

# THE HARROVIAN

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## ORIENTAL SOCIETY

*Sharon Au, "The Asian media phenomenon and the celebrity effect" 16 March*

On 16 March, the Oriental Society was addressed by Singaporean influencer and former actress Sharon Au who gave a lecture titled: 'The Asian media phenomenon and the celebrity effect'. Having won many awards including Best Variety Show Host, Top 10 Most Popular Artists and Best Comedy Performer, Ms Au had so much to share from her 18 years of service in the entertainment industry. With bubbly spirits, she recalled her past as someone who could suit numerous roles, from singing as Kwa Geok Choo in Singapore's famous LKY musical to hosting the National Day Parade for nine years. Equally as impressive is her fluency in five languages (Japanese, Spanish, French, English and Chinese), which she cheerfully thanked her experience staying in three different countries (Japan, France and Singapore) for. Indeed, the Oriental Society was in for a great treat that day.

She began the lecture by talking about the celebrity phenomenon and the growing influence of celebrities. She gave an example of Barack Obama and how he used his "social currency" to garner the support of other celebrities to help him win the election. This was also seen in a recent example of Lady Gaga at Joe Biden's inauguration. Ms Au stressed that, regardless of the career we go into, to achieve success one must engage the sponsorship of others to push one's brand and service. She briefly mentioned the Meghan Markle saga, something very recent in the news, and cautioned us to be wary of dealing with the media and using our "power" wisely, as it can amplify unintended consequences and damage. This was also seen in Hong Kong politics where many actors have stood up for democracy while others have championed the security law.

"Never underestimate your voice: make it loud and make it clear." Ms Au also talked about being mindful of whom we represent and to be responsible in what we preach. Having managed celebrities and being one herself, authenticity was crucial in what Ms Au looked for in a professional. Time will always tell, and your fans/followers will eventually find out the truth. Her #1 rule was to never endorse something you do not support regardless of the amount of money offered. She learnt her lesson the hard way through a milk commercial for Daisy Milk, which occurred at the start of her acting career. Despite being allergic to milk, she took up the opportunity. Blushing, she described how she later found out she was required to drink the milk in a TV commercial instead of just posing, which inevitably led to her feeling nauseous and not being able to follow through with the product.

The second takeaway was to constantly upgrade yourself. To be able to speak with depth and confidence, one must always be learning and upgrading oneself. This was her primary motivation in quitting the entertainment industry to study abroad at Waseda University and complete her tertiary education. It came as a shock to find out she was one of the oldest in the university, but that did not stop her from taking multiple discovery classes to find her interests, citing law and business administration as memorable courses as well as learning Spanish and Japanese and her internship experience at Nissan. She attributed this

overseas experience to her ability to speak confidently and share responsibly on social media. "You cannot have any opinion if you have no opinion."

"You change one, you change all". Her final lesson for us was to never underestimate our influence. She reflected on how people often believe their opinions aren't valued as they are just ordinary people. But, from her perspective, you never know when being a listener, a good friend or lending a helping hand may go a long way and inspire others to carry on the good deed.

"The three Ds: Discipline, Duty and Diligence". Ms Au emphasised that discipline in the context of school, such as adhering to timetables, goals and deadlines, would set a good routine and foundation for adult life. Additionally, we have a duty to ourselves, our parents and everyone else who played a role in our life. Finally, she spoke about how there was no shortcut to success, and it is only achievable through perseverance and diligence.

Subsequently, Ms Au talked about the impacts of victory and failure, stating that a victory had never strengthened her as an individual and only made her arrogant. She turned the attention to her 'failures', regarding them as humbling moments which revealed her true areas for improvement.

She ended off the lecture with her famous quote from Charles Bukowski. "Can you remember who you were before the world told you who you should be?"

That concluded Ms Au's brilliant and captivating lecture. Her enthusiasm and confidence in speaking about her journey towards success left a deep impression on all members of the audience. We are extremely grateful for her words of wisdom and advice. Her inspiring story is one we can all learn from.

## BUTLER SOCIETY

*Mr M Ramprakash, "An interview with Chris Marshall, Sport and Performance Psychologist", 16 March*

The Butler Society had the privilege of welcoming Chris Marshall, a sport and performance psychologist to come and speak to the School. The talk took the form of a two-part question and answer session, with Mr Ramprakash conducting the first half and John Koutalides, *WestAcre*, and Johnny Connell, *Rendalls*, the second part.

After becoming extremely experienced in the field of psychology, following working with many of the world's best athletes including Anthony Joshua, and the England Cricket team, Mr Marshall spoke with extreme passion. Indeed, after studying sports science and other related subjects at A level and university, Mr Marshall mentioned how he almost fell into the job due to his own experience with mental health and anxiety. Training to become a swimming instructor, along with many other activities, almost burnt him out, thus making him all the more fascinated with psychology, something which seemed strange to him due to his opinionated personality and confusion during the time. However, choosing to follow this career, Mr Marshall soon realised that knowing he had had a positive impact

on someone was what made him truly happy. Replying to a question from Harrow's very own Mr Ramprakash, on his role in a sports place, Mr Marshall stated that he would typically arrive and observe a situation and monitor it before making a judgement, choosing to only sit down with the individual in question for a personal development session after. Building on this point, Mr Marshall mentioned how he was thankful for the drive and support for mental health and how this had definitely helped him and his job become more welcomed. Questioned on different sports and players, Mr Marshall was clear to make the point that it does differ between sports. For example, using England cricket and Wasps rugby as an example, he stated that in the cricketing world (particularly on his first tour to Sri Lanka with the team), sports psychology was a very normal aspect to the group but, in contrast, when he went to Wasps he was the first psychologist they had had in a while. However, before moving onto the second half of the talk, Mr Marshall was eager to make the point that football is often the most challenging sport to come into, as the fear of losing roles make staff extremely guarded, with him offering this 'different lens' or viewpoint.

The second half of the talk was carried out by Koutalides and Connell, and we saw them grill Mr Marshall with questions sent in by the audience. Asked about self-awareness, Mr Marshall stated that it can feel like the holy grail and so is a crucial aspect to every athlete's performance. Continuing, he was clear to demonstrate the importance of understanding the impact one has on the team and how only once you have mastered empathy, can you excel completely, with other key qualities including conscientiousness, intrinsic motivation and curiosity. Moving onto the topic of pressure, Mr Marshall outlined the difference between a challenge mindset and an attack mindset, and how fundamentally pressure is built on the idea of 'can your skills deal with the demands of the environment you are in?'

To end the highly informative and fascinating lecture, Mr Marshall proceeded to leave some words of advice for the Harrow boys. Building on his philosophy of looking after yourself first, he stated that it is important to understand that you need to know what to do to improve, while outlining the importance of spending time reflecting on the psychological aspect of your game, as well as the physical side. Lastly, while not being one for speculating, it was also interesting to note that Mr Marshall was adamant that Anthony Joshua is to going to be victorious in his highly anticipated and upcoming boxing match with Tyson Fury to become heavy weight champion of the world.

On behalf of the Butler Society, we would like to thank Mr Ramprakash, Koutalides and Connell for seamlessly gliding from one question to another (perhaps a future in sports journalism is not too far away for these three). A large thank you must also be extended to Chris Marshall for joining us online and sharing his wide knowledge regarding the psychological side to every athlete's performance.

## MEDICAL LECTURE COMPETITION

Round two of the Medical Lecture competition was held at the end of the Spring term. The first lecture was from Jarvis Lam, *The Park*, who spoke about stereotactic radiosurgery. This is a new kind of brain surgery using beams of light, and works by scrubbing away malignant cells. During the procedure, the surgeon uses multiple beams with low radiation, which, in compilation, increase the total radiation level on a single spot. Many beams are used for the optimal combination of beams to produce the greatest effect. The forces of the beams shear the DNA of the cell and also damage the surroundings of the

DNA, producing free radicals which further damage the cells around it, which are also cancerous. This increases the mass of a tumour that can be cured by this procedure. This procedure is reserved for smaller tumours and has the same survival rates as traditional methods, with 88.9% survival rate after a year. It is also nearly pain-free and has little to no recovery time and can be used on tumours of the lungs, liver and pancreas.

Next up was Jeran Jeyanthan, *Bradlys*, on steroids and how they are used in medicine. These steroids suppress the immune system and can reduce inflammation in the body. This treats chronic inflammation which damages healthy cells and can be caused by autoimmune diseases or environmental factors. Steroids can be taken by ingestion, injections, nasal sprays, inhalers or through the skin as gels and creams. Side effects of oral steroids include high blood pressure, weight gain and fluid retention (resulting in swelling feet). It can also cause bruises to take longer to heal, and inhaled steroids can lead to infections in the throat. Anabolic steroids are derived from testosterone and are not commonly used to treat conditions but they can be used to treat delayed puberty. They can also be used to increase muscle mass and reduce fat and are therefore banned by many sporting organisations.

