



Imperial College SRIOUS about net zero

Sam Lovatt Editor-in-Chief

Last week Imperial College published a report from the Socially Responsible Investment Engagement Working Group, outlining plans to get the College to its goal of net zero by 2040 and to use its expertise to encourage fossil fuel companies (FFCs) to do the same, in order for the UK to achieve net zero by 2050.

The 'Panels' and 'Working Groups' surrounding the College's SRI are quite complicated, so Felix has made a timeline outlining how they fit into the bigger picture. The College also gets negative points for making the groups' names so similar.

After recommendation from Imperial College Union and the College's President's Board, the College Council approved the formation of an 'SRI Policy Working Group' (SRIPWG) to form a College SRI policy by drawing on "the expertise and views of the College community, key stakeholders, Endowment Board members and Council, as well as external experts in responsible investment". Deliberations on the content of the SRI policy included meetings with representatives for Shell and the Grantham Institute for Climate Change alike. This occurred between November 2019 and February 2020, at which time the drafted SRI policy was approved by College Council in full*. This acceptance led to changes in the Terms of Reference of the College's Endowment Board, meaning that acceptance of donations would be conditional on adherence to the SRI policy.

September 2020 sees the conception of the SRI Engagement Working Group (SRIEWG), a panel formed by the SRIPWG, whose mission was

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Image credit: Envato Elements



Imperial College Union referendum to follow vote in favour of strike action



Ameena Hassan Chief Copyeditor

Imperial College Union has announced that there will be a student referendum on support for the strikes being held by Imperial College staff members. The referendum will occur between next Wednesday the 24th and Friday the 26th of November.

This follows the results of a vote by members of the University and College Union (UCU) earlier this month, in which 71.7% agreed that they were in favour of taking industrial action consisting of a strike. They will be striking from the 1st to the 3rd of December and taking further industrial action short of a strike past the 3rd of December.

Historically, Imperial College Union

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EDITORIAL

Migrants

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It's quite hard to believe what we've been seeing at the EU's border these past months. In August 2020, Belarus held an election widely perceived as rigged, where the incumbent dictator Alexandr Lukashenko claimed 80% of the vote and claimed victory for the sixth election in a row, securing himself in the position he has held since 1994. This marks the first event causing a long list of sanctions made by the EU (and later the US and other western countries) against Belarusian officials.

Sanctions that followed the rigged election were in response to violently overzealous oppression of peaceful protesters who came out against the government's actions. The rival candidate expected to win in a free and fair election was arrested, driven to the border with Lithuania, and exiled. Belarusian-EU relations worsened in May this year when Belarusian jets approached a flight from Athens to Lithuania, whilst it was in Belarusian airspace, and forced it to land, citing a bomb threat. Once landed, the plane was boarded and a pro-opposition journalist was arrested and taken into custody. This flagrant abuse of power invited far-reaching sanctions from the US, and caused those from the EU to be ramped up.

This has so far resulted in economic and travel sanctions on 166 Belarusian individuals and 15 entities (including the aforementioned airlines), essentially limiting the powerful in Belarus from accessing Europe.

What the EU have taken away, Russia has more than replaced for Lukashenko. Seemingly like a puppeteer, Putin is using the current situation to destabilise Europe and strengthen his own position. Officials even fear military action from Russia, with thousands of troops being deployed at its Ukrainian border over the last two weeks. The Polish PM said of the current crisis: "it has its mastermind in Moscow".

Both Putin and Lukashenko know that European leaders fear a repeat of the 2015 migrant crisis, and are using

it unashamedly to their advantage. Lukashenko quickly began inviting refugees from countries such as Syria with fauxpen arms, waiving the need for visas and receiving an influx of desperate people because of it.

This leads us to the current catastrophe at the Belarus-Poland border. 15,000 refugees attempted to cross the border in October alone (putting the Channel crossings into perspective, these stand at around 23,500 this year). Poland has deployed at least 20,000 border police at the border to hold back

those trying to cross. Belarus has been funnelling people towards the border, where they meet a 3km thick wooded no man's land between the countries. There have been reports of Belarusian authorities providing the refugees with wire cutters to aid their crossing.

Within this wooded belt, refugees are left with no shelter, no food, sub-zero temperatures and two borders battling it out over who wants them the least. At least nine people have died. Poland's border police have used water cannons to keep them back from the newly-erected fences. They have blocked humanitarian aid and journalists from entering the contentious areas, actions which break humanitarian law.

Breach of international laws comes against a backdrop of contention between Poland and the EU, the former refusing to accept that the EU's laws should supersede their own. As fractures grow, Putin must be patting himself on the back, his desires being met perfectly. Undoubtedly, a Poland out of the EU would receive much the same olive branch that Belarus did a year ago. Whether they'd accept it is another matter.

The aspect of this that truly shocks me is the utter lack of humanity shown on both sides of the border to fellow human beings. Saying that the refugees are being used as gambling chips doesn't even come close to describing the malice with which the world's most desperate people are being treated by Belarus and the supposed moral bastion that is the EU.



Statement of Intent

At Felix we believe that it is always in the interest of the students to know. Transparency in the workings of the College and the work of your student representatives is key. Therefore I, the Felix Editor, on behalf of the team promise that:

We will, to the best of our ability, tell you the whole truth and nothing but the truth.

We will keep your confidence and will only publish something you say to us if you have explicitly said that we can.

We will work to expose unfairness and discrimination in all forms that it takes at the College.

We will treat fairly any article sent to us, regardless of point of view, and do our best to work with you to prepare it for publication.

Signed by **Sam Lovatt**
Editor-in-Chief

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Letters to the Editor

Please address any letters to Felix@ic.ac.uk

Open letter to Alice Gast, on the subject of renaming College buildings

Dear Alice

I applaud the work of this committee as a serious and historically accurate investigation into the history of Imperial. I suspect it barely scratches the surface, and there are vast amounts still to uncover.

It also raises the importance of many great names, current and past, associated with the College which go uncelebrated.

The current trend for trying to rewrite and eradicate history is deplorable. Yes, we should understand it and set it in context, but to attempt to annul and rewrite it is a great disservice.

What was done was done, and new generations need to learn from this, and be constantly reminded of it as the walk around our College.

The Tanaka Business school is an interesting modern example, and perhaps an appropriate one. In his lifetime he was convicted of corrupt practice, so we took his name off the business school. Did we give back the money that may have come for unjust means??

Poor Edward Coleston, in Bristol, was thrown into the harbour, but did they knock down the School he endowed, which today teaches many people of black and Asian descent??

So, we named a Quad after the Beits, who made their money in mining in South Africa and now we should change that? Do we also pull down the statues outside the RSM building, which are a memorial to Alfred Beit? Do the residents of Selkirk Hall feel assured that William Selkirk insisted on a decent minimum wage for his workers when he was prospecting for Gold in South Africa, or as a surveyor on the Cape to Cairo railway, where over 500 Asian immigrant workers died in the first year of construction?

I am pleased to see your comment: "I am also very clear: we will defend free speech. All views will be heard".

Troubled by all the recent reaction to this stuff, I took the trouble to re-read 1984, by George Orwell; I would recommend that all members of this committee; indeed, all students, do the same. We cannot create a culture where history is rewritten every day to suit the new norm. We cannot allow newspeak and fear of thoughtcrime to take over our lives.

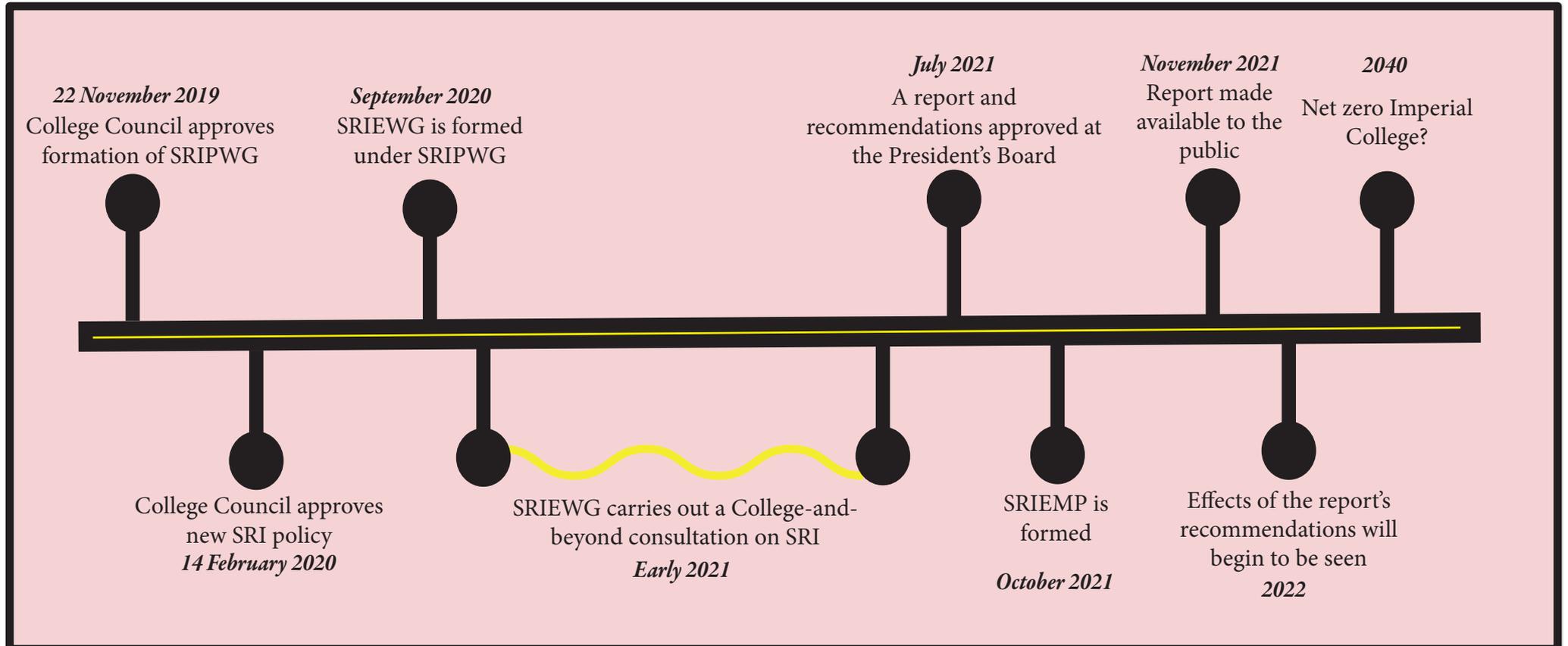
Yours respectfully

Ric Parker *Visiting Professor, Mechanical Engineering and Imperial College alumnus*

 Letters have not been edited

Keep The Cat Free

Not enough space for the whole matra this week, but it's still free, I promise.



Continued from page 1

SRIOUSLY

“to develop and implement methods to monitor and assess progress the College is making in influencing fossil fuel companies through its research and collaborations, education programmes and influence as a world-leading university”. The SRIEWG’s work is now complete, following the publication of the Report.

Following the report’s publication, a new panel named the SRI Engagement Monitoring Panel (SRIEMP) was formed. The SRIEMP was set up “to oversee the successful implementation, ongoing delivery and evaluation of the SRI Engagement and Monitoring process, in order for the College to enact and monitor its Socially Responsible Investment Policy in relation to Fossil Fuel Companies (FFCs)”. The group’s work will be ongoing to ensure investments remain inline with the SRI policy, and to monitor Imperial’s influence on encouraging FFCs to decarbonise. The SRIEMP will produce an annual report, to be presented at a Town Hall meeting, where progress on the SRI Engagement and Monitoring process will be conveyed to the Imperial community. The College highlighted to Felix that the panel included student representation.

The College’s SRI strategy clearly

states, in a FFC-specific aside, that it will continue to invest in, and work with, FFCs which have robust plans to reach net zero by 2050. When asked for examples of investments that will cease as a result of the report’s suggestions, the College was unable to provide any as they are still in the early stages of policy implementation, but that results would emerge during 2022.

Shell, née Royal Dutch Shell, this week announced that it was moving its headquarters to London.

World-leading plastic pollution scientists Steve and Dee Allen this week declined for their work to be displayed by the Science Museum due to the institution’s links with Shell. With their plans to meet net zero by 2050, the the Endowment Fund may invest in Shell should they choose.

*The College’s President’s Board has committed to implementing the report’s recommendations, but with the caveat “some small modifications to the process may be made as it is implemented and reviewed”.

The Scope of the Scopes

Emissions are recognised under three “Scopes” in industry, depending on their point of use, according to the Greenhouse Gas Protocol. Scope 1 includes direct use such as burning fuel to power a car; Scope 2 includes the emissions associated with, for example, electricity production which is then used to light up your home; Scope 3 is the majority of other indirect emissions such as commuting, waste disposal, etc. In analysis of FFC impacts on achieving net zero, the FFCs are held accountable for all three scopes. So when you drive to work instead of cycling, that’s Shell’s fault. FFC attribution also means that big emitters such as the construction industry, responsible for around 39% of global carbon emissions, are not covered by the SRI vetting process.

Current Investments

A look at the July 2021 Endowment Fund Holdings leaves the likes of Shell and BP nowhere to be seen. However £3 million can be found invested in MacDonalads, £2.4 million in the copper mining company Antofagasta and almost £3.25 million in CRH, construction industry materials supplier. £1.77 million finds

itself invested in Tencent holdings, a Chinese company surrounded in controversy earlier this year when it emerged that it was using facial recognition technology to catch children playing video games past a curfew recently introduced by the Chinese government. Felix has discovered that Tencent has filed patents further to their existing facial recognition technology, outlining adjustments made to improve accuracy on “minority groups, such as Uighurs... and black people”. The patent also described Uighurs as “special”.

One of the lesser-endowed collective investment vehicles in which Imperial has a stake has an ESG (Environmental, Social and Governance) rating of 1.67/10.

Conversely, some of the most well-funded funds have relatively high ESG ratings and even contain the word “sustainable” in their name.

There is also an extensive list of indirect holdings, where Imperial is invested in companies via collective vehicles such as indexes. Ever the spread-better, the College also holds an indirect stake in the wrestling entertainment company WWE.

Continued from page 1
UCU Strike

(ICU), who represent the student voice, have chosen to support strikes on the basis that “staff working conditions are student learning conditions”, and that supporting staff action for better working conditions would better the student experience. However, this week, students are being asked to answer “should Imperial College Union support the strike action due to be carried out by the UCU during the 2021/22 academic year?”. This comes as a result of many questioning the effect that a strike may have on students’ education, so soon after the return to campus.

On 4th November, 55.9% of UCU members voted in the two-question referendum, in which 71.7% agreed that they “are prepared to take industrial action consisting of a strike”, and 86.3% agreed that they “are prepared to take industrial action short of a strike”. 748 of 8500 Imperial staff are part of the UCU. This is a little less than 9% of all staff. As of the referendum, 297 of 8500, or just under 3.5% of staff, were

prepared to take action consisting of a strike.

Despite the relatively small number of striking staff, this could translate to longer waiting times on feedback and marking even if the lecturers themselves do not take industrial action, as non-striking staff may be covering for their striking colleagues’ tasks as well as their own workload.

The UCU strikes are part of a nationwide strike by university staff

calling on the USS to, among other things, lower pension contribution rates. Universities such as Cambridge, Edinburgh and Bristol have voted to strike, alongside the London universities of Kings College London and London School of Economics. The University of Manchester vote to strike was not passed due to being one vote short of the 50% threshold required for industrial action.

On being asked why the Union

was choosing to hold an all-student referendum this year, Lloyd James, Union President stated that he wanted to “seek the widest possible consultation” adding that democracy is one of the Union values.

Voting will take place on the Union website, starting midday on the 24th of November and will close at midday on the 26th of November. Results will be released at 2pm on the 26th of November.



Spiking boycott discourse continues

Sam Lovatt Editor-in-Chief

Following the Union’s response to the demands made by the Gender Equality Officer (GEO) (see Felix 1782), a further rebuttal has been received from the Gender Equality Officer.

In response to the Union’s comment that ‘Ask For Angela’(AFA) posters have been up in Union venues since before the suggestion of the boycott, the GEO said that the boycott was to ensure that similar messaging would be continued year-round and wouldn’t simply be highlighted due to recent news coverage. They also said that the current posters “feed into the victim-blaming culture and relies on students having to stay alert and worried at all times in situations that are meant to be fun and relaxing”.

The GEO added that the current safe spaces at Union venues have failed, adding “a member of women’s football was kicked out by security for being ‘too drunk’, while showing textbook symptoms of spiking/serious alcohol

poisoning”.

On the positioning of the AFA posters, the GEO said “it’s pretty safe to assume that people who are not seated in the booth table have little idea about the ‘Ask for Angela”, as the posters are either covered or only on walls next to booths. They suggested that the posters be placed at the bar as well.

On Good Night Out accreditation, they said “Happy the Union is looking into Good Night Out, we prefer official accreditation, rather than the Union claiming they meet all the requirements”.

On the demand for thorough bag searches and for the Union to have the security undergo consent and anti-sexual harassment training, the GEO said “We want to bring the Union’s attention to the fact that multiple student IDs and bags were not checked and searched upon the entrance to the last ACC. Thus, multiple people who have not bought a ticket and might as well have been non-students took part in ACC. We also want to bring attention to the incidents

of security making comments about a female student while searching her bag, saying she “has a pretty face” and asking where she is from”.

On the demand for consent training for CSP members, they said “The CSP consent training meeting with Deputy President of Welfare, Deputy President Clubs and Societies and Union employees took place on the 22.10.21. During this meeting the plans were made to roll out the most basic training ASAP (within 2 weeks). It’s 8th of November and no consent training in sight”.

The Deputy President (Welfare) has set up a town hall meeting for the signatories of the boycott to discuss the topic and outline further the actions taken by the Union so far, and what will continue to be done in the future.

The Town Hall took place on the 18th of November, where it was heard that a security review will be starting within the next week and that changing the current security company will be a longer-term process through the security review. This review will be led

by the Deputy President (Welfare) and the Deputy President (Clubs and Societies).

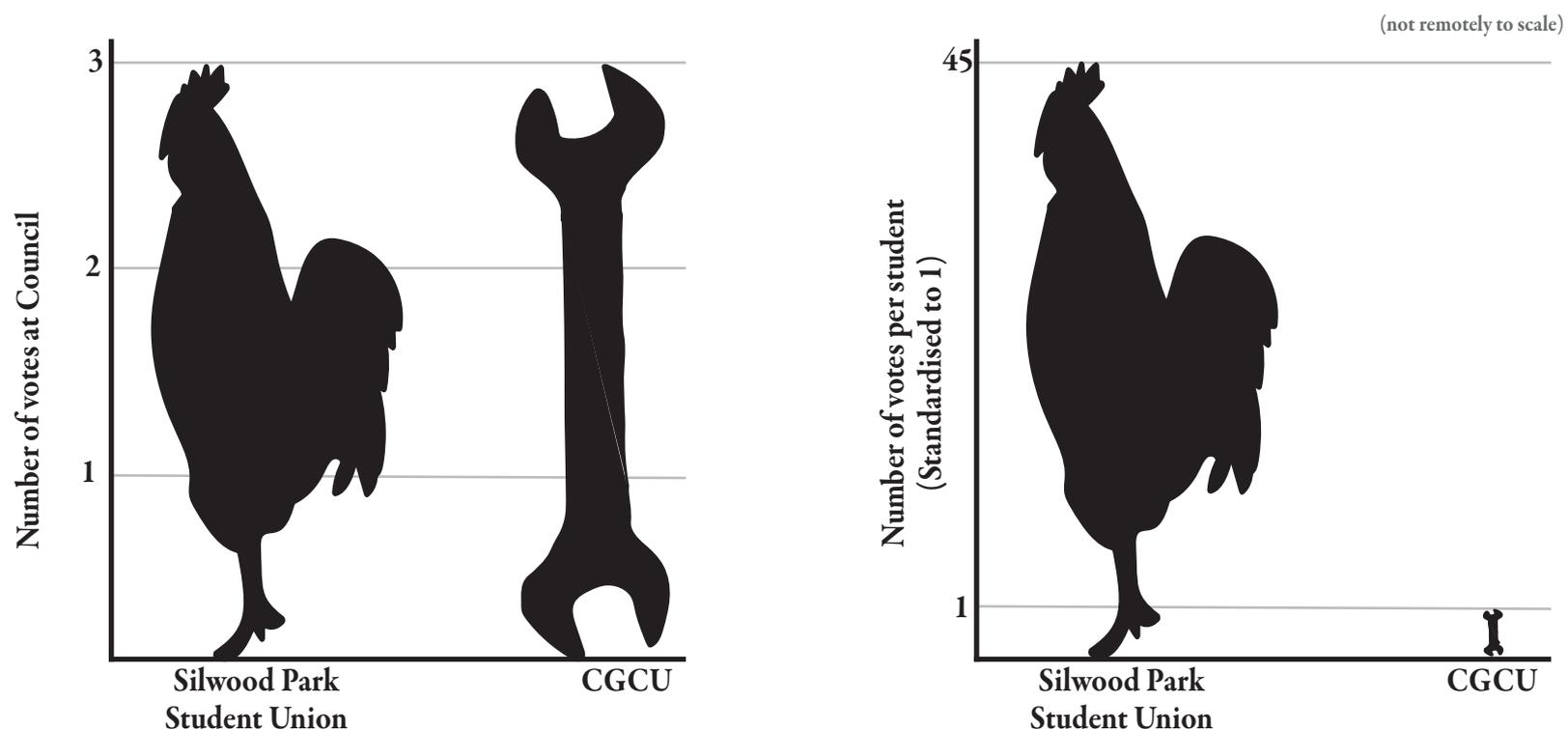
The idea of having student welfare wardens was promoted - these would be paid student volunteers with consent and welfare training. Such training cannot be provided to the externally sourced security staff, it was heard.

The idea behind this is to ensure that security are the “last point of contact, and not the first”, in response to feedback that security staff made students feel unsafe. This move is being justified by the reasoning that students are better placed than security professionals to be sensitive to students in a vulnerable position.

