



Waynflete Presentation Evening - Round One - 7.30pm

Sarah Akande: Cultural diversity in the English curriculum

In recent years, the construction of the English Literature curriculum has come under plenty of scrutiny for its Eurocentrism and favouring of texts by Western authors. In this thesis, I explore the benefits of a more multicultural curriculum on both ethnic minority and majority group students. I also consider the difficulties of defining multicultural literature and the drawbacks of literary censorship within schools.

Dom Harrington: Swarm intelligence and Deep Learning

Artificial neural networks (ANNs) replicate the way that people process and learn information, allowing computers to perform tasks such as recognising speech, identifying terrorists, playing chess at a Grandmaster standard, or controlling self-driving cars. I examine how ANNs work, and then explain how we can use swarm intelligence to tackle problems with their design.

Ben O'Brien: Impact of autism and alexithymia on cognitive processing and behaviour

Autism is perhaps the most infamous psychiatric disorder that affects the daily social communication of many people and has been the object of extensive research for decades. More recently, alexithymia has been revealed as a closely related condition with a high comorbidity with autism. Examination of key differences between the two conditions has highlighted unjustified overlap in diagnostic criteria which this paper will aim to evaluate in light of recent research.

Nihar Lohan: Is there a future for high-speed rail in North America?

Despite success stories in Europe and Asia, high-speed rail (HSR) continues to be subject to highly polarised debate across a range of geographies, as evidenced most recently by HS2 in the UK. In North America, HSR is yet to make any significant headway. In this paper, I evaluate investment in HSR as a deliberate alternative to air travel on the continent, specifically considering two potential corridors in Canada and California. Particular areas of focus are demand and ridership potential, wider economic impacts and environmental considerations.



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Advait Raja: Cardiovascular disease & cancer - a molecular relationship

Epidemiological studies have shown an increased risk of cancer in patients with heart disease and vice versa. In my project, I studied three immunological pathways that could explain this connection: inflammation, innate immune reprogramming, and metabolic remodelling. I then considered which pathway would be the most therapeutically suitable. Due to strong clinical data and the downstream position of its key mechanisms, I concluded that targeting inflammation would be the most effective way to counter the cross-disease communication between the conditions.

Jasmine Willans: A gender-divine God: reformation of language

The issue of the alienation of women in Christianity is becoming increasingly prominent and the male orientation of Christian liturgy can be considered as being partially to blame. Therefore, I will argue for a reformation of Christian God-language as opposed to other methods of inclusivity, such as the feminization of Jesus, for instance, in order to sustain both the female interest in Christianity and the religion itself whilst also preserving fundamental truths of Christianity

Bea Windsor: Exploring the symphony - a creative project

I have composed a symphony, aiming to develop my compositional skills as well as explore the symphony as a form. I experienced the difficulties composers have when composing extended works and found ways to overcome them through developing my own compositional process. Investigating the core features of a symphony I explored composers who contributed to its development, using this and further research to develop my understanding and inspire my composition.



Waynflete Presentation Evening - Round Two – 8.00pm

Georgie Betts: To what extent can CAR-T cells be used as an effective treatment for neuroblastoma?

Neuroblastoma is one of the most common solid tumours in children and many cases are difficult to treat, leading to low survival rates. Chimeric Antigen Receptor (CAR) T-cell therapy is a treatment in which the patient's immune system is modified to recognise specific markers on cancer cells to destroy them. In this project, I outline the current uses for CAR-T cell therapy for haematological cancers, the progress of neuroblastoma-directed CAR-T cell therapy so far and the challenges still left to overcome before this becomes an accessible and widely used treatment. Overall, CAR-T cell therapy provides hope to many high-risk neuroblastoma patients in the future and as trialling progresses, a larger variety of cancers may also benefit from this novel treatment.

Fin Brickman: YouTube's algorithms for recommended content

With around 2 billion users each month, YouTube is the world's largest video-sharing platform, and one of its key features is the recommendation algorithm that chooses which videos to recommend to users. With such a large audience it is vital to consider if this algorithm is effective, not only from a financial perspective, but also for political, social, and ethical reasons. We then consider potential solutions to those problems.

Harry Gant: White people performing black music

Cultural Appropriation is a subject which has come to light in recent years, with many celebrities being ridiculed for adopting elements of other cultures; however, this is an issue which is rarely discussed in music. In this project I consider different angles taken to define cultural appropriation, and study examples of it in a musical context to establish how musicians can avoid similar cases in the future.