Then Luke Simpson, *Druries*, talked about Haemophilia, an inherited bleeding disorder where the blood does not clot properly; the amount of lack of clotting factors determines the severity of the haemophilia, which affects around 400,000 people today. It is caused by a change in one of the genes, which controls the production of clotting factors. A female will generally suffer less severe effects from this disease. It can be treated by infusing clotting factors into the blood, which can be done by the person themselves. However, if used too often, the person can develop antibodies against these injections, rendering them useless. Queen Victoria had this condition and so did three of her nine children, one of whom died from it.

Hugo Bishop, *Bradlys*, talked about forensic criminal psychiatry. He opened with how general psychiatrists are specialised medical doctors, in contrast to psychologists who do not have a medical licence, so psychiatrists can prescribe treatment while psychologists cannot. They deal with severe mental issues. One branch of psychiatrists assesses and treats offenders in prisons, secure hospitals and the community. Psychiatrists are often involved in the law due to the fact that some mental conditions affect the trial, such as when the patient being diagnosed with insanity.

James Pang, *Druries*, spoke on neoantigen mRNA vaccines. He gave a brief background on what cancer is. Neoantigens are antigens which are capable of distinguish between cancer cells and healthy cells. There are two types of antigens: public neoantigens, which target repeatedly occurring markers on cancer cells, and patient-specific neoantigens, which target specific mutations in the cell wall specific to the patient. To develop neoantigens, doctors take a biopsy of the cancer cells and use sequencing to determine exact mutations in the cells. They then decide how the vaccine will target the cell; mRNA vaccines are thus better than normal vaccines.

Finally, Graham Lambert, *Lyon's*, spoke about Tension Pneumothoraxes. This is when air leaks in the space between the lung and chest wall, causing the lung to collapse due to a one-way valve causing pressure to build up inside the chest cavity. This can be recognised using hyperresonance, where one side of the chest will sound like a drum if tapped, and the other side will be dull due to organs pushed to the non-affected side. He then described what an X-ray looked like with pneumothorax and without. Symptoms of pneumothorax can be chest pain, shortness of breath, increased heart rate and rapid breathing. Treatments can be needle-decompression into the second intercostal space and by adding a chest tube into the pleural space until the wounds are healed.

The winners of the competition were Pang and Lambert, and joint second place went to Wilson and Lam.

## SENIOR GEOGRAPHY SOCIETY

*Freddie Taylor, Newlands, "The most secretive places on Earth", 25 February*

On Thursday afternoon Freddie Taylor, *Newlands*, gave an informative lecture titled 'The most secretive places on Earth'. Taylor discussed the five different places that he believed to be amongst the most confidential on Earth. The talk encompassed the location as well as the origin and purpose of these clandestine places, which led to some interesting questions from the audience.

Taylor began by introducing his first place – Area 51. He stated that Area 51 is the common name for a highly classified United States Air Force facility located within the Nevada test and training range. The purpose of Area 51 is unclear, but speculation has led to the belief that it was set up in 1955 by the CIA as a development site for new reconnaissance aircrafts (Lockheed U-2). The facility is extremely secure, with the perimeter of the base marked with posts, which are patrolled by guards in white pickup trucks and camouflage combat uniform. Along with guards, the perimeter is packed with surveillance cameras and motion detectors. Due to the base's secrecy it has been subject to many conspiracy theories, the most well known being its apparent involvement with unidentified flying objects (UFOs).

The second place that Taylor discussed was RAF Menwith Hill, the Royal Air Force station located near Harrogate in North Yorkshire. Its original purpose is believed to have been to monitor the Soviet Union's Cold War communications from 1954. In that year, the British War Office purchased 246 acres of land at Nessfield Farm. The site contains an extensive satellite ground station and acts as a communications interception and missile warning station. It has been described as the largest electronic monitoring station in the world with its global network of electronic spy stations that can monitor telephones, computers and even bank accounts all over the world. However, nobody really knows what goes on in the base today.

Taylor then talked about the third secret place – Svalbard Global Seed Vault. This is a secure seed bank, built to stand the test of time and the challenge of natural and man-made disasters. It is situated on the Norwegian island of Spitsbergen, in the remote Arctic Svalbard archipelago, 1,300km from the North Pole. It is built 120m inside a sandstone mountain. The location was chosen for many reasons in addition to its evident remoteness. The island it lies inside does not fall on any tectonic plate boundaries, which decreases the chance of it being impacted by a natural disaster such as an earthquake. Moreover, it is surrounded by layers of permafrost, which ensures that the seeds will survive in case of power cuts due to the cold temperature. People also speculate that the bank is not what it seems, as some question whether other undisclosed objects are stored there as well as the seeds.

The fourth place that Freddie introduced to the audience was the Vatican Secret Archives located under the Vatican City. It is known as the 'most private library in the world'. In general, not much is known about the Archives, although the current Pope has allowed some items to be viewed, for example, in 2020, the material relating to Pope Pius XII was revealed. Apart from this exception no other materials have been revealed from the archive and probably will remain secret for the foreseeable future.

The last place uncovered by Freddie was the Coca Cola Recipe Vault, regarded as one of the most heavily guarded secrets in the world. The Coca Cola Vault holds the recipe for Coca Cola and is located in the World of Coca Cola in Atlanta. According to the company, only two employees are privy to the complete formula at any time and they are not permitted to travel together. When one dies, the other must choose a successor within the company and impart the secret to that person. The recipe has been kept secret for over 125 years, with extensive security around the vault itself. However, this has not stopped

people from attempting to steal it, such as when a thief ended up accidentally selling the recipe to an undercover FBI agent.

Taylor concluded the talk by answering a range of questions from the audience, such as which place he would most like to visit. Taylor would like to travel to the Svalbard Global Seed Vault to see the value of global seed security for himself.

## SLAVONIC SOCIETY

*Blesk Ekpenyong, Druries, and Mr Ekpenyong, "Black Skin in the Red Land: Does Modern Day Russia Need a Black Lives Matter Movement?"*

Back in February, the Slavonic Society was delighted to host Blesk Ekpenyong, *Druries*, and his father to deliver a talk entitled 'Black Skin in the Red Land: Does Modern Day Russia Need a Black Lives Matter Movement?'.

Ekpenyong began the talk by showing an emotive video that depicted scenes from past demonstrations that was accompanied by the iconic and symbolic song 'War' by Bob Marley. Ekpenyong explained what the Black Lives Matter movement is: a movement against the racial injustices suffered by black people across the world, which gained particular notoriety after the killing of George Floyd by a white police officer in May 2020. Although the movement is most prominent in the United States, it has appeared across the globe. Its emergence is seen by many to be a tipping point in resolving institutional racism with support from people of all backgrounds.

In the United States, institutional racism can be traced as far back as 1619, when the first African slaves were transported to the Thirteen Colonies. Despite slavery becoming criminalised with the passage of the 13th amendment in 1865, racism lasted through segregation, which was brutally enforced until 1964. Since then, many African Americans have experienced despicable and often violent racism, some of which has been carried out by the very organisations that are supposed to protect them. It was here that Ekpenyong showed the audience first the faces and then the names of the victims of police brutality and racism between 1999 and 2020, many of whom were merely going about their normal daily lives when they were murdered. However, a number of attempts have been made throughout the US's history to rectify this systemic problem; from the 1830s to the 1860s America saw the rise of the abolitionist movement that sought to end slavery, then came the civil rights movement of the 1950s and 1960s, and now America is gripped by the BLM movement that seeks to end institutional racism permanently. For a country that proclaims itself "the leader of the free world", America's track record of dealing with racism is not only ironic but embarrassing.

Ekpenyong then informed the audience of the four major periods in Russia's history of black people: Imperial Russia, Pre- and Post-Revolutionary Russia, Soviet Era black people and Post-Soviet Era black people.

The history of black people in Russia can be traced as far back as 1625 when the Moors, an Islamic people from Africa and the Maghreb, worked in the royal court. Their costume was known as the most sumptuous in all the court with its intricate gold embroidery. In fact, 24 Moors were said to have worked in the court of Catherine the Great until the number was reduced due to budget cuts. The first known black Russian citizen was the remarkable Ibrahim Petrovich Hannibal (1696-1781) the great-grandfather of Alexander Pushkin. Hannibal is said to have been taken as a slave by the Ottoman Empire and given to Count Sava Vladislavich-Raguzinsky, the Russian ambassador to the Ottoman Empire, who then gave Hannibal as a gift to Peter the Great. Peter the Great sent Hannibal to become an engineer, from where he gained the international fame that

led Voltaire to call him the “dark star of the enlightenment”.

