

# Sandergone Controversial CFO at Imperial no muir

Sam Lovatt Editor-in-Chief

We're sorry you had to read that punny headline

Muir Sanderson, the CFO and "defacto COO" of Imperial College London, has resigned.

Sanderson sent an email to all College students and staff on Tuesday morning announcing that he will resign, his last day being the 31st of August. This leaves a notice period of just over six months.

Soon after, it was clarified by Council Chair John Allan that Sanderson will immediately cease his duties as CFO and will remain in post "to assist in handover and support the College" until his leaving date.

The announcement follows the release of a redacted version of the infamous "bullying report" on February 3rd, investigated and authored by retired lawyer and QC Jane McNeill. The report, released with all details that could lead to the identification of any of the witnesses omitted, outlined the behaviours of Sanderson and College President Alice Gast surrounding allegations that they bullied staff members on multiple occasions near the beginning of the pandemic.

The report showed Sanderson to have acted in a way widely perceived to be worse than Gast. Specifically, the report concludes, without giving specific detail, "there are behaviours that cross the line between strong management and bullying (MS [Muir Sanderson] only), aggressive behaviours (MS only) and the use of inappropriate and offensive language (MS only)".

Continued on page 3...



# Minimum A levels and longer repayment period in HE shake-up

#### Sam Lovatt Editor-in-Chief

The government unveiled multiple large shake-ups to the higher education sector this week, including a change to the repayment period for student loan debt and adding a minimum A level requirement for access to student loans.

Until this week, student debts for UK graduates were written off after 30 years, which for most meant that they were student debt-free by their mid-fifties. This has now been increased to 40 years.

This pushes the time at which the debt will be wiped for the average graduate into their mid-sixties, meaning many now see the debt as a life-long "graduate tax". The move is widely seen as an attempt to reduce the burden of higher education on the taxpayer.

The Department for Education said "Without action, only 23 per cent of borrowers who enter full-time higher

education next year are forecast to repay their loans in full, with the rest picked up by the taxpayer. This has to change – and our reforms will mean 52 per cent of borrowers will repay their loans in full".

They added that taxpayers, most of whom have not been to university themself, are currently coughing up 44p of every pound of student loan given to undergraduates.

Continued on page 3...

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## Brexit folly

Brexit was a many-pronged fork, to say the least. Probably the most significant political event in a generation, with reasoning anywhere from intricacies about EU import rules disadvantaging the third world, all the way to brazen xenophobia and racism. 51% of Brits think that too

many immigrants have come to the UK over the past 10 years, according to YouGov, compared with only 23% who think immigration levels have been "about right". Along side the infamous NHS bus lie, one of the major reasons cited for Brexit was better control over our borders. How ironic, then, is the state of immigration to the UK six years after the vote.

In November 2021 roughly 8000 people attempted to cross the English Channel from France, where they'd largely made it from war-torn areas such as Syria. This was a peak in a record-breaking year where a total of 28,431 people attempted the crossing, more than three times the total number in 2020. While it's worth noting that these numbers partly reflect the reduction in crossings via more covert means such as stowing away in HGVs, the numbers do not exactly bode well for "newly sovereign" Britain.

Now, obviously immigration was perceived as a problem pre-Brexit, however media coverage and Channel crossing stats paint a grim picture of how much worse the problem has become. The icing on the Brexiteer cake is that there is now no obligation for any other country to help share the load. Do you know which countries DO have allies who have an obligation to share the load of immigrants? EU member states.

This irony occurs as a result of our leaving the EU meaning we have also left something dubbed the 'Dublin Convention'. The convention exists among EU states as a method to rapidly determine which member state has responsibility for the asylum application of an immigrant and to ensure the applicant is hosted in that country whilst the application is being processed. This means that pre-Brexit, had a person made an

pre-Brexit, had a person made an asylum application in France and then attempted crossing the Channel, the UK authorities could easily return this individual to France whilst their application was considered. France now has absolutely no obligation to take back anyone who attempts the crossing from Calais.

A diplomatic source, speaking to The Times, said that talks had not progressed since November, and disagreements centred around "nimbyism" (not in my back yard) and Macron keeping things calm in the run up to the French elections in April. 44 people died crossing the Channel last year, but what's that compared to a smooth election run, right!?

## 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

| Felix Office<br>Beit Quad, Prince Consort Road<br>London, SW7 2BB         |
|---|
| Tel: 020 79548072<br>Email: felix@ic.ac.uk                                |
| felixonline.co.uk<br>@feliximperial                                       |
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#### ...continued from page 1 Sandergone...

Examples included in the report include Sanderson using the phrase "leave the plantation", though context for this has been redacted. It also says that a comment, made by a now exemployee of the College, about a "onearmed black lesbian" was treated "as a joke" by Sanderson.

Overall, the report describes Sanderson's behaviour as undermining, condescending, offensive, aggressive, intimidating, distressing, disparaging, excluding, disrespectful, humiliating and abhorrent.

The news means that Sanderson joins President Alice Gast in leaving the College near the middle of 2022. In the 2017/18 academic year it was decided that Alice Gast's term length would be extended to 1st August 2022, taking her total tenure to 8 years.

Despite the report into the bullying allegations specifically stating that the decision for the College Council to send the December 2020 email, which said that they are "more confident than ever that Imperial has the right leadership", was a judgement call, no wrong-doing has been admitted by the Council.

In his email on Tuesday, Allan notes that the publication of the report has caused "renewed disquiet, frustration and anger across the College community". It is unlikely these feelings would have been felt if Gast and Sanderson had been asked to resign shortly after the conclusion of the investigation was made, and before anyone in the wider community knew any of the details.