On current tasks being undertaken, the Deputy President (Welfare) has had the AFA posters reprinted to include a byline reminder that drink spiking is a serious crime that can be punished by up to 10 years in prison, while consent training for CSPs is ongoing and to be completed by January.

A look at the Union Council: Imperial's Electoral College

The Union council has a total of 55 votes, allocated across a number of individuals including the Officer Trustees, elected students and Constituent Unions. The Constituent Unions are interesting in this arrangement as they all get three votes at council: 1 for the President, 1 for an Academic officer and 1 for a Wellbeing officer. These votes apply regardless of the size of the CUs, which leads to some quite large disparities at the extremes. Silwood Park Student Union is a particular example: Silwood park is a little-known Constituent Union based near Ascot. It is a purely postgraduate union which covers Ecologists, Conservationists and Evolutionary Biologists. The CU represents 171 post-grads, all of whom are not based on the central Imperial College campuses. At the other end of the membership spectrum, we have the City and Guilds CU. Judging by 2021 College numbers, the CGCU represents 7,737 undergraduate and postgraduate students. The CGCU reps also get three votes per council paper, giving them 45 times less voting power per student than those members of the Silwood Part CU. Not to mention the fact that Silwood Park is technically a subsidiary of the Royal College of Science, and could therefore be seen to benefit from their votes too.



- The CGCU mascot is a big old spanner



- Silwood Park CU have a Chicken Society, pretty cool



Illustration: Aim Ruchipat

FRIDAY 19TH NOVEMBER 2021

SCIENCE

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Massive Gravity: *How allocating mass to gravitons could help explain the expansion rate of the universe*

Marek Cottingham Science Editor

From cosmology to quantum mechanics, the theory of massive gravity seeks to answer a fundamental mystery about the expansion of the universe by weakening the force of gravity itself. Recently joining Imperial College, Professor Andrew Trolley – one of the authors responsible for the theory’s inception – presented his work as part of the Imperial Inaugurals lecture series.

AT THE LIMITS OF CURRENT PHYSICS

The rate of expansion of the universe poses a major mystery to physics. It was first confirmed in 1998 that not only is the universe expanding, but that this expansion is accelerating over time. The expansion of the universe – along with the consequential regression of distant galaxies – was first predicted in 1927 by Georges Lemaître, based upon his work on Einstein’s equations of general relativity. This remarkable prediction was confirmed just 2 years later by Edwin Hubble, marking the start of decades of research into the rate of this expansion.

Initial expectations were that the rate of dispersion of galaxies would slow over time due to the gravitational attraction between them. Thus, when it was observed that the expansion of the universe was accelerating, this required a new explanation. The source of this acceleration has been dubbed “dark energy”. This is a feature of space itself, which creates a gravitational field with a repulsive effect. This field is proportional to the energy density of dark energy. Since this energy density is constant – and therefore doesn’t become diluted as the universe expands – this causes the expansion rate to be constant, ie. the time it takes the universe to double in size doesn’t change.

It has been proposed that this phenomenon could be accounted for by vacuum fluctuations, a quantum mechanical phenomena whereby particle-antiparticle pairs may be created and annihilated

within empty space, provided that the two particles exist for a short enough period of time. However, all attempts to estimate the contribution from vacuum fluctuations obtain an energy density value which is far too large compared to that expected based on the observed rate of expansion.

IMPLICATIONS OF A MASSIVE GRAVITON

The physicists behind massive gravity have conceived of an approach to resolve this conundrum. They propose that one of the assumptions implied by general relativity – that gravitational fields are conveyed by massless carrier particles called gravitons – is wrong. In general relativity, the strength of gravitational attraction falls with the inverse square of the distance. This effect is due purely to geometry, as the gravitational effect of a mass must be spread out over a spherical cross section, whose area increases with the square of the distance.

Imbuing the graviton with a mass would change this relationship, causing gravity to lose strength with distance faster than the inverse square relationship. Importantly, it would mitigate the impact of the hypothesised high energy density of vacuum fluctuations, by reducing their repulsive gravitational influence on distant matter.

THE GHOST PROBLEM

Most modifications to general relativity which introduce a graviton mass also introduce the possibility of a particle with negative kinetic energy – called a “ghost”. Trolley explains that this is a “disastrous” result as it “allows the production of an arbitrary number of positive and negative energy particle [pairs]”. Avoiding this posed a major obstacle to a theory of massive gravity.

Trolley and his colleagues Justin Khoury and Claudia de Rham had orig-

inally come up with a ghost-free gravitational model where the force of gravity leaked into higher spatial dimensions, consequently weakening it at large distances. However, this model with 6 spatial dimensions was very difficult to analyse. The trio noted that from the perspective of a 3D observer in their model, the graviton was no longer a massless particle.

Supposedly, it was impossible to move back to a 3D model but somehow preserve this graviton mass. Two previously published papers had proven no-go theorems, which stated that any attempt to construct a 3-dimensional massive theory of gravity would invoke the presence of ghosts.

It was only when researchers Gregory Gabadadze, and subsequently Claudia de Rham, identified errors in the no-go theories previously published that the possibility of constructing a theory of massive gravity in only 3 spatial dimensions came back under consideration. Shortly thereafter followed the team’s breakthrough, taking only a matter of weeks.

EXPERIMENTAL PREDICTIONS

The ultimate test of massive gravity lies in whether it agrees with experiment. Various predictions of the theory stand to be tested by ongoing or future experiments. These predic-

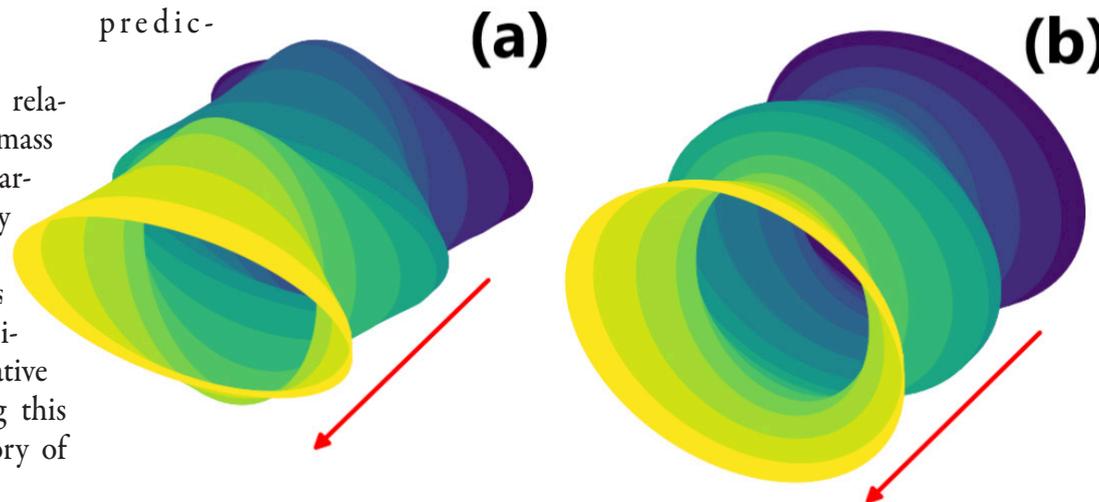
tions include implications for the precise motion of planets, star systems and galaxies – including within our own solar system.

Massive gravity also influences the nature of gravitational waves. If the graviton is massive, gravitational waves must travel slower than the speed of light. Additionally, massive gravity predicts the existence of additional gravitational wave polarisations, giving a total of 5, compared to the 2 predicted by general relativity.

Polarisation describes the way in which the waves displace particles as they move through space. General relativity only permits this motion to occur perpendicular to the direction of the travel of the wave, with the particles following an oscillating elliptical pattern (a). In massive gravity, additional modes of motion are possible, including particles oscillating in a circular pattern (b) or oscillating parallel to the direction of motion.

Much of the experimental evidence will come from gravitational wave detectors, such as the current largest ground-based detectors, LIGO and VIRGO. It will likely take decades until we obtain conclusive evidence as to the validity of massive gravity. However, this won’t halt the work of the theorists, as they continue to search for viable models to explain the mysterious accelerating expansion of our universe.

Image Credits: Marek Cottingham



Motion of a ring of particles due to the passage of a gravitational wave. Red arrow indicates direction of travel of the gravitational wave. highlighted.

SCIENCE

The Amazing Diversity and Eyes of Flatfish:

Flatfish are unique in the animal kingdom because they are one of few asymmetrical vertebrates.

Image Credits: Wikimedia Commons

Wang Guo Staff Writer

The term 'flatfish' is widely used to describe more than 800 different species of fish that have their eyes on one side of their body. The size and weight of flatfish vary greatly depending on the species, from the small-mouth righteye flounder with its modest length of 10 cm to the 180-kilograms Atlantic halibut. The lifespan of a flatfish does not usually surpass 30 years. For example, flounders, with their fast-growth metabolism, live 13 years on average, whilst the delectable turbot around 23 years. Flatfish are lurking predators. Thanks to their flat-shaped body and camouflage, they can easily creep on the sand without being noticed by their prey such as shrimps and small fish. Hence, they are considered to be benthic organisms, which prosper on the sea bottom, while pelagic ones live in the open sea.

FLATFISH PHYLOGENY AND DIVERSITY...

Phylogeny is the study of relationships between different species based on a common ancestor. For that, we use schematic representations called phylogenetic trees. These consist of branches, and the points where new branches appear are termed nodes. The function of nodes is to represent the common ancestor from which two or more new species appear. (The bottom right figure provides a comprehensive illustration of phylogeny). For a better classification of the species, you can cluster some of them in a group, called a clade, according to genetic, morphological, or embryological similarities, among many others. Depending on the number of species included, we can assign these clades as follows, from the highest number of species to the lowest: domain, phylum, kingdom, class, order, family, genus and species. In addition, there are intermediate states between the classifications such as suborders or superfamilies.

Flatfishes belong to the *Pleuronectiformes* order. This is divided into

three superfamilies called *Citharoidea*, *Soleoidea* and *Pleuronectidae*. This last one is also known as the group of right-eye flounders because they have both of their eyes located on the right side of their head. Paradoxically, within *Pleuronectidae*, there is the *Bothidae* family, which makes up roughly 20% of known flatfish species and whose members' eyes are located on the left side of the head.

The habitats of flatfishes are important to analyse their evolutionary process. You can encounter flatfishes in all the oceans of the world, but most of them are concentrated in the tropical Indo-West Pacific region. However, a minority of flatfish species live in estuaries (a transition zone between a river and a sea) and rivers. This probably suggests that the common ancestor of flatfish comes from tropical areas and moved afterwards into freshwater areas. This common ancestor is also believed to possess bilateral symmetry and to come from the order *Percomorpha*. This order includes a wide variety of very different species like seahorses, tuna, or flatfish.

THEIR EYES...

The reasons for the eccentric eye collocation of flatfish are eminently pragmatical since looking at the sand beneath them does not provide any relevant information. But how do they have those eyes? Surprisingly, at the very beginning of their lives, flatfish larvae have bilateral symmetry, which means that they have one eye on each side of their head. The larvae are translucent with protective spines all around the body. Contrary to adult flatfish, they do not dwell in the sea bottom but float in the water like plankton. The displacement of one eye to the other side of the head is a gradual and continuous process. The trigger is an increase in the production of thyroid hormones, which regulate metabolism and growth. In the case



A turbot camouflaging with its environment.

of flatfish metamorphosis, they cause a reshape of flatfishes' skulls in order to move the orbit (the cavity of the cranium that houses the eyeballs) of one side of the head to the opposite one; while the facial muscles, very active during this stage, push the eyeballs to the other side of the cranium in a controlled way that is synchronised with bone modifications. The jawbones are also modified to close and open horizontally instead of vertically. As camouflage masters, the flatfish changes its colours to the ones of its environment, and fins movements change from left-and-right to up-and-down.

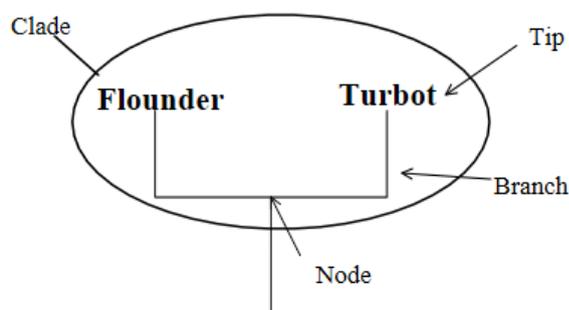
The head asymmetry of flatfish is clearly an evolutionary innovation because there is not any other organism with a similar trait. Nonetheless, scientists cannot agree whether this innovation was abrupt or gradual. Some eminencies such as Richard Dawkins claim that flatfish are an example of a "dramatic evolutionary adaptation", motivated by environmental changes and randomness in gene mutations. On the other hand, a transitional fossil of an adult

Amphistium, an extinct relative of flatfish, which dates back 50 million years ago shows an eye orbit near the top of its head. Therefore, the evolution of flatfish might be progressive.

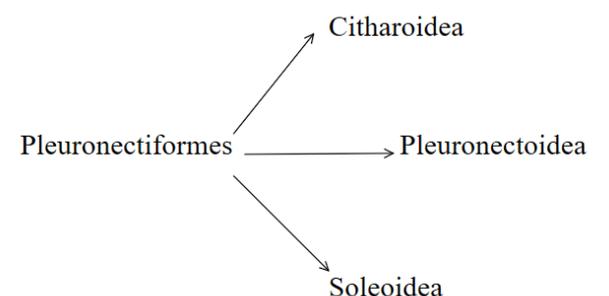
PERFECTION DOES NOT MATTER...

In the animal kingdom, asymmetry has been largely punished by natural selection because it is usually associated with diseases and weakness. But flatfish show that this is not always the case because their one-sided eyes provide them with a huge advantage in terms of locating both their prey and predators when creeping on the sea bottom. Another example of advantageous asymmetry is within ourselves. Human right lungs are bigger than left ones, to provide enough space for our heart. As we can see, natural selection does not care about beauty or perfection, but about the utility of traits to increase the survival chances of the individual.

Image Credits: Wang Guo



Example of a cladogram



Flatfish phylogeny

Leave No Trace - Sterile Neutrino Search Comes Up Empty

► *New results from Fermilab's MicroBoonE experiment fail to find evidence for the theorised particle known as the sterile neutrino.*

Image Credits: Wikimedia Commons

Ariel Flint Science Writer

Physicists already know a lot about neutrinos. First proposed by Wolfgang Pauli (you might recognise him from the Pauli Exclusion Principle) by a letter to a nuclear physics conference in Tübingen, neutrinos are light particles which interact only via gravity and the short-range weak force. This makes them incredibly difficult to detect, so much so that Pauli decided against publishing his ideas in a paper as he disliked the idea of theorising a particle which was practically impossible to detect. It took over 20 years for Pauli's ideas to be confirmed, with scientists nearly going as far as placing a detector next to a nuclear blast. Since then, we have discovered that there are three 'flavours' (types) of neutrinos - the electron, muon, and tau neutrino. These three flavours oscillate between each other and understanding how they do this has been the topic of research for many years. In 2007, scientists at Fermilab's MiniBoonE experiment confirmed previous results which showed that only a third of solar neutrinos were detected than expected. Could this point to some sort of new ghost particle? A new flavour of neutrino which does interact with the weak force? And thus came the sterile neutrino.

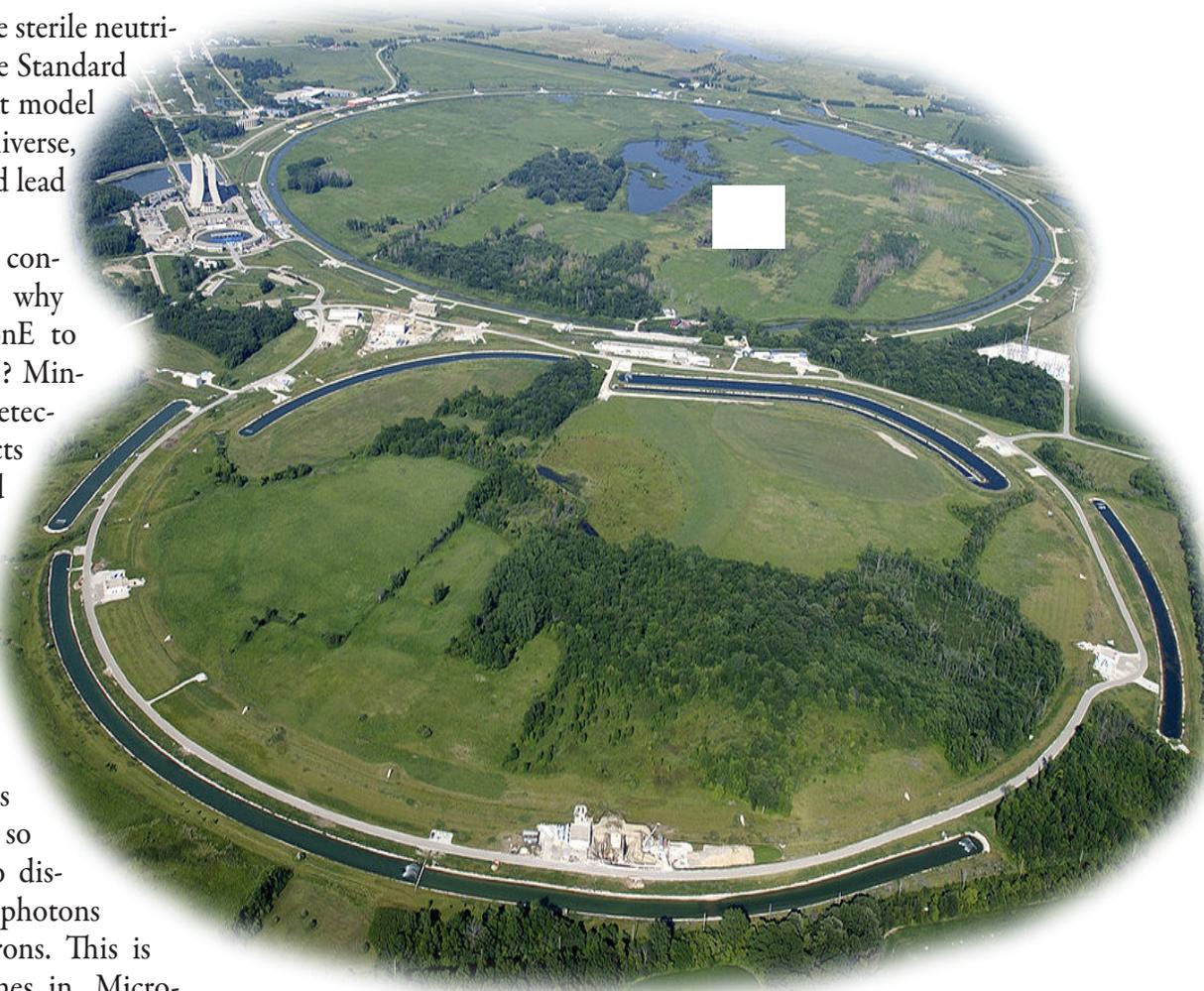
The sterile neutrino is a theorised extremely light-weight neutrino which would interact solely via gravity. The term sterile comes about because it lacks any electromagnetic charge, colour (the charge of the strong force), or weak hypercharge. This would make them even harder to spot than the elusive 'regular' neutrinos, as gravity is already a relatively weak force and neutrinos have a very low mass. The implications of this particle could be tremendous. Since they have no other interactions apart from with gravity, and have non-zero mass, sterile neutrinos make interesting candi-

dates for dark matter. The sterile neutrino is not predicted in the Standard Model, currently our best model for understanding the universe, and so its discovery could lead to new physics.

If MiniBoonE already confirmed previous results, why did we need MicroBoonE to carry out further studies? MiniBoonE is a Cherenkov detector, meaning that it detects the radiation released by a particle travelling through a material faster than light can travel through it (this is known as Cherenkov radiation). This means it can do a good job of distinguishing muons from electrons, but not so much when it comes to distinguishing high energy photons from high energy electrons. This is where MicroBoonE comes in. MicroBoonE is a liquid argon time projection chamber (LArTPC) - a promising technology that up until now has not produced any major results. LArTPC is more efficient in separating photons from electrons. This is extremely useful as any MiniBoonE event excess could be made up of photons from nuclear interactions, or electrons from electron-neutrino interactions (which are the source of the oscillations we're investigating).

So what did MicroBoonE find?

Well, the key question is what didn't MicroBoonE find. The main experiment consists of firing a beam of neutrons and seeing how their flavour oscillates as they travel. MicroBoonE gathered data over several years and the result published on the 27th of October showed no excess of electron neutrinos, thus indicating no evidence for sterile neutrinos.



The accelerator rings at Fermilab in Illinois, USA

nos. This is a definitive result, which is consistent with what the Standard Model predicts: three kinds of neutrino—no more, no less.

This doesn't mean that the search for sterile neutrinos is dead - the Deep Underground Neutrino Experiment (DUNE), a flagship international experiment expected to go live in 2027 already has more than 1,000 researchers from over 30 countries. DUNE will study oscillations by sending neutrinos 800 miles through the earth to detectors at the Sanford Underground Research Facility. The UK Principal Investigator for the DUNE experiment, and professor at Imperial College, Morgan Wascko is already looking forward to future experiments: "The LBNF neutrino beam that will supply neutrinos for DUNE

will be the world's most powerful neutrino beam, so it will have incredible sensitivity for sterile neutrinos and many other rare event searches. This is great because it is possible that new phenomena are lurking just below the sensitivity levels of current experiments." There is also reason to be excited about the T2K experiment as the J-PARC neutrino beam that feeds it will be upgraded over the following years ahead of the Hyper-Kamiokande experiment. Both of these could lead plenty of dark-sector (dark matter related) searches thanks to their powerful beams, and could possibly determine the nature of the sterile neutrino once and for all.

