate regulation to ensure its responsible and equitable use, as well as ensuring the economic growth it brings about is sustainable, for future generations to thrive in this new age of technological advancement without trade-offs.

The Black-Scholes Model: A Breakthrough in Options Pricing?

Aditya analyses the Black-Scholes model and its significance in revolutionizing options pricing, its impact on financial markets and its limitations for real-world complexities in options valuation.

Written by Aditya Takkars Edited by Gabriel Gardiner





Options are financial contracts that give the buyer the right, but not the obligation, to buy or sell an underlying asset at a specified price (called the strike price) on or before a certain date (called the expiration date). Options are widely used by investors, traders, and corporations to hedge risks from market fluctuations, speculate on future price movements, or create complex strategies.

However, options are also difficult to value, as their price depends on various factors, such as the current price of the underlying asset, the volatility of the underlying asset, the time to expiration, the risk-free interest rate, and the dividends paid by the underlying asset. Before 1973, there was no general and consistent method for pricing options. Different markets and practitioners used different models and assumptions, resulting in arbitrage

opportunities where an investor can profit by simultaneously buying and selling an asset or related assets in different markets or forms at different prices due to market inefficiencies.

In 1973, two economists, Fischer Black and Myron Scholes, published a landmark paper that changed the field of finance forever. They derived a mathematical equation that estimates the theoretical value of European-style options (options that can only be exercised at expiration) on non-dividend paying stocks. The equation is known as the Black-Scholes formula or model.

The Black-Scholes formula is:

$$C(S,t)=N(d1)S-N(d2)Ke-r(T-t)$$

where:
· C(S,t) is the value of a call option (the right to buy) with strike price K and expiration time T at time t
· S is the current price of the underlying stock
· r is the risk-free interest rate
· N(x) is the cumulative distribution function of the standard normal distribution
· d1=σT-tln(S/K)+(r+σ2/2)(T-t)
· d2=d1-σT-t
· σ is the volatility of the underlying stock

The Black-Scholes formula can also be used to value put options (the right to sell) by using the put-call parity relationship:

$$P(S,t)=C(S,t)-S+Ke-r(T-t)$$

where P(S,t) is the value of a put option with strike price K and expiration time T at time t.

The Black-Scholes model was a breakthrough in options pricing for several reasons. First, it provided a straightforward formula that could be easily implemented and computed using a calculator or a computer. Second, it was based on principles, such as no-arbitrage, a fundamental principle in finance that states that it should not be possible to make a risk-free profit by trading in the financial market. Risk-neutral valuation, an assumption that investors are indifferent to the risk and thus value future cash flows based on the risk-free rate of return, was also accounted for. Scholes and Black also factored in the principle of dynamic hedging used by investors and traders to minimise or eliminate the directional risk (price movements) of their portfolios. It involves continuously adjusting the portfolio by buying or selling assets in response to market movements. Third, it was empirically tested and validated using historical data from various markets and instruments. Fourth, it enabled the development and growth of new financial products and markets, such as standardized options contracts, options exchanges, and derivatives markets.

The Model also played a significant role in how traders and investors perceive and manage volatility. Firstly, the model helped in understanding the relationship between the price of the option and the volatility of the underlying asset. It showed that the volatility of the underlying asset significantly impacts the price of the option. Black-Scholes also allowed for the calculation of an implied
volatility figure. This is the volatility value that, when plugged into the model, yields the current market price of an option. It gave traders a method to estimate market expectations of future volatility based on option prices. Furthermore, before Black-Scholes, options were often priced based on intuitive methods, which sometimes led to mispricing. The model offered a systematic way to price options, making the process more transparent and consistent.

Another substantial limitation arose from the model's disregard for realworld trading complexities. The BlackScholes framework ignored the presence of transaction costs and taxes associated with trading or hedging options. In practice, investors contend with brokerage fees, bid-ask spreads, and taxation on profits, all of which significantly impact the profitability and feasibility of options strategies.

Furthermore, criticisms emerged regarding the model's failure to incorporate crucial factors that influence options prices. Dividends distributed by the underlying stock, the early exercise rights inherent in American-style options (allowing exercise before expiration), sudden jumps or discontinuities in stock prices due to unexpected events, and the presence of stochastic interest rates were all ignored. Pivotal in real market scenarios, these elements compelled the need for extensions and modifications to the original Black-Scholes model. These adaptations aimed to rectify these shortcomings, acknowledging the nuanced intricacies of financial markets and offering more accurate pricing mechanisms for complex derivatives.

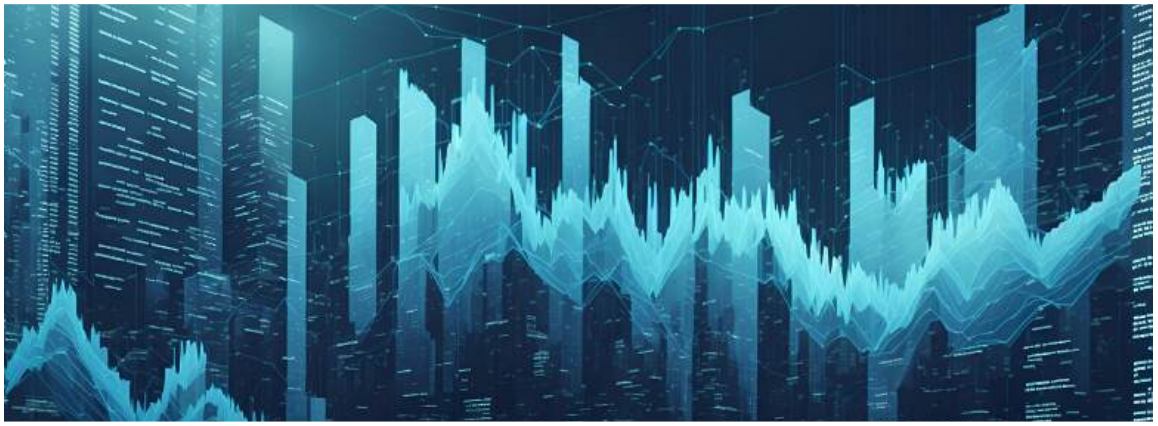
Despite its limitations and criticisms, the Black-Scholes model remains one of the most important and influential concepts in modern financial theory and practice. It has been awarded several honours and recognitions, such as the Nobel Prize in Economics in 1997 (awarded to Myron Scholes and Robert Merton, who extended and applied the model), the John von Neumann Theory Prize in 1977 (awarded to Fischer Black and Myron Scholes), and the Financial Engineer of the Year Award in 1996 (awarded to Fischer Black posthumously). It has also inspired and stimulated further research and innovation in finance, mathematics, economics, and other disciplines.

Conclusion

The Black-Scholes model is a mathematical equation that estimates the theoretical value of options contracts, considering various factors such as the current stock price, the strike price, the time to expiration, the risk-free rate, and the volatility. It is one of the most important concepts in modern financial theory and practice, as it provides a general and consistent method for pricing options. It also enables the development and growth of new financial products and markets, such as standardized options contracts, options exchanges, and derivatives markets. The Black-Scholes model also has some limitations and criticisms, such as assuming constant and known volatility, ignoring transaction costs and taxes, and neglecting some features or factors that affect options prices. These limitations and criticisms require extensions or modifications of the original Black-Scholes model to account for them.

Why Industry Giants Are Struggling to Stay Afloat in the UK Market

Written by Shourya Gupta Edited by Sanjiv Karthikeyan



Economic adversities initially caused by the Covid-19 pandemic and further pushed by the war between Russia and Ukraine have resulted in historic highs in energy prices and high inflation. The increase in costs driven by inflation and currency weakening is resulting in a severe decline in consumer purchasing power. These factors have placed pressures on revenue and sales of industry giants by disrupting supply chains and weakening consumer purchasing power and demand. Simultaneously, with strong competition from peer firms competing for the lately shrunk market share in the UK, the struggles of the industry are exaggerated. Such an interaction of variables has resulted in a perfect economic storm, significantly affecting the industry and finding its representation in the continuously falling sales revenue and profit margins.

It is a fact that the Covid-19 pandemic and its prolonged economic aftermath have strained purchasing power, whereas inflation has resulted in decreasing overall demand for the products and services of the industry under consideration in their UK market. These industry giants are now struggling to cope with the lower confidence of consumers and decreased expenditure as households battle to adapt to the ever-increasing living costs, which force them to favour what is necessary over luxuries. This decrease in shopping increasingly affected the companies selling fast foods and snack containers such as Coca-Cola (fell 11% to $33bn[1]) and PepsiCo and largely affected the technology companies such as Alphabet, Samsung Electronics, and Apple[2], further putting them in a position of hardship. These elaborate on the direct relationship between consumer purchasing power and the sales of firms.

As a result, declining revenues have called upon the companies to take certain measures to adapt to this harsh environment. Companies like Wrigley and Wessanen involved in the fast-snack containment industry have undertaken employment cuts[3], which are an important operational cost. For example, Coca-Cola Company shed 2,000 jobs to consolidate positions in specific functions to sources of better frontiers for revenue and profit delivery in 2023[4]. Moreover, as part of consolidating synergies, Procter & Gamble Company, through its subsidiary Wessanen UK, is restructuring with the shrinking of its workforce, effectively pointing at how protracted low revenues could affect its market share. Consumer electronics giants like Apple have paused hiring in most units of the company in the meantime, with the economic downturn persisting and business growth being limited in the short run. Other media firms have rapidly cut their sports broadcasting rights as revenues slide.