Many members of the Imperial community, some of whom have written to or in Felix, have called for the resignation of Gast and Sanderson for over a year, since the report was alluded to at the end of 2020 in an email from the College Council.

Sanderson's CFO role will be temporarily assumed by the College's current Director of Financial Management, Tony Lawrence. Allan added in his email that the search for a permanent new CFO will begin shortly.

An anonymous student familiar with Lawrence described him as a "nice guy" and "quite student-friendly".

The departures leave the top leadership roles in the College to be filled at roughly the same time, with Hugh Brady taking



over the role of President on August 1st 2022.

Allan's email says the report "leads us to again ask important questions about the sort of institution we want to be and how we work and study together".

The report highlighted the "perceived problem of power being centred in two or three individuals at the College and the exclusion from the decision-making process of those who should be included in the interest of good governance".

These factors together could suggest a restructuring of the College leadership to more evenly spread power and "rebuild trust".

On changes going forward, Allan says "The Council and leadership team, including our next President Hugh Brady, will work with Consuls, student leaders and others throughout the community to deliver changes based on the lessons learned from these events to ensure we realise the culture to which we aspire".

It is unclear what role Sanderson will move to after leaving Imperial College.

### ...continued from page 1 HE shake-up...

Also announced was a consultation on minimum A level standards that must be achieved for students to access student loans. This standard being considered is at least two E grades at A level, and that the student must have passed maths and english GCSE.

Commentators, including the Guardian and the Evening Standard, have decried the introduction of minimum qualifications for student loan entitlement as "an attack on social mobility" and "working class learners".

The repayment threshold will also be lowered, for students signing up for new loans, from £27,000 to £25,000.

These follow the announcement near the beginning of February that the earning threshold for repayment of student loans will be frozen, rather than increasing to account for inflation (see Felix 1791). This will apply to students who already have a student loan. The aforementioned lowering of the repayment threshold is expected only to apply to new students.

The changes come as the government responds to the Augar review, an independent panel review on post-18 education and funding. Colloquially named after the lead author, Dr Philip Augar, the 216 page review looks thoroughly at the benefits and costs of higher education to the individual and the economy, and draws conclusions in multiple areas.

In many ways the government can be seen to have accepted the Augar review . It concluded that the government should "[freeze] the repayment threshold", so that "more graduates... repay their loans in full over their lifetimes".

The report also said that "generous and undirected" funding has led to an oversupply of unnecessary courses at "great cost to the taxpayer". The introduction of minimum A level requirements is a clear attempt to address this. In its response, the government announced that tuition fees would be again frozen at £9,250, described as "a blow" to universities. This amounts to a deviation from the recommendations of the Augar report, which suggested lowering the cap to £7,500.



NEW

# Imperial fifth worst in UK for state school intake

Sam Lovatt Editor-in-Chief

Imperial College has ranked fifthworst for state school entrant percentage among UK higher education institutions. Despite 90.3% of students in the UK having come from state schools, just 65.8% of the 2020/21 intake were from this demographic.

Imperial places in front of the Universities of Durham, St Andrews, Edinburgh and Exeter. Durham secures last place on the list, with only 61.6% of its entrants coming from state schools.

Imperial's 20/21 figure represents just a 0.2 percentage point rise when compared with the 2015/16 year, and a drop of 1.3 percentage points from a peak of 67.1% in the 2018/19 academic year's intake.

Conversely, the universities of Oxford and Cambridge, who came under fire for their low state school intakes in recent years, have both improved considerably.

The University of Oxford has jumped from 55.7% in 2015/16 to 68.7% in 2020/21. Cambridge has improved from 61.9% in 2015/16 to 70% in 2020/21.

Entrants for the 2020 intake is likely skewed by the government's decision to award A level results based on teacher assessments, when exams had not taken place due to Covid regulations. It is largely perceived that this decision benefited students of private schools over state schools. The proportion of A\* grades achieved by UK private school pupils in 2019, pre-pandemic, was 16.1%, however this rocketed to 39.5% when teacher assessments decided the grades. Some examples are even more brazen. Students at North London Collegiate School achieved 33.8% of their grades as A\*s in 2019, however this soared to an almost unbelievable 90.2% due to teacher assessments.

Percentage of university entrants from state schools between 2015 and 2020



Source: HESA • Created with Datawrappe

A phoenix has risen...

Have you seen this gorgeous magazine around the place during the last few weeks? Pick it up!

We are ecstatic to announce the publication of Felix's sister magazine, Phoenix. A creative outlet for Imperial's STEM-obsessed community, Phoenix plays host to artistic work in all its forms; from essay and short stories to poety and screenplays, Phoenix publishes some of the finest creative works written by students, staff and alumni. It is published once per term.

If you would like to write for Phoenix, email Editors.phoenix@imperial.ac.uk



# ... in the world this week

#### Rudy Giuliani will cooperate with capitol riot committee

Trump's ex-lawyer has agreed to cooperate with the committee investigating the capitol riot on the 6th January 2021, as long as he does not have to discuss his communications with Trump on the basis of attorney-client privilege concerns. Giuliani's cooperation marks a key moment in the investigation, following multiple other Republicans saying that they will not cooperate with the committee. Giuliani could help determine the full extent of Trump's involvement in the insurrection. The inquiry has been made even harder to carry out due to what *Politico* describes as Trump's 'odd and enduring habit' of ripping up papers when he's done with them. White House staff described Trump even clogging toilets with the scraps of paper he'd ripped. He also reportedly took 15 boxes of official documents with him when he left office, ignoring the Presidential Records Act.