Following the establishment of the Soviet Union, many more black people began to emigrate from the United States to the Soviet Union where they were offered employment and opportunities that were not readily available to them in their home country, where they suffered barbaric racism. The Soviet Union hosted black sportsmen who could not compete in the US and so came to Europe instead. Most famous among them was the black jockey Jimmy Winkfield (also known as the Maestro), who achieved a slew of riding successes in the USSR. Robert Robinson, a toolmaker who fled the United States out of fear of being lynched, was another black American who benefited from the USSR’s hospitable and non-racist environment. In 1923, Robinson emigrated to the USSR on a work programme where he was given a job at a tractor factory in Leningrad. Ironically, the only racism he ever experienced was from white American officers who were swiftly expelled from the country.

By the late 20th century, as European powers began to withdraw from their colonies in Africa, the Soviet Union pushed its internationalist, anti-colonialism agenda to students of various African nations and encouraged them to receive tertiary education at universities in the Soviet Union. One of those students who partook in this scheme was Mr Ekpenyong who, as a young boy, read an American leaflet about the Soviet Union that portrayed it as a nightmarish land where the citizens owned nothing, including their children, who at birth were taken by the state and their life planned for them. Unlike most children, who would ordinarily have been too frightened to see this land, Mr Ekpenyong felt unusually compelled to see this place they described. So, from 1986 to 1994, he went to study in Russia, though now armed with more knowledge and attracted by the Soviet Union’s physics and space expertise. Although he admitted his story is unique and does not, of course, reflect the experiences of all black people who have lived in Russia, he believed that his experience was somewhat typical.

When he arrived in 1986, he enjoyed far more privileges than the ordinary Soviet citizen: unlike Soviet citizens he was free to travel the country or to go abroad. However, a great social change was underway, and the USSR was in a period known as Perestroika or Restructuring. He was first sent to Tver (which was then known as Kalinin), where he in essence had to learn the equivalent of Russian A levels, which included the sciences, maths, Russian and history, in just one year. Attributing his success to the exorbitant levels of homework, Mr Ekpenyong then began his university studies, where the lectures were conducted solely in Russian. This shocked many of the Russian students who could not believe that Mr Ekpenyong could speak Russian so fluently. Nonetheless, the students were hospitable and, in the first five years in Russia, he experienced no racism whatsoever and found that the leaflet he had read as a child had no basis in truth. He recalled one incident where, in a drunken display of poor behaviour, a man had made some comments at Mr Ekpenyong’s expense only to be disciplined by a nearby Soviet-style babushka who hit him on the head and ordered him not to be disrespectful.

Then came the 1990s and, after the Soviet Union collapsed, there was palpable change in attitudes. Economic hardship befell many Russian citizens and they became wary of newcomers who, in their mind, could worsen the situation. This coincided with a noticeable increase in the number of black people in Russia, which only made the already on-edge population even more so. The situation was still very good and there were few cases of racism and no black people died at the hands of the police. In the final years of his time in Russia, however, Mr Ekpenyong believed that the majority of the racist incidents in fact came from immigrants from the central Asian republics. He put this down to two factors; firstly, that they were not used to seeing black people and so they often came off as awkward and not strictly racist. Secondly, he believed the Russians and Muscovites were not welcoming towards these new immigrants

from Central Asia, which in turn encouraged them to find another group to target.

Ekpenyong then proceeded to delineate how, since the 1990s, Russia has seen an increase in the number of people with darker skin (either from mixed heritage backgrounds or those who have emigrated from Africa or the Caribbean). This increase has been followed by the emergence of racist organisations such as skinheads and, in 2006, it was found that half of the world’s skinheads lived in Russia. Economic changes, insecurity and government complicity are all to blame for this concerning rise, Ekpenyong explained. Despite this, Russia is still a safe place for people of colour and, while the situation may have worsened since the collapse of the Soviet Union, it is not comparable to the United States. Therefore, Ekpenyong concluded that if Russia were to have a BLM movement it would need to be rebranded to prevent Russians from merely seeing it as a Western idea that has no relevance in Russia. On Ekpenyong’s final slide was a poignant quotation by Martin Niemöller, an early Nazi sympathiser who was later jailed for opposing the Nazis, urging action over silence.

Many thanks go to KAF for organising the event, to Mr Ekpenyong for his unique insight into this topic and to Blesk Ekpenyong for delivering such a fascinating and truly educational talk that broke quite a few common stereotypes.

## SCIENTIFIC SOCIETY

*Henry Webster, Druries, “The Chemistry of Colour”*

The Scientific Society was very fortunate to welcome Henry Webster, *Druries*, to give a talk on ‘The Chemistry of Colour’. It proved to be a fascinating talk with extremely advanced chemistry presented by Webster.

Webster started by stating that the energy of electrons is quantized, meaning that it is confined to a small set of energy levels. Furthermore, according to Heisenberg’s Uncertainty Principle, we can’t specify exactly where an electron is. Instead, we can only give a probability cloud in which the electron can be found at any one time. In quantum mechanics, a particle has its own wavefunction, which specifies all the properties of the particle. These properties include the energy and the probability of finding it at a certain position. The probability density is represented by the wavefunction squared, and the wavefunction is specific to the particle described. To determine the wave function, the famous Schrödinger equation has to be solved, and the solutions to the equation are called atomic orbitals. Atomic orbitals are regions in which an electron can be found, with each orbital holding up to two electrons, and are characterised by quantum numbers. Quantum numbers take the form of integers or half integers. Electrons aren’t just restricted to their imaginary cloud: they can absorb energy and move into a higher energy orbital, and move back down to its original position whilst emitting a photon.

To understand colour better, bonding must also be discussed. When elements combine, the orbitals which make up the atoms of the element combine to form molecular orbitals. Thinking of electrons as waves, the two waves can combine in phase with each other, causing constructive interference. Alternatively, they can combine out of phase with each other, causing destructive interference. If they combine constructively, they are said to form a bonding molecular orbital, and if they combine destructively, they form anti-bonding molecular orbitals. When orbitals combine, they form equal numbers of anti-bonding and bonding molecular orbitals with the bonding molecular orbitals being more stable as they’re in a lower energy state than the anti-bonding orbitals. The ways in which the orbitals combine form different bonds. For example, when two orbitals combine head on, they form sigma bonds, but if the orbitals overlap in

parallel, pi bonds are formed, which are responsible for forming double and triple bonds.

The structure of coloured compounds often contain a pattern of double and single bonds. This is known as conjugation, which is responsible for the colour of many organics compounds such as beta carotene, which makes carrots orange. The electrons which occupy the pi bonds can move around the molecule, which is known as resonance. If the pi electrons move from a double bond to a single bond, then the conjugation of the molecule will shift. The structures which a conjugated molecule can take are resonance structures. Light is also important to understand when describing colour because in contradiction to past theories, it is neither a wave nor a particle. However, quantum theory suggests that light is made up of packets of quanta which each have energy  $E$  which is proportional to its frequency by the famous equation  $E = hf$ , where  $h$  is Planck's constant. Due to this proportionality, if an electron, after having absorbed some energy, moves to a higher energy orbital and then moves back down again, emitting some energy, then this energy will have some frequency which could lie in range of the visible spectrum, hence having colour.

When you shine light on a molecule, the molecule absorbs that light, the electrons have extra energy and will move between orbitals. The orbital from which the electron will move is the HOMO (the highest unoccupied molecular orbital) and the orbital to which the electron moves is the LUMO. This happens in molecules between the bonding MO to the anti-bonding MO. This energy level difference is often referred to as the band gap. After being excited, the electron quickly returns to a lower available energy level, releasing energy to the surroundings. Since the energy of the electron is proportional to the frequency, the light that is emitted has a certain frequency which may or may not be in the visible spectrum.

The conjugated part of the molecule is the region of the structure which causes it colour. The more conjugation we see in a molecule, the longer the wavelength the molecule absorbs also increases. This is shown by the molecules and their respective absorption frequencies on the right – we see that the frequency increases as the number of alternate single and double bonds increases. Conjugation causes the band gap to be reduced and since  $E = hf$  if we decrease the energy gap, then this increases the wavelength of the molecule absorbed. As a result, if we have longer conjugated molecules, like beta carotene, they will absorb longer wavelengths of light, some of which reach the visible spectrum.

Beta carotene has a peak absorption at around 450nm which is in the violet/indigo region. Hence most of the light is not absorbed, which raises the question “shouldn't the colour of the beta carotene be a mix of all the colours left over?” Colour theory states that the colour that is observed by the molecule is the complimentary colour of the light absorbed. Referring back to the beta carotene example, since it absorbs wavelengths in the violet region, it appears a yellow-orange colour. Another category of coloured compounds is the transition metal compounds which can form colourful complexes. The reason behind this is much explained by crystal field theory. When transition elements combine with a ligand (molecule or ion), they become attracted to the central metal atom to form a complex. This causes a repulsion from the ligand and the electrons in the d-orbitals of the transition metal ion. As a result, the electrons in the d-orbital of the transition metal atom split into higher and lower energy orbitals. The electrons located in the d orbital of the “x squared – y squared plane” are in the same plane as the ligand, hence experience more repulsion (the electron and anion repel). This energy difference is represented by  $\Delta O$ . If  $\Delta O$  is small then little energy is required to occupy higher energy orbitals and so they will absorb higher energy waves, which have a smaller wavelength. If this wavelength is within the visible range, then the complex will produce a colour.