Despite such challenges, the industry giants must also watch the heighteningcompetition in the UK marketplace. Peer firms shadow their activities, therefore noting their operational cost control practices, marketing strategies, and pricing scuffles. In response, industry giants are dynamically implementing aggressive and tactical measures to keep themselves innovative. For instance, Fox Sports engaged itself in punting-team prediction with the advent of its sports-overt airing to prompt interactive televiewing and leverage possible advertising[5]. The implementation of innovative products and services is vital to cut operational costs, which should be leveraged through effective marketing and distribution to reach huge clientele and prompt engagement.

However, this "perfect economic storm" continues to challenge companies, highlighting the importance of adaptability and resilience in an unpredictable market landscape. For UK industry giants, long-term survival and growth will likely depend on their ability to balance cost efficiency with innovative approaches that align with evolving consumer needs and market conditions. As they continue to adapt, their responses may shape new norms within the UK's corporate landscape.

HYDROGEN CARS – CAN THEY BE THE FUTURE?

Written by Shourya Gupta Edited by Djimon Gyan

Amid escalating concerns about climate change and environmental sustainability, the emergence of hydrogen cars presents a solution deserving of economic and political attention. Toyota and Hyundai's groundbreaking strides in this industry forecast a transformative shift towards renewable energy in transportation.

The Economic and Political Impact of Hydrogen Cars:

Hydrogen cars function through a streamlined process: storing compressed hydrogen in high-pressure vehicle tanks that, when fed into a fuel-cell stack, reacts with oxygen to generate electricity. This electrochemical process produces only water vapor as a byproduct, signifying a zero-emission solution with potential to significantly reduce harmful pollutants and greenhouse gases, aligning with political agendas advocating for cleaner environments and healthier communities.

Comparatively, the sustainability of hydrogen cars surpasses that of electric vehicles. The production of electric car batteries contributes significantly to carbon emissions, almost doubling the environmental impact of traditional diesel cars[1]. This knowledge makes hydrogen cars a promising alternative, strategically positioning them as a politically and economically viable solution.

Economic Efficiency and Technological Advancements:

Hydrogen cars boast unparalleled efficiency, requiring only five minutes for refuelling—contrasting hugely with the extensive charging periods of electric vehicles. On average, hydrogen cars have a range of four hundred miles and, just to give you an idea, this is approximately twice as much as petrol or diesel cars[2], which perfectly demonstrates to you their immense, impressive efficiency. Furthermore, the average range of an electric car is 211 miles[3], so a hydrogen car has a range of almost double this. Furthermore, safety concerns associated with hydrogen's flammability, while valid, can be effectively mitigated with prudent management and careful adherence to safety protocols.

Toyota's pioneering Toyota Mirai, with its efficient performance and competitive pricing starting at approximately £50,000, represents a transformative step in the commercial viability of hydrogen cars. The Mirai's acceleration feels smooth and linear, with a sci-fi hum of the engine distinct from any other pure-electric car. It also feels stable and predictable. Mile for mile, it's also significantly lighter than a battery. While a Tesla Model S promises 390 miles from a 500-kilogram battery, the Mirai's tank weighs just 5.6 kilograms and will carry you for 400 miles[4]. It also provides 180 brake horsepower as well as 300 Newton metres of torque (the car's pulling power). It is also not as expensive as you may think it would be – prices start from approximately £50,000. Although this is not cheap, it is certainly not as expensive as we might first think, and as this technology becomes older and more mainstream, prices will definitely deflate.

Addressing Challenges:

Nevertheless, there are, as you would expect, obstacles that impede the widespread adoption of hydrogen cars. A critical challenge lies in the issue of refuelling infrastructure— currently we only have 15 hydrogen filling stations in the UK[5], compared to the 40,150 electric vehicle stations[6]. Overcoming this would demand substantial government investment, technological innovation, and strategic partnerships within the private sector.

The production and transportation of hydrogen gas require considerable capital and energy inputs, posing economic challenges. Processes like electrolysis, essential for hydrogen production, require extensive energy resources, driving up production costs.

Future Prospects for Progress:

In conclusion, while hurdles such as limited infrastructure and high costs impede the swift ascent of hydrogen cars, their potential for a sustainable future is undeniable. Their zero-emission capability, swift refuelling, extended ranges, and prospects for sustainable production positions them as a compelling option in mitigating climate change and fostering cleaner transportation. Critical to their success is continued infrastructure development, technological advancements, and robust support from governments and industries. With sufficient efforts, hydrogen cars harbour the potential to play a pivotal role in an economically and politically sustainable transport ecosystem—a vision that aligns with the global pursuit of a greener future.

«Economics»

Is Sustainable Aviation Fuel Worth It Economically and Environmentally?

Haayed examines the rise of a major solution to tackling decarbonisation within aviation, and weighs up the benefits and challenges of this to consider whether this proposal is even viable to begin with.

Written by Haayed Aslam Edited by Gabriel Gardiner

The past few decades have seen world leaders tying their countries to several international commitments, such as the Paris Agreement, adopted in 2015 and signed by almost 200 parties at the United Nations COP 21 conference, an event where country representatives discuss key environmental issues of the 21st Century. This agreement aimed to cover climate change mitigation, adaptation and finance to ultimately lower greenhouse gas emissions. Initiatives such as the Paris Agreement have arisen as attempts of 'going green' globally ramp up, induced by growing concerns of the impacts of climate change on Earth. One heavy contributor to the environment's damage is the aviation industry, with total fuel consumption of commercial airliners reaching an all time high of 95 billion gallons in 2019[1]. This has obviously dropped since then with the onset of Covid-19 in 2020, but fuel consumption is once again on the rise, with a forecast for the whole of 2023 estimating a total usage of 80 billion gallons[1]. This is before we even consider military aircraft's fuel usage! Recently, global companies have turned to a potential solution to this growing dependency on traditional fuel: Sustainable Aviation Fuel (SAF). Yet why exactly is traditional fuel such a burden to the environment, and how does SAF aim to combat this? Most importantly, is SAF even viable in an uncertain global economy?

Before SAF

The jet fuel used in commercial aircraft combustion turbine engines is known as Aviation Turbine Fuel (ATF or AVTUR). This originates from a fraction of crude oil called kerosene, obtained from the process of fractional distillation. The most prominent form of kerosene fuel used in civil aviation is Jet A, from which Jet A-1 (used on longer flights) is derived; a less common Jet B is also used for its greater performance in colder weather.

At the turn of the 21st Century, it became clear that using kerosene for every single passenger flight would not be feasible, owing to the extreme volatility of oil prices and the commitment to reducing the rate of climate change. Since oil is a fossil fuel, burning it in fractional distillation releases carbon dioxide (CO_2) into the atmosphere as a greenhouse gas. In commercial use, the International Civil Aviation Authority (ICAO) has concluded that 3.16 kilograms of CO_2 is released per kilogram of jet fuel combusted[2].

It was noted that the use of biofuels could be examined in greater detail for aviation and adapted, through mixing in specific predetermined ratios with kerosene, for the jet engine. This idea came to life in February 2008 with the first cited commercial flight to be powered partly by biofuel, operated by Virgin Atlantic on a Boeing 747 sortie between London Heathrow (LHR) and Amsterdam airport. This involved a blend of kerosene and biofuel (which used Brazilian nuts and coconuts) in just one of the jumbo jet's four engines. While Virgin Group founder Sir Richard Branson remarked that this event was a "vital breakthrough" for aviation, Greenpeace's chief scientist Dr Doug Parr marked the flight as a "high-altitude greenwash", explaining that the use of biofuels achieves very little in decarbonisation efforts, and that the only viable solution is to simply have fewer flights[3].

How is SAF made?

The entire process for SAF production, from start to finish, can be simplified into four stages:

1. Feedstock is collected from various sources (see below for examples);

2. This feedstock is converted to SAF using biorefinery techniques (either as standalone units to produce Synthetic Kerosene, or through co-processing which involves hydroprocessing the feedstock with fossil feedstocks in the refinery);

3. Traditional jet fuel (either A or A-1) is blended with SAF to make it suitable for use in aircraft;

4. This fuel is delivered to airports and into the aircraft's wings.

To elaborate on each of the above steps in more detail:

1. Examples of feedstock that can be used to create SAF include municipal solid waste, non-food crops, woody biomass, industrial waste fats, greases and oils[4].

2. To facilitate the steady increase in demand for SAF, considerable infrastructure is required to convert the feedstock into SAF; Shell is constructing a biofuel facility at their Energy and Chemicals Park in Rotterdam, The Netherlands, that is capable of producing 820,000 tonnes of SAF annually[5].

3. The European Parliament and ASTM International, an American company that develops international standards for various services including fuels, has found it safe to blend Synthetic Paraffinic Kerosene (SPK - a type of SAF that uses lipid feedstocks such as vegetable and cooking oils) with kerosene in a maximum blending ratio of 50%[6,7]. Other forms of SAF, such as Hydrotreated Esters and Fatty Acids (HEFA) use different blending ratios due to the difference in raw components used.

4. In 2016, Oslo Airport became the first international airport to offer SAF in their fuel mix. Since then, there are now over 100 airports around the world distributing SAF, as tracked by the ICAO, with the largest distributing airport currently being LHR[8].