#### Russia invades Ukraine

At 5am GMT on Thursday, Vladimir Putin ordered Russian troops into previously undisputed Ukrainian territory, in what by all accounts amounts to a full-scale invasion of the sovereign nation of Ukraine. Putin, who has routinely been decried for attempting to re-write history, claimed the invasion was being undertaken with the goal of "demilitarising" and to "de-nazify" Ukraine. In a speech immediately prior to the invasion, Putin claimed that Ukraine was being run by Western "puppets" and "neo-nazis", neither of which are remotely true. He also said that if any country tried to stand in the way of the invasion, "Russia's response will be immediate and lead you to consequences you have never encountered in your history". Reports of attacks from Russia and Belarus led to Ukraine defending itself on three fronts.

WHAT HAPPENED

#### Abortion legalised

Colombia has legalised abortion during the first 24 weeks of pregnancy, a historic ruling. A five to four victory in Colombia's constitutional court led to the improvement of abortion rights, where previously abortion was legal only in cases of rape or incest. The ruling joins other recent victories surrounding abortion rights in latin America; Mexico's supreme court ruled against the prosection of women found to have ended their own pregnancies, setting precedent across the country. Ecuador last week ruled that women could access abortion in cases of rape, superceeding the previous ruling that allowed abortion onlywhen the mother's life was at risk. *Communication returned to Tonga after a month-long outage* Five weeks after an underwater volcanic eruption smothered parts of Tonga and cut off all telecommunications that did not use satellites, the underwater cable that provides all reliable internet connections has been restored. The cable, which runs from Fiji, now provides internet to the main islands of Tonga, however some more remote islands still need their connections restored. Tonga is made up of over 170 islands. Unlike the UK, which is provided for by around 60 such cables, Tonga has only one, making its failure catastrophic for the island nation.

# ... in this issue's year (1794)

#### **SOUTH AFRICA**

**CHINA** The White Lotus Rebellion begins

A slave ship is wrecked off the coast of South Africa. 212 slaves lose their lives.

#### FRANCE (again)

Lavoisier, who discovered oxygen's role in combustion, among other things, is guillotined.

#### FRANCE

Robespierre establishes the 'Cult of the Supreme Being' as the national religion in the new French republic

#### THE UNITED STATES

**SWEDEN** 

One of the first successful cesarean sections is carried out by Jesse Bennett

Coffee is banned by royal decree

Photo credit: Roberto Sorin, Unsplash Licence

# SCIENCE

# The burden of antibiotic resistance

New study finds that antibiotic resistance claimed over 1.2 million lives across the world in 2019 alone

#### Lorena Mejias Martinez Science Writer

ntimicrobial resistance (AMR) is a Amajor threat to health worldwide, claiming over 1.2 million lives in 2019 alone. According to a new study published in The Lancet, AMR has caused more deaths than either HIV/ AIDS or malaria. This makes it one of the top 10 global threats facing humanity, according to the World Health Organization.

#### What is antimicrobial

#### resistance?

AMR happens when microorganisms (such as bacteria, viruses, parasites, and fungi) become resistant to treatments, making them unresponsive to medicine and thus making infections much harder to treat. Resistance to antimicrobials (antibiotics, antivirals, antiparasitics, and antifungals) renders these treatments ineffective against infection. Over time, this becomes increas-

ingly dangerous as resistant microorganisms continue to grow, increasing the risk of spread, severe disease, and death as certain illnesses become untreatable. Although this process occurs naturally (microorganisms mutate naturally and are able to avoid being cleared by selective pressures such as antibiotics), it has been severely sped up by the over-

use of antibiotics in humans. Over-prescription and overuse of antibiotic drugs accelerate the development of resistance by exposing microorganisms to antibiotics (see diagram). Those that have adapted will survive and continue to multiply, while those that have not adapted will die. The result is that the surviving microorganisms contain resistance traits within their DNA, which makes them resistant to certain antibiotics. Furthermore, this resistance can be spread to other microorganisms that have not been exposed to antibiotics.

When microorganisms combine resistance to multiple antibiotics, they can become untreatable. Microorganisms that have become resistant to most of the commonly used medications are termed 'superbugs'.

#### A global analysis of antimicrobial resistance

#### The first comprehensive study analyzing the impact of AMR world-

wide has now been published in The Lancet, es-

and Pseudomonas aeruginosa) were found to be directly responsible for 929,000 deaths, and associated with 3.57 million deaths in 2019. Notably,

singly pathogen-drug one combination directly caused over 100,000 deaths in 2019 alone – methicillin-resistance S. aureus (better known as MRSA, a superbug).

"These new data reveal the true scale of antimicrobial resistance worldwide, and are a clear signal that we must act now to combat the threat," said co-author of the study Professor

Chris Murray, of the Institute for Health Metrics and Evaluation at the University of Washington.

"Previous estimates had predicted million annual deaths from 10 antimicrobial resistance by 2050, but we now know for certain that we are already far closer to that figure than we thought. We need to leverage this data to coursecorrect action and drive innovation if we want to stay ahead in the race against antimicrobial resistance."

3 4 5 There are large numbers of bacteria Antibiotics will kill the bacteria The resistant bacteria survive and Bacteria are also able to transfer **Eventually, antib** otics become in the body, some of which are drug less and less effective. Transfer of present, both the good bacteria which multiply under better conditions, their drug resistance to other resistance to multiple antibiotics protects the body from infection and as they do not have to compete for hacteria gives rise to 'superbugs'. the one causing illness, but not those resources with other bacteria in that are resistant to the drugs. the body

#### Illustration by Aim Kumpusiri, 1st Year Biotechnology

als across 204 countries, using statistical modelling to estimate the effect of AMR across the world.