A substance is black if the band gap is less than the lowest energy of visible light. A recent discovery found that the blackest material on earth was vanta black, made out of nanotubes, which have a band gap of 0.8. In addition, a substance is white if the electrons in the molecule occupy a variety of different energy levels and hence absorb a variety of wavelengths, the photons of different frequencies which are emitted merge in the eye, causing the substance to appear white.

All in all, it was a fascinating an insightful talk by Webster, who managed to eloquently explain what is essentially university-level chemistry, allowing the audience to better understand the fundamental nature of colour.

## SCIENCE SOCIETY

*Dr Glenn Hurst, “Empowering the next generation to propel us towards a greener and more sustainable society”, 11 March*

Merely five days after ‘all’ boys returned to the Hill at the beginning of the end of the third lockdown, the Science Society was blessed with a lecture from Dr Glenn Hurst, Associate Professor of Chemistry at the University of York, on the topic of ‘Empowering the next generation to propel us towards a greener and more sustainable society’ on Microsoft Teams on a fairly idyllic Thursday afternoon. The Secretaries, alongside CDB and CMC, were following regulations in Physics Schools 8, preparing for the talk and moderating questions and such. Before the lecture even began, disaster struck; due to technical issues, as attendees of the talk would have noticed, the talk began later than anticipated but that was all solved by some combined experience and technical knowledge.

Firstly, Dr Hurst introduced himself and his research, primarily in the Green Chemistry Centre of Excellence in the University of York, and “systems thinking” – a more holistic and integrated method of thinking which scientists, engineers, and policymakers should adopt to solve real-world problems. These problems include, as Dr Hurst emphasises, the Sustainable Development Goals (hereafter referred to as the SDGs), which are 17 goals set for the groups of people listed above and required to maintain sustainability in all aspects of life, be it energy, food or climate.

Dr Hurst then further explained what “systems thinking” entailed: using cognitive frameworks, strategies and tools to visualise interconnections, examine how systems may change over time and see how system-level phenomena react to system parts interacting. This method of thinking leads to an integrated and lateral understanding of concepts in systems, rather than a fragmented and reductionist understanding. From two documents, one from Mahaffy et.al. and another from Orgill et.al., Dr Hurst argued that green chemistry is lateral and integrated and can predict and support systems and, hence, society. The York-based professor then presented a pair of images, one of a utopian, very green and brilliant London and one of a dystopian, very grey and sad London, postulating that humanity's current trajectory is towards the latter and not the former, which, we hope, everyone wishes we can achieve (unless, that is, you would like to live in a city with no sunlight to see and only smog to breathe – if you'd like that, you may be better off walking around London during a peak-hour to live out that fantasy).

Dr Hurst also commented on that fact that these were merely predictions and displayed a quote from Niels Bohr (Nobel Prize laureate in Physics, 1922) about the difficulty of prediction in the future. As a conclusion to his first half of the talk, Dr Hurst stated that we, as scientists, engineers and policymakers, must design our unsustainability out of existence and bring in a new wave of sustainable living. The idea of the “status quo”, which was brought up, was described to be self-maintaining and, in

order to disrupt the unsustainable lives we currently live, the status quo must be proverbially defenestrated and innovation must take its place.

Within the scientific realm, greats such as Lord Kelvin (of temperature fame), Mendeleev (of periodic table fame) and Einstein (well, he's Einstein) were all stubbornly against certain discoveries due to their maintaining the status quo and, as Newton stated, "If I see the horizon, it is by standing on the shoulders of giants", meaning that, as the next generation progresses, we must adopt new levels of understanding to see above the horizon, as the giants below us could not.

Deeper into the chemistry, beginning with antibiotics, Dr Hurst described the treatment of a stomach infection with antibiotics and, with the ever-looming threat of antibiotic resistance, how said infection can be treated with the smallest quantity of the antibiotic. The solution lies not only in the acid of the stomach but also in hydrogels which encase the antibiotic and, in this case, release the antibiotic in the stomach so less antibiotic is used to give the same effect, reducing the chance of antibiotic resistance. One particular solution here is to use chitosan, derived from chitin found in natural things like shells of seafood such as shrimp and langoustines. The valorisation of waste from seafood can return chitin, which can be denucleated to form chitosan, which is cross-linked (connected) to genipin, which is extracted from coffee plants, instead of other polymers such as formaldehydes and epoxies, which, needless to say, are not all that healthy for the body. Back to the main point of how this gel can be used to move antibiotics to the stomach – the primary amine group on the chitosan (the R-NH<sub>2</sub> group) is fairly basic and can donate an electron pair to the acids in the stomach to itself and become positively charged (an R-NH<sub>3</sub><sup>+</sup> group). In a polymer, these myriad positively charged members will repel each other and cause pores to widen and the antibiotic to be released.

Further research conducted by Dr Hurst showed that some polymers, when introduced to certain pHs, skyrocketed in viscosity, especially, in the data that was displayed, the viscosity of PVA in the presence of borax: a highly basic and irritative substance. Hence, alginate was used instead of borax to achieve the same result. The products of the valorisation of orange peel, when Dr Hurst was conducting research in Brazil, was further used to make shear-thinning gels (like the chitosan described earlier). Furthermore, casein can be extracted from sour milk to make bioplastics, which are much more sustainable than standard plastics; however, all the material would be from what would otherwise be waste material.

Finally, Dr Hurst described how green chemistry and the fight towards sustainability can be brought to the attention of the public via video games, physical board games and even TikTok, all of which are necessary to bring the SDGs into fruition and to keep systems thinking at the forefront of our minds.

Overall, Dr Hurst's talk was riveting and enlightening, bringing systems thinking into the mindset of the Scientific Society Secretaries and, hopefully, boys and beaks who attended this lecture. Sustainability, for those interested in the sciences and even for those who aren't, should be a primary goal and the world will be a better place if we can keep it that way. Let's hope for a utopia and not a dystopia, brought about by technology.

## SCULPTURE SOCIETY

*Elle Kaye, "Preservation of Our Species"*

The Sculpture Society welcomed a talk by Elle Kaye, who is a professional taxidermist. Ms Kaye specialises in birds, only working with animals that have died of natural causes because she is a conservationist devoted to protecting wildlife. Her work has been used in film and is held in many private collections

across the world.

She presented a talk on the title 'Preservation of Our Species'. Ms Kaye began with an introduction to taxidermy, describing it 'as the art of preserving an animal body for display or study'. The word itself originated from the Greek words *Taxi*, meaning to rearrange, and *dermy*, meaning skin. Overall, this combines to mean the rearrangement of skin. Ms Kaye described her sourcing process, explaining how her specimens usually come from zoos, breeders and from people who collect exotic samples.

The taxidermy process in a bird starts with skinning the carcass while keeping it intact, and with the skin remaining connected to the beak. Then the measurements of the carcass are taken, and the specimen is cleaned with chemicals. The preservation of the skin is the essential stage. She uses chemicals while maintaining PH to prevent damage. This process changes the skin into something material rather than organic, as the properties are changed. The final stage of preservation is the use of salt to dry and further preserve the specimen. The next stage of the process is the creation of the model, the sculptural part of taxidermy. Ms Kaye uses wood, wire and foam to recreate the shape of the bird. The model must be stable and be representative of the bird. The specimen is then assembled by dressing the skin on to the model. The skin is kept in position using pins and thread. The built sample is then left to dry for up to four weeks to let all the moisture escape.

Ms Kaye also spoke about the downsides of her jobs. She mentioned many outdated notions of what a taxidermist should look like, saying that it is challenging to be a young woman in this field. There is also a lot of trolling on social media due to her specialisation. Also, she mentioned that there are many assumptions about the ethics of animals obtained. She stated that she doesn't blame people for these views, as they mainly originate from a lack of information and knowledge about the field.

Ms Kaye concluded by speaking on the importance of taxidermy, mentioning that it bridges the gap between art and science. Also, she emphasised that it is essential for preserving species, especially if they become extinct, as it leaves us with an accurate representation of the appearance of the animals. Taxidermy also allows people to get close to nature where they wouldn't usually.