Talking Costs

Calculations conducted by the International Energy Agency found that in 2019, AVTUR production cost was $0.3-0.6 per litre given a $50-100 crude oil barrel, whereas SAF production cost was a step-up to $0.7-1.6, thus requiring a $110-260 crude oil barrel for the manufacturer to achieve break-even[9].

Given the aforementioned volatility of oil prices (of which kerosene is a key component), and the fact that kerosene is mixed with SPK and other SAF, it is no surprise that the resulting cost of SAF to commercial air operators is subject to rapid change. The price of SAF is also naturally high due to the extra steps required in blending, coupled with the demand for and availability of feedstocks, thus driving up the prices for these raw materials. Infrastructure such as Shell's new biofuel plant will also need to be paid off.

So the question remains: is SAF a worthwhile investment for the entire aviation industry? What must also be considered are the external influences on all the major stakeholders in this industry, such as the long-term impacts of Covid-19 on air traffic (which is still recovering and has not yet reached pre-pandemic levels) and recent economic downturns resulting in cutbacks in business investment and increased government intervention in other industries as opposed to supporting SAF expenses.

In hindsight, the pandemic and risk of recession had the same impact on SAF affordability: the airline will have to operate fewer flights, resulting in lower revenue generation, while still having to pay overheads and fuel costs.

An extreme view can be argued here, which is that the financial burden to airlines of procuring SAF is insignificant compared to its environmental benefits and its input into the global decarbonisation efforts scene. This has been proven by the International Air Transport Association (IATA), who have calculated that the widespread usage of SAF in aviation could lead to a reduction in CO_2 lifecycle emissions by up to 80%[10]. Some people may go beyond this, to suggest that if airlines go bankrupt and shut down due to obtaining more SAF, this may lead to fewer overall flights worldwide, which will actually reduce the rate of damage to the environment, aligning with Dr Parr's views expressed earlier. However, I find this argument unrealistic, as there are some air operators, such as those on remote island communities, whose passengers rely on their services and who therefore cannot risk closure by purchasing SAF. Usually, an airline can identify potential shortcomings in their cash flow long before falling into debt and resolve this early, so the extra costs from SAF alone is unlikely to be enough to destroy their finances and force them to cease operations entirely.

Indeed, the UK is on the verge of a technical recession, and the rest of the world is not faring much better either.

Despite the aforementioned hardships currently presenting a huge dark cloud over the whole industry, the big question of the financial worth of SAF cannot be fully answered without looking at the many government initiatives that aim to intervene to support SAF production. One such example is the UK Government's £165 million Advanced Fuels Fund (AFF) announced in September 2023, which will attempt to subsidise research and development (R&D) into SAF for the Aerospace Technology Institute[11], "to enable the delivery of 10% SAF by 2030". This also includes the Government's plans to have at least five commercial scale SAF plants under construction by 2025[12]. Further programmes in future may attempt to subsidise the use of SAF beyond R&D, and extend this to airlines to adopt this fuel type.

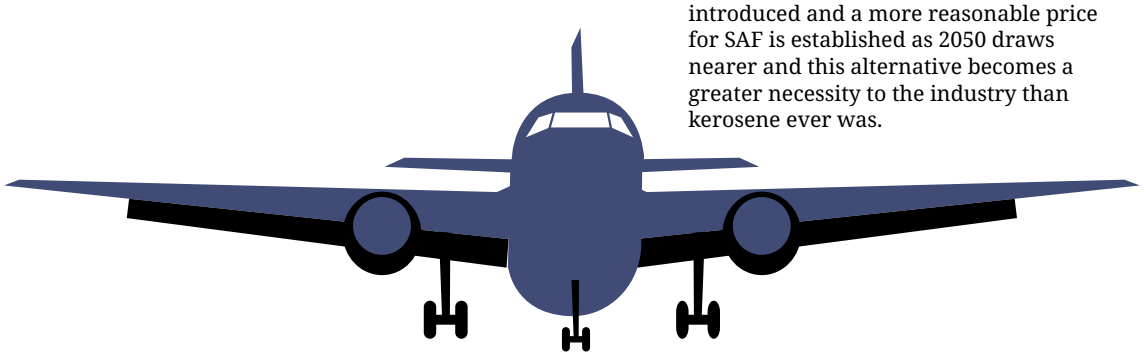
Future Objectives

In order to encourage fuel manufacturers and airlines to take up SAF orders, there have been a multitude of company and industry-wide targets to ramp up SAF usage as quickly as possible. The single largest objective on every stakeholder's radar is the IATA Fly Net Zero commitment, established at the 77th IATA Annual General Meeting in Boston, USA in October 2021. This resolution required that every IATA member airline (of which there are over 300) achieve net-zero carbon emissions from their operations by 2050[13]. While this may come across as an unreasonable target, the IATA have also estimated that SAF could contribute around 65% of the reduction in emissions needed by aviation to reach net-zero by 2050[12].

65% is obviously not 100%, but it still stands as the single largest step that can be taken to achieve Fly Net Zero, according to the IATA. The remaining 35% consists of 'new technology: electric and hydrogen fuels' (13%), 'infrastructure and operational efficiencies' (3%), and 'offsets and carbon capture' (19%)[14].

Finally, the world's first 100% SAF commercial flight flew on November 28th, 2023, by a Virgin Atlantic Boeing 787 between LHR and New York's JFK airport[15]. This comes a massive 15 years after the first ever SAF-carrying flight, coincidentally by the same airline, as detailed above.

SAF is absolutely not the only answer to the IATA Fly Net Zero resolution; Airbus is in the process of testing the potential for hydrogen fuel-powered aircraft by 2035 with their ZEROe demonstrator programme, and recently conducted their first flight on their EcoPulse demonstrator too. Governments globally could also improve rail networks so there could be less need (and thus demand) for short-haul regional flights. Though, as cited above, other fuel types and transport infrastructure alternatives supposedly only account for 13% and 3% of efforts towards Fly Net Zero, respectively.



Whatever progress is being made towards enabling the widespread employment of SAF, it is certainly moving at a slow pace.

Conclusion

In the end, airlines around the world must carefully consider how best to align with the aforementioned Fly Net Zero policy in a climate-conscious society. For many, including myself, the best option to achieve net-zero by 2050 does appear to be the commercialisation and increased deployment of SAF for as many commercial operators as possible, as this is projected to have the greatest decarbonisation potential while programmes such as AFF can help to reduce production costs to suppliers such as Shell. Yet this is simply not the easy way out, and certainly will not be the cheapest method either: SAF must be used in tandem with kerosene in the short-term so as not to compromise an airline's balance sheet with their desire to contribute to the net-zero target.

Perhaps international agreements can be made in order to create an acceptable usage per journey of SAF, whereby an airline flying to another country will agree to operate their flight with a minimum percentage level of SAF. The goal here is to incentivise airlines to meet these targets so as to maintain their flying links with the country, and therefore act as a lifeline for ensuring their presence in that market continues so they can persist with operating that route. Hopefully, over time, more programmes such as AFF are introduced and a more reasonable price for SAF is established as 2050 draws nearer and this alternative becomes a greater necessity to the industry than kerosene ever was.

Local Wars

The impact of local wars on a global scale

Written by Idhant Lodha Edited by Advaith Sethuraman

Often perceived as isolated conflicts confined to specific regions, local wars carry undeniable implications that extend beyond their geographical boundaries. While the immediate impact of regional conflict may appear localized, their consequences are experienced globally, influencing international stability, economic systems, and humanitarian conditions. With the increased level of globalisation in the world today, every minor conflict has a cascade of negative effects on the world – whether it be monetary, climatic or in trade.

Local wars often serve as catalysts for broader regional instability. When a conflict erupts in a specific country or area, it can create a domino effect, destabilising bordering nations and sometimes entire regions. For example, Sudan has 800 km of coastline on the Red Sea, and the arising catastrophic conflict that could kill millions is threatening the Suez Canal (the key artery in world trade). Any overflow of war outside of Sudan's borders will hurt bordering nations such as Egypt, Ethiopia and Chad – whether it be in an oil crisis (because of reduced level of supply from African OPEC nations) or a refugee crisis (with millions of migrants seeking ways to flee Sudan and move to other parts of Africa, or even the Middle East and Europe): developing further regional and continental disruption, as it could result in illegal immigration or wars overflowing through borders.

The repercussions of regional instability extend to global security. As conflicts spill over borders, they often attract the involvement of global powers either directly or through proxy engagements. This can lead to increased military tensions and arms races, as seen in the Cold War era, where local conflicts in Vietnam or Korea had significant global implications, as they resulted in extensive political tensions and caused economic turmoil to many global superpowers. Moreover, the rise of international terrorist networks often stems from local conflicts, which then pose security threats on a global scale.

Local wars can also severely disrupt local economies as they result in individuals losing jobs, famers losing harvests and governments having increased spending on defence, which reduces investment into infrastructure, but their impact often ripples outward, affecting global markets and trade networks. Conflict regions often experience the destruction of infrastructure, which impedes production and trade. This disruption can lead to shortages of essential goods and commodities, driving up prices globally.