Apple's Unimaginable Week

Rayan Kamal Tech Editor

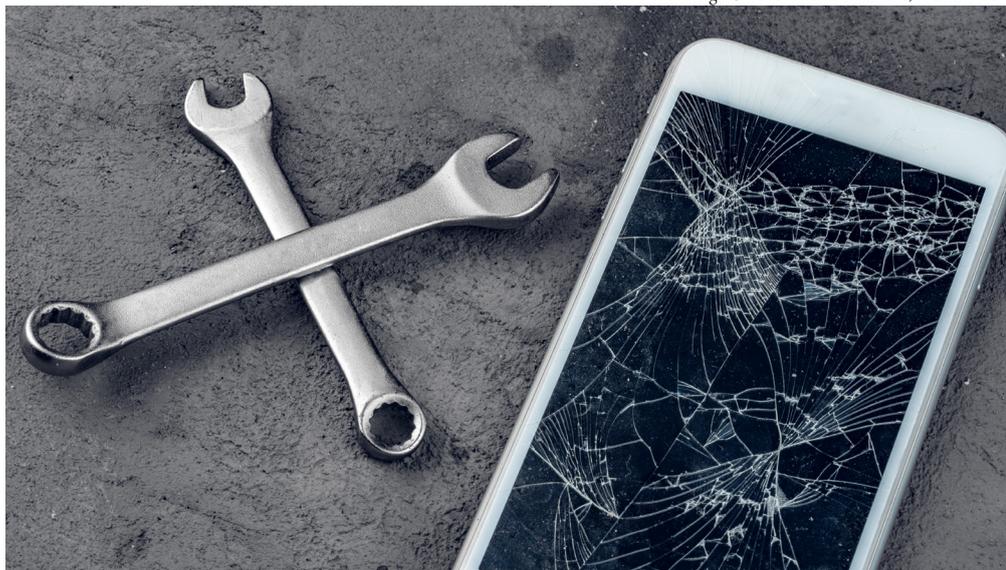
Traditionally giant tech companies have been known to be quite stringent on their rules for repairing devices, which has in turn brought into question the common phrase: the right to repair. Many examples of this can be found, one of the most notable being: Apple charging extortionate amounts for replacing cracked glass screens on their iPhone and Apple watches, some prices ranging to almost £600. Often this is almost the same amount of money that can be spent on just buying a new phone. What's interesting is that the parts themselves do not cost as much, which can allow repairs by the third-party sector to be cheaper. Additionally, third party repairs can allow the technology sector to be more environmentally friendly as new phones are not being made as a result of a lower demand; due to the simple fact that older phones can last longer. Thus, Apple have recently been under fire from a range of people, including their own fans. However, just this week Apple made a huge announcement. Something that shocked everyone!

Yes, iPhone owners and product enthusiasts can now purchase their own parts directly from Apple to repair their own products. Along with the products themselves, consumers also receive genuine Apple tools and a repair manual, which in theory should guide you through the ins and outs of many of the

common repairs that we could do instead of just purchasing a new phone - such as a battery replacement. iPhone owners are not the only ones, however, who get to experience this joyous occasion. No. Even Mac users can rejoice as this right-to-repair movement can involve them too. Currently Apple is offering only the parts and tools to repair the basics, nevertheless, as Lao Tzu eloquently put it: "a journey of a thousand miles begins with a single step".

Apple's previously have been known to lobby against the right-to-repair, citing that the lack or use of third-party parts can be damaging to devices as they are often not regulated by Apple or by the same strict regulation standards that the larger companies have to. Apple also sells a subscription: Apple-care Plus, which offers substantial discounts for many of the previous pricey repairs. Thus, following this news, the advocates of the right-to-repair movement see this as a huge win, and many of the tech influencers are surprised by Apple's unusual change in demeanour. Having removed the touch bar from the MacBook Pro, something which many complained about, to changing the keyboard on the new Macs, to improving the cameras on the new iPhone, and now this, the shocks keep on coming. I know that we're all waiting for what's next from this giant technological conglomerate.

Image Credits: Envato Elements, FabrikaPhoto



This week in Science...

FROM IMPERIAL...

London's air quality has improved... but not because of the ULEZ

Between 2016 and 2020, there were huge improvements to air quality in London, with a 94% reduction in the number of Londoners living with illegally high levels of air pollution. The Ultra Low Emission Zone (ULEZ), where more polluting vehicles must pay a daily charge to drive through, only contributed to less than 3% of the reduction in nitrogen dioxide levels, and negligible decreases in air particulates and ozone concentrations. Dr Marc Stettler from Imperial's Department of Civil and Environmental Engineering said "the case of London shows us that (ULEZ) works best when combined with a broader set of policies that reduce emissions across sectors." Air pollution caused 40,000 deaths in the UK in 2019, 4,000 of which were in London.

Imperial at COP26

A delegation of researchers and engineers attended COP26 as representatives from the College's Enterprise Division and Grantham Institute. COP26 delivered a new climate pact which was agreed to by over 190 countries, and an agreement that burning fossil fuels is warming the planet and causing climate change. But scientists say that nation's pledges to cut their emissions (NDCs - Nationally Determined Contributions) still fall short of reaching the Paris Agreement Goal to keep global temperatures below 1.5C above pre-industrial levels. Professor Sir Brian Hoskins, Chair of the Grantham Institute said "the crucial test of all the words spoken and promises made are: will the global greenhouse gas emission curve reach a maximum by the middle of this decade and then start to fall?"

FROM AROUND THE WORLD...

Using mechanical tools can improve our language skills

In 2019, researchers found a correlation between proficiency in tool use and good syntax ability. A new study from researchers from Inserm, CNRS, Université Claude Bernard Lyon 1 and Université Lumière Lyon 2 in collaboration with Karolinska Institutet in Sweden confirmed using brain imaging techniques and behavioural experiments that the same region of the brain in the "basal ganglia" is activated when participants completed syntactic exercises in French, and employed motor skills using pliers. They also confirmed that syntactic comprehension improved after motor exercises, which could mean that one could be trained by doing the other. This could prove useful in a clinical setting, particularly with patients who have lost certain language abilities.

New company Isomorphic Labs: can it apply protein folding predictions to the pharmaceutical industry?

Google owner Alphabet has launched a new company Isomorphic Labs with the goal to "reimagine the entire drug discovery process from first principles with an AI-first approach". It is very hard to infer the protein shape and folding from a genetic or amino acid sequence. Its sister company DeepMind wowed the scientific world with its AlphaFold2 technology in 2020, which can accurately predict the shape of almost every protein in the human body, providing a huge leap forward in this challenge. It has now made this tool available on an open source basis for pharmaceutical companies and researchers. However, the move to use machine learning to deduce protein folding has been criticised for being idealistic, as it may not perform as effectively in the real world as it has in competitions.

Musical

The show never before seen and never to be seen again

Showstopper! The Improvised Musical



Where? Lyric Theatre
When? Until March 2022
How much? £15 (Students)

Reviewed by **Eamon Akil Farhat** Arts Writer

Nothing beats live theatre; the music, singing, acting, and dancing all unfolds in real time right in front of our eyes to give a rush that one can't get from the silver screen. *Showstopper!* takes this a step further, creating a fully improvised musical where every song sung and every step taken happens that night only and never again.

The show starts with a narrator character (sort of) taking audience suggestions for settings, song styles and general plot points. After a slightly drawn out back and forth with the audience, a mermaid and pirate musical called "Who Do You Think You Arrr?" is decided on and seconds later, the cast bursts out on stage ready to take the audience on an impromptu journey.

The opening song is an epic one, reminiscent of the *Les Miserables* opener, and immediately the audience sees that these are professionals and any worries they

might have had about seeing some quirky improv show are put to rest.

The story adlibbed by the actors is of Captain Abernathy sailing to mermaid-infested Tortuga in the search of fame and glory. A small joke about recording a podcast by Lucy Trodd, quickly spins out into a full subplot, bringing many laughs from the audience but a more sinister plot of mutiny and a torrid love affair dominates the story.

Trodd, a seasoned performer, does not always take centre stage but every offhand comment she makes hits a home run, and even when she is just milling in the background, she is always in full character doing something that will make you laugh -- a definite scene stealer.

When the dialogue seems to stifle, the narrator intervenes to spice things up, for example, making one character speak in a Brummie accent... and then adding a requirement that he must speak in iambic pentameter too! The musical styles are also prescribed at times by this narrator, with Ruth Bratt delivering an enthralling performance in the style of German composer Kurt Weill as the main evil mermaid.

Popular musicals like *Six* and *Hamilton* are suggested by the audience with Adam Meggido taking on a musical rap, seamlessly creating a whole song in this difficult style on the fly. Meggido is able to bring humour,

Credits: Photo / Hugo Glendinning



Improv meets musicals for a match made in heaven!

leading the troupe during a Spice Girls style opening number, as well as conveying more serious scenes when his love interest with the captain comes into play, allowing the rather helter skelter plot to advance.

Improvised shows are impressive, and this troupe are adding singing and dancing to an already difficult art form. Amazingly, any plot points in this review are irrelevant as next time the show is on, the story will be completely different but the waterfalls of talent coming from the cast will be intact.

Musical

The Historemix

Six - The Musical



Where? Vaudeville Theatre
When? Until May, 2022
How much? £29.50 (Students)

Reviewed by **Eamon Akil Farhat** Arts Writer

We all have different ways of procrastinating for exams, but for Toby Marlow and Lucy Moss, writing a hit musical was their outlet. The two Cambridge students spent ten days during their exams period developing the script and music behind *Six* the Musical, telling the 'untold' story of Henry VIII's six wives in a modern, girl-boss kind of way.

The premise of the show is that each queen is a member of a girl group, and they are all competing to see who the leading lady can be based on how much Henry VIII hurt them. This format gives each their moment under the spotlight and allows the audience to connect

Credits: Photo / Pamela Raith Photography



Boisterous performances abound in *Six - The Musical*

ARTS

with their strong personalities.

First, we get a taste of the original paragon of royalty, Catherine of Aragon, played by the amazing Jarnea Richard-Nioel. Beyond impeccable vocals and a confidence which embodies the character, Richard-Nioel's technique of portraying humour or anger just by the way she scowled at the audience is truly the cherry on top.

Next, one of the more famous queens, both historically and in the *Six* universe: Anne Boleyn. Millie O'Connell originated the role in a rather iconic way, gaining swathes of fans. However Cherelle Jay, the alternate during this performance, brought her unique quirks to the role. Jay's reinvention of the portrayal was very refreshing with her more subtle ways of transmitting Boleyn's punchy and bitchy persona working fabulously; and in some ways this made the Tudor queen seem more nuanced than ever.

The costumes in *Six*, funky and modern, are all an integral part of the spectacle. Jay's costume was however not the usual green Boleyn skirt, which was a bit of a

disappointment, but this is likely to go unnoticed and unmissed by most the audience.

Jane Seymour, played by understudy and dance captain Collete Guitart, took to the stage next. Her performance hit all the right notes singing about not being able to spend more time with her son. This was the first ballad in what was up to this point a highly energetic show. This variation in musical styles is definitely one that *Six* leverages to its advantage.

The next queen to show up is Catherine Howard (played by Sophie Isaacs). The characterisation of the queen and musical style is allegedly based off of Britney Spears, and Isaacs voice lends itself perfectly to the cute schoolgirl tones. The song is quite dark as it tells of men taking advantage of her from a very very young age. Isaacs does a good job at portraying a sense of vulnerability and sadness while still keeping things relatively fun.

The queen who has the least to complain is next: Anne of Cleves. Alexia McIntos is an expert at portraying the fun, opulent energy of this German queen.

In the song "House of Holbein" the band transports the audience to a sort of Berlin techno club. But here for once, the energy level of the queens doesn't quite seem to match the tempo of the song.

Finally, the queen who survived, Catherine Parr was played by alternate: Hana Stewart. The characterisation of Parr in the musical is probably the least compelling, but Stewart (and every other Catherine Parr I have seen) makes up for it with impeccable vocals. The story of the queen who survives could be given a few more twists and turns or at the very least some *je ne sais quoi*.

I would say some of the explanations about the context of the competition they are competing in was a bit superfluous and as things wrap up at the end, the constant explanations of the moral behind the show were a bit tiring. However, this musical is the perfect example of how smaller productions with a unique story, powerful songs and strong characters don't need to rely on big sets or complicate dance numbers. Just a woman, or six of them and a microphone can take over the world.

Theatre

In a woman's troubled mind

Little Scratch



Where? Hampstead Theatre

When? Until 11th December, 2021

How much? £10 (Students)

Reviewed by Sofia Elizarova Arts Writer

Unnerving, deep and wonderfully poetic, this adaptation directed by Katie Mitchell manages to perform a seemingly unmanageable task — to depict the complex internal monologue of a woman suffering from trauma and depression on stage.

The set arrangement is unlike anything I have ever seen before; there are four actors — Morónké Akinola, Eleanor Henderson, Eve Ponsonby and Ragevan Vasan — each in black clothing that blends with the darkness of the setup, with nothing other than a beam of light illuminating their faces. Throughout the production, the voices of these actors blend with one another in a melodic flow, beautifully replicating the incessant chatter in the skull of a troubled individual.

The voices of the actors guide the audience through a deceptively ordinary Friday in the life of an assistant, stuck at the bottom of the corporate hierarchy. She wakes up hungover, incapable of sorting out the mess in her kitchen, rushes to work via the London underground, waits for a WhatsApp message from her significant other — a mundane morning by all accounts. However, every single task is accompanied by bursts of her trauma bubbling up to the surface, distorting this mundane present with the darkness of her past. We

hear her anxiety around the awkward greeting with her co-workers, her rush to get to lunch, and then to the end of the day. The boring tasks of her work are interwoven with deep anxiety about her life choices. She questions why she works at a job she hates, whether she will ever become a successful writer; these questions really bring her character to life and portray her as a deep and complex human.

As she progresses through the day, a multitude of fragments from her trauma are revealed. These fragments are crisply underpinned by sound effects — the scratching of her nails against her skin as she self-harms, the monotonous hole-punching she must do as part

of her dreadful job. It is impossible not to get deeply emotionally involved when the penetrating dullness of these sounds is set against the chorus of voices bringing up and pushing down the trauma.

This adaptation is not suitable for those triggered by rape, sexual assault, or self-harm. Furthermore, it is definitely unsuitable for those looking to leave the theatre smiling and at peace. However, if you would like to go on a disturbing, yet poetically captivating, journey through the mind of a fellow human being, to see the world through the eyes of someone whose worldview has been shattered by trauma — this adaptation is a must-see.

Credits: Photo/Robert Day



Eve Ponsonby, Eleanor Henderson, Moronic Akinola and Ragevan Vasan in *Little Scratch* (L-R)

Exhibition

William Hogarth's line(s) of beauty

Hogarth and Europe



Where? Tate Britain

When? Untl 22nd March, 2022

How much? £17 (Students)

Reviewed by **Vaidhiswaran Ramesh** Arts Editor

Thanks to the onset of industrialisation and revolution in engravings and print, William Hogarth rose quickly to become one of the most popular English painters of the eighteenth century. Moving away from commissioned religious work and portraiture milieu, Hogarth and his fellow compatriots across mainland Europe at the dawn of the century instead developed through their paintings a unique commentary on contemporary social life. In short, these paintings captured on canvas are the first impressions of life outside courts, reflecting instead on the common man and society. Street corners, balls, salons, and cafes became commonplace in art works, slowly displacing churches and landscapes.

Tate Britain's latest exhibition focuses on this changing tide in the mid-eighteenth century, and through a series of paintings and prints focussing mostly on Hogarth's work, writes a dramatic telling of society as it existed then.

Much changed in eighteenth century Europe. Cities everywhere become the focus - and four in particular - became rallying points for gentry and artists! Venice and Amsterdam, teetering on their last vestiges of the post-renaissance and trading relevance; while Paris and London, were, thanks to the Age of Enlightenment and the impending industrial revolution, becoming the epicentres of Western civilisation.

In such a climate, Hogarth and his contemporaries painted not paysages, bridges, and piers. Instead, we go for the first time, invited into the lives of eighteenth-century folk, and confront the vibrant city life. The exhibition opens with Hogarth's 'The Gate of Calais' and this works brilliantly in two ways. For one, it presents a striking allegory of the times we live in now, full of vibrancy and action; but also unfortunately, that of rampant stereotypes and jingoism. The fat French monk veers with 'wry' eyes on the roast beef of Old England (the painting's other name), while the women around - common folk, are shown to be indifferent and succumbed to superstition. On the other hand, it sets the tone for what follows; canvases that uniquely capture city life and society, not always honestly though, but full of vibrancy nonetheless.

Speaking of cities, one sees a lot of London here. But a different London to one we've seen elsewhere. This isn't the London of Turner with the hazy fumes of burning Westminster and foggy bridges; This isn't even



'The March of the Guards to Finchley' by William Hogarth, 1749-1750

the London of Canaletto with the sharpness of the piers and boats striking into the cold still water. This is Hogarth's London - one that has more in connect with Fleet Street than it does with Mall Road or the Strand.

London has never been painted with such rootedness. Soldiers and merry folk go about their usual lives, trysts in dimly lit pubs and street hawkers moving about their carts are more common here than any other aspect of London.

The exhibition displays the print engravings he made for the papers, praising the virtues of beer drinking whilst shunning gin and tonic (which are accompanied by some swell eighteenth century shanties). Not your average conversation among gentry, is it? Even when the paintings are of gentry or nobility - it shows a tinge of wit and self-ridicule of the characters therein. There is more honesty in these paintings than was ever entertained before with commissioned pieces.

But if all of these are commonplace, so too are the vices and the hypocrisy of the lives these paintings portray!

Hogarth was a man and product of the eighteenth century - and even as diversity was beginning to take stock in London (over 3% of the London population at this time were of Black heritage), slavery and prejudice was a real and malignant presence. These aspects are found scattered across paintings of the age, but particularly in Hogarth's work. Black people, are often carica-

tured into stereotypes in these paintings, and stand literally on the edge of the canvas cut out of the narrative mercilessly. The exhibition does crucial justice to bring this to the forefront of discourse, dancing the fine line of allowing us to reflect sans judgement of the milieu.

In my review of Tate Britain's previous outing with the exhibition on Turner (Turner's Modern World - issue 1754), I alluded to quite offhandedly that 'British art does(n't) begin and end with Turner and Constable...' It is only fair that I acknowledge here that with this single exhibition, Tate Britain has shown how much more there is to it. The exhibition shows how one can learn quite a lot on social commentary through paintings and, more importantly, learn from them to be better.

This focus on social commentary can be heavy, however; and in comparison does eclipse the technical discourse on the style of Hogarth and his contemporaries - one might come out of the exhibition feeling quite like they have been to see a documentary! But again - art is storytelling, and as much as we might like, exhibitions are more about unearthing these hidden narratives than plain textbook narration. Only note that if for any reason much of the narrative explored in these paintings about the injustice of the age seems indulgent to you - you've more to learn than the next person! This is a one exhibition that is not to be missed!

Credits: The Foundling Museum

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Are World Leaders Doing Enough for Climate Change? Why Thunberg May be Right to Call Out Politicians

Zanna Buckland Books Editor

On Friday 29th October, 2021, 18-year-old Greta Thunberg visited the Natural History Museum's 'Our Broken Planet' exhibition and had a look at the recently identified beetle that has been named 'Nelloptodes gretae' in her honour. As part of her visit, she also participated in a 15-minute interview with BBC presenter Andrew Marr, who asked her a number of questions spanning COP26, climate activism, and her thoughts on the actions of political leaders, among other topics.

This interview is interesting in that it paints a very different picture of Thunberg, who is known for her blunt, intense speeches, and passionate, somewhat antagonistic, activism. While her passion for her cause is still clear, she speaks in a much more calm and rational tone than we have previously seen. She appears well-informed, demonstrating an ability to reference facts and statistics off the top of her head to support her claims, and delivering thoughtful responses with minimal hesitation.

Thunberg also seems optimistic, despite the depressing circumstances we're in and the sore lack of critical action that has been taken thus far. The interview concludes with statements like 'we are activists because we are very positive that we can achieve change' and 'there is not a point where everything is lost'. It is uplifting to hear her belief that we can, and should, always continue trying to save our planet.

However, among the positive words there is a jarring line of hers: 'If we switched our focus (away) from trying to create loopholes and excuses to not take action...' While this appears to be a reference to what was supposed to be achieved at COP26, it rings even truer in retrospect, with many

world leaders failing to agree to the necessary terms for keeping Earth's temperature to 1.5 degrees or lower.

The effects of climate change are becoming increasingly noticeable, and the predictions for the future of the planet on its current trajectory are not looking pretty. With our current emission rates, we are slated to reach 2.4 degrees of warming by 2100, and with that comes disastrous effects, including, but not limited to, increased wildfires and flooding, crop failures, and population displacement.

COP26 may have been pegged to be a groundbreaking convention, but it has not lived up to the world's expectations – not by a long shot. Thunberg and fellow climate activists Ugandan Vanessa Nakate, Polish Dominika Lasote, and Filipino Mitzi

Tan set out a list of demands for the politicians and businesspeople attending COP, as seen below:

1. Keeping the goal of 1.5°C alive,
2. Ending all fossil fuel investments, subsidies, and new projects immediately,
3. Ending creative carbon accounting,
4. Delivering the \$100bn promised to the most vulnerable countries, and
5. Enacting climate policies that protect workers and the most vulnerable.

This list also formed the basis of an online petition (see QR code on next page). The petition has gained over 1.8 million signatures since it was published two weeks ago, with the number continuing

to rise, but none of these demands have been addressed sufficiently.

There have been a few notable agreements, including a tentative cooperation between the US and China, and an amendment to the 2015 Paris Agreement to reconvene every year (as opposed to every five years) to further discuss climate action, but the majority of discussions have still fallen short in committing to the desired solutions for restricting global warming.

One of the major talking-points of COP – the failure to supply the agreed upon climate financial aid for underdeveloped countries – is a striking example of politicians not following through on their promises. In September, when Thunberg notoriously reduced the claims of world leaders to the phrase 'blah, blah, blah,' this kind



Photo credits: DisobeyArtPhotography on Envato Elements

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of inadequacy is what she was referring to. Of course, it's easy to say that governments should be doing more for their people, but Thunberg has shown a knowledge of climate change and related policy that exceeds the average civilian. Andrew Marr even quizzed Thunberg about the possibility of her running for elected office in Sweden, now that she has turned 18, to which she bashfully replied 'no, at least not right now', switching the conversation back towards 'on the streets' activism.