## BILL GATES

*How to Avoid a Climate Disaster*

In a typical year, the world emits over 51 billion tons of greenhouse gases. As we keep doing that, the consequences for human life will become devastating. When Gates first fell in love with computers, they were enormous, expensive and only able to be accessed by the government and very big corporations. Gates and his friends started to wonder what they could do if there was a computer on every desk. And now that wild idea is quite tame, as billions of people now not only have computers on their desks but even in their pockets. Now the world needs many more breakthroughs, as we need to get down from 51 billion tons of greenhouse gas emissions a year to zero without sacrificing the needs of the planet. This means that we need to change the way that we do almost everything. Whether or not entrepreneurs and investors will be able to build new businesses and transform existing businesses means the difference between a future where everyone can live a healthy productive life and one where we are constantly dealing with human and financial crises on a historic scale. Government leaders will have to enact new policies that drive the market for clean energy, and advocates need to keep their voices loud to hold all of us accountable for rapid progress. Avoiding a climate disaster will be more challenging than landing on the moon, eradicating smallpox and even greater than putting a computer

on every desk: it will be one of the greatest challenges humans have ever taken on. Gates' optimism that we can achieve this comes from his belief in innovation and our power to invent is what makes him hopeful.

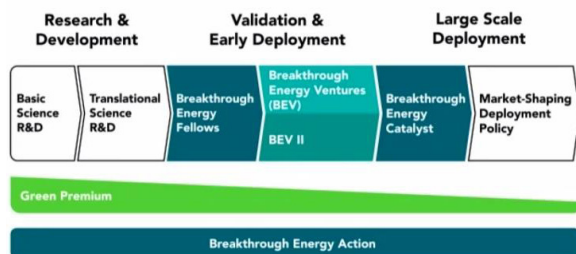
*What prompted Gates to write this book now?*

Gates' worry about the climate started in 2005, while he was travelling to Africa and looking at how the farmers were already having a harder time growing their crops; he questioned, as Africa began to electrify, how would they be able to have lights at night or air conditioning without making the climate problem even worse? The poorest subsistence farmers are already feeling the pain and will have the worst of it. Eventually, they will feel they need to migrate if we do not mitigate this problem. Gates also gave a Ted Talk in 2010 about innovation, which was five years before he gave his pandemic talk. Then, following this, he was involved in the Paris conference, tasking with getting innovation onto that agenda.

One of the things that Gates found interesting was that the younger generation is making this a priority, especially considering that in a pandemic people would think in the short term. However, it is clear that our generation is much more energised and is asking for everyone to take this problem seriously.

*What is the importance of the key metrics that run through the book?*

When greenhouse gas emissions are converted into their CO2 equivalents, unfortunately they show a steady rise in the output of CO2 and, although there are fluctuations in this, due to the economic cycle and, of course, the current pandemic, which has brought emissions down by about 5-10%; as the world develops, the emissions keep going up, even though our goal is for them to keep going down. Having this figure of 51 billion tons in mind allows us to look at different innovations and allows us to determine how impactful it is as a percentage of these 52 billion tons.



The next metric that is important to take away from the book is the understanding of the sectors of emissions. This shows evidence that it is not only electricity and passenger vehicles that are making up emissions. The one that people tend to be the least aware of is the largest slice, the manufacturing industry, which includes cement and steel. In general, we have put most of our efforts into the easier things like passenger cars and renewable energy but we need to get started on the harder things because, if the goal is zero tons, then we cannot afford to skip anything.

The final metric that is important to note is how expensive it is to do things in a green way: for example, the difference between buying a petrol car and buying an electric car. This cost is called the green premium and, due to increases in volume and competition, it is currently not that high and will continue to fall within the next few years, as batteries become cheaper and the range becomes better. However, for something like cement, the price per ton of producing this in a 'green' way is almost twice as much. This will need to go down so that, by 2050, we will be able to ask countries around the world to buy the 'green' goods and services and they will not push back

because of the incredible green premium that, at this moment, they would have to pay.

*What technology does Gates believe will be part of our net-zero future?*

The most mature technology would be the electric car, solar, and wind technology. In midst of this are innovations, such as offshore wind, which the UK is a leading investor in; this means that there will be innovation and therefore the green premium for everyone will start to fall. Another interesting technology is the use of electric buses, which China is pioneering in. Following this are some technologies that are at their earliest stages, such as steel and cement, as there is essentially no 'green' steel or 'green' cement yet. In order to change this, we not only need more money going towards research and development and more venture capitalist money but we need governments and companies to buy green cement and green steel so that we can start the catalytic learning path.

*What is Mission Innovation? How did it come about? What is it trying to achieve?*

Before the 2015 Paris meeting, Gates, with multiple world leaders, discussed the near-term commitments of driving the low green premium markets and how essential it was. However, this alone cannot help us reach zero tons of emissions. The focus of the conferences needs to be placed more on how we can raise research and development budgets and high-risk capital that will take risks. PM Modi named the project Mission Innovation and made the announcement from which governments have started to raise their energy research and development budgets. So far, 40 companies have been invested in and another billion has recently been raised that will help invest in another 40 companies. The key understanding that is required here is that this mission is not just going to be brute force pumping hundreds of dollars into the markets, but it will also create jobs and have other benefits, such as low local pollution.

*Has it been surprising that some industries are moving faster than others?*

The agricultural sector has been the most surprising because, five years ago, Gates thought that it was the end of the road for this sector. However, today there are a lot of companies, such as Impossible Foods and Beyond Meat, that are looking at new ways of food production that can get rid of the slaughter of animals, the manure and the methane, as well as a variety of other things that can cause the processes to be environmentally damaging.

The ones that are not getting enough focus are the aviation, steel and cement industries, and, when all of these are added up, they make up around 20% of the total 51 billion tons. An issue with this is that, in the industrial economy, everything is so cheap that people almost don't pay attention and we need to renew our skills and find new approaches.

*What are the toughest technological challenges?*

The electricity sector, as it uses onshore wind, offshore wind and solar. We need to maintain the reliability of this supply, even during crazy weather events. This means that much more transmission needs to be built, which can be politically challenging and hard to get permitted. Another way that this can be resolved is to store a lot of energy for these periods, which would take a miraculous invention to allow us to store that much. The final way that this can be solved is if we can make 25% of our energy sources non-weather dependant while being green. This is where the question of whether we can make nuclear cheap and safe enough and get public acceptance for this to be part of the energy ecosystem. It is important that we start running models to find out what sources of energy do people like and how much transmission do they like and, by 2050, will it be cheap, green, and reliable?

*What's the difference between the approach to climate change and the approach to COVID-19?*

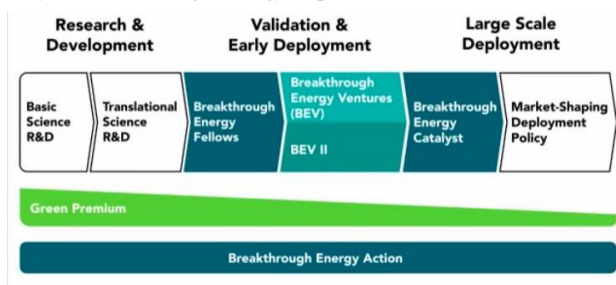
Both are the same, in the sense that we are reliant on our government to have the smartest people thinking ahead about problems we might face. For example, for earthquakes, we have building codes and we are willing to make building more expensive, so that when there is an earthquake, very few people die. In both the cases of the pandemic and climate, it is fair to say that the government has not yet put enough resources into them. In 2015, after the Ebola pandemic, Gates spoke out about the pandemic risk and mentioned that we are not ready, although some things were done, such as Japan and Norway forming a group called CEPI (pronounced "seppy"), which has been the second-largest funder of the COVID-19 vaccines.

In some ways, the pandemic and climate are different because the pandemic, as awful as it is, requires one innovation to essentially end it. With climate, the negative effects get worse and worse every year and the issues surrounding these effects will get dire towards the end of the century. Because of this, getting people to take action now over something that their children and grandchildren will have a tragic time with is much trickier and we need to have co-operation to solve this.

*What is Gates' process for learning something completely new such as about climate?*

This is a great period for curiosity as, if you do not understand something online, you can watch videos and it is incredible how much information is available to learn. The number of sciences that you need to have a grounding in to appreciate and understand climate is very large. For Gates, this process of researching and learning was fun, especially the process of building a team and talking to different groups about these policies. The challenge with writing the book was to try and make it approachable, in order to engage everyone. In schools, we can do more and go beyond our current boundaries by looking at more materials and introducing stories of the downsides and current suffering.

*Why is breakthrough energy important?*



As this 30-year period nears, the temperature rise will continue to be even more damaging than it already is and the questions being asked are essentially how we accelerate our innovation so that we can solve these problems as soon as possible. The solution to this is following a breakthrough energy action plan; this will essentially allow us to continually drive the green premium for things down. We saw this work with the solar wind industry, where Japan and Germany drove the demand and, as the green premium fell more and more, countries were willing to join them. However, this is tricky because, in order for this to work effectively, we need good government policy and global co-ordination, as pushing this is too big of a problem for philanthropists.