For instance, the ongoing conflict in the Horn of Africa has impacted the region's agricultural output – with the UN declaring a full blown famine in the region (The Economist notes that this is only the third time this has happened in history), which in turn affects global food supply chains, contributing to price volatility on international markets. For example, in the North Darfur state, a sack of sugar has jumped from 92,000 Sudanese pounds (£120) to 100,000 Sudanese pounds (£130) and a gallon of gasoline is at 30,000 Sudanese pounds (£39) – prices have come from the 'Sudan War Monitor' website. Thus with the disruption to Sudan's economy, trade in Eastern Africa will be affected, especially with the growing threat of famine, which could spark recessions in many of Africa's developing economies.

Destroyed housing complex in the Republic of Artsakh due to bombardment from Azerbaijan in September-October 2020

Additionally, local conflicts can lead to a diversion of resources, as a result of governments being forced to heighten defence procedures and put economic, environmental and social projects on hold. Countries involved in or impacted by local wars may redirect their investments away from productive economic activities and instead focus them towards military expenditures and humanitarian aid. This shift not only hampers local economic development because the Sudanese civilians have less opportunity to trade freely but also affects global investment flows and economic stability. The global economic interdependence means that disruptions in one part of the world can have cascading effects on others.

Local wars frequently result in severe humanitarian crises, including mass displacement of people, human rights violations, and widespread suffering. The plight of refugees and internally displaced persons (IDPs) often prompts international humanitarian responses and interventions. In terms of Sudan, The Economist commented that the UN security council is split, with China uninterested in solving far-off wars, and noted that 60% of people in camps in Calais are Sudanese, the humanitarian response has been virtually non-existent.

The UAE (United Arab Emirates) is supplying bullets, ammunition and drones so the Rapid Support Forces (a militia group in Sudan). Iran and Egypt are arming the Sudanese Armed Forces, and Russia is playing a double agent while supplying both sides with Wagner mercenaries. Saudi Arabia, Qatar and Turkey are all competing for influence in terms of negotiating, and all of these countries have some ulterior motive – whether it be in terms of improving food security or looting oil and gold reserves. With all of these international players, the country has become a barbaric, murderous hotspot.

The USA's attention is focused on the more economically damaging conflicts in Ukraine and Gaza, and China is lowering their attention to Africa with diminishing returns from their FDI (foreign direct investment), and so the atrocities will still continue domestically in Sudan. With some global superpowers paying close attention and some turning a blind eye, the war in Sudan will continue till there are no more bullets to fire, or some sort of peace agreement is fulfilled. This highlights how the war will eventually affect most countries globally – in terms of trade, personnel, food security, access to oil or heightened threats of terrorism.

In conclusion, while local wars may start as regional conflicts, their impact is inevitably global. They can destabilize entire regions, disrupt global markets, create humanitarian crises, and necessitate international diplomatic efforts. The globalised nature of today's world means that the repercussions of local wars extend far beyond their origin – the consequences of the Ukraine-Russia conflict has been felt everyday by rising gas prices. Recognizing local wars as global problems is essential for devising comprehensive strategies to address their causes and consequences, fostering a more stable and cooperative international community.

Riches to Rags: Unravelling the Resource Curse

Written by Vedant Papneja Edited by Jack Ramsay

You are the leader of your average state, making those critical decisions that can make or break your country. Today, you have just discovered a sea of oil and gas underneath your land which is enough for a decade's worth of exports? – what will you do with it? This question has proved to be far more of a headache than the simplicity that meets the eye. Export those assets and convert them into riches? If only it were that easy.

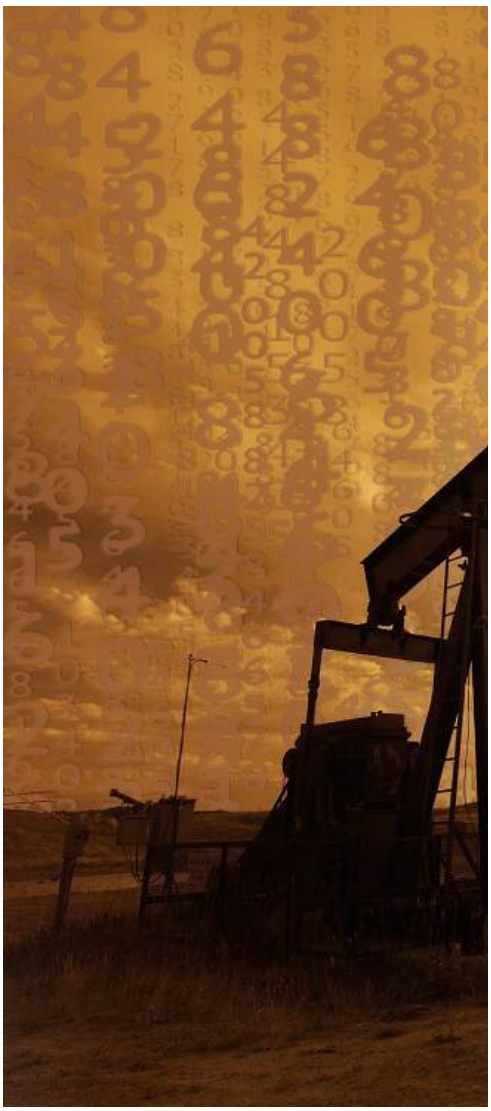
Many State leaders have come before you – and many will, undoubtedly – that have succumbed to such arcane situations, largely helped by their imprudence in building an economy that is overly reliant on exporting natural resources, so much so that they are gambling that on a turbulent market . Such heavy reliance on volatile markets has led to a crisis more than once.[1] This happens so often that economists have even got a name for this phenomenon: the Resource Curse.

Resources disappear in a blink of an eye. So does the money that comes with it. Angola has been one such country trapped in the economic turmoil that comes when 99.3% of a country's exports are solely the oil and diamond industry, with 50% of the overall GDP also coming from this revenue.[1,2,3] This has primarily been a byproduct of poor economic decisions in the late 1900s during the authoritarian Dos Santos regime, where widespread corruption as well as mismanagement of the oil and diamond reserves of the country led to significant revenues being swallowed up by the corrupt individuals in the regime.[5]

Furthermore, a civil war that lasted for almost three decades has been fought over the key natural resources of the State with rebel groups fighting for territory, consequently leading to economic and environmental devastation. As a result, despite the huge oil empire that Angola boasts, it is plagued by crippling poverty levels, with just under 1/3 of the population being below the national poverty line of just $2.15/day.[6] This is the biggest indicator of the absolute corruption that has overshadowed the nation for the past 50 years, reflecting on their dire state despite being the second largest producer of oil in all of Africa.

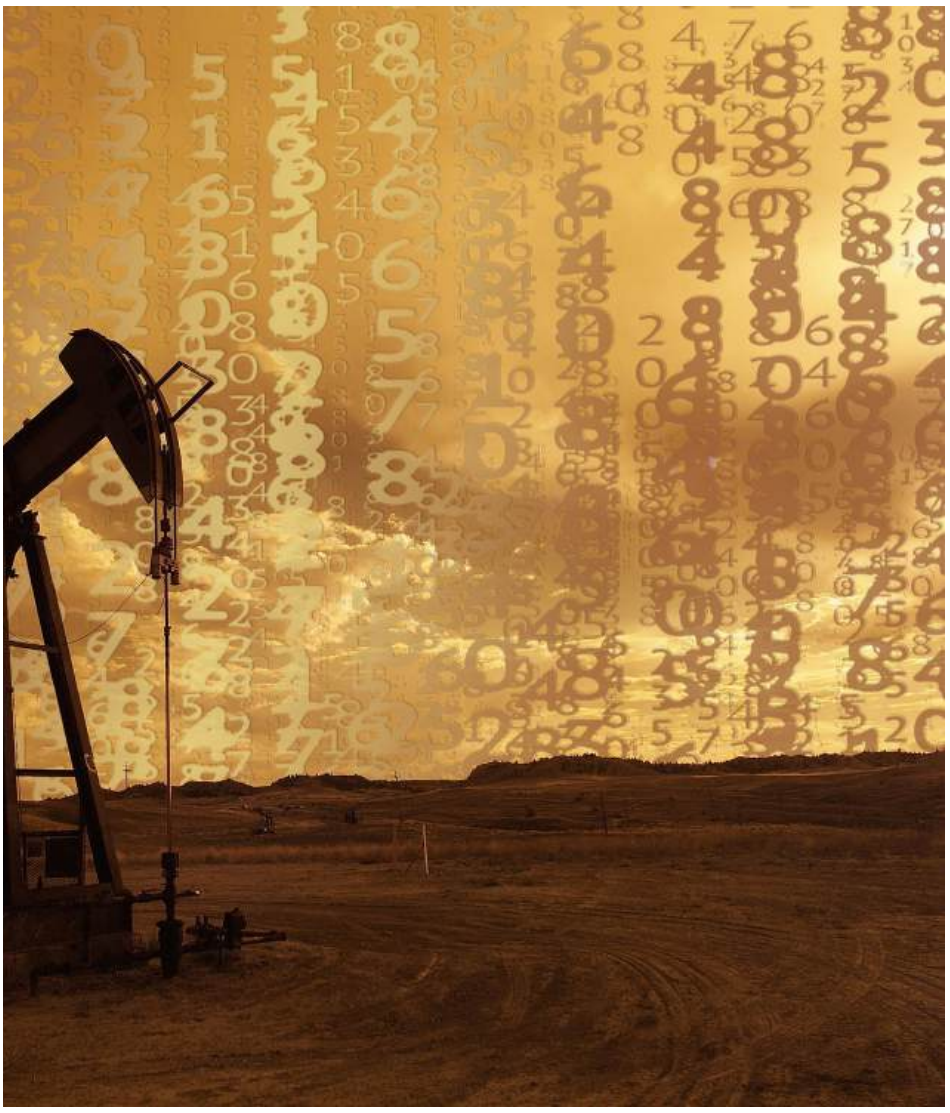
Comparing three resource driven economies of Venezuela, Libya and Iraq (let's call these "oil states ") with three resource poor countries of South Korea, Singapore and Malta, the oil states come out to an average of a mere ~$10,000 dollars GDP per capita in comparison to a huge ~$38,000 from the resource-poor countries.[7] However, economic woes are not the only by-product of the resource curse as it entails a series of social, environmental and political effects alongside it. Most countries affected by the curse have a distinct feature among them, one that cannot be a coincidence – an erosion of democracy. Oil states are either "authoritarian" regimes or "hybrid": where there is a simultaneous presence of both aspects of autocracy and democracy whereas our resource-poor States are entirely democratic. This key difference sheds light to what seems to be the turning point in whether a country is capable of escaping the resource curse for the more authoritarian a nation is, the more likely the governing body is to protect the resources for its personal interests, inhibiting the likelihood of it ever diversifying into a stable and secure economy.