Furthermore, some have criticised the language used in the official agreements, both those made at the COP21 in Paris,

and the current COP26 in Glasgow. This includes such words as 'welcomes', 'urges', and 'notes', which are ambiguous and non-assertive. It could be argued that our current global situation calls for more commanding and ambitious direction from – and for – the world's leadership.

At time of writing, the final draft of the COP26 agreement is still being negotiated, but there are a few commitments that have already been outlined. Phasing out coal and fossil fuels is on the table, but without specific statements about how fossil fuel dependent countries such as Australia, China, and the US should implement

this. There are references to how low the budget for climate currently is, but without suggestion of where more funds should be located, or how they should be allocated. Countries are being called to 'accelerate' the actions set out in the Paris Agreement, with added emphasis on 1.5 degrees, however, there have not been many significant updates to what was originally agreed upon in back in 2015.

As with all politics, the agreements made are limited by national finances and the economy; it is vital for pressure to be placed on large corporations and richer nations to invest more heavily in climate action and the environment.

The world is now watching and waiting to see if global leaders will make good on their words. Only time will tell whether the 'loopholes and excuses' described by Greta Thunberg will gradually recede, allowing concrete actions to take their place. In the words of Sir David Attenborough, 'If we don't act now, it will be too late.'

Scan this to sign the petition on the emergency appeal for climate action:



The Science Museum's Climate Exhibition—Medium for Public Awareness or Corporate Rebranding?

Jack Cribb Environment Editor

Over the past year, London's Science Museum has been exploring a wide variety of climate related exhibitions, targeting "the latest climate science and the energy revolution needed to cut global dependence on fossil fuels". At first sight, this seems like a forward-thinking, progressive response in light of the global challenges we face from climate change. However, beneath this veneer lies a common and corrupting theme—sponsorship from fossil fuel companies.

While the Science Museum's upcoming climate exhibition—the Energy Revolution gallery (opening in 2023)—is aimed at displaying "a truly global perspective on the world's most urgent challenge", it is being funded by a subsidiary of the Adani Group, a conglomerate that deliver oil exploration projects, power from natural gas, and some of the largest coal-based power projects in India amongst other energy endeavours.

The subsidiary in question, Adani Green Energy, currently operates the Kamuthi Solar Power Project, one of the world's largest solar photovoltaic plants, alongside several other green energy projects. The decision to fund 'Energy Revolution: The Adani Green Energy



Gallery' from a company primarily concerned with fossil fuel use has been called "reckless" by campaigners, just one response that marks a string of recent criticism aimed at the Science Museum.

For example, in May, the UK Student Climate Network (UKSCN) led a protest at the Science Museum over a sponsorship from Shell that supported its 'Our Future Planet' exhibition. It was uncovered that, in their partnership with

Shell, the Science Museum Group had signed a 'gagging clause' that committed them to not "damage the goodwill or reputation" of the fossil fuel company.

These relationships have led to the resignations of mathematician and presenter Hannah Fry, and Director of the Institute for Research in Schools Jo Foster from the Museum's board of trustees. Professor Chris Rapley, a former director of the Museum, was

another to resign, leaving the Advisory Board due to the Museum's continued partnerships with fossil fuel companies.

The Science Museum's decision to partner with some of the biggest fossil fuel conglomerates in the world has been hailed as "astonishing". Jess Worth, Co-Director of Culture Unstained, a research, engagement, and campaigning organisation which aims to end fossil fuel sponsorship of culture, stated "Their enthusiasm for fossil fuel partnerships has turned controversy into a crisis of credibility, and they must be held to account for their reckless decisions."

Adani themselves have also not been free from deserved criticism. They recently came under fire from Nedan farmers and villagers in the Jalsaimer district of Rajasthan, India, when nearly 990 hectares of cultivable land were allocated to the organisation to use in a green energy project.

Similar occurrences have happened in Australia, where Adani targeted indigenous land for coal extraction projects. On the Science Museum sponsorship, Adrian Burragubba, an indigenous leader who was made to leave traditional lands by Adani, said "By putting this company on a pedestal, the Science Museum is complicit in Adani's violation of our human rights

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and destruction of our ancestral lands.” Based on research from the Australia Institute, it’s been estimated that Adani emit 79 million tonnes of carbon equivalent (CO₂-e) from the Adani Carmichael Coal Mine annually—just one of their energy projects.

This isn’t the first time that fossil fuel companies have weighed in on the

move toward alternative energy sources, as there has actually been longstanding relationships between them and climate exhibitions, research, and ‘activism’.

In the 1970s, British Petroleum hired an advertising and PR agency to very cleverly lay blame for emissions at the feet of the individual. They worked to popularise the term ‘carbon

footprint’, which successfully became an oft-used buzzword within the climate community, bleeding into both grassroots activism and mainstream politics. This, alongside Adani’s sponsorship of the Science Museum, are just new examples of the widely practised method of corporate greenwashing. Today, it is increasingly common

to see more and more climate-related initiatives, exhibitions, and campaigns make their way into the public realm. However, not all of these should be taken at face value. Simple interrogation of who is bankrolling these initiatives will ensure that those mostly responsible for climate change are not able to hide behind the curtain of faux climate action.

Tackling Food Waste at its Core: Re-evaluating Our Relationship With Food

Seb Lawson Environment Writer

One third of all food produced is wasted. With such immense amounts of waste, there are obvious concerns over the lost resources along the chain of production and the inequality of our current system’s food distribution as many still struggle to feed themselves. But why is it so easy for consumers to waste their nourishment?

In the developed world food is discarded along each stage of its endless supply chain, however, while we have no control over most steps along that supply chain, as consumers we have control over our own waste. Throwing out ‘expired’ products from our fridges and cupboards may seem innocent but it has profound consequences. Not only does this wasted food mean that input resources such as water have been unnecessarily used, but when the food reaches the landfill it emits greenhouse gases (GHG) into the atmosphere.

At the end of the 18th century the

English demographer and economist Thomas Malthus suggested humanity would reach a critical inflection point between an exponentially rising population and a food supply only capable of increasing in a linear fashion. This would likely result in famine and war, followed by poverty and depopulation. Humanity would in theory, retrogress. Fortunately, no such global crisis has yet occurred. But just like the joke about the economists who have predicted fifty of the last five financial crises, the Malthusians may one day be right.

It will require some wilful reimagination of our global food systems to ensure the future isn’t pervaded by famine for many parts of the world. The figure for undernourishment has worryingly risen in recent years. The writer William Gibson famously declared ‘the future is already here – it’s just not evenly distributed.’ We should be looking to ensure it isn’t one of insufficient access.

Not only do we need to look at more resilient ways of growing the food

(which is a separate discussion), we also need to look at this disconnect between consumers and producers. Globalization and urbanisation are chief among a variety of factors that have disrupted this relationship. If you only know food in its plentiful and accessible supply, far removed from its point of inception, you will feel less guilty about throwing away that extra pepper.

We have a fractured relationship with our food, the majority of the developed world are disconnected from what’s on their plate. A food’s journey to that plate is far out of sight and mind. Most only know food from the final stage of the chain: in the supermarkets or restaurants where its supply is deceptively limitless. Yet global food prices have hit a decade high; poor crop yields, labour shortages and shipping costs have added Malthusian doubt to what was an illusion of stability in the abundant supply of food variety.

So how do we correct this? One way to do this is through rekindling people’s connection to the food on their plate. This can be done through localising supply chains. Direct farm to consumer food has been gaining popularity in the west. The notion of building a relationship with the farmer may sound archaic but just like the vinyl and the milkman those things we thought were once gone can sometimes re-enter the frame; sometimes for the better.

To fend off a new wave of Malthusian concerns we need an answer that is not just technological but psychological.

We would all agree that the freezer and fridge technology have improved standards of living no doubt, but in spite of their prevalence the developed world is still binning a large percentage of their contents. Scale this consumption level globally and there wouldn’t be enough to go round. A globalization of the American diet couldn’t sustain itself.

Some may think that technology can allow such abundance, that hydroponic city farms can increase the supply of food globally. While at its best it may present a cornucopian food system to deter Malthusianism, it doesn’t

tackle the waste problem. If the GHG produced from food waste were a country it would only be behind China and America; its contribution is 6% to global GHG emissions, more than three times that of aviation. If anything, easier and cheaper access to more food would exacerbate the problem. We should be cautious of a future of commercial western-style abundance; just look at the damage and diseases caused by this diet.

Looking at our current supply chain system consumers can be forgiven for not thinking about these things. Supermarkets have done wonders for increasing accessibility to a multitude of food. But if we continue with this paradigm of waste then the food they supply will become more of an issue than a source of nutrition and celebration. We can easily produce enough to feed the world, we may just have to re-evaluate what goes in the bin. Or to paraphrase: the food is already here – it’s just not evenly distributed.



Photo credits: mrdoomits on Envato Elements

Farming After Brexit - Time to Grow ELMS

Sam Lovatt Editor-in-Chief

After Brexit, one of the few things I was optimistic about was farming. For all its free trade benefits and routes of international cooperation, the EU does have a number of flaws, one of which manifests in the form of the Basic Payment Scheme (BPS) for agriculture. The BPS basically pays landowners simply for having land, whether they use it for housing orphans or tyre burning.

Currently this scheme pays the biggest farm owners (who need subsidy the least), 50% of the total pot, even though they make up only 10% of recipients. Recipients in this bracket include Sir James Dyson (of ICL DesEng fame), Prince Khalid bin Abdullah al Saud, and the Queen.

This month cuts to BPS begin, with those receiving the most subsidy being hit the hardest with a 25% cut, and smaller farms losing only 5%. By 2028, the scheme will have been phased out entirely. The money is not just being reabsorbed by Whitehall and will instead be used to fund environmentally beneficial practices such as flood defence, generating woodland, and rewilding. The potential for the scheme is huge - Professor Ian Boyd, ex-Chief Scientist at DEFRA described some farmers as “sitting on a gold mine” in terms of payments they could get for using their land to grow trees.

Boyd's vision also includes reutilising land for what its best suited for. He claims around 50% of British farmland produces only 20% of the food due to it being, for example, too high and therefore imperfect for crop growth. The book *Wilding* highlights an example of where reutilising land can be far better for society than inefficiently growing crops. Land that was rewilded through the introduction of more trees and decompaction of soil prevented millions of pounds in flood damage which had been observed at similarly heavy rainfalls over the past few decades.

Speaking of trees, how about some elms? Or, more specifically, Environmental Land Management Schemes (ELMS), the UK's revolutionary scheme for land management aimed at promoting growth of healthy food and restoring nature. The Cerberus of ELMS



has three heads: Sustainable Farming Incentive, Local Nature Recovery, and Landscape Recovery. All revolve around the same principles of reaching net zero by 2050, and farmers will be rewarded for the following:

- **Clean and plentiful water,**
- **Clean air,**
- **Thriving plants and wildlife,**
- **Protection from environmental hazards,**
- **Reduction of and adaptation to climate change, and**
- **Beauty, heritage and engagement with the environment.**

On the surface these look like great ideas. The issue with this change in scheme, as is mandatory in the operation of this government, is that its implementation has been poorly thought through and not prepared for. Putting the fact that there is no concrete financial planning for it beyond the term of the current government, the Environment, Food and Rural Affairs (EFRA) select committee has warned that the “haphazard” transition between funding models puts many farmers at risk of being put out of business.

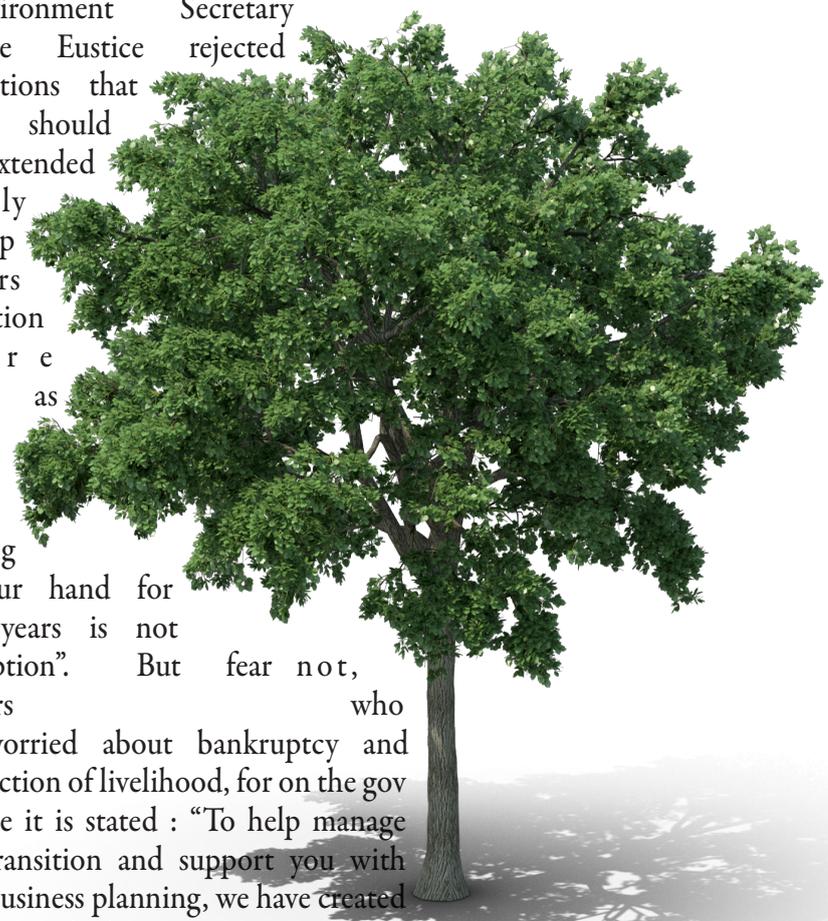
EFRA recently put forward a number of recommendations that highlight quite well the aforementioned haphazardness of the roll out. These included that DEFRA should publish a set of clear and measurable objectives for the scheme before the window for application to the pilot scheme opens in 2022. This, of course, means that there currently is not a set of clear and measurable objectives for the scheme.

Environment Secretary George Eustice rejected suggestions that BPS should be extended slightly to help farmers transition more easily, as

is an aspect called the Lump Sum Exit Scheme, made available to farmers who “are looking to retire or leave farming to do so in a planned and managed way”. So subsidy for freeing up land for other uses, as in Boyd's dream? Alas no, as this sentence is justified with “This will also free up land for new entrants and existing farmers wishing to expand”.

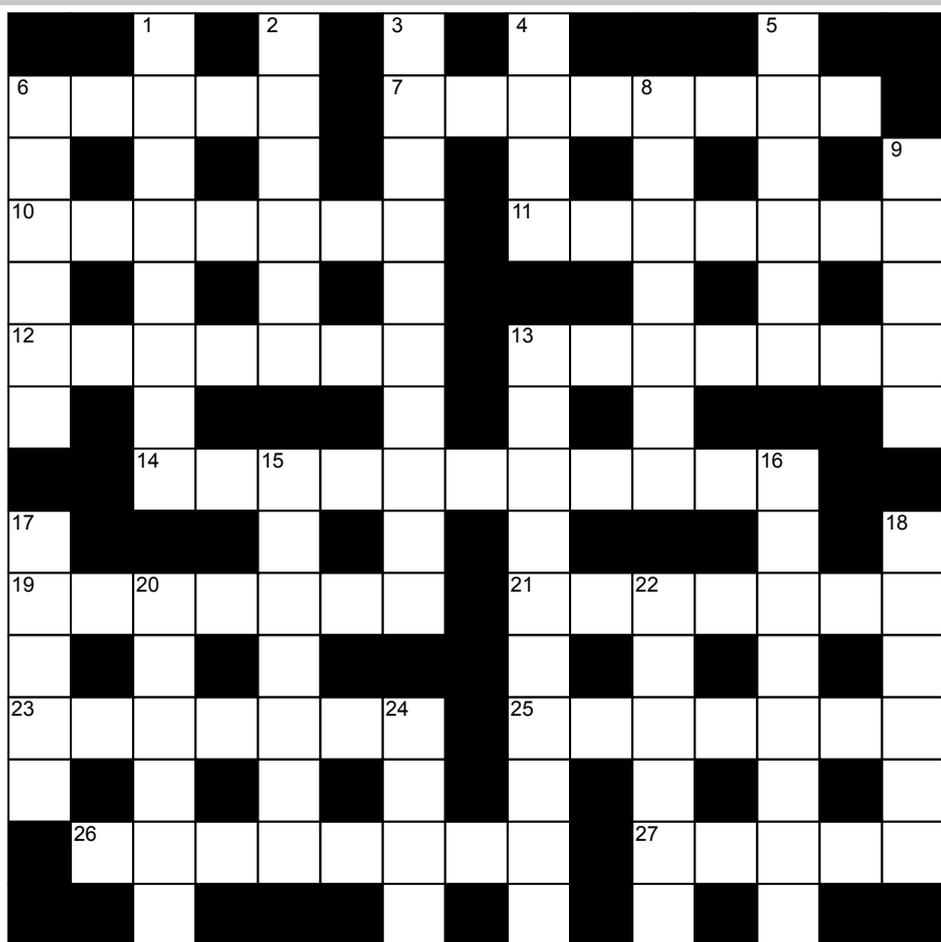
“sitting on our hand for four years is not an option”. But fear not, farmers who are worried about bankruptcy and destruction of livelihood, for on the gov website it is stated : “To help manage this transition and support you with your business planning, we have created an online calculator”. Prayers answered.

An odd caveat of the current plans



PUZZLES

CRYPTIC Crossword Grid



CRYPTIC Crossword Clues

Across

- 6) Will the Spaniard pass away and leave? [5]
- 7) Show I can't die. [8]
- 10) Disease in the tooth stopping you from eating. [7]
- 11) Notice a notification while bleeding. [7]
- 12) Lemon drizzled around half of that minty stuff. [7]
- 13) Can the youth get into the cafeteria? [7]
- 14) Man in temper, strangely only for a short time. [11]
- 19) A synopsis of warm weather, so it sounds. [7]
- 21) Primary school subject to give sound foundations? [7]
- 23) Debts accrued when one backs firearm precedence. [7]
- 25) One after the French evangelist. [7]
- 26) Strangely, steadier than the most prepared [8]
- 27) Might he who sounds bolder get them off? [5]

Down

- 1) Reportedly finish up here! [8]
- 2) Or finish with this nationality! [6]
- 3) Especially bad behaviour at the ravine with a river through it. [10]
- 4) Increases number of promotional posters to around five hundred. [4]
- 5) That line you painted is a little rubbish. [6]
- 6) Central part of an excitedly made case for libel. [6]
- 8) The Church outwardly is inclined to purify. [7]
- 9) A guy working for MI6?[5]
- 13) Carboniferous ferns, for example, used to produce power? [4 6]
- 15) Notice friend playing card. [7]
- 16) Three-section art piece in the crypt hit violently. [8]
- 17) That mad Ursula doesn't have the right to be a regular! [5]
- 18) Examine that idiot and lower his grade! [6]
- 20) About to beat rising crime. [6]
- 22) Doors you let waft in smells. [6]
- 24) Growing subjects? [4]

Easy Sudoku

			3		7		
	8		2		9		
	1		5				
4	2			9		1	7
		1				8	
3		8		6			4 2
					4		8
		7			9		3
		4		1			

Normal Sudoku

8		1					5	
			6	2			9	
	9							
	1		9	4				3
		5		7		2		
7				6	3		1	
							6	
	2			1	9			
	4					8		9

Difficult Sudoku

	7		8					
	9			7	5	8		
		5			1	3	4	
			7				2	5
5	4				8			
	8	4	3			2		
		2	1	8			9	
					4		1	

FUCWIT

- 1. Plont Palace 87
- 2. Pancakes, surely? 68
- 3. Deep-Fried Charizard 66
- 4. AKGroup 51
- 5. hea-ing 50

As always, you can send your solutions to fsudoku@ic.ac.uk before this Wednesday, 12 noon to claim your points!

Points

- Easy, Normal, Difficult sudokus 2, 3, 4 pts each
- Killer sudoku 7 pts
- Cryptic Crossword 5 pts
- Regular Crossword 3 pts
- Nonogram 5 pts

Puzzles Notices

We thank our contributors:
 Freya Morris for the sudokus
 Stanley Scott for the crosswords
 Mihaly Ormay for the nonogram
 Raluca -Anamaria Constantinescu for the leaderboard
 Lito Chatzidavari for laying out these pages

to put new puzzles next week, feel free to email us at fsudoku@ic.ac.uk with your suggestions.