*As Biden re-joins the Paris agreement, what does he need to do?*

Biden re-joining the Paris agreement is good news and, in the midst of the pandemic, it is fantastic that this is a priority. It is the responsibility of big countries, such as the United Kingdom or the United States, to make it easier for other countries to go green. This means taking the initial risk so that other countries can join and lower the green premium. Countries that are near

the equator also have it in their best interests to get involved, as this is an issue that will affect them much earlier than it will many other countries. Biden is off to a good start and this current generation deserves credit that climate has been discussed more.

*What can we do as individuals about this issue?*

One of the most important things that we can do is to use our political voice and convince others to join us in this goal. Although different political parties can disagree on tactics, at the end of the day the end goal should be a consensus. Another thing that we can do is to contribute as a consumer or an employee. As a consumer, you have the choice to drive an electric car, which will help, and, as an employee, you can talk to your employers and see what is being done to support this goal.

It is also extremely important for us to be sensitive to the loss in demand and jobs in other industries. This switch to 'green' products will be at the cost of jobs in the steel and cement industries. This innovation will have to hit Asia fast so that their growth plan can change to be in order with the time we have left to avoid a climate disaster.

*How important are the financial incentives?*

The financial incentives provided to everyone involved will play a crucial part and governments will have to run good tax policies that provide incentives for people to take the green premium seriously and bring demand to these industries.

*How optimistic is Gates about human chances?*

It is critical that, as humans, we work together for the next 30 years, as it is an extremely critical time period to deal with the issue that we are currently facing. The 2015 Paris conference was good to help us encourage each other and work together; however, we do not have much more time. The mindset of 'If others do, why shouldn't we?' is becoming more common. We see that a few other countries, such as China, have their own climate goals that are beyond 2050 but Gates hopes that, with time, this can be brought forward.

## SPEAR

The Spear Harrow project is a Shaftesbury Enterprise initiative that allows Spear volunteers to attend sessions aimed at helping young people who face disadvantage get into work or education. The role we volunteers play is not to act as a coach, but mainly to model confident communication, professionalism and mindfulness of others. For example, we would participate in conversations, especially if the energy is low. 15 boys in the Lower Sixth were chosen to participate in this fantastic project, and after a long wait due to Covid, we were finally able to participate in the sessions in the last 2 weeks of the Spring Term.

Each session had a different focus, whether that be the career ladder, the balance of life, habits, conflicts or phone interviews. The sessions usually started off with a game that we would play with the coaches or the volunteers, which led to the focus of the day. For example, there was a session regarding phone interviews and unwritten rules recently, where the game we played was as follows: we were asked to call out random names by the coaches, and they would tell us whether it was a right or wrong name, without giving any further instruction. During the first 2 or 3 minutes, we volunteers and the trainees had no idea what was going on, with the "right name" being called fairly rarely. Then, people started to realise what the rule was to this game (the right name had to start with the last letter of the previously called name), and it was rather amusing to see the faces people made when they finally understood the rule. Proceeding from the game was the section where the coaches would have a discussion with the attendees about the focus of



the session; in this specific session, it was about the importance of realising and following unwritten rules.

After the discussion, where the coaches would encourage everyone to contribute, we would be split into breakout rooms of 2 or 3 to either role-play or to have a more in-depth discussion about the topic at hand. This segment of the session was one of my favourites, and I'm sure this opinion is shared by many of my fellow volunteers. The discussion was usually completed relatively quickly, and I took the time to have quite in-depth conversations with the trainees in the breakout room. The young people were extremely ambitious and interesting, and it was really a joy to talk to them. The breakout rooms were followed by a short discussion, where the coaches would usually ask the points that were brought up in the breakout rooms, which was a great way to end the sessions. This is certainly a fantastic project to take part in, and we look forward to the Summer Term for even more sessions.

## SENIOR DEBATING FINAL

On Thursday 4 March, the final round of the Senior Debating Competition took place. The motion, proposed by Lyon's and opposed by The Grove, was 'This House believes utilitarianism is philosophy for pigs'. The adjudicating triumvirate consisted of Mr Rodgers, SPS and JEP.

Aakash Aggarwal, *Lyon's*, opened the debate by stating that his side would quash any attempt to ascertain the meaning of life; for those unaccustomed to debating and its technical terms, this is what we call "a big claim". However, Aggarwal had both the solid arguments and pre-prepared rhetoric to back his claim up. He claimed that humanity was inherently geared to pursue progress for progress' sake, arguing that social media's popularity, and the ensuing mental health crisis, showed that humanity did not truly care for its own happiness. When considering the greatest examples of human advancement, perhaps few would leap to Facebook, but this example, though strangely chosen, did serve to validate the speaker's claims. All in all, Aggarwal gave a very convincing speech; the speech was so convincing that it almost made this writer forgive him for bragging about his entry to the semi-finals (not, as the speaker claimed, finals) of the ESU competition. After talking to many of those who sit next to him in lessons, I am assured that this is not the first time he has done so.

Up next was the oldest and most measured speaker present: Ryan Cullen, *The Grove*. He suggested that the previous speaker was "perverting the motion" by conflating the ideals of happiness and progress. After two deft POI responses, effectively rebutting the interjections of both opposition speakers, Cullen argued that Utilitarianism receives a bad rap, stating that it requires both a rational mind, in order to weigh up long-term pleasures, and an ability to accept rules external to oneself. Potentially my greatest advice to the speaker would be to learn to love the sound of his own voice more. Particularly in House debating, where each speaker only receives four minutes to make their arguments, and allowing your opponents to intercede twice often means that you have less time to make your case, especially if you give as much rebuttal as Cullen did. However, this problem is one that is both good to have and rare in debating circles. Overall, a strong speech.

The final speaker for the proposition, Dylan Winward, *Lyon's*, conducted his speech with both his traditional enthusiasm and his trademark wit: the kind that makes you wish for earplugs. Forced jokes aside, Winward structured his speech incredibly well, basing it on what he believed made mankind human: collective memory, the sum of knowledge, ability to form societies and self-awareness. Winward argued that humankind remembers events of mass progress, like the Moon landing, over moments of simple pleasure. He argued that humanity,

even if it increased their happiness, would refuse to uninvent progress, citing our refusal to remove nuclear bombs as an example. Winward then made the claim that society cannot be founded on the aim of maximising societal happiness, as to do so perfectly on a societal scale would require "omnipotence": a leap that would make any ballerina proud. Finally, Winward argued that humanity requires self-awareness over pleasure, as shown by our theoretical refusal to enter a drug-induced happiness. Winward filled his speech with the cutting analysis and rhetorical confidence that viewers have come to expect and admire. His confidence was so unwavering that it almost masks his total refusal to answer Cullen's insightful POI.

The burden of being the final speaker of the debate fell on Indi Abrams, *The Grove*, whose case rested on an analysis of anthropology, neuroscience and theology. Abrams began, however, by thoroughly abusing the social media example brought up by Aggarwal, arguing that it was not a consequence of a desire for progress but an inability in humanity to consider long-term pleasure. Abrams argued that evolution codes for the prioritisation of pleasure, as societies that ensure collective happiness are the ones that survive. While this would be a devastating point, the speaker perhaps failed to rebuke the notion that this would also apply to any other species that can survive in a group, like pigs. Next, much to the delight of Father Stuart, Abrams turned to religion to provide insight into the human mind, showing that both Buddhism and Christianity purported utilitarian values. Thus, Abrams gave the ultimatum to the audience that, if they did not view Buddha and Jesus as pigs, they must agree with him: a difficult proposition to take up. However, while I'm sure Father Stuart would be happy to concede that Christian ethics can bear a remarkable similarity to utilitarianism, he would deny any underlying connection; while the similarity in appearance is uncanny, it is a slight slip in logic to begin to equate the two. That being said, Abrams' speech was full of strong rhetoric, well-chosen examples and effective arguments.

This debate was a very strong one, filled with lofty ambitions, quick wit and careful arguments. However, after long deliberation, Lyon's managed to edge out The Grove and were crowned Senior House champions. Many thanks to Mr Rodgers, Father Stuart and Father James, without whom this competition could not have taken place.

# METROPOLITAN

## INCLUSION ALLIANCE PODCAST

I am writing to you all as a representative of the School's Equality and Diversity Committee to report on the Schools Inclusion Alliance International Women's Week podcasts. The first podcast was hosted by Claire Harvey, a GB Paralympic athlete; and featured Phoebe Schechter, one of only three female NFL coaches; and Carol Glenn, the first black woman to be a motorsport race official.