Another factor that is prevalent in such countries is the probability of an (inter)national war or conflict being waged, aptly termed "petro-agression" - when Petro(rich in natural gas or petroleum)/oil states become confrontational with one another in order to protect their most prized possessions – natural resources.[1] Our big, friendly, oil giants are twice more likely to go to war than those who lack these resources.[8] Unsurprisingly, the revenue from the



resources is what tends to "fund" these conflicts despite being the resources that the country aims to protect and preserve. Infamous examples of some instances include Iraq's unsuccessful invasion of Kuwait in the nineties and Qaddafi's Libya who attacked Chad, Tanzania and Uganda over a series of 40 years.[8]

This amalgamation of weak governance, civil conflicts, corruption scandals and resource-driven patronage networks dig deep into the entrenched dirty politics are omniscient in the "cursed" countries. However, it would be wrong not to present those who have successfully evaded this inevitable curse through two simple decisions: diversification and



Resources disappear in a blink of an eye. So does the money that comes with it.

future planning. Norway has been one of the fortunate few to escape the dilemma, made possible through investments. The Sovereign Wealth Fund of Norway is, in practice, a piggy bank saving up for the rainy day by investing into financial and real assets globally. Whereas other oil-state's profits are gone with the wind, spent on their lavish lifestyle, Norway has successfully saved the profits: only 4% of the surplus (profit) funds are invested into public projects.[10] How does Norway escape temptation and play the long game? The social democracy, alongside the egalitarian policies implemented has placed an enormous amount faith in the system, something that is unattainable anywhere else in the world where power-hungry individuals corrupt the system. This gradual extraction rather than exploitation of the resource differentiates Norway from other oil-states as it accomplishes stability and a robust economy for the foreseeable future. Perhaps a good way to visualise Norway's unique strategy would be to look at the profits as water: while everyone else drains all the water within seconds, Norway keeps it to ration for the long term. Similarly, the UAE and Saudi Arabia are two oil-heavy states to have dwelled into the tourism industry through unique and gravity defying infrastructure, with the latter also investing over $6 billion dollars into sports as a mainstream source of revenue through their wealth fund.[9]

Yes, it's that simple. If you don't want to get cursed, just invest in Cristiano Ronaldo.

Greenbelts at a Crossroad

Navigating the Housing Crisis with Sustainable Solutions

Written by Savir Karandikar Edited by Ishan Dey and Yuzhe Oh

Greenbelts. They have long been bastions of the environment and a testimony to our ever-growing commitment to becoming a greener, cleaner planet. However, beneath the plethora of prospering countryside, lies an imminent issue: the housing crisis.

The concept of Greenbelts emerged as a solution to curb urban sprawl, designating expanses of undeveloped land to safeguard animal habitats and provide citizens with vital green spaces. Presently, 12.4% of the UK's land is designated as Greenbelt zones, reflecting an initial commitment to a sustainable balance between urban development and environmental preservation[1].

However, the ongoing housing crisis, marked by escalating property prices and heightened urban demand, has thrust these green havens into a state of urgency. Local communities and politicians are now compelled to explore alternative uses for these spaces, creating a debate fraught with controversy within Greenbelt regions.

The surge in land demand in the 21st century, coupled with Greenbelt regulations, has precipitated a significant supply-demand imbalance. This has resulted in soaring housing prices, rendering the dream of homeownership unattainable for many in the UK. The focus is shifting from environmental concerns to the future well-being of generations, amplifying the need for a nuanced approach.

The "Not in my backyard" (NIMBY) mindset further complicates the issue, with local residents expressing heightened protectionism over their Greenbelts, often used for recreation. This resistance is rooted in the fear that future developments may alter the character of their communities. This mindset has intensified the controversy due to a lack of understanding about the value of Greenbelts in people's lives.

Zoning restrictions such as those implemented in Ontario, Canada, by the politician Doug Ford regarding Ontario's Green Belts[2], have restricted housing construction, exacerbating the housing crisis. In the UK, laws prohibiting the construction of certain housing types, including apartments and affordable housing projects have been considered as a future possibility, limiting accessibility to broader housing opportunities.

In fact, the housing crisis in Greenbelt areas has the potential to deepen economic disparities. Affluent individuals, who can cope up to the rising price demand, are more likely to enjoy the benefits of well-planned communities and green spaces, leaving those unable to access these opportunities facing further social and economic challenges.

To address the housing controversy in Greenbelt areas, a balanced and sustainable approach is essential. This involves advocating for sustainable housing development within Greenbelt zones by encouraging eco-friendly construction practices, energy-efficient buildings, and green infrastructure.

Green roofs and walls are eco-friendly construction features that integrate vegetation into buildings, providing insulation, enhancing biodiversity, and reducing energy use. An excellent example is BedZED (Beddington Zero Energy Development) in the UK, which uses green roofs to improve thermal performance and support local wildlife. Internationally, Milan's Bosco Verticale towers host over 20,000 plants, improving air quality and combating urban heat. These practices are particularly valuable in greenbelt zones as they minimize environmental impact, blend developments with natural surroundings, and offer habitats for pollinators and other species, ensuring that construction aligns with ecological preservation goals.

Additionally, establishing robust affordable housing initiatives and incentivizing developers to incorporate affordable housing plans into sustainable development frameworks can increase accessibility to well-planned communities for individuals across economic backgrounds.

Recognizing the challenge of accessibility to Greenbelt areas, especially in densely populated urban centres, enhancing and expanding public transportation networks connecting Greenbelt areas with nearby urban areas can alleviate the need for excessive development within Greenbelts. This promotes transit-oriented growth while preserving the natural environment.

The Vauban District in Freiburg, Germany, exemplifies sustainable development by integrating affordable housing and robust public transport. This "car-free" neighborhood includes cooperative housing projects to ensure affordability while using eco-friendly designs and renewable energy. Connected seamlessly to Freiburg via trams, cycling paths, and pedestrian routes, it minimizes reliance on cars and promotes transit-oriented living. Vauban demonstrates how thoughtful planning can provide equitable, accessible housing while preserving nearby green spaces, offering a model for sustainable growth in Greenbelt-adjacent areas.

Adaptive zoning policies, tailored to allow low-density developments such as single-family homes or scattered development, offer a sustainable solution without succumbing to excessive urban sprawl. Through this, we can successfully prevent our countryside from transforming into the suburbs, but answer the rising tension of those seeking for homes. Collaboration with local communities is crucial for success.

The "up-not-away" mindset proposes multi-complex apartments as environmentally beneficial alternatives to detached or semi-detached houses,as they don't slowly recede the green spaces and instead choose to build "upwards". While potentially restrictive in space, this approach offers increased affordability and a stronger sense of community,with the capability to accommodate diversity and create a sense of home. This presents an effective solution to housing demands in the UK without compromising environmental sustainability.

Navigating the crossroads of the housing crisis in Greenbelt regions requires an innovative mindset and collective responsibility. Embracing sustainable development, committing to affordable housing, engaging communities, and maintaining flexible policies can ensure that Greenbelts remain symbols of hope for environmental conservation while providing housing for the growing UK population.

As we stand at this pivotal moment, the opportunity is ripe to redefine the narrative, bridging the gap between construction and conservation. Through a united commitment to sustainable development, affordable housing, community engagement, and adaptable policies, Greenbelts can continue to stand as beacons of hope for both environmental preservation and housing provision.

The time has come to traverse these crossroads, reaffirming the Greenbelt's commitment to Mother Nature and communities alike. Together, we can construct a sustainable future where thriving communities coexist harmoniously with nature, ensuring a landscape adorned with flourishing prairies for generations to come.

How biologists can save the world

Written by Rayyan Ali Edited by Kaivalya Pullakandam

As we grapple with unprecedented global challenges such as disease management, food scarcity, and climate change, the search for solutions has never been more prominent. With widespread hunger in more than sixty countries, extreme weather conditions becoming more frequent (with the recent Hurricane Helene in Florida), and the world nearing its tipping point, political efforts alone are insufficient. Now, more than ever, biologists are responsible for driving innovation, addressing these crises and steering humanity away from the brink of a disaster and towards a sustainable future.