You can also check our full leaderboard online by scanning our QR code:



Hope you enjoyed last week's puzzles! In addition to our usual puzzles, this week we bring you a killer sudoku (good luck with that :)) as well as a nonogram! If you want us

REGULAR Crossword Clues

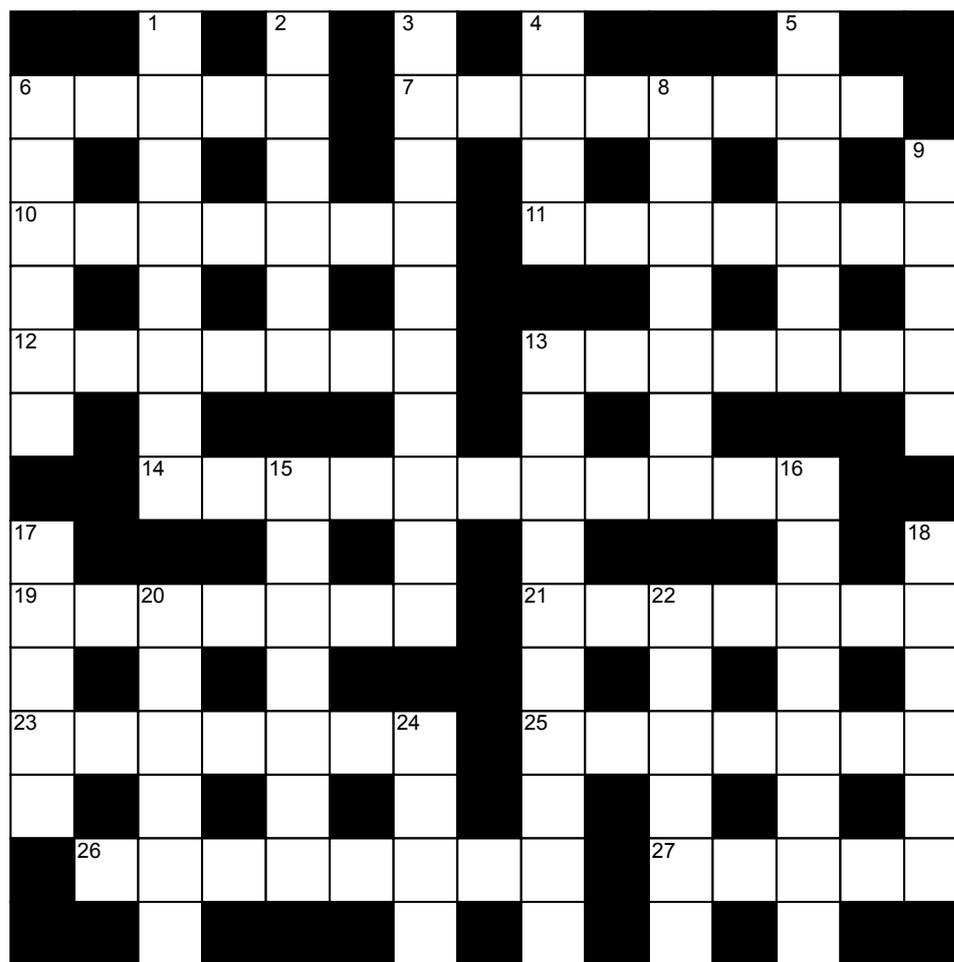
Across

- 6) Smudge. [5]
- 7) Parlour trick that fools the senses. [8]
- 10) Bringing about great change. [7]
- 11) Tip over, as a boat. [7]
- 12) Lever's turning point. [7]
- 13) Island nation with black, blue and yellow flag. [7]
- 14) Inca wonder. [5 6]
- 19) One averse to socialising. [7]
- 21) The border between the two colours on the Qatari flag, for instance. [3 4]
- 23) Unidirectional rotator. [7]
- 25) Alias of comic book character Edward Nygma. [7]
- 26) Felix priority issue. [8]
- 27) What 25-Ac is to Batman. [5]

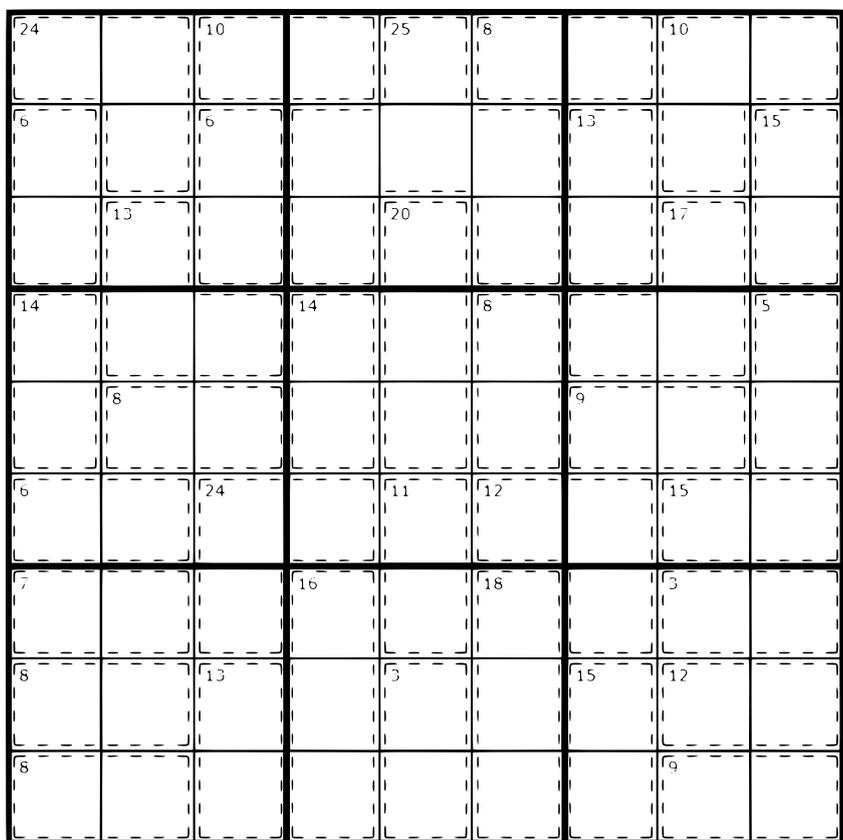
Down

- 1) Swinger, in physics. [8]
- 2) Shopkeeper. [6]
- 3) Common UK rodent. [5 5]
- 4) Name preceded by 'smart'. [4]
- 5) Modern name for the old natrium. [6]
- 6) Conflict, tension. [6]
- 8) Pertaining to lesbianism. [7]
- 9) Present, for example. [5]
- 13) Warfare style involving quick and powerful attack. [10]
- 15) Shrouded, hidden. [7]
- 16) Having declared no terms of friendship. [8]
- 17) Ten million in the Indian numbering system. [5]
- 18) Piscivorous bird, also called a sea hawk. [6]
- 20) Places of large population. [6]
- 22) Piece of technology used by James Bond, informally. [6]
- 24) Third of the quartet consisting also of 'double', 'double' and 'trouble'. [4]

REGULAR Crossword Grid



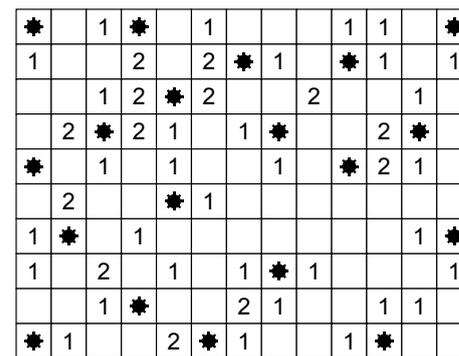
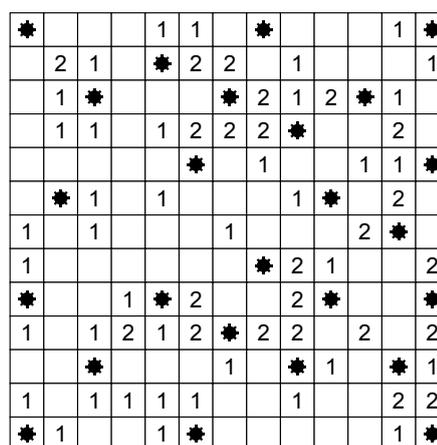
Killer Sudoku



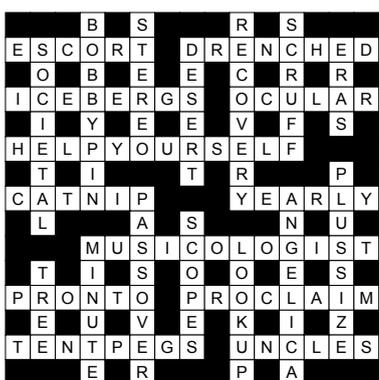
Killer Sudoku Rules:

Fill this sudoku in the same way a regular one (i.e.: you can't have the same number appearing twice in the same row/column/quadrant). Additionally, the numbers inside the areas bounded by dashed lines should sum up to the number on the top left corner. The same number cannot appear twice in the same dashed-delimited area.

Minesweepers



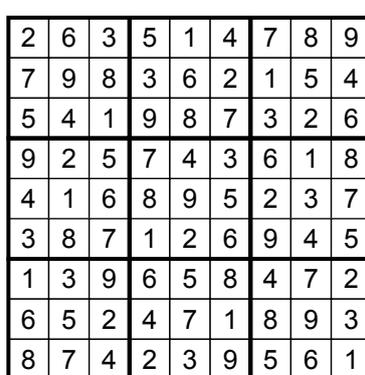
CRYPTIC Crossword



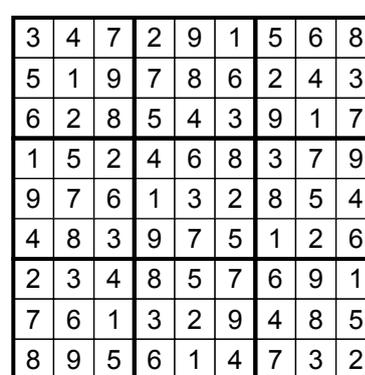
REGULAR Crossword



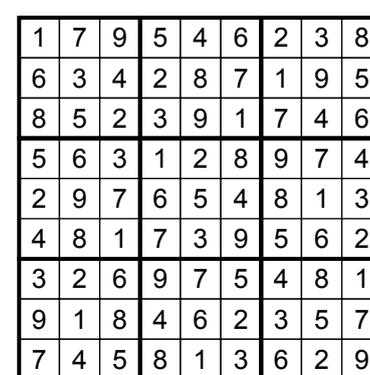
Easy Sudoku



Normal Sudoku



Difficult Sudoku



Classifieds

Research subjects wanted, easy cash:

Nearby science laboratory looking for subjects between the ages 12-14 to attend a birthday party for a...um... psychology experiment. Subjects must bring presents, preferably legos. Subjects must also be kind of cool, but not so cool they'll find the games, I mean ahem, the trials boring. Must provide proof of negative test result for the Cooties virus.

Lecture notes for sale:

"Quantum Field Theory" lecture notes for sale. Tear stained, still legible. 6/10. Sentimental item. No low balls please.



Low balls for sale:

Low balls for sale. No reasonable offers please.

Limited edition Imperial merch for sale:

tHe imPeRIal BlaCk MaRkeT iS cUrRentLy seLliNg MerCh tHaT STiLl HaS tHE OLD MotTo oN iT. FinD tHE iLlegAl MerCh in The BaThRooMs OF tHE CAgB.

New products available in Union Store:

MANPONS

These aren't the feminine hygiene products your GRANDMA uses

We've replaced the string with a rusty chain and we've roughened the head so it's harder to pull out!

80p
for a pack of 50

Sold in the Union Shop,
Library Cafe, and in the Clore
Lecture Theatre in Huxley

Comes in 3 MANLY varieties:

- Kerosene Black
- Mild Fascist Red
- Flavourtown Fiery

Periods are for Women, Full Stops are for Men.

CATNIP

In other news...

Field scientists have confirmed the existence of a free lunch near the centre of Antarctica

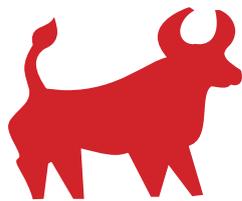


Activists dismiss BBC News climate propaganda as fake, cited as not being posted as an infographic on Instagram



ARIES

This week Amazon offers you a 30% discount if you smear the blood of a poor person on your screen when purchasing



TAURUS

This week you anger your 61 instagram followers by exploiting them for ad money



GEMINI

This weeks validation comes in the form of reluctant eye contact with the bus driver



CANCER

This week you and your girlfriend share your means of production



LEO

This week you ask the mirror on the wall for next week's euro millions numbers



VIRGO

This week you lie in bed for 16 hours on a Saturday to give yourself self induced scoliosis



LIBRA

This week Autumn colours in the bright sunshine fail to console you for the fact that you have never had more than 27 likes for an IG post.



SCORPIO

This week you mis-hear "the clocks go back tomorrow" and spend the next day with your member duct taped to your perineum



SAGITTARIUS

This week a crippling amount of hyper-self awareness ruins your ability to process any sense of humor



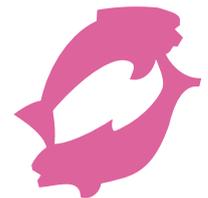
CAPRICORN

This week you waste your extra hour in bed by sleeping



AQUARIUS

This week you are one of the 26 cops in Glasgow



PISCES

This week your boyfriend says that he would not love you if you were a worm

Your Union



Anti-Bullying Week

Mean Girls came out in 2004 (omg, that's 17 years ago...), but bullying is still a thing. However, it is not always straight forward. Anyone who laughs along and joins in, or even turns a blind eye, makes a decision to do so. So joining in with bullying is just as bad as initiating, and anyone who sees unfair things going on has a responsibility to try to stop it.

If you are experiencing bullying while studying at Imperial (or anywhere else) it is important to know that you are not alone, and it's important to ask for help.

We have put together a few resources to help you deal with this. From the Advice Centre to the College's harassment and bullying support line, or even companies like Mind or No Panic! there's always someone there who can listen to you and help you out. Find details and resources here: imperialcollegeunion.org/anti-bullying



The Sunflower Lanyard

There's been some confusion in recent times on what exactly the sunflower lanyard means, and why an individual might choose to wear it. Sunflower lanyards have in fact been in use since 2016, when the accessibility team at Gatwick airport were keen to find a subtle way those with hidden disabilities could indicate this to staff. This is due to the fact that, especially somewhere as busy as an airport, those with non-obvious disabilities may require additional assistance. It is therefore important for those they interact with to be mindful of their disability, whether it be members of the public who should be patient with this individual, or a busy staff member that might not otherwise offer help.

Sunflower lanyards are given to institutions and companies that are members of Hidden Disabilities Sunflower group, which means they will have sunflower lanyards at their disposal to donate to colleagues and customers for free.

We're please to let you know that Imperial College Union are now part of this group – so from Monday you will be able to collect a hidden disability sunflower lanyard from our helpdesk in the Union building. Drop by and grab one whenever you want!



It's your choice!

We are holding a referendum of all students concerning the upcoming strike action planned by the University and College Union (UCU) of College staff. This referendum, called by the Union President under the byelaws, will ballot students on the question:

"Should Imperial College Union support the strike action due to be carried out by the UCU during the 2021/22 academic year?"

Voting opens on the 24 November so keep an eye on our channels and website and have your say. You decide what we do!

imperialcollegeunion.org/referendum



Your Union



ARTS NIGHT

Friday 19 NOVEMBER 2021 | 19:00 | Metric

Arts Night at Metric is a great place to come and learn more about what our arts societies are getting up to – nothing like a spot of culture to start off the weekend right. Tickets are just £5.00 on the door.

imperialcollegeunion.org/whats-on/event/10388



EUROPEAN BEER PONG CHAMPIONSHIP

Saturday 20 NOVEMBER 2021 | 20:00 - 01:00

European Beer Pong Championship: the ultimate Euro tournament where teams will represent their countries! This will be a huge tournament between 14 European societies, followed by an afterparty where attendees can watch the semi-finals and and finals between ferocious European teams, followed by great music by our DJs!

imperialcollegeunion.org/whats-on/event/10405



HOW TO TAKE A GUM HISTORY

Wednesday 24 NOVEMBER 2021 | 19:00

“How to Take a GUM” History talk will have as guest speaker is Hamish Patel! Hamish is currently a GPST1 at the Royal Free and this talk will be co-hosted by Jean-Luc who is currently working at 10 Hammersmith Broadway GUM Clinic. It will be an informative but fun evening and will give you essential skills for your placements and future career! Sign up at:

<https://forms.gle/F1iz736sxnM75sgX6>



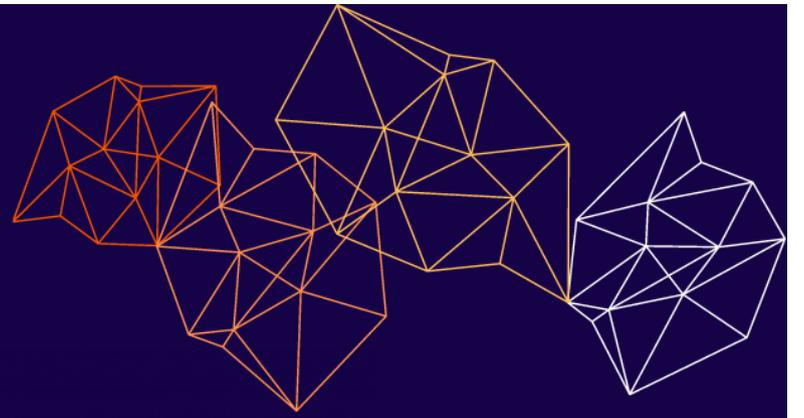
REFUGEE MENTAL HEALTH

Friday 26 NOVEMBER 2021 | 17:45 | SAF Building, Lecture Theatre G34

Psych Soc x Afghan Soc x Tamil Soc presents: Refugee Mental Health - a conversation with Sinthujan (Tamil political geographer) and Moshtari (Afghan diaspora and artist). We will be reflecting on the mental health experiences of refugees, diaspora and their children, inviting you, the audience, to share your experiences.

imperialcollegeunion.org/whats-on/event/10397

More info & events: imperialcollegeunion.org/whatson



I, SCIENCE

THE SCIENCE MAGAZINE OF IMPERIAL COLLEGE

WRITERS WANTED FOR OUR AUTUMN ISSUE

I, Science is looking for writers for our 50th magazine issue. The theme - Spectrum.

Everyone is welcome to send us their article pitches, and no previous writing experience is required!

Send your ideas to iscience@imperial.ac.uk by 8 November. For more details, drop us an email or find us on social media!

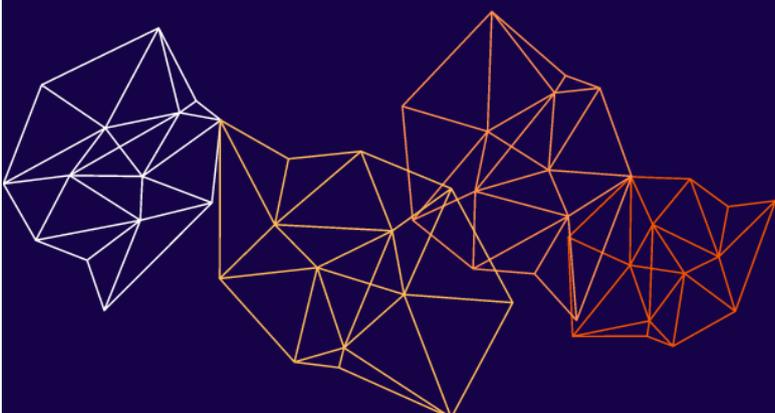
fb.com/isciencemedia



[@isciencemedia](https://twitter.com/isciencemedia)



[@isciencemedia](https://www.instagram.com/isciencemedia)



MUSIC

Edited by: ROSIE MILLNS &
TARA PAL CHAUDHURI

**DON'T MISS THE GIG -
ARTS NIGHT BY ARTS
& ENTERTAINMENT @
METRIC, 19TH NOVEMBER**

**STOP BY METRIC
TO GIVE A WELL-
DESERVED LISTEN TO
IMPERIAL'S BANDS
(INCLUDING SOME
OF OUR OWN FELIX
EDITORS). GRAB YOUR
FRIENDS, SOME FOOD, A DRINK, ENJOY THE
LIVE MUSIC AND TAKE A LOOK AT WHAT IS
OUR ARTS SOCIETIES ARE UP TO.**



Single of the Week

Bite Me by Avril Lavigne

As part of her upcoming album which should land next summer, Avril Lavigne's newest single is a trip back to her 2000s discography. You can recognise the angst-filled anti-romance "fuck you" and heavy rock instrumentals from a mile away, not to mention the high-pitched voice layering. But despite its sheer volume, it's such a comfort to hear from the unchanged poster girl for teenage rebellion in the turn of the century. Give it a listen when you're in the mood for heavy eyeliner, bidding farewell to a shitty ex, or walking threateningly down a dark alley.



TODAY IN MUSIC HISTORY

IT'S 1990 AND IT'S ALSO THE FIRST TIME A GRAMMY AS BEEN REVOKED. TURNS OUT ROB PILATUS AND FABRICE MORVAN DIDN'T ACTUALLY SING ON THEIR ALBUM, "ALL OR NOTHING".



IN 13 YEARS (2003), THE LOS ANGELES POLICE ISSUE AN ARREST WARRANT FOR MICHAEL JACKSON IN LIGHT OF THE RECENT CHILD MOLESTATION CHARGES.

Album Reviews

Shang-Chi and the Legend of The Ten Rings Soundtrack Album Review



View online here!

Written by **Zanna Buckland** Music Writer

If you haven't yet seen Shang-Chi and the Legend of the Ten Rings, please do. Pioneering their 'first Asian superhero', Marvel makes a valiant attempt at incorporating Asian culture into the wider MCU. Despite being overshadowed by controversy regarding its portrayal of Asian culture, it is still up there with the rest of the Marvel films, securing a 92% rating on Rotten Tomatoes. But I digress; one aspect of the film that definitely doesn't disappoint is the soundtrack.

Consisting of 18 songs produced by Asian-focused record label and rap collective 88rising, the concept album demonstrates a fusion of Asian and American culture. The album features Asian- and African-American artists, with numerous collaborative pieces presenting a wide range of music styles. Don't be fooled by preconceptions – this is still your average pop collab album, just with a few 'Eastern' upgrades.

Opened by Indonesian singer NIKI's clear, whimsical melodies, and her signature '[this is] 88rising,' there is a swift transition into fast-paced rap, performed by fellow Indonesians Rich Brian and Warren Hue. These three seasoned 88rising artists provide a glimpse into the rich soundscape that follows, and they appear ten more times collectively throughout the album, displaying their extraordinary versatility.

Being part of a movie soundtrack, the songs that appear in the film itself contain more elaborate instrumental elements, which allows them to rely less on vocals and lyrics. 'Lose Control', 'Run It', and 'Swan Song' are some of the most distinctive pieces, making use of haunting violin solos and heavy bass beats complemented by demonstrations of pentatonic scales that are used liberally in traditional Chinese music.

On 'Diamonds + and Pearls', South Korea's DPR LIVE, DPR Ian, and peace. sing about reaping the rewards of hard work and being able to buy diamonds, tea, and pearls for their mother, elevating tea to the level of these other luxuries. This is one of the many songs on the album that touches on the traditional expectation of Asian children to work hard, earn their keep, and be able to provide for their families when they grow older.