They began by mentioning the lack of representation of women in high-level sport. The significance of this is that young women with athletic ambitions simply do not have many people like them to aspire to. Whereas young men can look up to the most prominent figures in sport, women may find this only demotivating. In the diverse world that we live in, it is imperative that younger generations do not feel as though they are the only ones like them. Glenn described how she sought to find motivation and strength in not only being the first woman but the first black woman in many of the positions that she attained.

A further point of discussion was the need to create sustainable pathways for those from diverse backgrounds to enter sport. However, this does not mean affirmative action on the basis of race or gender, as this only reduces people to mere statistics and is unproductive for all. By contrast, initiatives that target diverse communities for recruitment and focus on searching for talent and potential in those that come from less typical backgrounds are most effective in promoting equality and diversity.

Lastly, counteracting societal pressure to adhere to gender stereotypes was discussed. From a young age, students should be exposed to sports traditionally played by the other gender, so as to prevent students from never having discovered their true passions.

The second podcast of the series featured Cephas Williams, founder of the Black British Network and the 56 Black Men campaign. He firstly highlighted the importance of thoughtful and caring teachers; acts such as mentoring a student or simply speaking to someone after class about racism have a profound effect. Williams used the personal anecdote of being called a 'monkey' in primary school to illustrate the indoctrination of children into racist belief systems from such a young age.

The incorporation of equality and diversity into the curriculum and instruction on black history, not only in the context of slavery, is essential. During the Q&A session, Cephas was asked the fantastic question of how to speak to black students about these issues without making them feel isolated. His response was that feedback should regularly be given by the students, for example as to how they would like to approach these conversations with teachers or if they would even like to have them. What is important is that teachers make themselves approachable in the first place.

Podcast links:

<https://web.microsoftstream.com/video/030ebd78-47af-4b28-8f60-10caf4ab991c?list=studio>

<https://web.microsoftstream.com/video/077588d7-ce4e-4147-8e93-a869eec24e41?list=studio>

## DESERT ISLAND DISCS

*The Guild's Podcast Series with Mr O'Leary*

The seventh instalment of The Guild's Podcast Series was highly anticipated, featuring the one and only 'famous' Seamus O'Leary. Gabe Rogers, *The Knoll*, enquired with excellence into Mr O'Leary's quintessential Irish upbringing, delving into the both obscure and picturesque nature of his small-town years in Kilkenny, the Republic of Ireland. Mr O'Leary spoke beautifully about his youthful experiences and frankly about the challenges of the time, before exploring his bold and adventurous decision to move to London, where his love for music would flourish. To the luck of our School community, he was able to bring this love with him to Harrow.

Following on from the superb introduction, featuring a recollection of winning the All Ireland Colleges Hurling Final in 1981 and his stint on national TV, we headed into the first of Mr O'Leary's songs. Evocative of his rural roots, Mr O'Leary chose John Denver's *Country Roads*, going on to recount how while on pilgrimage in the north of Spain he'd performed it on the steps of the cathedral in Santiago de Compostela. The simple yet powerful nature of the track brilliantly epitomises Mr O'Leary's proud origins. It connotes the strong faith and unity of his community through simple church songs and music in general. This theme was powerfully continued in his last track, when he chose *My Irish Molly O*, a track particularly reminiscent of his father.

From Cheltenham races to visiting every county in England, the conversation took many twists and turns, each enchanting

listeners compellingly. He spoke about his faith, his passion for hurling and career in security (involving some very frightening encounters). His selection of songs maintained themes of compassion which all bore a strong resemblance to one another, comprising a conspicuous degree of heartfelt cherishment of days gone by. However, the variety of song writers is a testament to his approach and emotional attachment to music. As an avid sports reader, Mr O'Leary chose Billy Connolly's, 'Tall Tales and Wee Stories'; It is clear to me he's brought Connolly's charisma and wit to Harrow, entertaining us and enriching the Hill with merriment. Mr O'Leary showed no hesitation in bringing his beloved guitar to a Desert Island. It is clear to see that his guitar embodies his character and his preferred way of expressing himself as an 'entertainer', which adds to his intoxicating personality. As well as providing some wise advice, he left us with a heartfelt reading of 'the best words' he'd ever 'read in his life', an inspiring message written by OH, Richard Max Cooper, who tragically lost his life at the young age of 19 in 1998:

Keep alive in our hearts that spirit of adventure which make men scorn the security of the familiar to wrestle with the challenges of the unknown.

Overall, this was a hugely enjoyable and informative podcast, with undoubtedly one of Harrow's best-known faces and admired members of staff. Very well done to Rogers, whose enthusiastic interview manner allowed listeners to delve into the inner psyche of Mr O'Leary's life.

## DESERT ISLAND DISCS

*The Guild's Podcast Series with LWH*

The ninth instalment of The Guild's Podcast Series featured the highly anticipated guest, LWH. The podcast delved into a variety of different themes, including an affiliation to album covers, exploring the range of different genres of music that resonate with Mr Hedges' past times and emotions, leading into the passion that has remained true in Mr Hedges' life and what doors it has opened up for him as a consequence.

We immediately learnt just how much music and art mean to Mr Hedges. To put it in his words, it means 'everything'. He makes a strong link early in his life between music and art by simply flicking through album covers 'for an age' owned by his older brother. He also recalled hearing the songs being played and concluding that the artwork on an album cover is just as important as the song itself. I find it fascinating that he managed to recognise at such a tender age that art and music go hand in hand, and that one would not be here without the other. We hear later in the podcast that his introduction and interest to both art and music came in those moments of studying the album covers which invariably set him on the career path he is on today.

'Celebrate the life we are living' was the main point that I got from 'Once in a Lifetime' by Talking Heads. This is certainly what I thought LWH was trying to convey as he was talking about this song. 'Lucky' was the first word that came to his mind when listening to it. 'Lucky' for his occupation, 'lucky' for his family and most importantly 'lucky' for his life. However, looking back on his life, LWH reflected on what his love for art has done for him – it has given him a sense of purpose that he might not otherwise have had and which he seemed to struggle to find throughout his early school days. Nevertheless, finding and recognising his passion was a blessing as it gave him clarity as to what he wanted to do. I did find it quite interesting that he linked his artwork and the process of creating artwork as a form of partying. It was inspiring to me that he did not feel the want nor need to party, as the process of creating gave him all the enjoyment he could have hoped for. We then moved onto

his brutal decision of having to choose between The Rolling Stones and Led Zeppelin, but The Rolling Stones came out just in front. 'Rocks Off' is a song that would not fail to keep anyone upbeat stranded on a desert island. Of course, everyone loves Bowie, so who could argue with his choice of 'Life on Mars', whose genius didn't fail to 'mesmerise' Mr Hedges the first time he heard this song.

Finally, we are left with some words of wisdom: 'Live in the now'. I think this was a fitting way to end an insightful podcast accompanied by some thought-provoking questions given by Adam Auret. I thoroughly enjoyed listening to all of the eclectic choices Mr Hedges made.

## OPINION

DEAR SIRs,

After the Head Master's address about diversity in Speech Room this week and despite the 'ground-breaking' new use of diversity themes, LGBTQ+ History Month passed by unnoticed and unrecognised again. Not even a lecture on the subject had been organised which shows a lack of thought on the part of the School in addressing LGBTQ+ issues. However, this letter is not meant as a polemic attacking the School's policy on diversity; instead I aim to reflect on and discuss the themes which permeated Channel4's hit series *It's a Sin*.

For those that have not seen it, the show follows the life of a group of friends (most of whom were gay) in the early 1980s. We are shown the beginnings of the AIDS epidemic and the impact it had on a whole generation of LGBTQ+ people, but gay men in particular. The series is heart-breaking and enlightening, shining a light on the epidemic from the point of view of the most affected.

In 1981, five previously healthy gay men in California were found to have a rare lung infection known as *Pneumocystis carinii* pneumonia (PCP). By September of the following year the Centre of Disease Control in the USA began to use the term 'AIDS' (Acquired Immune Deficiency Syndrome). At this point, virtually nothing was known about the illness and wild rumours started that it was 'God's way of punishing gay people' which significantly hampered the progress which the LGBTQ+ equality movement had achieved in the previous 30 years.

In the second episode of the series, a character and his long-term partner were both taken seriously ill. One returned home to Spain, whilst the other was sent to hospital. I was deeply saddened to see the way he was treated: he was locked in a room by himself and food was slid under the door. He was essentially in a prison. Of course, it is just a television show, but it is reflective of the shameful treatment of AIDS patients at the start of the epidemic.

At the start of the epidemic, hundreds of gay men were left to die without their friends and family, who were too scared to touch them for fear of catching it. A huge milestone came in 1987 when Lady Diana shook the hands of an AIDS patient, dispelling the myth that it could be passed by touch (much unlike our current PM's failed attempt to pull the same stunt last March at the start of the Coronavirus pandemic).