Food security is the uninterrupted access to an affordable and sufficient amount of nutritious food and, whether obvious or not, biologists play a crucial role in ensuring this. Historically, farmers have been the main food providers, but biochemists and genetic engineers are now also key players in helping provide food. By utilising the efficient CRISPR-Cas9 technology, which allows scientists to selectively modify the DNA of a living organism[1], scientists are "researching ways to genetically modify crops [in order] to give them new properties."(Royal Society of Biology)[2]. This includes making them more resilient so that they can grow in harsh conditions and will be more beneficial to people who eat them". As a result, this allows for successful agriculture, especially for farmers in unfavourable climates who can now plant stronger crops with higher survival rates, but also for the consumers buying from the farmers, who receive food fortified with nutrients.

A successful example of this technology being put into place is the Golden Rice Project. Developed by Peter Beyer and Ingo Potrykus, golden rice is a technology that leverages the ability of rice plants to synthesise β-carotene. While this machinery is fully active in the leaves, parts of it are inactive in the grain"[3]. Scientists could reactivate this pathway by adding only two genes, leading to β-carotene accumulation in the grain. The increase in β-carotene gives the grain a 'golden' look, and when consumed, our body converts this pigment into Vitamin A.

This is crucial in Southeast Asia, where Vitamin A deficiency (VAD) affects millions, particularly children and pregnant women. VAD fosters blindness, stunted growth, infertility and respiratory problems. Although, by coincidence, rice is a staple food in that area, the natural grain itself lacks β-carotene. This gap presented golden rice with an opportunity in the market, and in 2021, it debuted in the Philippines, with the country being the first to grant regulatory approval for the commercial propagation of golden rice, resulting in increased public awareness of biotechnology and the importance of biofortification to address wide-scale malnutrition across a population.

What if we all had access to so-called 'super-foods', designed to be nutrient-dense and healthy for us? Should we eat them? GMOs (Genetically Modified Organisms) have been hampered by public concerns over GMO safety and environmental impact, which remain obstacles to widespread adoption. However, many people have been able to lead better, healthier lives and the problem of food security can be addressed much more effectively than before, with GMOs allowing consumers to gain the essential nutrients required for a healthy lifestyle. The positives GMOs can bring to undernourished and less affluent societies undeniably exceed the negatives (as well as catering for and supporting smaller farmers in many low-income countries), even after evaluating the ethics behind GMOs, and whether it is morally acceptable to 'edit' an organism.

Although CRISPR-Cas9 has revolutionised science with its limitless possibilities in the different ways we can alter an organism's genome, mRNA vaccine technology stands as another cutting-edge innovation that helped combat the global

Covid-19 pandemic. Though the concept was originally first explored in the 1990s, mRNA vaccines saw widespread use during the pandemic, notably from Pfizer and Moderna. The National Human Genome Research Institute explains that "by injecting cells with a synthetic mRNA that encodes a viral spike protein, an mRNA vaccine can direct human cells to make a viral spike protein"[4]. This will then subsequently trigger an immune response, despite the fact that the person has never been exposed to that viral material. This protein, present on the surface of SARS-CoV-2, does not cause infection or alter DNA.

By using an inactivated/weakened virus or viral proteins, a traditional vaccine, induces an immune response. Contrastingly, mRNA vaccines do not contain any viral material and solely instruct cells to create viral proteins instead. What's more exciting is that mRNA vaccines can be produced within days (in comparison to years taken by traditional methods), allowing them to be rapidly developed to target a particular virus. This innovation has shown remarkable efficacy, with clinical trials indicating around 95% effectiveness in preventing symptomatic Covid-19[5]. The success of mRNA vaccines during the pandemic marks only the beginning of their potential. Researchers are now exploring mRNA's applications for combating diseases like cancer and influenza, raising exciting prospects for personalised medicine tailored to individual genetic profiles. However, biologists must work alongside policymakers and ensure that advances are accessible to underserved populations, preventing widening disparities in healthcare. By advancing our understanding of molecular biology and immunology, biologists can contribute immensely to preparing for future threats and improving public health as a whole.

One of the most alarming modern challenges of the 21st century is climate change. But what role could biologists possibly play here? While it may seem that this global problem lies outside their ballpark, biologists can make powerful, and defining contributions through applications of biotechnology and synthetic biology. Methane, responsible for 30% of the rise in global temperatures and 80 times more harmful than CO_2[6], is a major player in climate change. Agriculture plays a huge role in this contribution, especially livestock, which accounts for 40% of methane emissions[7]. The solution is a red macroalgae called asparagopsis.Trials have shown that altering the diet of livestock by introducing feed-additives that inhibit methane-producing microbes, like asparagopsis, can reduce enteric methane production by up to 90% in beef feedlots and over 40% reductions in pulse-fed dairy cattle[8]. This is a significant improvement, but with billions of tonnes of CO_2 already polluting the atmosphere, there must be work done to reduce the already existing greenhouse gases immediately. One promising approach is the use of carbon-capturing microorganisms. Researchers are developing bacteria that are more effective at fixing CO_2 into organic compounds. Like plants, cyanobacteria undergo photosynthesis, converting CO_2 into oxygen, but by modifying their metabolic pathways, they become a "promising alternative for carbon sequestration"[9], especially if they become more enhanced in absorbing CO_2 from our atmosphere. Cyanobacteria can be deployed in oceanic habitats and even industrial areas to reduce atmospheric CO_2 levels. By leveraging synthetic biology, biologists could revolutionise the field when it comes to environmental science by providing natural yet effective solutions to reducing greenhouse gases in the environment. This approach contradicts the expensive, unsustainable and manufactured technologies governments tend to invest in.

While exciting projects like the de-extinction of mammoths and development of 'designer babies' exist, it is crucial to prioritise research addressing urgent global challenges. Amid escalating planetary troubles, biologists are emerging as key problem-solvers. But they are not just part of the answer - from engineering crops to combat malnutrition, revolutionising vaccine technology to respond to pandemics, and innovating solutions to mitigate climate change, it's clear: the long-term future of our planet lies with the ingenuity of biologists, transforming science into solutions.

London's Oldest

Written by Ishaan Dey Edited by Advaith Sethuraman

London's rail network is one of the oldest in the world and continues to be used heavily today. Within this vast network, there is the London Underground, the Overground, various national rail services and more. The oldest of these railways is the Surrey Iron Railway, which opened in 1802, and today part of the route – the bit between Wandle Park and Wimbledon – is used by the Trams. It's part of the interesting local history of the area around Wilson's school, and it is the usage of this railway over time that I will examine.

In what were once the villages of Croydon, Hackbridge and Merton, there was significant local industry. The gentle waters of the Wandle River heavily suited early Industry: factories and mills operated with waterwheels powered by the river, one of which was the Merton Abbey Mills, a silk manufacturing facility whose waterwheel can still be seen today at Merton. As the Industrial Revolution progressed, there was a need for better transportation infrastructure between these Industrial areas and London, so that the larger number of goods made could be transported to markets in London and elsewhere. Initially, a canal was proposed: canals were, at the turn of the 19th century, the most efficient way to transport large quantities of goods over long distances. But the canal from Croydon to the Thames at Wandsworth was rejected; it would reduce the flow of water which the mills and factories along the Wandle depended on, as the canal would require the diversion of water away from the Wandle River to the canal. Therefore, a more modern and radical option was chosen: a railway.

The Surrey Iron railway was, however, very different from the railways of today. In 1803, there were no steam engines which could reliably haul goods over a long distance on rails, and so the wagons were pulled by horses at the earlier part of the railway's history. This railway was not used by passengers, and only for the hauling of freight. For the time however, the railway was highly radical and revolutionary: It was nearly the first public railway. Only the Lake Lock railway in Yorkshire was older, having opened in 1798. A public railway was one which any paying user could use; railways owned and used by mines to transport ores were present earlier. The rails were made of cast iron, which were cheaper to maintain and more reliable than wooden rails used by most railways before. It was initially commercially very successful, made even more so with the building of the Croydon, Merstham and Godstone railway in 1805, which introduced trains carrying stone from the quarries at Merstham and the gravel pits at Purley. While the Merstham Quarries have long since closed, Purley continues to supply gravel and aggregates: The Day aggregates company continues to transport gravel from Purley on rail, albeit on a different rail line.

The Surrey Iron railway was, however, very different from the railways of today.

As the Industrial revolution progressed, the railway suffered and eventually closed in 1846. As steam engines developed and were used in greater numbers, the importance of the Wandle River in industry declined. Over time, the steam engine developed, and with it faster trains that could carry more goods than the horses and wagons of the Surrey Iron Railway. By 1846, the Brighton Mainline – the rail line that the Day aggregates company now dispatches trains carrying its cargo into – and the Southwestern Mainline were built, and much of the industries transported their goods through these more modern railways instead of the old Surrey Iron Railway. The oldest railway in the area therefore was abandoned, despite ultimately futile attempts to modernise it in 1845.

The railway was later reused as a rail link between Croydon and Wimbledon by the London and Brighton Railway. This rail line was underutilised, especially in comparison with the nearby Brighton and Southwest mainlines, which were, and still are, two of the busiest rail lines in Britain. Much of the Industry the line originally served continued to close: The Merton Abbey Mills closed in 1982, and the line saw a decline in passenger and freight traffic throughout the 20th century.