Here, they confirmed that AMR is now a leading cause of death worldwide, with the most deaths occurring in lowand middle-income countries. Despite this, higher income countries were also shown to have dangerously high levels of AMR. Deaths directly attributable to AMR were estimated to be highest in western Sub-Saharan Africa (27

study highlighted the varying impact of pathogens across the world. Whereas AMR in Sub-Saharan Africa was mostly caused by K. pneumonia (20% of deaths) or S. pneumoniae (16%), in higher income countries it was primarily attributed to S. aureus (26%) or E. coli (23%).

The six leading pathogens associated AMR (Escherichia with coli, followed by Staphylococcus aureus, Klebsiella pneumoniae, Streptococcus

timating that AMR-infections have led deaths per 100,000 people) and South pneumoniae, Acinetobacter baumannii, to 4.95 million deaths. Researchers have Asia (22 per 100,000), and lowest in analysed data on 471 million individu- Australasia (6.5 per 100,000). This



# The protein paradox

Science Writer Carmen Garcia Sebego on how RNA has provided a new perspective on primate evolution

Carmen Garcia Sebego Science Writer

Human and nonhuman primates have almost identical combinations of genes, yet we humans exhibit far greater cognitive complexity. Scientists have for a long time sought to understand the basis for this but have remained unable to do so. Recently, however, a group of researchers in Israel have found that RNA editing plays a major role in developing higher brain function in humans compared to other primates. This finding constitutes a paradigm shift, redirecting the focus of evolutionary biology from DNA to RNA.

An unexpected side effect of the coronavirus pandemic has been a ribonucleic acid (RNA) revolution. If we were to play a word association game, "RNA" would now likely invoke the response "vaccine" rather than a blank stare. The breakthrough RNA vaccines have raised awareness of this biological molecule, which had not been a household name prior to the pandemic. There is more to ribonucleic acid (RNA) – beyond its pharmaceutical power — it was recently uncovered that RNA was a key agent in our evolutionary history.

The study, conducted by a research team led by Dr Nurit Yaacov at the Chaim Sheba Medical Center, provides a new perspective on primate evolution. Straying from the mainstream glorification of DNA as the force of evolution, the study puts RNA on the main stage. Previously RNA was merely seen as an adaptor that served to communicate DNA's instructions to make proteins to the cell's protein-making machinery. Yaacov's stance is that RNA is much more complex than it is given credit for. The phenomenon that he highlights is RNA editing. RNA is not the obedient messenger it was once thought to be. It has the ability to be rewritten before it directs protein synthesis. Almost like a game of Chinese whispers, where the information is passed along from DNA to RNA to proteins, the whispers warp the information. The outcome is the production of a new protein that may have a different function in the cell. In other words, RNA editing is a means by which the cell escapes the shackles of its limited genes. More RNA transcripts and thus proteins can be produced than are

Credit: ANIRUDH, Unsplash Licence



coded for in humans' surprisingly small genome of around twenty thousand protein coding genes.

Alas, the once overlooked RNA is the key to resolving the paradox that had left scientists stumped for decades human and nonhuman primates have almost identical genomes, yet humans show more developed behaviour. Evolution is tied to changes in DNA that result in new and adapted proteins. This is why the genetic material of individual species is often a distinguishing feature. We now know that it is possible that humans

### **EXPLAINER** HOW ARE PROTEINS MADE?

In a nutshell: genes are the DNA sequences that make RNA, which in turn make proteins. DNA is a double-stranded molecule which is composed of the building blocks A, C, G, T. During transcription the strands are unzipped, and an exposed strand acts as a template for single-stranded RNA to be made. RNA is composed of building blocks A, C, G, U. The difference between DNA and RNA is revealed by their unabbreviated names: deoxyribonucleic acid and ribonucleic acid. DNA's sugar component has one less oxygen than RNAs. Once RNA is made, it is translated into amino acids by the cell's protein making machinery. Enzymes known as ADARs have one trick up their sleeve that effectively fools the translation machinery into producing alternative proteins. ADARs modify the A building block to a resemble G. The incorporation of what the cell reads as a G leads to different amino acids being strung together, changing the protein that is made. This modification has a significant impact on the properties of the proteins produced, and the functions that they can carry out.

have evolved higher developmental and cognitive complexity despite having near identical genetic scripts to non-human primates, because changes can occur at the RNA level rather than at the DNA level. RNA editing produces new proteins, while leaving the DNA unchanged.

This was confirmed by Dr Yaacov's study that compared the levels of editing in human and non-human primates, to ascertain whether there is a relationship between RNA editing and the cognitive capacity of organisms. To identify editing, the composition of the gene's DNA and RNA molecules had to be compared. Usually, DNA acts as a template from which RNA is made, so they have nearly identical composition. Therefore, differences between them are tell-tale signs of editing. The researchers compared RNA molecules from different species, and found greater levels of editing in humans compared to monkeys and chimpanzees. The molecules that were compared were extracted from the cerebellum, the part of the brain that accounts for half of the brain's neurons. This region of the brain is responsible for the maintenance of balance and posture, motor learning and cognitive functions. RNA editing results in different variants of the same

protein with slightly different amino acid compositions and properties. Over the evolutionary time scale these diverse protein products could undergo natural selection, until proteins with fine-tuned functions emerge. What this suggests, then, is that RNA editing is an agent by which natural selection can drive neural evolution and eventually higher cognitive function.

It seems that science is entering an RNA era, as we realize RNA's biological significance, from human evolution to therapeutics. Science is turning the page from the DNA chapter that has been vigorously added to and edited by many scientists since the molecule's discovery in the 1860s. The most recent paragraphs of the RNA chapter have been written by BioNTech and Moderna, the biotechnology companies that developed COVID-19 RNA vaccines. Who will the next authors and contributors be?



Scan the QR code to access the paper!