There are also tracks featuring Chinese, Japanese, and Korean lyrics. On 'Lazy Susan', named after the rotating plate of glass in the centre of Chinese restaurant tables, MaSiWei raps in Mandarin, as do Adawa and Shayiting EL on 'Baba Says'. Gen Hoshino sings in his native Japanese on 'Nomad' with Zion.T, and there's a splash of Korean in 'Never Gonna Come Down'.

The African American artists involved are 21 Savage, Swae Lee, Saweetie, EARTHGANG, and Anderson .Paak, performing on various tracks throughout the album. Like the artists they're accompanying, Saweetie and Anderson .Paak also have Asian heritage. These vocal harmonies can be interpreted as a show of solidarity between the two minority groups, following the Black Lives Matter protests.

'Never Gonna Come Down' by Mark Tuan and BIBI and 'Every Summertime' by NIKI are two of the bubblier songs on the album, highlighting the joys of childhood and fresh relationships, while 'War with Heaven' by keshi introduces a softer touch for the outro, with silky smooth lyrics that speak of longing and passion for someone far away. This is the case for one of the film's characters as well as for many Asian families who have spread out across the world.

There is even a feature from Shang-Chi himself: Simu

Liu takes the mic on a simple, nostalgic piece fittingly named 'Hot Soup'. There is a wistful tone, drawing on the strong sense of family and collective pride that threads through Asian societies, as some of the other tracks on the album do.

The final song, 'Warriors', by South Korean artist Seori and Indonesian rapper Warren Hue, wraps up the album with a bang - loud and fearless like the people it describes. The influences of both Eastern and Western music that permeate through all the Shang-Chi songs shine through in this particular piece.

While the movie fails to fully illustrate the assimilation of Asian people and their culture into American society, 88rising's soundtrack demonstrates it flawlessly, and we would recommend having a listen whether you've seen the movie or not.



Taylor Swift returns with *Red (Taylor's Version)*

MUSIC

Written by **Ambika Bharadwaj** Music Writer

Taylor Swift said "when I see a happy bitch I floor it" on her rework of 2012's Red.

Taylor Swift was straddling the lines of country and pop when she came out with *Red* in 2012. The album was a beautiful mess of genres and feelings, and her recipe was simple - she took personal anecdotes and connected them with hard-hitting lyrics full of universal emotions. Ever since Swift announced she was dropping *Red (Taylor's Version)*, remaking her 2012 classic, anticipation has run high. The new *Red* is bigger, glossier, deeper, casually crueler, and it stabs you with a razor-sharp piece of her own broken heart.

First things first: let's skip to the ending. The 10-minute version of 'All Too Well' turns out to be better than what we were all hoping for. Swift takes her own masterpiece, tears it all up, breaks it like a promise, shreds the tapestry of the song, and rebuilds it into a new heartbreak anthem that is twice as long and twice as brutal. 'All Too Well' is angrier, far less filtered, and more explicit in every sense of the word. This track is a ballad full of dropped hands, wordless polishing of plates, taking off your coat but not being able to step out of the sadness. 'All Too Well' is a weaponisation of memory, and the devil is in the details: a lost scarf, an open refrigerator illuminating the kitchen. The specificity asserts that the relationship with the unfeeling, manipulative, and disbelieving ex happened. But for all its hyper-personalisation — 'All Too Well' is also quite poignantly about a young woman's attempt to find retroactive equilibrium in a relationship that was based on a power imbalance that

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**IT'S ABOUT
WHATEVER AND
WHOEVER YOU
STILL WISH YOU
COULD FORGET**

she couldn't perceive. Swift hasn't written a breakup song nearly as scorching in the decade since 'All Too Well', but the song isn't about him anymore. It's about whatever and whoever you still wish you could forget.

The challenge of *Red (Taylor's Version)* was how to remake an unimprovable original. Her adult voice adds new power to the old songs, especially deep cuts like 'Come Back...Be Here' and 'The Moment I Knew'. It sounds different to hear 'Holy Ground' sung by the same Taylor who went on to write 't'is the damn season' and 'Coney Island.' It's poignant to hear her 31 year old voice sing 'Begin Again', the song that ended the original album on a note of fragile optimism as if she saw the refrigerator light at the end of the tunnel. In the new 'We Are Never Ever Getting Back Together', there's a little extra venom in the way she snarls "trust me" — which might come from an additional 9 years of hearing men asking her to trust them.

The new songs fit in tonally one way or another, like the upbeat bops 'Message In A Bottle' and 'The Very First Night'. Her collaboration with Ed Sheeran on 'Run' is very much in line with 'Everything Has Changed'. 'I Bet You Think About Me', is a rowdy all-the-way country duet with Chris Stapleton — the kind of Nashville hit she was about to leave behind, with her country twang on display. 'Forever Winter' masks its foreboding message with a pleasing, rhythmic use of trumpets.

The most magnetic new arrival, however, is 'Nothing



New', featuring Phoebe Bridgers, where the two artists worry about losing their novelty over the years. Their voices are a divine combination: Bridgers is soft yet raspy, while Swift keeps it soothingly low key. 'Nothing New' is extremely relatable even if you're not a globally recognized musician—who doesn't feel like they knew everything at 18, but nothing at 22? Swift's writing articulates that anxiety, and the nights one has spent crying in their room.

In the 30 songs, *Red (Taylor's Version)* is all about the fact that everyone lied, because time does not bring relief or make anything happen; it merely makes the emotivity of mourning pass. And as a sensitive motherfucker, this album makes me want to catapult myself into the sun. If you haven't heard it yet, go on, let blondie maim you, all too well.

Gig Reviews

Coming Up to Alexandra Palace for Suede

Written by **Yunke Zhou** Music Writer

Suede headline Alexandra Palace to celebrate 25 years since their 1996 chart-topping album Coming Up

On 11th November at Alexandra Palace, Suede brought back to life their thrilling album *Coming Up*. Fans finally got to relive in-person the hell-of-a-high that the album started a decade ago.

The night was opened by the spectacularly talented Nadine Shah. Starting dark and brooding, Shah aroused the audience with a twist to pieces from her newest album *Kitchen Sink*, including heavier elements of bass and drums than the recorded version. With an incredible range, Shah's voice cut effortlessly through the instrumentals, before blending into provocative bridges that immersed the performances with intensity and mysticism. The band also featured a saxophonist, offering sharpness that complemented Shah's strong high notes.

Past 9pm, the entirety of the venue had already become packed with fans, and the floor already littered

with two hours worth of empty cups that were once filled with overpriced beer. I was lucky enough to catch a spot in the middle-front, and once the silhouettes of Suede's band members appeared on stage I was pushed forward by the crowd in excitement. Without a pause, the band broke into 'Trash' - the effervescent first track of the album - and the audience burst. The band embodied the zing of the album to its full, with Anderson (the lead singer of Suede, looking hot as ever) taking full advantage of his space, swinging his microphone by its cord, and getting on all-fours during 'She' before approaching the ecstatic audience and leaning back into the mass of similarly ecstatic hands (I also had an ecstatic hand, disappointed by an arm that proved too short for the occasion).

The band rocked through the album with little pause in between songs, only slowing down for the



Suede (photo: Yunke Zhou)

MUSIC

bittersweet tunes of 'By the Sea', and the final 'Saturday Night' where the mic was raised to the audience for its chorus and 'la-la-las'. The hundreds of voices singing in unison to a song that embodies an after-midnight and lonesome state of mind was an experience difficult to put to words.

In the late hours, I gradually retreated to the outside edge of the crowd where I stayed for a last performance before having to leave. Entirely different to the steaminess of the front crowd, it was a relieving sensation to finally have some cold air and personal space. Anderson invited Nadine Shah back on stage

for the slow classic 'The Wild Ones'. With just an acoustic guitar, the delicate brokenness of his voice contrasted but paired beautifully with Shah's deepness and magnetism.

My night came to an end with the bus ride down the hill of the venue, where I struck up a brief conversation with an older fan who travelled to London specifically for Suede. He expressed nostalgia for some of their older songs which were not performed that night, and at that moment I wished time could stop and the band could play forever.



Suede (photo: Yunke Zhou)

The Everly Pregnant Brothers @ The 100 Club

Written by **Giovanni França** Music Writer



EPB (photo: Giovanni França)

Up until I moved to the United Kingdom last year, Yorkshire was nothing more than a dog breed for me. I got to learn a bit about it via sharing a flat with two Loiner blokes (one of them is probably saying that he is actually from Huddersfield as he reads this — but we all know you live in Scholes, Arnav), and “respectfully courting” a Sheffielder (her words). She dragged me to The 100 Club on the Friday before Halloween to see the peculiarly named Everly Pregnant Brothers (EPB), a ukulele parody project. I know does not seem great, but please bear with me and keep reading.

To kick off the show, Geordie comedian John Fothergill decided to go on stage and share a little too much information about his sex life, lightening up the mood of the crowd composed mostly of Generation Jones individuals. I do think I was the youngest attendee that night, but he did manage to snatch a couple of giggles from me. The band came in equipped with Richard Bailey and Klive Humberstone on the ukuleles, Pete McKee on the double bass, his son Charley on the electric guitar and Nick Banks (who you might know from Pulp) on a small drumset. Their first song was a parody of David Bowie's 'Ziggy Stardust' about a certain man called Reggie, followed by the melodic 'Fat Twat', getting all fans to sing along to the diss track. After the kazoo-infused 'Pork Pie' and 'Prescription Drugs', frontman Shaun Doane, accurately also known as Big Shaun, picked up the microphone from the stand and asked: “Are there

any virgins here tonight?”. A courageous front-rower raised her hand and navigated to the centre of the stage. Doane turned around and grabbed a bottle that sat on top of the central speaker. It was Henderson's Relish, or Hendo's, for close friends. He put some of it on his palm and reached for the virgin's forehead. A queue of pure, innocent souls then formed, and they were baptised one by one as the vocalist murmured a sequence of holy words.

EPB proceeded with another Bowie parody, '69 to Rovvrum' which described the grey commute of a Sheffielder that must take the (actually existing) bus line 69 to Rotherham. Funnily enough, it was the calmest song in the set, as Doane vividly reenacted his emotions during the tenebrous drive.

Another noteworthy moment was the rendition of 'Dunt Tha Want Mi', where a fan, Sarah, came on stage for the band's twist on the classic duet originally sung by the Human League, fellow Sheffield countrymen. The crowd favourite 'Stuck in the Lidl with You', which was performed shortly after, as well as the regionally viral 'Chip Pan'. Assembling close to a million streams across all platforms, it turns Kings of Leon's most famous song into a short story about leaving Imperial's side dish of choice on the hob for too long.

I must also mention the couple of occasions where Big Shaun just spoke to the crowd, as a short break between songs. Whether it was to talk about the ups and downs (but mostly ups!) of his mental health, his moral dilemma on whether we should all turn to veganism, or to express how much he dislikes the Conservative Party, it was possible to have a true peek

into his personality, as there was no layer of comedy during those monologues.

The set approached the finish line with parodies of songs by widely-known groups, such as U2 and Coldplay, with Bob Marley and the Wailers to close it. 'No Oven No Pie' was tragicomic and easy to sing along to, but did leave us wanting more. EFB sounds much better in person than recorded — the instrumentals are much more captivating, and Big Shaun's radiant talent is under the spotlight. They are a band to be seen live: whether you are from Yorkshire or not, you will have good laughs and great music!



EPB (photo: Giovanni França)

SET LIST
 Reggie Sprayed Me Car
 Fat Twat
 Pork Pie
 Prescription Drugs
 69 to Rovvrum
 Swords
 Hooverin' Up
 Rovvrum
 Take Me to the Limit
 Dunt Tha Want Mi
 Neets
 Stuck in the Lidl with You
 Tesco Express
 Chip Pan
 Oyl Int Road
 Hammers
 Vegan
 Hendo's
 Rammel Drawer
 No Oven No Pie

FRIDAY 19 TH NOVEMBER 2021

MUSIC

Something Old, Something New, Something Borrowed, Something Blue @ Pitchfork Festival, London

Written by **Rosie Millns** Music Editor

London's 1st ever Pitchfork Festival introduced me to an old favourite and three new acts

Something old, something new...

PVA and Anna Meredith at Fabric, 10th November



PVA (photo: Rosie Millns)

I am worried about the day I get tired of watching PVA. The trio haven't released any new songs since their debut EP *Toner*, released a year ago this week, and in that time I have seen them play the same songs and setlist more times than I can count in one hand. In fact, it is a testament to PVA that crowds don't get bored after seeing the exact same songs in the exact same orders time after time, a formula that has only ever worked for Slug. Coming to the gig sober and sleepy, I was worried that this gig would be the day.

In fact, maybe it would have been if the band didn't mix up the way they performed the songs. The synths sounded ever so slightly different to normal, the vocals more intense. A more polished version of PVA graced the larger stage.

I missed the first few songs of their set, and really they were the only band I had wanted to see at Pitchfork Festival. The age-old adage of 'never judge a book by its cover' rings true, with me not listening to the headliner, Anna Meredith, in advance as I wrongly assumed she would be a Julien Baker-esque sad-folk singer. Oh boy, was I wrong.

Anna Meredith is the most refreshing act I have seen live since *The Comet is Coming*, a complement I do not give lightly. I came from the bar to the stage midway through her first song, expecting to see a lone female perched on a stool, crooning into a microphone whilst strumming on an acoustic guitar, a single spotlight focused on her on a dark stage. What I saw instead was an ensemble of instruments I had never seen played together before - a drummer, a guitarist, Anna Meredith on keys, electronics, percussion, and clarinet, a cellist, and a *goddamn tuba*.

The energy of the set surpassed PVA, who are one of the most energetic bands I have ever seen live. The genres of the performed songs were eclectic, ranging from vocal-focused songs not dissimilar from Stella Donnelly, to fairground-esque music, to chaos-fuelled 8-bit video game music, to heavy synth-driven electronic art-pop.

Meredith made awkward quips between songs, stretching out an eventually overdone joke about buying merchandise before discussing and introducing each song, in a tone that was reminiscent of a music teacher introducing acts at a secondary-school concert. Meredith's charismatic personality and clumsy Scottish charm saved these interludes of conversation from becoming jarring, even reminding me of magnetic radio DJs Mary Anne Hobbs and Annie Mac.

The band barely had a chance to put down their instruments before the crowd erupted into cheers for an encore, leading to the band to return with an explosive rendition of Prince's 'Nothing Compares 2 U', which segued straight into the chorus of 'Purple Rain' as purple confetti fell from Fabric ceilings. The performance truly redefined the phrase genre-defying and was perhaps one of the most innovative live sets I have ever seen. Having listened to Meredith's recorded music since, I am disappointed to say it doesn't live up to the energy of her live sets. Go see her with zero expectations of what you are about to experience. I promise it will be one of the best gigs of your life.

...something borrowed, something blue
deathcrash and Iceage at MOTH Club, 12th November

When Pitchfork festival tickets were released, I had the difficult choice between buying tickets to see black midi at Southbank Centre, or Danish punk band Iceage at MOTH Club. At this time, I had only heard the song 'Painkiller' by Iceage, featuring Sky Ferreira, however my friend insisted it would be a gig I would regret missing. Based on hearsay, my enjoyment of the single, and

my love for MOTH Club, I tentatively spent £24 on a ticket and promised myself I would listen to some of their songs by the time November came around.

November came around, and of course I still hadn't listened to any other Iceage songs. The afternoon of the gig I sat on my couch with a friend who had travelled to London from Manchester just to see Iceage, wavering between skipping the gig or not. In the end, my friend's commitment, the fact this was the only sold-out gig of the entirety of Pitchfork Festival's London run, and the £24 I had spent convinced me to go.

(Before continuing, I know it is maybe weird to review a headliner before a support act, but please bear with me for the sake of the order of the rhyme in the title.)

I didn't regret going. Iceage weren't *bad*, per se, but I can't say I was blown away by their performance. Maybe I shouldn't have expected a slick and polished performance from a punk band, but with 5 albums under their belt from the last ten years, I expected the performance to be more engaging. The lead singer seemed straight out of a generic Camden landfill indie-band, looking like Faris Badwan from The Horrors if you ordered him from wish.com. The set sounded like a school-band's YouTube cover of The Cribs. It really is astounding how far you can get as a tone-deaf singer based on just looking the type. By the end of the night, my ears were ringing, not from the volume (in fact the sound at MOTH Club is nearly always the perfect level), but from the tuneless and monotonous yells of the lead-singer.

The silver lining of the evening was that I discovered my new favourite sad-hours band. The support act, deathcrash, were an act I had never heard before. The London-based post-rock band played their 45-minute set without even pausing between songs. I won't lie, their music *hurt*. Despite being nearly entirely instrumental, their set gave me the deep-stomach sad feeling that reminded me of listening to 'The Summer Ends' by American Football. Featuring lofi, math-rock sounds alongside early Car Seat Headrest-inspired vocals, or Public Service Broadcasting-sounding samples, their music will leave you lying there feeling numb. The best way I can describe deathcrash's vibe is as the soundtrack to *that* scene in *Twilight New Moon* in which Bella stares out of her window for months whilst waiting for Edward to return.

I think Pitchfork Festival was worth the £50 I spent on tickets to discover two new acts I probably never would have listened to otherwise. That's the beauty of music festivals. There are so many fresh acts playing London all the time, and if you push yourself to go and see them, you might discover your next favourite band.



Iceage (photo: Rosie Millns)

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ANNA MEREDITH IS THE MOST REFRESHING ACT I HAVE SEEN LIVE SINCE THE COMET IS COMING

MUSIC

Interview

Passing the Aux to Archie Taylor

Interview by **Rosie Millns** Music Editor

Every week Felix speaks to an Imperial student to find out what the Imperial community has been listening to. This week we spoke to Design Engineering student Archie Taylor, ahead of his gig at Metric on 19th November for Arts Night.

What is the last song you listened to?

'Marinate' by Zack Fox.

How does the song make you feel?

I listen to it at my wits end, when I am at my breaking point. It pulls me back in. It's a lifesaver of a track.

Do you have any memories you associate with that song?

I had it on at my parents' place. I forgot about the lyrics in the middle, which go, "I like nasty hoes trapping all they farts in the sheets / Her coochie hairy I be getting hella knots in my teeth." Needless to say I wasn't allowed the aux anymore. There are other bits like that in the song, but that was the bit where the room went silent.

What is your favourite part of that song?

"All my fellas ugly, yeah, we all need some work done." I bonded with that on a spiritual level.

You're stranded on a desert island and can only listen to 3 albums for the rest of your life – go:

[Note: When I asked Archie this question, he ranted for twenty minutes straight about how people aren't strategic with their desert island discs, and said he would have 12 hours of lion roars to scare away predators, 12 hours of white noise to help him sleep, and the album *Gummy Bear* for a good time, but then decided he wanted to flex his music taste and appeal to the wider Felix audience.]

An Evening With Silk Sonic – Silk Sonic

This album is sexy AF. It makes me feel like the main character. It makes me feel sexy.

Welcome to the Black Parade – My Chemical Romance
It makes me feel like- wait, let me think of how to phrase this. I need to capture an oddly specific feeling and moment in my life that only other ex emo kids will relate to. It makes me feel like an angsty teenager who's mum just gave away all their Yu-Gi-Oh cards to their cousin who they hate. It's nostalgic.

The College Dropout – Kanye West

This is just straight tunes.

You're at a party and someone passes you the aux. What are you putting on?

'I Don't Feel Like Dancin' by Scissor Sisters. I do a pitch-perfect, stunning rendition of this song. It has the power to make grown men cry.



Archie Taylor (left), sax player and boogie-star, before his last Rakin and the Rakins gig, with frontman Rakin Ghilani (right).

Who is your guilty pleasure artist?

I am not guilty about anything I listen to. Guilt is for losers, whilst Taylor Swift is for winners like me. I'm not guilty about crying to *Red (Taylor's Version)*. My flatmate will call me a fake fan for playing Silk Sonic's debut album before Taylor Swift last Friday on the album release day, but it's true.

[Note: See Ambika's review of *Red (Taylor's Version)* on the next page!]

Who is your musician crush?

Gregor Thompson, the drummer of The Valla.

Onto your music - who has been the biggest influence on your saxophone playing?

Listening to John Coltrane got me into sax when I was 10, so I started playing alto. I've branched out into tenor, soprano and baritone as well as alto now. I also branched into clarinet, bass clarinet and bassoon, and I dabble in the mystic arts of ukulele, but who doesn't at this point? Alto sax is still my favourite instrument to play. These days I just improvise or play what I'm told to, but I predominantly play jazz.

Finally, any last words?

Come see the band formerly known as Rakin and the Rakins at 11pm, Friday 19th November, at Arts Night in Metric. Tickets are £5 on the door.

If you want to talk about your favourite songs in Felix, email us at music.felix@imperial.ac.uk!

imperial college union LIVE MUSIC SOCIETY PRESENTS LIVE MUSIC

LET'S PLUG IN BABY!

XANSHI
BAKBURNER.
GOLDSTAG

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LET'S PLUG IN BABY!

XANSHI
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MORE ACTS TO BE ANNOUNCED!

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BOOKS

Edited by: ZANNA BUCKLAND

Shortlist Review

Waterstones: Book of the Year 2021 Shortlist

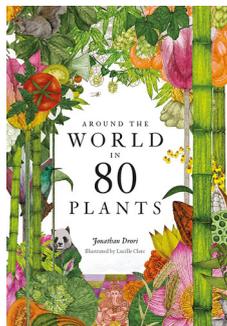
Ioana Esanu Books Writer

For nearly a decade now, the UK's favourite bookseller has taken upon itself the task of nominating a so-called 'Book of the Year'. Many British bookworms view this list as a benchmark of literary value, or at the very least a straightforward way to know which novels are worth their time.

We hereby present you with the 'Book of the Year 2021' Shortlist, as decreed by Waterstones:

1. *Around the World in 80 Plants* by Jonathan Drori

Beautiful illustrations by Lucille Clerc accompany this volume, that is part coffee table book, part short story collection. Biographies of 80 different plants take the reader on a journey across the globe, through history, and into the intricacies of how the environment shapes cultures and folklore.



es more on the 'Fi' aspect of Sci-Fi – and in the case of Klara and the Sun, on the human aspect of the AI revolution. The novel explores themes such as the relationship between humanity and technology, and the concept of 'soul', in a way that feels fresh yet familiar.