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Sara Hamid: The UN and the Srebrenica massacre

The Srebrenica Massacre occurred during the Bosnian Conflict and was deemed one of the worst European massacres since the Second World War, with over 8,000 Muslim men and boys killed and more than 20,000 civilians subject to expulsion. I discuss why the United Nations was criticised for its flawed response to the crisis and consider the lessons the international community can learn to better inform present and future humanitarian interventions.

Samuel McDonald: Expansion of the British Empire in the 19th century

In the span of a little over 20 years the British Empire expanded at a rapid pace through Africa, despite the lack of clear rationale and the mounting costs. In my talk I will explore what best explains the gulf between the professed liberal idealism of the rulers of Britain during the late 19th century and the brutality of occupation and invasion enacted by those same leaders, especially of Gladstone himself.

Pip Moss: Deployment of the COVID-19 vaccine in England

Over the past 2 years Covid-19 has had a huge impact on our lives, and vaccines are a crucial tool in fighting this pandemic. In my project I discuss the varying methods which could be used for vaccine deployment based on several mathematical models used to predict the spread of COVID, as well as considering ethical issues with vaccine prioritization to conclude whether the NHS made the correct decision.

George Murray: Shakespeare's portrayals of Elizabethan politics

In an age where the image of the monarch was arguably as important as the way in which they ruled, it was only natural that the greatest playwright of the era would use that image in his plays. The connection between one of Shakespeare's greatest characters, Henry V, and Elizabeth I is of particular significance here and I will explore how it and wider Tudor politics are interpreted in the Henriad.



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Bea Arden: Witches in literature and attitudes to women

Throughout history witches have been used to describe old, isolated, rebellious women. In this project, I explore the symbolic significance of witches, using 17th century and contemporary literature to investigate how the figure of the witch can help us understand the female experience. I consider literature and theatre to be powerful tools which allow society to redefine its attitude towards women. In a stage environment the “witch” is no longer an abstract concept, but a real person.

Riley Aumônier: To what extent is it possible to construct a space elevator on Earth?

When the original concept was published in 1895, space elevators were an incredibly futuristic method of lifting payloads into space, based on a cable reaching straight up into the atmosphere. However, as stronger materials have been developed, such as graphene, this theory has come closer and closer to reality. This project investigates different designs and whether we may be able finally to construct a space elevator on Earth.

Oscar Beechey-Newman: Complement mutations and autoimmune disease

Although the complement system is one of the oldest parts of the immune response, with precursor systems found in invertebrates, most complement proteins have been isolated in the latter half of the 20th century and many molecular mechanisms remain elusive. Using state of the art computer modelling software, it is finally possible to predict how these proteins function and why they are so important in autoimmune disease and how people react to infections.

Jyotsni Bhattacharyya: Art Activism in the 21st Century

In the wake of recent events, the last year has seen an increase in art activism in the media. In my project, I explore the fundamental idea of art having the power to move people, and thereby power to create sustainable change in the modern landscape through the means of philosophers such as Plato and Theodor Adorno. Ultimately, extending this idea through the case study of artist Ai Weiwei.



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Roshan Hall: Exploring the origins of cave art

The origins of graphic depiction, a vital aspect of behavioural modernity, have long remained a mystery - especially given that the majority of early art is comprised of a set number of geometric patterns as opposed to figurative depictions. This project explores a neuroscientific theory for the existence of these patterns, and analyses and further develops it using modern scientific advancements in an attempt to explain the origins of cave art.

Joseph Small: Abiogenesis: how did life emerge?

Although the origin of life has been the subject of much scientific work for decades, little is known about abiogenesis (the process which resulted in the assembly of living cells from non-living matter). In this essay I compare four different theories of abiogenesis – replication-first, metabolism-first, compartmentalisation-first and everything-first. While there is certainly still work to be done, I conclude that the everything-first scenario is the most promising theory to date.

Raphael Thurston: The Chinese government's use of technology for control

The Chinese Communist Party attributes a significant amount of importance to the concept of 'social stability', and new technologies that have emerged in recent decades have been harnessed accordingly. I have explored how the Internet is subject to censorship, how domestic equivalents to Western companies thrive in China, the media environment, and the extent to which CCTV, AI and the social credit system are working as intended.