#### SCIENCE

# Oceans and medicines could die with sharks

Wang Guo Staff Writer

Sharks are fascinating creatures that have been living on Earth since before the dinosaurs, thanks to their mighty mouths AND mighty immune systems. At present, they are heavily overfished for their cartilaginous fins which are falsely believed to have healing properties. Recent studies on sharks' immune system and genome show potential in developing novel antivirals – we don't want these to die alongside these majestic creatures.

Sharks are certainly one of the most fascinating creatures to have ever existed. They have been living on Earth for around 450 million years, since before the dinosaurs. Now these impressive animals are in danger due to the destruction of their habitats and overfishing. Not only do sharks play an important role in balancing marine populations, but their ancient immune system can help us to develop novel antivirals and more.

The book Sharks Don't Get Cancer, published in 1992 by William Lane, claims that consuming shark cartilages can cure cancer of affected patients. This argument arose because the skeleton and some body parts like the fins are made of cartilage. This type of tissue does not have blood vessels due to chemical compounds that inhibit their formation. This is key because cancerous cells can form new blood vessels which connect with the main bloodstream to feed on its nutrients and oxygen, growing bigger and stronger. Many companies in Western countries started selling nutritional supplements with shark cartilages at very high prices and some patients with cancer even quit conventional cancer treatments to exclusively rely on shark cartilages.

In parts of China, Taiwan and Southeast Asia, shark fins have been considered a delicacy affordable for the privileged class for centuries. Emperors drank shark fin soups frequently in attempts to extend their lifespans. Currently, with the growth of the middle class in China, more and more people can afford the valuable shark fins, causing demand to skyrocket, and leading to the fishing of more sharks than ever before. Unfortunately for these people, scientific research shows that consuming shark meat is not beneficial, but indeed prejudicial for the health. Shark meat contains high concentrations of mercury, a toxic metal, and most of its proteins are too big for our intestine to absorb properly. Additionally, sharks do get cancer. Some specimens of white sharks with visible tumours have been observed in the wild.

Overfishing is putting sharks on the brink of extinction. Estimates indicate that 100 million sharks are killed annually. Around one-sixth of shark species are in danger of extinction. The disappearance of sharks from marine ecosystems would be catastrophic. These majestic animals act as a regulator of fish populations, preventing population overgrowth and guaranteeing a fair distribution of resources among them. Sharks also prevent the spread of diseases by eating first the weak and ill fish as these are easier to hunt. CO<sub>2</sub> increases the acidity of the water, which is noxious for corals. It has been proven that coral reefs rich with many sharks are much healthier and with greater biodiversity. The reason is that sharks reduce the number of small organisms, which emit most of the CO<sub>2</sub> found in the water due to their abundance and high metabolic rate. In a nutshell, by killing sharks, we are damaging our oceans and futhermore, ourselves.

Scientists sequenced the entire genome of the Great white shark in 2019, which can be extrapolated to sharks in general. It has revealed that the genome of the great white is 1.5 times bigger than the human one and is extremely unstable. This could cause harmful mutations that lead to cancer, but the research has also found that the great white accounts for this with a sophisticated gene repairing machine more advanced than the human one. Scientists have also found some unique genes that may boost the immune system of sharks that could explain their incredible wound healing and viral resistance characteristics, although more research is required. A



Shark soup, a delicacy in some parts of East and Southeast As

deep understanding of the genome and immunology of sharks might allow us to develop novel therapies in a broad realm of diseases.

However, this is not the first time that studying sharks has provided such results. Back in 1993, Dr Michael Zasloff discovered squalamine in dogfish sharks. Squalamine is a broad-spectrum antiviral because it does not target viruses. Instead, squalamine binds to the cell membrane and blocks viral proteins from attaching to the cell, so that viruses cannot enter and infect the cell. Dr Zasloff noticed that no other chemical in nature has similar properties. Additionally, squalamine inhibits blood vessels formation. This property prompted the launch of research to study the potential application of squalamine to treat cancer. It is important to clarify that no sharks need to be killed to harvest squalamine. This chemical compound is synthesised artificially from soybean steroids.

Sharks are essential for the health of our oceans, but we are wiping them out on the basis of false pseudo-scientific claims and traditional superstitions. Meanwhile, we are not giving enough attention to the good that sharks could do to find new drugs to cure serious diseases.

Photo credit: Terry Gross, Wikimedia Commons, CC BY 2.5



A great white shark

# Science Spotlight The Behaviour of Sand

### with Peter Adesina, Geotechnics

#### Jamie John Science Editor

Peter Adesina is a final-year PhD student in the Geotechnics research group in the Department of Civil Engineering. He investigates how the shape, size and distribution of sand particles on a microscopic scale affect behaviour and material properties on a much larger (macro)scale. At present, our understanding of soil behaviour is largely derived from experiment and observation, rather than fundamental analysis.



Soils play an important role in construction; buildings, roads and dams are erected on soils and many structures are built using different soils. Sand is one of the critical components of concrete, the second most-consumed resource on the planet behind water. As we move towards a sustainable future, finite resources such as sand will need to be used more judiciously and efficiently.

When viewed from this perspective, Mr Adesina's work is critical. Speaking to Felix, he said, "A fundamental understanding of the factors influencing soil behaviour will help us optimise soil properties. This will allow us maximise the potential of soils, so that we will be able to reduce waste." Aside from improving sustainability, more efficient use of soils will reduce the cost of construction, allowing for more affordable infrastructure and housing, in areas of the world where material costs are high. Furthermore, it will allow engineers to design more resilient structures, using the newfound understanding of soil behaviour.