The line closed again in 1997, and the line no longer sees any trains on it. Trains towards Wimbledon departed from West Croydon from platform 2, and as no trains no longer departed from platform 2, the platform was abandoned, and to this day,

If you ever use the trams along this section, remember that your journey is one of many over 221 years

West Croydon's platforms are numbered 1, 3 and 4, with no platform 2 present. The section of track between West Croydon and Wimbledon was modernised and became a part of the new Tramlink network, which opened in 2000. Today, the section between Wandle Park and Wimbledon on the trams runs on the same alignment as the Surrey Iron Horse railway of 1803.

If you ever use the trams along this section, remember that your journey is one of many over 221 years, and I hope that learning a thing or two about the local area in which you go to school. Things that people have grown to think as normal parts of everyday living, such as trains on which I and maybe you commute every day, pens which we use to write and the music that we listen to all have interesting histories. By learning about their histories, we can learn to appreciate more the many things we perhaps take for granted.

« Merton Abbey Mill

Are Science and Religion on a Collision Course?

Written by Sanjay Rajesh Edited by Ishan Dey

The anthropocentric view of the universe has the Earth at the centre.

Imagine this scenario. A black hole, devoid of light or life. What do you think of when I say 'black hole'? A nothingness, that consumes things that near it whole. But do you ever think of its cause? What caused it to come into existence? Some scientists might say that black holes are caused by a massive star collapsing in on itself. But some might say that, within that darkness and within that lifeless thing, there is a being that caused it to come into existence, or in other words, God. This example shows the duality present in the world – two very contrasting ideologies for the same thing. For example, take the very vibrant end of a rainbow and take the very dull end of the same rainbow. In fact, almost everything has duality – Day and Night, Life and Death, Male and Female. But the question is – can dualities be merged into one entity without conflicting?

It depends.

It depends on which perspective you take. There are 10 types of people in the world: those who understand binary and those who don't. No, I'm just kidding. There are two major types of people in the world – those who look at the world as mere fauna and flora, and those who look at the world as a creation – the world itself as an entity; having a life. The creation of the world by an omnipotent God can be explained vice versa, as can the science be explained by God – science and religion are not two lines that intersect or travel in the opposite direction– instead, both are one line, which take the same path, and are in fact dependent on each other. Kenneth Miller, a professor of biology at Brown University said, "Creationists inevitably look for God in what science has not yet explained or in what they claim science cannot explain. Most scientists who are religious look for God in what science does understand and has explained." This quote invokes light into the black hole and completely takes the darkness out of it – in other words, it argues that black holes are created by God, and also science. This quote combines science and God in such a way that we can understand how God brought this into place using science – in this context, God brought black holes into place by making giant stars collapse in on themselves.

But what if science cannot merge with God? God is morally perfect; therefore, he must do what is best and the morally best actions. However, do you notice a contradiction here? God is perfect – he is more than perfect; but humans are quite the opposite. The idea of original sin in Christianity states that every human is born with the ability and tendency to commit sin. According to that, if humans are far from perfect, the mere existence of humans contradicts the idea that God exists, and that is the anthropic argument. It is the idea that the universe is particularly suited to aid and support human life. However, there are also disadvantages, as some people view the anthropic argument as a tad too simplistic. If humans were the focal point of the universe, why do other planets exist, where human life is impossible? Why are there other galaxies, such as the hilariously named Fried Egg Galaxy (or known as NGC 7742)? This view is thought to be anthropocentric, as scientists pre-Galileo thought to be. The anthropic argument states that why the universe is like now is because of us, humans. But this is because we have evolved to fit in. Imagine a puddle contemplating about the hole it exists in. The puddle thinks that the hole was made for it, because the hole is perfectly the puddle's size – but in reality, it is the other way round: the hole always existed, and it is the puddle's size instead that perfectly fits the hole's size. We humans are the puddle, and the universe is the hole.

These are two differing views on science and God, but it all depends on what you think.

Now let's move on from black holes and fried eggs to a more generalised theory. Suppose you were going to create a world from scratch. YOU. You need to create life, stars, the moon, the sun from completely nothing. And you decide to do it by colliding particles of nothing with nothing.

And voila, a few brushes of magic on an empty canvas, and there is a breathtaking artwork – you have created something out of nothing. But this is just a start. Like the parallel universe, where we live, you set random numbers for important things like gravity, mass of particles, etc. For gravity, you keep it to be... You can't decide. So, you go to a random number generator in the other universe and choose a random number – and it turns out to be 12. And similarly, you do this for other important aspects of life. And after you've finished, and voi-

Nothing. Absolutely no life, no nothing. You go back to the parallel universe and see what the numbers were for important aspects of life, like gravity. And you are presented with this thing, this hideous thing for the gravitational constant:

And now you understand. Each of these incredibly important things for there to be life is incredibly precise. In fact, there are about 30 numbers like this. And these are called physical constants. And you realise that without these physical constants being incredibly precise, there will be no life on earth or life will be significantly different to the norm. For example, if the mass of an electron were fractions of a milligram higher or lower, life might not exist – at least, the one we know and love(hopefully). One might say that due to this specificity of these numbers and how everything is intricately put together, everything is science and therefore there is no God. However, there must be one who put this into place and that is God. In fact, Max Planck, a German Nobel-Prize-winning physicist, said that "we must assume behind this force the existence of a conscious and intelligent mind."

Now, some of the very bright people out there might have caught me out and wondered how nothing and nothing can collide to make something. Particles of nothing do not exactly collide, but creating something out of nothing is possible. It truly is.

Back in 1951, a quantum physicist discovered that if that empty space has a strong enough electric field, something can be created out of nothing. This is indisputably an argument that anything in the world is possible. Science and religion are both equally well-known ways of understanding the universe. But at the end of the day, it does not depend on what is widely accepted, but what you accept. YOU are the creator of your own universe.

What does the US election mean for the world?

Written by Siddard Saktheesh, unbiased. Edited by Nathan Oluyemi

WARNING: written before the election

The biggest global implications of the US elections will be on the worldwide conflict front. With wars raging in Ukraine and the Middle East, the US, who have been the largest arms supplier for both Ukraine and Israel, has played and will continue to play a crucial role in them. Democrat candidate and current vice-president Kamala Harris has promised to 'get a ceasefire done'[1] in Gaza as soon as possible in an interview with CNN, following this up with a determined statement to Reuters: '[We must] dedicate ourselves to ending this war and bringing the hostages home'[2]. Meanwhile, Trump has responded to this in another CNN interview with the statement: 'There is no one more pro-Israel than I am' with dark implications of sponsoring Israel further with weapons and money and possibly leading to a firm defeat for Palestine which could mean many more lifes lost. Trump furthered his comments in the same interview by saying he would help Israel 'finish off the job'[3], affirming his view. It only gets worse with Trump as he has even earned the support of extremist Israelis such as Itamar Ben-Gvir. Insider Republican and Trump's longest serving chief-in-arms during his previous term, described Trump's Israel-Gaza policy 'fascist'[4], reinforcing growing concern about a Trump win for Palestine especially.

Interestingly, Trump seems to want to play peacekeeper in the Russo-Ukrainian conflict and promises to withdraw financial and weapons support for Ukraine till a peace deal is ensured. Yet this is subtly pro-Putin as Russia is in fact also refusing peace talks and the withdrawal of arms for Ukraine will no doubt weaken them to give Russia an advantage in the war. This could cause much of Europe to be threatened as Putin will be closer to other key states such as Poland. A leaked document in 2023 by the Atlantic Council highlights his plans to absorb Belarus into Russia and create a 'Novorossiya' (a new Russian Empire) There are significant concerns that Trump could cause a repeat of Afghanistan 2021 in Ukraine where his withdrawal of the US Armed Forces brought in severe oppression for the Afghan citizens in the form of the Taliban. On the other hand, Kamala Harris plans to continue a long-term arms supply to Ukraine and to stand up to Putin's expansive plans. NATO, especially, will be quite pleased with a Democrat victory as the USA contributes the most (16%) of NATO's funding and , unlike Trump, the Democrats plan to continue this funding in its entirety.

Global Warming is possibly the defining issue of the 21st Century. The US, being the second most powerful country and arguably the most influential on the issue of climate change, due to their high status economically and in world affairs, will definitely be key in finding and implementing solutions to the problem. Hence, the next president will play a crucial role in this matter also. The Biden-Harris administration has cut down on the usage and production of oil, rejoined the Paris Agreement, taxed polluting endeavours, and introduced the Inflation Reduction Agreement (IRA) which induced billions of dollars of tax credit for renewable energy and climate projects. The previous Trump administration rolled back on more than 100 laws set to combat climate change and withdrew from the Paris Agreement of 2015 and ominously for environmentalists, Trump has indicated he is prepared to do it again and much more including increasing oil consumption and rolling back parts of the IRA. It has become impossible to hide from anyone that climate change is a key issue especially in America with Hurricane Milton hitting Florida recently. Extreme weather becoming commonplace is one of many unwelcome and detrimental effects of climate change.

World trade is set to be derailed at different levels by both parties. This comes as the Republicans wish to exert what is nicknamed 'Trump Tariffs' a 10% tariff on imports from foreign countries but a 60% tariff on Chinese products in a policy that could send ripples along the trading world, especially as much of the world's products are made in China and this tariff could lead to price rises elsewhere . Kamala Harris disagrees with this and has previously said that she will continue Biden's 'targeted approach'[5] by taxing only markets where the US is behind (Reuters 2024) yet this will also have the same effect as the Trump Tariffs at a smaller scale.