There has been a clear negligence from governments both in their reaction to the crisis and their willingness to provide support. Because it was considered a 'gay disease', they didn't feel the need to get involved – thus systematically victimising an entire community of LGBTQ+ people. Equally, the development of a vaccine, or at least of treatment, has been slow, unlike the extremely fast turnaround for a vaccine for COVID-19. This sluggish and discriminatory response would lead to 32.7 million deaths worldwide by 2019.

The series provides an insight into the largely unknown societal impact of the epidemic. It is deeply emotional, especially as it follows young adults who are not much older than some of us – I certainly could not even begin to imagine my friends dying, let alone dying without those they love around them. I hope that after reading this correspondence, some will go away and watch 'It's a Sin' and gain more awareness of the devastating impact which this crisis had, and indeed is still having.

Yours sincerely,  
DANIEL SANDELL, MORETONS

DEAR SIRs,

There is just over a year left in my time at Harrow.

Looking back at the four glorious years which I have spent here, on the Hill, there are a number of things which I am proud to have accomplished and proud to have been a part of. Both within my House environment and as a School I have seen us win major competitions, perform exciting and ambitious musical years, and consistently smash our records at GCSE and A level.

But there are things that mean so much more to me than that. At the end of the day, those aren't the things that matter. More importantly, I am proud that I have been part of a school community that is better at dealing with bullying than it was ten years ago. I am proud that I have been a part of a school community that has become more civilised in our reactions queuing at the Shepherd Churchill. I am proud to be part of a School that is more racially sensitive than ever before. I am proud to have been part of progress, here on the Hill.

However, there is one area in which I am not yet proud.

We live in a 21st century society more understanding than ever before towards people who are part of the LGBTQ+ community. We are in an age where a Pride parade can march through the streets of central London unhindered and we can have gay public figures holding office in Parliament and presenting the news to us on our television screens.

Unfortunately, all of this progress has not yet transferred to our own environment. The hard truth we have to face is that there is still lots of work to do before we can be at a place where we can look ourselves in the mirror and be happy with what we say. When a rainbow laces campaign or the idea of having a rainbow telephone box or celebrating Pride day have been mooted. The term "gay" is still used both as an insult and as a negative adjective. Many of us are consciously oppressing a whole section of society. We are still in a community where people are afraid to live openly and express who they are fundamentally as people. It is an ugly truth, but a truth nonetheless. Accepting that truth is the first step towards progress.

It is also something which we have largely ignored when examining other parts of ourselves. Although I applaud the fact that we have given more attention to sexual harassment in the aftermath of the Sarah Everard murder, and more attention to racism after the Black Lives Matter movement, it shouldn't take national news to make a change. We shouldn't need to see this on the news to decide that we want to do something about it. In fact, seeing how reactionary we have been both as a community and a society over the last couple of months has really fed into my decision to choose this moment. We need to take action before we have a huge incident drawing attention to it.

I realise that the contents of this letter aren't going to be popular with many of the boys reading it. I realise that if you are reading this, you are potentially putting yourself in danger of being made unpopular if you support and speak up for the ideas and values I've expressed in this letter. However, real leadership is about standing up for what's right. Real courage, real honour, real humility and real fellowship is standing up for the Pride community and inviting them out of the closet into our Harrow community. Whether you are gay or straight or bisexual or nonconformist, you are still a Harrovian. We are still Harrovians. So, I would encourage you to stand up against

homophobic comments when you hear them. Change starts with just a few people. And time is running out for my generation.

There is just over a year left in my time at Harrow.

Yours sincerely,

DYLAN WINWARD, *LYON'S*

DEAR SIRs,

This is a response to the powerfully written and eloquently presented arguments raised by my learned friend Chris Liu, *The Head Master's*, that call for the discontinuation of entries from the AI "Maruna Kwena" in *The Harrovian* (see edition CXXIII No. 17, page 1026). I am much indebted to him for his sharp and thought-provoking reasoning that has inspired the arguments that follow.

My response to Mr Liu's critique can be summarised in three main points. First, Mr Liu (it is submitted, inaccurately) portrays the division of labour between man and machine as a zero-sum game. His argument appears to imply that the value of humanity is essentially a negative one, qualified by what machines cannot do. This can be inferred from the language of his article, where he describes Go as a "citadel of human dominance" that "fell" upon the triumph of the Go-playing engine Alpha Go. It would follow that every advancement in mechanical technology represents a retreat for humanity. This line of reasoning is not dissimilar to the somewhat simplistic "God of the gaps" argument, where the necessity of a divine being is attributed to, and contingent on, our lack of understanding of the universe. It is, however, unfortunately flawed for the same reason: it presupposes a turf war. If Mr Liu is correct in saying that the invention of machines that have replaced our labour in some way takes away from our value as a species, the necessary corollary is that we as a species were at our most "valuable" before any machines were invented. The state of the primitive cave-man is portrayed by Mr Liu as in some way more desirable (over our current state) solely for the reason that there were then no machines to contest our "dominance". That cannot be right.

The fact that Mr Liu overlooks, it is submitted, is that the invention of machines expand the turf on which the alleged war is being fought. With the invention of the wheel (an early machine), the farmer can look towards trading with more distant lands with the time he had formerly used to drag his produce to the market. With the invention of the steam engine came the occasion for large-scale manufacturing. The increased capability of machines, while replacing the need for human effort in some of our old activities, unlocks far more new ones that were hitherto impossible.

Second, Mr Liu's view of the way we as humans compare human and mechanical abilities is distorted. He has criticised the present writer's previous reference to machines playing chess, arguing that "should the AIs be allowed to compete in [the] World Championship, there won't be any place left for human players in the game". That, it is submitted, is incorrect. The success and popularity of competitions between humans is independent of the capability of machines to do the same task. The world's enthusiasm for athletics was not reduced by the invention of cars, nor would it be if a fast bipedal robot was (if it has not already been) invented. Similarly, the "supremacy" of machines in board games is neither here nor there; the very point of the World Championship to find out who is the strongest human player on the planet. The World Championship is a fundamentally distinct competition from the World Computer

Chess Championship (which exists under that name), in both composition and purpose. The possibility of introducing chess engines in the World Championship is just as remote, and the rationale just as difficult to understand, as that of introducing a sports car as a serious participant for a marathon. To explain it another way, the difficulty with Mr Liu's argument can be shown when the words "the AIs", "World Championship", "players", and "game" are substituted with the words "sports cars", "marathons", "athletes", and "sport" respectively:

"However should [sports cars] be allowed to compete in [marathons], there won't be any place left for human [athletes] in the [sport]"

The adapted statement may be logically coherent in the sense that the conditional event leads to the consequence, but how likely is the conditional event to occur in the first place?

Third, Mr Liu's thesis, it is submitted, pays insufficient thought to the way we as humans value and cherish things. The value we attach to a certain object goes far beyond its physical capabilities. We value things for their origins, their symbolism, and the emotions they fuel in us. I have a statuette of a terracotta warrior on my shelf (it used to adorn my desk at Harrow). It is nothing more than a piece of clay put in a kiln and its design is simple. However, I bought it – in the summer of 2018 – because I had wanted to support the local craftsmen while on holiday. I very much doubt I would have bought it for half the price if I had found one rolled off a production line in a forgettable souvenir shop. I had bought it because I had an emotional connection with the craftsman behind the statuette. Similarly, I write this article due to my interest in corresponding with Mr Liu, a person I have had the privilege of knowing during my time at Harrow. I can confidently say that I would most likely not have done the same if it was the product of an AI.

It goes without saying, for the above argument to apply, that the consumer must be aware of the provenance of the good. A statuette that is rolled off a production line must not be passed off as made by a craftsman. This would apply also to articles in *The Harrovian*. If I may be forgiven for restating a point previously made, the necessary implication is that articles by "Maruna Kwena" must continue to be clearly labelled as such. If that is not sufficient to allay Mr Liu's fears, perhaps adapting their currently letter-like format (to remove what may be considered an uncomfortable degree of "humanness") or moving them to the end of each edition (such that student-written articles take nominal precedence) may be prudent. The differences between these arrangements, however, are purely cosmetic. In any case, it is submitted that there is no risk of the market for student-written articles disappearing. "Maruna Kwena" has but opened up a new market of readership that does not, and cannot, threaten the existence of the old. No amount of AI advancement, contrary to Mr Liu's contentions, can truly replace this "refuge for the human writers", although I would not necessarily phrase it that way.

Yours sincerely,

LONG HEI NG, NEWLANDS 2015<sup>3</sup>

P.S. The purpose of the reference to the "God of the gaps" argument is limited strictly to the analysis of lines of reasoning. It is outside the purpose of this article to provide an evaluation of the general case for or against the existence of God, nor does the writer claim the necessary expertise in this matter to make such an evaluation.

### Ways to contact *The Harrovian*

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