"The aim of our research is to develop a fundamental understanding of the factors responsible for the mechanical behaviour of sand. In particular, we seek to understand the role played by particle shape, particle size distribution and relative density on the packing and strength of sand. For this purpose, we generate numerical sand samples to various configurations (Figure 1), we then simulate their behaviour under loading using discrete element modelling (DEM). DEM is a numerical approach that allows for a microscale examination of sand towards an effective understanding of macroscale behaviour. We hope a detailed analysis of the fabric quantities such as particle orientation (Figure 2) and contact force network (Figure 3) will unravel the fundamental behaviour of sand."



## This week in Science...

#### FROM IMPERIAL

### Miscarriage could be linked to changes in the vaginal microbiome

Inflammation caused by changes in vaginal bacteria could be associated with miscarriage, according to researchers from Imperial's Department of Metabolism, Digestion and Reproduction. Miscarriage occurs in around one in five pregnancies. Half of them are caused by chromosomal abnormalities in the embryo, but little is known about the causes of others. The study included 167 pregnant people between 2014 and 2019, 93 of whom had a miscarriage; in 54 of those cases, no chromosomal abnormalities were observed in the embryo. A healthy vaginal microbiome contains a lot of acid-producing Lactobacilli which can help prevent the growth of more harmful bacteria, such as Prevotella and Streptococcus, which were found to be more abundant in the vaginal microbiome of women who miscarried embryos with "normal" chromosomes. Higher rates of inflammation was associated with these bacteria. More research is needed to confirm the association, but the researchers working on a new test to analyse the vagina microbiome rapidly, which could provide future help for those at risk of miscarriage.

### London stinks! The city producing up to a third more methane than previously thought

Researchers have found that due to an accumulation of natural gas infrastructure leaks, London is producing up to a third more methane than previously thought. Methane is a more potent greenhouse gas than carbon dioxide, but it stays in the atmosphere for considerably less time. The researchers used a "top-down" approach of measuring methane by measuring the atmosphere directly rather than the typical "bottomup" approach of inferring methane emissions from the abundance of methane-emitting processes. The identification of the source of this methane is significant as it was previously thought London emitted methane primarily via landfill. This opens up the potential for solutions.

#### FROM AROUND THE WORLD...

"It's like being born again" says Jimi Olghere, one of seven patients discovering their new world after undergoing revolutionary sickle cell treatment

The first patients from a new gene-editing treatment being trialed in the US are finding its benefits. Sickle cell disease is caused by genetic mutation that leads to the body making haemoglobin that is rigid and unable to hold onto oxygen / navigate the body as well, causing it to get stuck and create blood blockages which increases patient's risk of heart attack, stroke and organ damage, and often causes them a great deal of pain. Oxygen has a higher affinity for foetal haemoglobin, but the body switches from producing foetal haemoglobin to adult haemoglobin just before birth. Foetal haemoglobin is unaffected by sickle cell disease. The switch is controlled by the gene BCL 11A. Researchers were able to turn the switch "off" so the boy would produce foetal haemoglobin again. The trial involved killing all of the stem cells that create adult haemoglobin via chemotherapy, and blood transfusion with the genetically engineered stem cells. 45 patients have had this treatment, but the first 7 have already experienced amazing results, with none of them requiring admission to hospital or doctor's visits because of sickle cell related complications.

SCIENCE

**KEEP THE CAT FREE** 

Edited by: Alexander Cohen Alex Jackson Boxuan Zhang

# <sup>Theatre</sup> 'Major event' by SingSoc

#### Supernormal: The Musical

ARTS

When? 19th February 2022

Reviewed by Zanna Buckland Books Editor

Cleverly constructed by Imperial's own Singapore Society members, 'Supernormal: The Musical' was a delight to witness. The premise is an original and effective one; time-skipping between past and present, a group of friends at university (Nicole, Jack, Klaire, and Larry) have a fallout, and while taking a much-needed time out Nicole is whisked out of reality to be told she is an 'observer'. These so-called observers can step in and out of reality at will, tasked with helping others cope with their own 'supernormal' abilities. The idea is that everyone is supernormal – having a particular talent for something that affects the way they live. Examples in the musical include being right 90% of the time; being a 'jack-of-all-trades'; and the ability to wilfully grow ingrown toenails (some graphic comic relief).

Eventually Nicole is drawn back to her circle of friends, who are now being faced with their own personal versions of supernormal; Jack is stuck in a teaching job with no hope for his desired promotion, Klaire longs for Jack (and others) to notice her for



what she is, and Larry hasn't seen the others in years – shunned for supposedly causing Nicole to disappear. Nicole's job is not only to help them deal with the trials and tribulations of adult life but also find a way to reconcile with them and accept that she too needs the support that only friends can provide. The four are joined onstage by a fellow observer, Jack's mother,

<image>

colleagues at work, the Dean of Jack and Nicole's school, and a crew of dedicated dancers, all of whom filled the show with extra antics for our enjoyment.

The musical showcased a range of creative talents outside of the academic sector, particularly regarding the musical numbers (dancing, singing, and orchestra). The main cast did an outstanding job of acting as both the younger and older versions of their characters, and their animation and emotion was admirable. While the speech took a moment to find the perfect pace and the mics were fuzzy at times, the script was delivered with clarity and the songs revealed impressive vocal ranges. The songs and dances were well-executed and gave us a glimpse of the contemporary hip-hop styles that are becoming increasingly popular in Asia; filled out with ensemble dancers and a backing choir. A small but talented accompanying orchestra swept the swift scene transitions along with fun melodies.

The dialogue was interspersed with jokes and musical numbers poking fun at the pressures and stresses of university and working life. Who knew the term 'CV' would ever make it into a song? Career-building and 'friendly' competition are other topics on the table, exploring what happens when

Are you an aspiring arts critic? Visit our Facebook page for more details on free press tickets for London shows!