6. *Storyland: A New Mythology of Britain* by Amy Jeffs

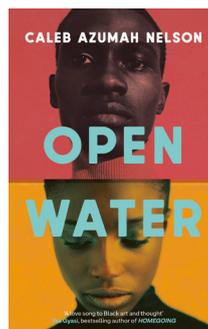
It seems Waterstones is partial to an illustrated book. Instead of Greek, Roman, or Norse, Amy Jeffs chooses British mythology as her subject matter. From prehistoric times to the Middle Ages, she reimagines stories that are deeply ingrained into British culture and argues their significance in the present day.

7. *The Lyrics* by Paul McCartney

Donning the largest price tag in this list, this series of two hardback books is an intimate look into McCartney's career. Each song is accompanied by photographs, anecdotes, and self-reflections. A must-have for any Beatles fan if you're willing to cash out £75.

8. *Open Water* by Caleb Azumah Nelson

This debut novel set in Southeast London is very relevant to modern times. A love story about belonging, about race, and about a city that can make or break you; all in a mere 150 pages.



9. *You Are A Champion* by Marcus Rashford

Self-help books are not for everyone – even more so when they are written by sportspeople. That being said, Rashford is more than an international football star: he is also an advocate fighting for the rights of disadvantaged children. The aim of his book is to inspire and empower young activists.

10. *Ariadne* by Jennifer Saint

Yet another title following this year's apparent trend: mythology. The Greek tale of Theseus, Ariadne, and the Minotaur is gorgeously retold by a debut British voice. Oh, and did I mention the stories are once again reimagined from the female perspective?



11. *They Both Die at the End* by Adam Silvera

It's rare for a YA novel to get a Goodreads rating above 4.0. Adam Silvera tells a tender story of love and loss, all while spoiling the ending on the front cover. A bold move.

12. *The Amur River* by Colin Thubron

One of the greatest British travel writers embarks on a journey following the course of the mysterious Amur river, the natural border between Russia and China. Beautiful storytelling makes the faraway landscapes come to life, as Thubron touches on politics and sociology.

13. *British Museum: A History of the World in 25 Cities* by Tracey Turner

Yes, yet another illustrated book...Turner's volume contains gorgeous maps of 25 major cities in the past and present, exploring human civilisation and culture throughout the years. Is the title a dig at how the British Museum mainly contains artefacts stolen from other parts of the world? One can only wonder.

Editor's Note

And there you have it. If you like the sound of any of these titles, Waterstones offers a 5% discount for students! Just pop by your nearest store or look online to register. Unidays also provides 10% off coupon codes for online purchases.



The Waterstones on King's Road, London. Courtesy of the Waterstones website.

BOOKS

Edited by: ZANNA BUCKLAND

Book Article

Infected at Imperial

How twenty years at Imperial led me to write a book on infectious diseases.

Dr John Tregoning Author, and Reader in Infectious Diseases*



Writing for Felix again after a 20-year gap, I am forced to believe that no one ever really leaves Imperial. Depending on what stage of your career you are in, this may or may not be welcome news. I started in the biochemistry department in 1999 and haven't ever really left (bar moving campuses occasionally). In that time, I have got my PhD, been appointed as a lecturer, then promoted to reader and published over 60 scientific papers. I've also become an adult according to my students - I got married, had 2 children, and bought a house. More recently, I wrote a book – *Infectious: Pathogens and How We Fight Them* – which is the main reason I have returned to the pages of Felix.

Writing my book *Infectious* and my experience of studying, then working at Imperial College are intertwined. The core message at the heart of the book is that innovation, underpinned by scientific research, has led to enormous breakthroughs in the prevention and treatment of infectious diseases. The driving force for this innovation are the women and men who have worked in all the different 'ologies – immunologists, virologists, vaccinologists, epidemiologists, microbiologists, with help from engineers, computer scientists and economists. At Imperial, I have been fortunate enough to work with expert researchers, leading the way in our fight against pathogens. I have also, in my time at the college, made a tiny contribution to the training of the next generation of scientists. The framework of my book is built on the lectures that I give to undergraduate medics and postgraduate immunologist and virologists. So, it is possible that you may recognise some of the dad jokes in there if you have been taught by me, and now have the opportunity to not laugh at them a second time around.

So, what is the book about? It is a celebration of how far we have come in our fight against pathogens.

The first half of the book deals with the science behind infectious diseases: it is quite wide-ranging, from microbiology to diagnostics – so hopefully there is something for everyone in there. I attempt to explain the different fields and identify some of the historical figures involved, both famous and infamous. The second half

examines the extraordinary progress made in preventing and treating infectious diseases. As a researcher working on immunisation, there is quite a significant skew towards vaccines, but there are also antibiotics, anti-virals, and even a section on fungi for the true ID connoisseur.

Importantly, this isn't just a COVID-19 book, although it is definitely shaped by the pandemic because I wrote it in 2020. The trigger for writing *Infectious* came when my lab on St. Mary's campus was closed

due to the lockdown. I wrote in various places – different rooms around my house, trying to hide from my children and the need to home school them – and at various times – in between staring into the wall of initials on teams, wondering if anyone was at the other end of my online lectures. All in all, writing it was a great experience and one of my career highlights so far.

Before I started at Imperial – so long ago in the mists of time that there wasn't even the internet – I read a popular scientific book about immunology. That book, in part, led me to

IMPORTANTLY, THIS ISN'T JUST A COVID-19 BOOK, ALTHOUGH IT IS DEFINITELY SHAPED BY THE PANDEMIC

who I am today; a researcher working on the immune system. One of my great hopes in writing *Infectious* is to inspire the next generation, even if it is only one person. That person could be you, so why not give it a read? (Available in the College Library and wherever else you get books!)

INFECTIOUS



Pathogens and How We Fight Them

DR JOHN S. TREGONING

Are you a bookworm? Fill out this survey to let Felix know what kinds of literature Imperial students are reading at the moment. We're also always accepting book reviews via our email address: books.felix@imperial.ac.uk - it could be your words on this page next!



*Dr John Tregoning is a reader in respiratory infections in the Department of Infectious Diseases, and author of the book *INFECTIOUS* published by One-World.

FRIDAY 19TH NOVEMBER 2021

FOOD

Edited by: BENCAN YALCIN

Restaurant Review

Stuffed Mussels to Stuffed Stomachs! We'll Tell You About the Good Stuff

★★★★

Price range: ££

Signature dishes: *Midye Dolma*Style: *Casual*Reviewed by **Bencan Yalcin** Food Editor

Before I introduce you to the star of the show, I firstly want to introduce you to the idea of what Midye Dolma is. Midye Dolma is the name given to a street food dish commonly eaten in the coastal areas of Turkey, such as İstanbul, İzmir and Bodrum. The word 'Midye' in Turkish means Mussels, and the word 'Dolma' means 'stuffing' or 'filling', so together Midye Dolma means stuffed mussels. Midye Dolmas are always stuffed with aromatic rice and served with a freshly cut lemon on the side and what you put into rice is limited to your imagination but typically people add salt, black pepper, onions and tomato paste. Midye Dolma can also be simply referred to as Midye.

The Midyeci is a newly established restaurant in the bustling and ever changing streets of Dalston, located in the cross bridge of Islington and Hackney it is easily accessible and close to transport links such as the overground (Dalston Junction/Haggerston) and bus. It is roughly around 45 minutes from Imperial. The man pioneering and challenging the idea of Turkish food being a simple and greasy late-night takeaway after clubbing is Ahmet Zotkadzha. Being born and raised in Turkey and then coming to the UK later on in his life, he felt that even though London is very rich in culinary foods, the city had not developed and diversified enough of its seafood choices. During the spring of 2021 he planned on doing exactly that by opening his very own store and bringing dishes that are adored by many in Turkey but not yet well known in the UK.

The Midyeci has a humble selection of seafoods available, providing different deals for those of you who are not sure on what to get and those that like a bit of a bargain. They also serve two popular Turkish drinks, one being a drink called Ayran, which is a salty diluted yogurt drink and Shalgam which is a fermented turnip juice - something you either love or hate - along with your standard coke and water.

The first dish is the Midye Dolma, which is what the store is primarily known for. Coming in different sizes (small and large) and different add-on flavours (normal, spicy, curry and a house special) the Midye Dolma doesn't disappoint. We ordered a large portion



Hand made Midye Dolma (large portion) with complimentary lemon on the side - ready to be eaten

of stuffed mussels with each flavour, that was paired with a complimentary lemon on the side to enhance the flavours of the stuffed mussels. To start off, the Midye Dolma is eaten by opening the shell to reveal the rice which is carefully stuffed into the meat of the mussel, and using the free shell to scoop the rice off the other shell. Overall, the taste of the stuffed mussels were very light and tasty due to the freshness and quality of the ingredients, and easy to eat (once you get the hang of it!). Admittedly, the stuffed mussels were quite addicting - especially as we tried different flavours at hand. Each flavour gave the dish a nice and subtle kick, without hiding the natural taste of the mussels. Besides the add-on flavours, the mussels also don't pack an ocean punch either, perfect for those who aren't the biggest fans of the oceanic taste, but want to slowly try getting into seafood.

Out of all the flavours we tried, the most interesting was definitely the curry sauce which is also uncommon in Turkey. The curry flavour was surprisingly very nicely integrated, distinct yet not overpowering the taste of the mussel, making it a joy to eat. The spicy mussels were also very delicious, and for those who aren't a big fan of spicy food - you shouldn't be apprehensive to try it out as it was very easy to digest since the spice itself is quite mild.

Our second meal was the Midye Burger, this unique but currently very popular recipe is definitely something that caught my eye - which is essentially mussels in the form of a burger patty topped with pickles, lettuce and

a slice of mild cheddar cheese, all housed in a lightly toasted brioche burger bun. It also comes with a nice side of crisps and pickled vegetables. With your first bite into the burger, you are immediately welcomed with a light creamy texture of the patty, along with the slight taste of the mussels also being present but not too overpowering. Topping it off with the sweet, but not too sweet taste of the brioche bun. The mild cheddar cheese sandwiched inbetween also complimented the

Photo credits: Bencan Yalcin



The first ever Midye Burger around town - comes with a side of pickled veg & crisps

FRIDAY 1ST OCTOBER 2021

Photo credits: Bencan Yalcin



What a typical healthy and light meal would look like at The Midyeci - you have your small portion of Midye Dolma on the left and your Midye Burger on the right, with the Turkish drink Ayran in the middle to bring it all together

already soft and well rounded taste of the patty by providing a sharper and more refined flavour compared to the rounded flavours of the patty. The acidity of the pickled vegetables are also a good palate cleanser, allowing you to easily transition between foods without muddling up flavours in your mouth.

The Midyeci isn't limited to just Midye Dolma or Midye Burger, they also offer other recipes such as Balik Durum (grilled fish wrap) which includes roasted peppers, lettuce, and their fish of choice, mackerel. Another dish that they offer is a popular Turkish street food served near the coast of Istanbul called Balik Ekmek (grilled mackerel sandwich), which is served with freshly cut lettuce and onions, all under a slightly toasted Turkish bread. Although the combination of foods may sound quite simple, the grilled mackerel fillet is nicely seasoned and once again has a complimentary lemon to hydrate the fish and bread. The mackerel is mostly deboned for an easy eating experience as well. The Midyeci also serves deep fried king prawns, calamari, and mussels - perfect for a

Photo credits: Bencan Yalcin



A Typical Balik Ekmek at The Midyeci

day when you're craving seafood.

Prices were also quite decent, since seafood in general can be on the pricier side. With their generous portions and their delicious taste, the Midye Burger (with crisps and pickled vegetables included) is priced at £7.50 whereas their small Midye Dolma is priced at £6.50 and their large is priced at £9.50. There is an additional 40p charge when bought with your sauce of choice.

Overall we really enjoyed the meals The Midyeci had to offer, we found the flavours unique to London. The Midyeci gives Londoners a nice break from all

the meat-based Turkish restaurants, providing fresh, tasty, and healthy seafood dishes for those who want to experience a new taste of Turkey. In terms of the decor, even though the interior of the restaurant isn't that big, the seating is decently comfortable and is a nice spot for a small group of friends to sit around and enjoy what The Midyeci has to offer. We also found the workers to be super welcoming, with a nice sense of community so if you're around and about, make sure to say hi and tell them that Felix brought you here :).

WRITE FOR FOOD!

If the article above has got you interested in writing about delicious restaurants or you simply want to share your own food recipes, please email us at:

food.felix@imperial.ac.uk

Photo credits: Bencan Yalcin



Me and Ahmet Zotkadzha

Don't Let Undeserved Pleasure Dictate Your Life

► Comment writer Runtian Wu shares his thoughts on the pursuit of pleasure.

Runtian Wu
Comment Writer



Recently, the US has come up with a novel idea to tackle the worsening drug addiction crisis —the so-called “harm-reduction policy”, which basically gives drug addicts weakened drugs to help avoid diseases such as HIV spreading and potentially reduce their intake of drugs. Plausible as it may sound, the policy reflects a messy world that people often overlook. Situations in other countries are no better. Spain’s parliament is debating legalising drugs for recreational use, and, merely two weeks ago, Luxemburg followed Canada’s footsteps to legalise certain drugs. Even in the UK, there are growing voices that advocate for the commercial potential of drugs.

There is something that can give people enormous pleasure that is otherwise hard to gain. This “natural pleasure” is produced when our nervous system perceives happy things such as accomplishments and releases “happy hormones” like dopamine. However, the so-called “quick pleasure” is attained by having drug molecules imitate neurotransmitters such as dopamine and bind to the receptors to generate pleasure, which may eventually cause the degeneration of the receptors and cerebral atrophy. Despite the dangers of fatal organ failure, loss of consciousness, and poverty, people pursue drugs for sound reasons—as some may argue the individual’s divine right of “Life, Liberty and the pursuit of Happiness” shown in the United States Declaration of Independence. However, the “happiness” brought by drugs is fundamentally different from the happiness defined by the Declaration. This kind of “happiness”, which I would call “undeserved pleasure”, gives temporary relief from reality with harmful outcomes and is

attained by somehow “cheating the brain”. This kind of “happiness” comes with consequences.

Not many people nowadays are deeply aware of how mass destruction can be caused by drugs. Back in the 18th Century, to reverse the Chinese trade surplus, the East India Company found an ingenious solution—to sell opium and smuggle it into China. Not only did this plan successfully bring the British Empire millions of tons of silver at the minor cost of growing opium, but it seriously impoverished the Chinese population and directly led to the bankruptcy of the society. Thousands of people, be they plebeians or nobles, squandered all their money, energy, and time on drugs. As a poem in the 18th Century goes,

THE SMOKE PIPE IS A BLUNDER-
BUSS
INFLICT UPON YOURSELF AND
INJURE YOURSELF
HOW MANY HEROES, HOWEVER
POWERFUL OR WISE,
ARE FOREVER TRAPPED IN THE
GRAVE OF DRUGS
(TRANSLATED BY THE AUTHOR
FROM THE 18TH CENTURY CHINESE
DOGGEREL)

Sarcastically, drugs, which were previously deemed by imperialists as weapons to paralyse a nation, are now approved by governments to satisfy “human’s nature”. Drug abuse is becoming such a trend that even in places around our college, there come reports of various kinds of spiking that highly alarm the officials.

However, it may be easier for people to refuse physical drugs than “mental drugs”. Compared with those we happily played on Nokia phones, such as Gluttonous Snake, digital games nowadays often require huge time and even financial commitment. The Sims,

for example, often causes players to devote days or even months to immerse themselves in the “digital reality” and live a life that is not true. And even light games such as Angry Birds 2 appeal to those who devote a great amount of time in exchange for some “virtual money”.

Fortunately, unlike drugs such as opium that will have you both mentally and physically addicted, whether you’re addicted to digital games (or not in most cases) depends on yourself. Not all digital games are “mental drugs”, and even games like The Sims may not be if you take control. It should be fine to play some games for entertainment, but do not let them dictate your life.

Photo credits: Lilartsy on Pexels



Drug use is used a quick route to pleasure.

Instead, the main pleasure we should look for is “deserved pleasure”, which I define as the pleasure that can bring benefits to yourself or those around you as you try to achieve it. There are so many examples to say. Reading a book, watching a meaningful movie with friends and families, and going mountain climbing are all worthwhile things to spend time on.

But there is even a deeper question to think about: should we regard our life as merely a process to pursue pleasure? In other words, should we choose to suffer? Last week, there was an article named Why We Choose to Suffer in the Wall Street Journal, in which the author cited a piece of research in 2019 that found some interesting correlations. Just as it said, “In a study published in the Journal of Positive Psychology in 2019, Sean C. Murphy and Brock Bastian asked people to think back on their most significant experiences, to describe each one in a paragraph and to rank them for how meaningful they were. Participants were also asked to indicate the extent to which the experiences were pleasurable or painful. It turned out that the most meaningful events tended to be on the extremes—those that were very pleasant or very painful. These are the ones that matter, that leave a mark.” There are people around us that choose to study hard not for pleasure, and there are people around us that hope to be a soldier and go to wars not for pleasure.

Perhaps in reality, what we are really seeking in the long term is not pleasure but a meaningful life.

COMMENT

Men's Issues Are Real: It's Feminism That's Tackling Them

► *A second response to the article which proposed critiques of modern-day feminism.*

Tilly Jones, Madeleine Eaton, Malinda Davies

Response Writers



In a previous edition of Felix, a few of you may have stumbled across an article titled “Is Modern Day Feminism Flawed?” in the Comment section. It is rather fitting that the previous article starts by misattributing a quote to Aristotle that he never wrote, as it then proceeds to misattribute many positions to feminism that the movement does not represent.

Its writer attempts to argue that modern-day feminism completely overlooks men's issues in favour of women's superiority, which is a complete falsehood. The writer seems to perpetuate the idea of feminism only addressing the systemic and societal issues faced by women, whereas in reality, feminism aims to tackle the system of gender norms instilled in society by the patriarchy that negatively affect both men and women. The phrase ‘equality of the sexes’ means just that: equal rights, opportunities and outcomes for both men and women in all areas. Giving women more rights does not mean taking them away from or oppressing men, something the author heavily implies.

The author also purports that the existence of the patriarchy is dubious and is a gross exaggeration of the wealth and power of a tiny proportion of men in society. In reality, the patriarchy is a system that puts men in charge of society, reactively and proactively, rather than a system in which some men are “on top” of a social hierarchy. This idea is multilayered: permeating through inequalities against women at the legal, professional, and domestic levels. Upheld by cultural norms, tradition, education, and history, this structure of power relations is reproduced. Because this is a societal structure rather than individual sexist acts, the idea of the patriarchy, therefore, accommo-

dates how not all men actively uphold or benefit from it, just as how not all women dislike it: we all participate, however unwillingly. For example, a woman can enforce the patriarchy by victimising a man and telling him to “man-up” in an emotionally traumatic situation. The patriarchy doesn't mean that all men have it easy or that the average man's life is easier than the average women's just by default. Instead, it means that society is built in such a way with certain expectations based on gender and that because of this, men have access to types of benefits unavailable to women.

The issues of male suicide, forced conscription, high incarceration, and imbalanced divorce court rulings are used as ways to point the finger at feminism being ‘one-sided’ and never standing up in support of men, but these are all examples of how the patriarchy negatively affects men as well as women. This is why we see the issues pointed out by the author more prevalently in men - our patriarchal system expects men to be stronger, more violent and more self-sufficient than women. Therefore, men receive harsher punishment, are expected to do more violent and dangerous work and are expected to take care of themselves without help - financially, physically or mentally. While men experience these issues, women face the opposite - being considered weaker, more vulnerable, and

dependent on men for support. However, just because men also face social difficulties that doesn't mean they do not have the majority of positions of power in society. It's a double-edged sword negatively affecting both genders, so when feminism says they want to dismantle the patriarchy, they don't mean to take all the power away from men and allow women to be superior/oppressive, but it means taking apart these gender roles and stigmatisations and reducing issues stemming from them for both

genders.

Interestingly, the author also states, ‘even if we were to say that we have a patriarchal structure, the fundamental basis is the result of proficiency’. We can only assume he means that men are in more dominating positions of power & wealth because they are naturally better, smarter and more deserving. In truth, this sentence is nothing more than a sexist and outdated trope. Generalisations

such as ‘women are naturally less good at STEM subjects or more nurturing’ have long been used as a means to further the idea that it is pointless to push for gender equality because it is not biologically possible. However, evidence has shown that this is not the case. In the past, people thought that men and women had significant differences in spatial awareness, mathematics, and reasoning skills, resulting in men being found in very

skilled & higher-paying jobs. However, studies have shown that these biological differences are a fraction of a standard deviation, not enough to explain why men hold so much power in society. Instead, the continued discrimination and oppression of women stemming from gender expectations has made them seem this way.

The article only uses one statistic to back up its points, and unfortunately, it is a woefully false piece of misinformation. The inclusion of such misinformation to reinforce damaging stereotypes was not just an embarrassing mistake, but a serious oversight of a newspaper run by the students of a world-leading research university. The 53% figure cited as the percentage of “false rape cases” represents the proportion of rape cases that were dropped before making it to court. This could have been due to pressure from other parties, a lack of evidence, or simply the fear of having to go through the traumatic process of a rape trial. In reality, the rate of false rape accusations is no more prevalent than the rate of falsifying any other crime. Next time you hear someone questioning the validity of a rape accusation, I suggest you ask them if they would also doubt the person if they had claimed they had been mugged. The rate of rape, especially cases that go unreported, is terrifyingly high for all demographics. Perhaps it is time we stopped demonising rape victims and allowed them to come forward with their stories without having to face further trauma.