Putin and Israel surely pray for a Trump victory as this may mean a swift end to their respective wars in their favour. China finds itself favouring the Democrats owing to less harsh trade restrictions and improving relations under the Biden reign. But what do we Brits want? Unless you're Nigel Farage, you are probably in line with the 80% of Brits who are pro-Harris this election, up 3% from the last election[6]. In popular British opinion, Trump has been seen as more of a joke in the past as shown by the 2018 Trump Baby Balloon but this time around a more serious opinion of Trump has been formed in the UK and in Europe. One that sees him as a threat to the security of NATO and of the West indicated by his withdrawal of NATO and Ukraine Funds. It is no surprise that Goetmoeller's words resonate soundly in the ears of European leaders.

Alas, the election is not in our hands, and with Trump and Harris currently fighting out a hard draw only time can tell what direction our world is headed.

Evaluating Keir Starmer's time in office so far

Written by Yehia Alsaedi Edited by Kaivalya Pullakandam and Sabeer Mian

Note: this article only covers the events up to, but not including, the Budget on the 30th of October 2024.

Following 14 years of eventful, tumultuous, and often controversial Conservative rule, spanning five Prime Ministers, the UK had seen its share of dramatic political events, including a contentious Scottish independence referendum, the Brexit chaos, a global pandemic, the first Prime Minister to ever face criminal charges, a 49-day premiership marred by a disastrous mini-budget, and numerous scandals. Therefore, as a solemn Rishi Sunak, his suit drenched by the pouring rain, called an election for the 4th of July, it appeared not to be a question of whether Labour would win, for pre-election polling had consistently predicted a double-digit lead over the Tories, but rather by how much. Some polls had even indicated that Labour could win a majority of as much as 318 votes.[1] Propelled by a message of 'change', Keir Starmer was set to become the seventh-ever Labour leader to inhabit the esteemed home of 10 Downing Street: promising to "return politics to public service", "stop the chaos", and "turn the page".[2] Starmer's promise of a fresh start, combined with an electorate weary of 14 years of Tory rule, was a message that appealed, so when the exit poll came in at 10 pm on the 4th of July, it was to the surprise of no one that Keir Starmer had won a decisive majority, with a projected seat count of 410 (which underestimated the reality by two seats).[3] The wait was over: the next day, Starmer met King Charles III, where he was invited to form a government, and delivered his maiden speech outside the same building, now his new home, where Rishi Sunak had sealed his fate 38 days prior with his ill-fated decision to call an election.

The new government immediately began to take shape, with the majority of those who had served in the Shadow Cabinet reprising their roles. However, the new Prime Minister had already caught the eye of many, earning plaudits across the political spectrum for the ostensibly shrewd appointments of businessman James Timpson, known for his support of rehabilitation, as Prisons Minister, as well as Sir Patrick Vallance, a household name during the Covid-19 pandemic, as Science Minister.[4] The first 'hundred days' of any government are seen as a honeymoon period, the term being coined by US President Franklin D. Roosevelt as he responded to the Great Depression in 1932. Labour's start to governance, however, has proved less romantic, with controversial, self-proclaimed 'tough decisions' that for many reminded them of the austerity enacted by David Cameron's Conservatives, social unrest fuelled by tragedy, and allegations of sleaze and scandal.

Labour had campaigned during the general election on 'fixing the foundations' of the economy, claiming that 14 years of Tory rule had left the average person worse off, public services decimated, and economic growth stagnant. A public spending audit commissioned after Labour took power found an alleged £22bn 'black hole' in the government finances.[5] The Chancellor, Rachel Reeves, saw this as evidence that 'tough decisions' would have to be made. Only a matter of weeks after coming to power, Labour MPs controversially voted to maintain the 'two-child benefit cap', preventing parents from claiming child tax credit or universal credit for more than two children, a policy that affects an estimated 1.6 million children every year. Despite party whips ordering to vote against the policy, seven Labour MPs rebelled and voted to end the cap, resulting in their subsequent suspension from the parliamentary party for the next six months.[6] Perhaps most controversially, on the 29th of July, Reeves announced she was scrapping winter fuel payments, worth

between £100 to £300, for an estimated 10 million pensioners in a move that drew indignation across the political spectrum. The move was forecast to save £1.3bn a year but resulted in overwhelming public outrage, with a petition to reverse the cuts drawing over half a million signatures.[7] Supporters of both the continuation of the two-child benefit limit and the cuts to winter fuel payments defended them as necessary choices to fill the £22bn 'black hole' and restore 'economic stability'. However, the fact that dissent regarding Labour's economic policy was in part from within their own party suggests a lack of unity, even so soon after being handed a colossal mandate.

On the 29th of July, in Southport, three young girls were tragically stabbed to death by a 17-year-old British citizen born in Cardiff to Rwandan parents. However, false speculation quickly spread on social media that the perpetrator was a Muslim asylum seeker, providing the catalyst for a series of far-right, anti-immigrant riots that took place across the country the following week. Mosques were threatened, shops were looted, and Islamaphobic hate crime incidents skyrocketed. Similar scenes of rioting had been seen two weeks earlier in Harehills, Leeds, where a dispute over four children of a Romani family being taken into social services had triggered local unrest, including the torching of a double-decker bus. The riots threatened to undermine the government's plans to reduce the prison backlog and led to the media spotlight shining on immigration, particularly illegal immigration, seen as a growing problem by many. Prime Minister Keir Starmer promised that the far-right rioters would feel the "full force of the law", claiming that they would "regret" taking part in the riots.[8] Indeed, many of the rioters were prosecuted, with 1,280 arrests and nearly 800 charges being made in relation to the unrest by the 1st of September.[9] Starmer's response was widely praised across the political spectrum, with the swiftness and severity of the charges being lauded, although some accused the government of a perceived 'two-tier' approach to policing- the idea that more 'left-wing' protestors were likely to be treated more leniently than those on the right.[10] Starmer came out with an enhanced image, with his seemingly 'tough approach' to law and order being linked to his former role heading the Crown Prosecution Service, though this was challenged by the decision to release some prisoners early to avoid jail overcrowding- a policy that 68% of Britons disapproved of.[11]

Part of the reason Labour got elected was a promise to end the 'sleaze' and 'corruption' that in the eyes of many, defined the Conservatives during their 14 years in power. Numerous scandals, including illegally proroguing Parliament, MPs watching pornography in the House of Commons, illegally hosting parties at Number 10 during lockdown restrictions, and betting on the date of the 2024 general election, had created contempt for the Tories among the public, so many found Labour's promise of "returning politics to public service" a refreshing one.[12] However, many have accused Labour of acting in the same manner they sought to distance themselves from with the emergence of the 'freebies scandal'. In September, it emerged that Keir Starmer had failed to declare several thousand pounds worth of clothes gifted to his wife, Victoria, by Labour donor Lord Waheed Alli, who had obtained a security pass to 10 Downing Street, despite having no official capacity in which he would need to enter.[13] It was subsequently reported that Keir Starmer had received over £100,000 worth of gifts since the 2019 general election, including box tickets to Arsenal games and Taylor Swift concerts, clothes, and accommodation, more than the next five most MPs in the same time frame combined. This earned him subsequent accusations of 'cronyism' and 'hypocrisy', even going as far as to lead to the resignation of one of his MPs from the Labour Party, Rosie Duffield, who accused Starmer of "nepotism and apparent avarice" which were "off the scale".[14] The Prime Minister was seen as being 'out of touch' with the general public, with the revelations of his generous gifts coinciding with the peak of public uproar over the removal of the winter fuel payment, impacting pensioners on as low as £13,000 a year.

Controversy over Labour has come from within too, with reports of infighting between Keir Starmer's chief of staff, Sue Gray, and other senior figures, including Morgan McSweeney (seen as the 'mastermind' behind Labour's election victory) causing a tense situation at Number 10, culminating in the resignation of Gray after just 93 days, with McSweeney succeeding her.[15] Gray was accused of not doing enough to prevent the 'freebies scandal' from causing a major upset, and with reports revealing she made more than the Prime Minister himself, her position became increasingly untenable. Internationally too, whilst Starmer has aligned himself, as did the Tories, with Ukraine and its president, Volodymyr Zelenskyy, he has shifted slightly from his predecessor, Rishi Sunak, regarding the Middle East, suspending approximately 30 of the 350 arms export licences to Israel relating to alleged war crimes being committed in Gaza.[16] Furthermore, Labour have caught the ire of Donald Trump in the United States, accusing the party of colluding with Kamala Harris's campaign for president in an illegal act of foreign interference. The accusation stems from a now-deleted LinkedIn advert that offered Labour staffers the opportunity to campaign for Harris in the United States in an individual capacity.[17]

Overall, Labour's start to governance has been an eventful one, full of often controversial policies but also one where there is no clear consensus. Labour's supporters argue that 'tough decisions' have to be made to get the country on the right track again, whilst their detractors say that Labour's start to governance has been tepid, divisive, and even conservative. With the Budget being announced on the 30th of October, in which Labour have promised not to raise taxes on "working people", and the election of a new leader of the Conservative Party (one of Robert Jenrick or Kemi Badenoch) on the 2nd of November, Labour's identity and the reaction to it will start to cement. Even so soon after a landslide election victory, dissent is already audible in the political sphere, and Labour will have to carefully navigate it to not suffer the fate of the last government.

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