#### Continued...

#### Supernormal: The Musical

friends are pitted against each other when looking for internships and other career opportunities. It is a light-hearted, yet profound commentary on how pressure in various areas of our lives can affect our friendships and relationships. The acting, while earnest, was comical; one hilarious scene had Larry sitting on a toilet in the office bathroom, with Nicole on the other side of the cubicle, awkwardly discussing her reappearance and Larry's supernormal ability.

Of course, it wouldn't be a Singaporean event without some Asian touches; there were snippets of colloquialisms in the dialogue, and caricatures of the Asian student and parent stereotypes, but in the end the characters are just like everyone else. We saw recurring references to Korean dramas, beloved all over Asia for their dramatic romances, and freebies from sponsors 'Yeos' and 'Biju', with packet drinks from the former featuring in a dining scene near the beginning of the show. It also challenged the typical Asian parent expectations, to have a respectable (in their eyes) career - apparently 'social worker' is not one of them - and that any opposite-gender friend is potential dating material.

It was a performance well done, considering SingSoc has been writing, composing, directing, and rehearsing alongside their busy, lecture-filled schedules. Given more adequate time and resources, the show could have

been in the leagues of drama school productions. I was pleasantly surprised by the uplifting story, which circled back to the four friends having dinner together in the 'present day', finding serenity among their everyday worries and unrest. It was an unexpectedly enjoyable way to spend my Saturday evening, taking a break from my own work-related stresses, and I'd love to see what they manage to put together for next year's showcase.

#### **Applications for the Blyth Arts Fel**lowship are open now — Deadline 10th March 2022!

The Blyth Arts Fellowship aims to develop a fine art practice at Imperial. The winner of the fellow-

ship will receive four onehour 1:1 mentoring sessions with a professional artist, a materials bursary of £500, and more.

Scan to find out more, and apply!







19:00

19:00

19:00

Imperial Hockey presents... ICHC Club Night 2022: Under the Sea

Join us in Corsica Studios for the biggest night out of the year! Buy your tickets ASAP before they sell out! All CSPs welcome, with student drinks deals and IC DJSOC sets



### Felix Centrefolds is BACK! Email felix@ic.ac.uk if your society would like to be featured in this space.



#### **Puzzles Notices** PUZZLES Special thanks to: Stanley Scott for the crossword and Lito Chatzidavari for the nonogram 8 N NNN - Nω 11 ω . 13 10 ю 4 ωN 20 പ ത 6.0 N N 2 7 5 24 N UT UD 4 w o w $N \rightarrow \omega$ - w 26 ы J ယ တ ωω Across o 4 σω റെ 4ωααα ω ω ο τυ 4 ω თ → ω თ 6.0 NWWW σωω\_ο [74]ര 4 ധ ത ω N 13 ω <del>ω</del> 4 ωN 4 6 N ments. [9] ωω σωνω 4 VI <u>-</u> տ ա տ 7 12 2 2 10 9 276 r0 4 25) Staple pet food. [6] 12 5 8 7 1 9 2 1 3 4 7 8 6 3 6 4 5 8 7 1 9 2 **Points** 1 3 4 7 8 6 | 3 4 7 8 6 2 9 5 2 9 5 3 4 5 962 3 4 5 8 1 7 3 4 5 Nonogram 2 pts 6 1 3 2 5 9 7 4 8 6 1 3 2 5 9 7 4 8 6 1 3 2 5 9 7 4 8 6 3 4 8 1 7 7 9 8 6 3 4 5 2 1 7 9 8 6 3 4 5 2 1 7 9 8 Crossword 3 pts 9 3 6 8 1 7 9 3 6 4 2 5 1 8 9 1 8 9 2 4 6 5 7 3 **FUCWIT** 9 6 8 968 4 5 2 3 7 1 9 6 8 6 7 3 8 5 9 5 8 7 1 9 2 5 8 7 1 9 2 3 6 4 3 6 4 5 8 7 1 9 2 - Please check online - 2 9 5 1 3 4 7 8 6 8 1 7 9 6 2 3 4 5 3 4 5 8 1 7 9 6 2 3 4 5 2 5 9 6 1 3 Send your solutions to fsudo-6 3 4 5 2 1 ku@ic.ac.uk before Wednesday 2nd at 12:00 5 8 7 1 9 2 3 6 4 5 8 7 1 9 2 3 6 4 5 8 7 1 9 2



#### **Regular** Crossword Clues

- 1) You might lay it on a tin. [69]
- 8) Not trochaic. [6]

- 11) Archaic contraction. [3] 12) Famous song by the Tijuana Brass.
- 13) You can put your door on it. [5] 15) That needed for important docu-
- 17) German traditional cuisine. [9]
- 18) Ashkenazi potato snack. [5]
- 20) The English, Welsh and Canadians,
- for example. [11]
- 23) They give you connection. [3]
- 24) More hip. [8]
- 26) Suspicion, apprehension. [15]

- Down 1) City where Edward Colston's statue was torn down. [7] 9) An archer might depend on one. [8] 2) Ancient text on relationships and
  - intimacy. [45]
  - 3) Hard as \_\_\_\_. [5]
  - 4) Famous music magazine. [7, 5]
  - 5) Car type. [9]
  - 6) Name that sounds like a chemical
  - group. [5] 7) Way of serving meat raw. [7]
  - 10) UK band with hit "Ruby". [66]
  - 14) In any way. [9]
  - 16) Possible to bring together. [9]
  - 17) Got by deception. [7]
  - 19) Desperately unfortunate. [7]
  - 21) Henchmen. [5]
  - 22) Spiral. [5]



134 7 8 6 634 4 2 5 8 1 7 9 3 6 5 7 3



### CATNI Carnage in the Felix pressroom as Sanderson resignation causes rush for humorous headline

Dalum "Dizzy" Crysdale NegaFelix Reporter

The shock news of the resignation of Imperial College's CFO caused concertation in the Felix command centre as Chief Editor Lam Sovatt wrestled with the problem of which witticism would grace the front page of this Friday's issue.