We want to conclude by saying that yes - you will be able to find women belittling men's issues and calling it feminism online. You will also find strange men in suits going over the lyrics of WAP line by line, saying that it signals the fall of the West... the internet is a strange place, and you need to keep your wits about you. Remember that internet content is perfectly curated to your tastes and biases, so you need to step outside of your bubble to research an issue (which

This is the second counter-argument to the issue 1781 comment article titled: ‘Is Modern-Day Feminism Flawed?’

Please visit the website at felixonline.co.uk if you wish to read the original article and last week's response.

If you would like to join the discourse, email us at comment.felix@imperial.ac.uk

“
GIVING
WOMEN MORE
RIGHTS DOES
NOT MEAN
TAKING THEM
AWAY FROM OR
OPPRESSING
MEN

Photo credits: Giacomo Ferroni on Unsplash



Feminist march in Trafalgar Square, London 2018.

Men's Issues Are Real: It's Feminism That's Tackling Them *continued*

is not easy, but I'd hope an Imperial degree would equip us with a least some research skills). If you would like to learn more about feminism and how it can help men then feel free to get in touch.

FAST FACTS ABOUT GENDER INEQUALITY: VIOLENCE

1. 70% of female, 26% of male and 61% of non-binary students and recent graduates surveyed have experienced sexual violence. [The Student Room and Revolt Sexual Assault 2018, 4491 student sample].

2. Only 1.6% of all rape cases reported by the police end with a conviction in England and Wales. [VAWG report and quarterly data from Crown Prosecution Service, 2020]

3. 1/3 of women worldwide have experienced physical and/or sexual violence by an intimate partner [The World's Women 2020: Trends and Statistics, United Nations].

EDUCATION AND LABOUR

4. Women make up more than two-thirds of the world's 796 million illiterate people. ["Rural Women and the Millennium Development Goals, 2021, UN Inter-Agency Task Force on Rural Women"]

5. Women represent only slightly more than 35% of the world's STEM graduates and make up less than a third of the world's research [The World's Women 2020: Trends and Statistics, United Nations]

6. On an average day, women globally spend about three times as many hours on unpaid domestic and care work as men (4.2 hours compared to 1.7). [The World's Women 2020: Trends and Statistics [The World's Women 2020: Trends and Statistics, United Nations]

My Thoughts on the Spontaneous Community of Compatriots and Why Reasons behind its Formation Cannot be Ignored

A discussion on the reasons behind why some international students tend to stick within their ethnic or national groups.

Wanqing Chen

Comment Writer



When I was having lunch in the college canteen and I sent a picture of what I was eating to my parents in China via WeChat, the first reply my mom sent to me was, "Chinese cuisine? So are there many Chinese students on campus?". After I answered, "Yes there're some", she appreciated the abundance of Chinese food as well as the number of Chinese students, and encouraged me to make as many Chinese friends as possible to not become lonely, a 'considerate' narrative I invariably attempt to escape from.

As a Chinese who was born and raised in Wuhan for over 20 years, I – like many of my compatriots – was nervous about moving to a remote and unfamiliar western country. I felt inclined to make more interactions with international students from mainland China, chose a flat where large numbers of Chinese would stay, joined all of the overseas WeChat groups I could find, searched travel and Covid-19 restriction tips in the Xiaohongshu app (China's Instagram equivalent). It was only when I was able to double check everything with my Chinese friends that I felt at ease.

However, many people from other countries who speak English as a foreign language seem to prefer living with flatmates of various ethnicities from a range of countries – and tend to adapt well to their new surroundings. This made me ponder why there is a tendency for Chinese people to tacitly form a united and exclusive community of only Chinese, and if there is anything wrong with always drowning in a Chinese-only community in a Western country.

This phenomenon can be carelessly described as a stereotype for Chinese groups – is it because Chinese people are afraid of speaking out? Is it because Chinese people are introverted? Or is it because Chinese culture is simply

incompatible with that of its Western counterparts?

No. I don't think these are valid explanations for a complex Chinese community nor it should be regarded as normal. 'Stereotype', is already a cliché narrative that can effortlessly evade the essence of the issue. Quantities of stereotypes can be seen over conversations, TV shows, films, and novels, etc. and further self-reinforced in Chinese people. Generations have been explaining and resisting stereotypes, but what if this time, we could escape out of this "stereotype" trap and reflect on the authentic reasons behind it?

First and foremost, there is an indisputable correlation between the establishment of intimate Chinese communities abroad and language barriers. Sometimes, my foreign friends would be curious and ask, "how did you get to be fluent in English given that you grew up in China for years?". I was surprised by this question initially, as I know I am not the most proficient English speaker among Chinese people who have a similar background to me, and I also wonder if they ask the same question to European-looking people who speak English as a foreign language.

Numerous Chinese people in Europe are both fluent in English and eager to discover more about their new communities through conversation. But sometimes their failure to speak natural English results in being viewed in an odd light, which only leads to a further loss of confidence about fully integrating into their new environments. A friend told me his imperfect English makes it harder to maintain close relationship with foreigners – he was not bold enough to bother one after the other to explain every word he did not understand in a conversation. It was easier for him to end up not bothering English speakers and to fall back on socialising with Chinese compatriots.

Differences in cultures and political systems between China and other coun-

tries, in some cases, are reasons for such solidarity in Chinese groups, but we cannot overlook how the overriding factors of trying to be a model minority and the inability to cope with the awkwardness of language barriers in social settings result in the seemingly Chinese penchant for huddling together.

Like my mom's perceptions in the beginning, ethnic and national networks morph into unconscious safe zones and inevitably become a key impediment to participating in a diverse culture. I feel the sentiments of many Chinese people who strive to break out of their ethnic communities but are stuck in the natural Chinese huddle. Presumably, these are hidden feelings that few people would express directly but are so critical that they cannot be dismissed with a flippant "it's just a stereotype".

Not just the Chinese community, but many other minorities in the UK might share the same feeling whilst reasons of this struggling have been barely told. I remind myself that such split feelings should never be ignored, and the identity dilemmas should be visible in an explainable way. If all of us, no matter where we are from, can confront the structural reasons behind the 'stereotype' of each homogenous group, then enough of us may be able to break through the shackles of identity politics; simply to treat each other with more understanding from a human perspective, and not to use any preconceptions to define any ethnic group anymore.

COMMENT

Between Smoking a Cigarette per Day and Loneliness, Choose the First One Without Doubt

► *Loneliness can be deadly.*

Wang Guo
Writer



When I was in a summer camp many years ago, a guy called Michelle entered my room at midnight, sat down on the corner of my bed and started crying. His sobs woke me up. I asked him politely, half-asleep what the problem was. After some seconds in complete silence, he could just articulate these words: "I...feel...empty." I did not understand the meaning behind those words and did not know how to help him. My worries toward him were increasing and in the end, I decided to call an older camp member who took Michelle out of my room. Once he closed my door, I did not know what happened afterwards. Years later, with a better understanding of human psychology and more maturity, I could finally comprehend his words...he felt lonely. And that was paradoxical because Michelle was one of the most extroverted people I have ever met in my life. He was always surrounded by people, loved making jokes and laughing. You would think many things about him but never would you come up with loneliness. Being alone and lonely sound similar but are totally two different worlds. The first is a physical state, while the second is a mental one. You can be alone and not feel lonely! Besides, loneliness is involuntary and involves depression, isolation, low self-esteem, and the feeling of being unloved, among many others. Being alone can also be involuntary, but the reality is that many people seek to be alone because we live in a stressful and cramped world. Being alone voluntarily is called solitude and it is a great way to obtain peace and to work on your personal projects. Solitude, in my opinion, is key to living a fulfilling life because it provides you with in-depth

knowledge and self-awareness. It makes you an interesting person, with enough emotional independence to enjoy your own company and therefore, less probable to be prejudiced by your social circumstances because there are moments of our lives in which we are unavoidably alone. On the other hand, loneliness is painful and involuntary, it will chase you and put you down in every task you do.

Loneliness is a synonym of emotional vulnerability and pessimism. When things are running smoothly, you do not enjoy it. Furthermore, if you fail, you punish yourself even harder. Lonely people want to think about, or do things, that can remind themselves even more that they are lonely; wallowing in their own suffering.

Nowadays, the negative effects of smoking such as cancer or heart diseases are well known even by smokers. Nonetheless, in the past, the situation was completely different, smoking inside hospitals and schools was something normal. Cigarettes were considered harmless, and some doctors even recommended them to their patients. Only after several investigations, we realized the dangers of smoking, start restricting it and helped smokers to get rid of that bad habit. Likewise, loneliness was underrated until yesterday because lonely people were usually associated with serious mental diseases or social incompetency. However, currently, we know that loneliness can assault the life of any one of us here present. In fact, roughly 40% of university students undergo this mental state. I am going to explain why in more depth later. Therefore, loneliness can be

as deadly as smoking, if not more. We tend to underestimate the importance of mental health and think that our mind is separated from our bodies.

Loneliness is not something to make jokes about, it can alter the brain structures and hormonal system, deriving in dire diseases such as depression or Alzheimer's. Surprisingly, people who suffer loneliness have got 50% more chance of dying prematurely! Moreover,

lonely people tend to hide their pain and do not ask for external help because they are embarrassed to admit they feel lonely, which aggravates, even more, their already decadent situation. Smoking is a much easier problem to deal

with because there are more resources available such as nicotine patches or social groups to stop smoking, compared to help available to tackle loneliness. A smoker can be held accountable, because they can see clearly whether he is abandoning his smoking habit or not. But a lonely person cannot as loneliness is abstract, non-measurable. In addition, a smoker can consume 15 cigarettes per day, destroying his health but he could still be happy with his life; a lonely person could never be happy.

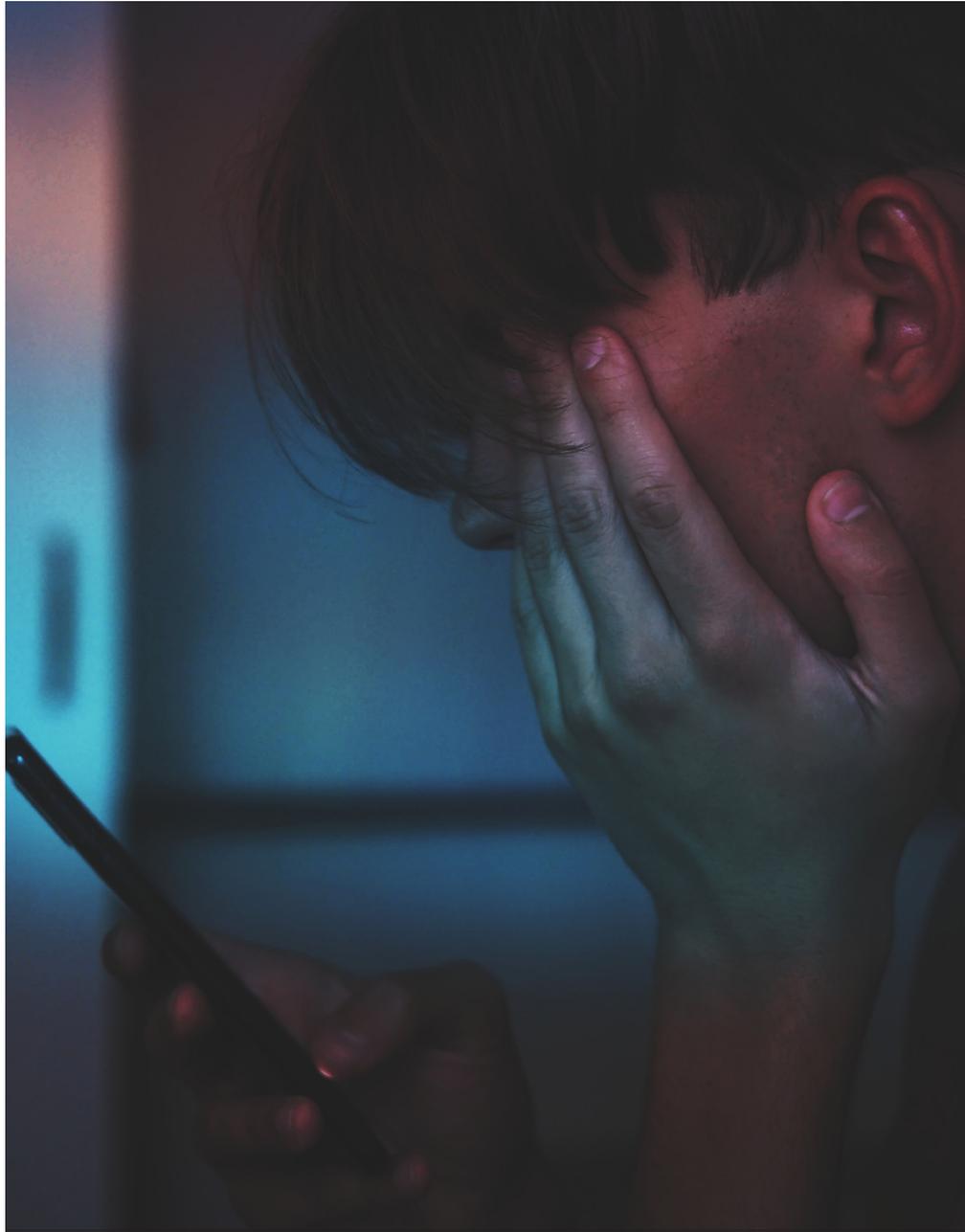
Studies show that more and more people are feeling lonely than in the past. How can this be possible when we have got social media and live in the most connected time in human history? Because hyperconnectivity just increases the number of connections, but not the quality of them. Most of our friends on social media have got little or no ex-

Photo credits: Lukas Rychvalsky on Unsplash



Solitude can be helpful but it should not be confused with loneliness.

Photo credits: Adrian Swancar on Unsplash



We have our phones attached to our hands, yet people are more lonely than ever.

istent influence in our daily life. They are probably far-away, doing their own stuff. When we embark on superfluous conversations with these people, the fulfilment we get from these talks are ephemeral, they just satisfy our necessity of social validation demonstrated by the rapid exchange of text messages and emotionally hollow emoticons. Immediately after leaving our smartphone, a feeling of emptiness invades us because we have spent hours talking with a stranger who does not care about us, about meaningless topics. This effect is not necessary sensed consciously but on a subconsciously level. It is like when you smoke, you do not feel the damage on your body, but the damage is clearly there. We do not need thousands of followers in social media to feel fulfilled socially speaking, the followers' number just feed our ego and desire for social validation. These emotions are weak because you are making your happiness rely on external circumstances. Moreover, they are treacherous because they

will abandon you in the harsh moments, leaving you feeling miserable or hopeless. Self-esteem and perseverance are hard to gain but they never abandon you. Instead, they make you grow up in the adversity. Instead, humans only require 4-5 meaningful connections to be happy because they provide sustainable joy to our lives, as well as a safety zone to feel supported when needed. In the past, establishing long-term and deep connections was much easier as people do not usually move away from their place of birth and letters were at their peak usage. These allowed people to establish close bonds with people they have known since their childhood. Furthermore, in those times, people did not have smartphones, YouTube, or TikTok to entertain themselves in hours of meaningless information. Our great-great-great-great-grandparents had most of their fun on the street with people they had known for years.

Meaningful connections are the main cure of loneliness, but we cannot rely on them as they partly depend on other

people, on external circumstances outside of our control. Instead, we should concentrate on just one word: proactivity. Taking control of your life and starting to engage in activities you are interested in have two main benefits. Firstly, doing something you relish in will fulfil your life with valuable "things" of life FOR YOU not anyone else. Hence, the valuable 'things' of life are variable with each person. For someone, it could be their job because he does not like his family, but another person might be the total opposite. What makes as happy depends on our context and personality, which are unique in each human being. Secondly, in many of these activities, you will probably find like-minded people, whom you can establish interesting conversations with. In most cases, you will not find your best friend or the partner of your dreams. You do not want that, but just talking about topics of common interest allows you easily to build a rapport with other person and get the sense that there are other people like you. This will satisfy your needs as a social animal, even though loneliness would not disappear immediately, but it is much better than crying for your misery or staring at other Facebook profiles to see how their lives are apparently better than yours. Another way to fight loneliness is philosophy, having deep thoughts about human relationships and reality can be used to weigh about your current situation and the value of the connections you have. The philosophical approach to loneliness is manifold but I am going to focus on stoicism, which basically says that you should not care about things out of your control. And this is utterly true. If you are a nice person and you have no friends, why should you feel sad that the people surrounding you ignore you? Life is very short; nothing is more important than your own happiness because time is merciless and will depreciate the value of the meaningless stuff quickly. When you are old, on

the brink of death, how important would that random girl at university who literally ignores you be? Reflect on it.

Despite living in a globalized world where it is so easy to communicate with each other, people are feeling lonelier because the quality of connections are not improving rather they are deteriorating. An awesome life is constructed by yourself, not by others, by being proactive. Before concluding this article, I wish to give you just one more piece of advice. When you are feeling down, remember that nothing can stop you to keep trying to live a happier life...except death. Everyone will die and when that occurs, our companies will just be the maggots that are devouring us until our flesh is totally consumed. Then, all of us indiscriminately would be eternally alone... but never lonely again!

Photo credits: Wang Guo

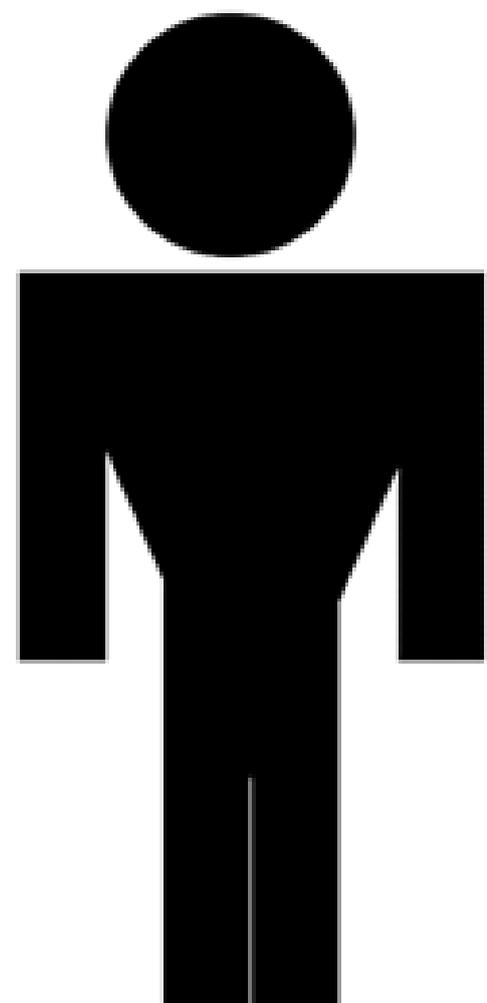


Illustration of a lone person.

SPORT

Imperial College Rowing Club storm Fours Head

Credits: AllMarkOne

Konrad Hohendorf Sports Editor

Over the weekend, Imperial College Boat Club had its first major race of the academic year. The event is what is called in rowing a 'head race', which means a time-trial event held on a river where boats are set off one after each other from A to B. This specific race was the Fours Head, which takes place over the Oxford-Cambridge boat-race course but in reverse. This means that it is just under 7 km long and goes from Chiswick Bridge to Putney Bridge. This is a very windy and technical race, with very fast Thames current that makes it difficult to know what the fastest route is and is also one of the longest races rowers in

this country take part in. The last time this event took place was 2019. Due to this being a "home" race for Imperial, it meant that they could boat out of their own boat house, and be cheered on by friends, family, and alumni all cheering from the club house. It cannot be denied the huge advantage of knowing the tideway as well the Imperial students do, due to how technical this race is. This is also the only race outside the boat race where Oxford and Cambridge crews race alongside each other and where they can test each other out for the first time; however, this year, there was a disappointing turn out from the Oxford



SCHOOL CHILDREN WERE RACING NEXT TO OLYMPIC MEDALLISTS

crews, with no male crews participating. There are four different categories of boats: either coxed or coxless, sweep (fours) and sculling (quads). In general, quads are faster than fours, and coxless are faster than coxed. This is an extremely large event, with 410 crews competing this year from numerous schools, universities, and rowing clubs around the UK. This meant that, on the same day and the same course, school children were racing next to Olympic medallists. Due to the number of boats, and the staggered start having boats going one after the other, it meant that the race led to a three-hour parade of boats going down the Thames. Over the course of this time, there were Imperial students, alumni, and friends

and families placed all along the main landmarks of the race, cheering on each crew coming down. There were twelve Imperial crews entered, consisting of eight men's crews and four women's crews. There were still Imperial rowers that were on reserve, as the club had run out of boats that they had or could borrow, attesting to the depth of the squad this year. The crews boated from the Imperial College boat club, aka the finish line, and did the 7km warm-up paddle up to the start. Due to the large number of crews, the women's crews had to wait for all the men's crews in front to start, meaning they sat for an hour or two at the start in their boats, getting quite cold and



Everyone knows that funky glasses give you free speed

tired before the race even started; and yet, despite this, they all performed well. This year, due to the conditions, the race took approximately between eighteen to twenty-three minutes. All Imperial crews finished in the top ten of their categories, with five crews coming in the top three of their categories. The standout performance of the day was the top women's boat, a coxless four, composed of three out of the four women who won at Henley Women's Regatta in the same boat this summer. The girls came in first, beating Oxford University women's boat club and overtaking three crews on their way down the course. The women's coxed four, a men's coxless four, and a men's coxed four all came second in their categories, and the men's quad came in third in their category. Outside of the Imperial news, in the recent days, it has come to light that three top clubs had their crews

disqualified after the race due to being in the incorrect category for the crew. This is even more interesting as all three had won their category, so we can imagine how painful this must be for the rowers and hope that the high-performance coaches read the rules a bit more closely next time around. However, given the fact that one of the university's had no boats in the previous fours head due to their coaches forgetting to get their entries on time, having only one boat disqualified could probably be seen as an improvement. Despite our teasing, it should be recognized that this team was the most successful on the day. Many of the squad enjoyed the rather lively "Novemberfest" afterparty held at Thames rowing club that evening. Tight and very short lederhosen on six foot plus men is certainly an interesting sight...

Credits: AllMarkOne



The women's coxless four once again demonstrate their prowess with a comfortable win at Fours Head.