Having not seen the news coming, the Editor-in-Chief was forced to cut short his usual four-hour lunch break in order to bring all of his brain power to the fight. A notable wit in his own right, Sovatt was elected on a platform of bringing the paper back to its former glory after Covid.

Sanderson, who was a controversial figure and had been embroiled in a bullying scandal that had already threatened his position, had previously drawn flak in the pages of Felix making it essential that the appropriate pun was identified.

Loiterers outside of Sovatt's palatial office reported sounds of breaking glass, bovine howls and the hammering of computer keys. One such listener, Feb Senton the arts editor, told NegaFelix that he had been afraid that he would be pressed into coming up with a headline. "I mainly use Felix to get free theatre tickets so the idea that I would have to come up with something that anyone would want to read was really scary".

Many students living in Beit, above the Felix office, were forced to relocate for the night as the growls and other miscellaneous noises coming from the office were making sleep impossible.

These linguistic contortions continued from Tuesday when the news was released until Thursday when the paper was sent to press. With the print deadline rapidly approaching and the rest of the paper

completed, a team of copy editors (the journalistic mix of hitman and heavy) assembled to break down the office door in order to extract the missing words that would finish the issue.

Speaking later, from a secure psychiatric institution, the head of the group told NegaFelix that "the scenes of destruction in that office were horrific. When we broke the door down, we had to force past huge drifts of crumpled paper, the majority of them blank or with the word 'Muir' written over and over again." Sovatt was discovered, hunched over a piece of ceiling tiling that he had torn out, upon which, written in his own bodily fluids were the words 'Sandergone. Controversial CFO at Imperial no muir' which now grace the front of the paper. I hope you feel the effort was worthwhile.



ARIES

This week your bookcase collapses from the amount of dust on it



TAURUS

This week you are glad you kept the 10,000 barrels of crude oil you got for your 13th birthday



This week you reckon you wouldn't need a whole tail to stabilise

yourself if you were a

lizard



This week you all put another jumper on after your flatmate locks the central heating controls



This week your study abroad funding request is rejected as "from another era"



VIRGO

This week a second hand set of false teeth will prove to be your primary source of nutrition



LIBRA

This week storm Franklin blows so hard you're reminded of yourself in first year



#### **SCORPIO**

is hampered by swarms of the usually solitary buzzard



#### **SAGITTARIUS**

This week UCU picketing This week you try to cook an exotic fish stew for your housemates and give everyone food poisoning



#### **CAPRICORN**

This week you decide to write for Felix and are welcomed with open arms



#### **AQUARIUS**

This week the pint race you hold against your three year old nephew wasn't fair anyway because he was drinking milk



#### **PISCES**

This week your friends appear shocked when, following your promise to live a more wild life, you arrive at 568 smothered in shit

# Vexillum magnates behind republic declarations for Luhansk and Donetsk

#### Dalum "Dizzy" Crysdale NegaFelix Reporter

A month long investigation into the vexillum industry has identified several key players who have been responsible for escalating tensions in the Donbas region.

The vexillum, or flag, industry is one of the world's oldest and has long been associated with sedate needle work and the status quo. However, a NegaFelix undercover investigation has revealed that many of the industry's leaders have been responsible for puppeteering autocrats into a number of different theatres of war.

A whistleblower, speaking on the condition of anonymity, told NegaFelix "The economics of the situation are simple. The more contested countries there are, the more flags are needed to be burnt, or changed or replaced or torn down. The incentives are very clear"

A dossier passed from on by the whistleblower revealed how vexillum agents had been behind Belarus' post-Soviet independence movement and its return to autocracy. Professor of Belarusian economics, Jaeve Mohnston told NegaFelix that the two flag changes that occurred over this process had netted the vexillum industry between \$10 and \$20 billion.

More concerningly, the dossier also suggested that vexillum special forces, known as 'false flag platoons', were behind the false flag attacks in the Donbas region. Key in this web of violence is Jizabelle Hang, a native Russian and internationally renowned arms dealer and flag manufacturer whose company Gun Cotton has, uniquely, been sanctioned by both the US and China. She is thought to have been pivotal in providing money for such disparate operations as voter intimidation in Sussex County Cricket Club elections in 2018 and fomenting anti-Western sentiment in the Middle East in order to increase their sales of Star and Stripes flags in that region.

The whereabouts of Hang are currently unknown, but she tops a number of international wanted lists and a \$5 million award has been posted for information that leads to her arrest.

We realise this piece may be perceived as a little close to the bone given current events. Felix stands vehemently against the actions of Russia and does not mean to make light of the situation unfurling in Ukraine

# This week's rejected headlines...

#### College pays Muirage to "rebuild trust"

CFO resigns, however reasoning remains Muirky

I can see clearly now the Muir has gone

Last helicopter out of Sanderson

One Muir reason for Gast to leave **CFO's career Muirdered** 

Ding dong the Muir is gone

**Muirine behaviour leads CFO to resign** 

The Sandersons of time have run out for Muir



# Leadership Ecclons<sup>222</sup>



Scan me!

**Nominations close at 12:00**, on Friday 4 March

imperialcollegeunion.org/le22

Environment.felix@imperial.ac.uk Felixonline.co.uk

**KEEP THE CAT FREE** 

Edited by: Monami Miyamoto Marie Mori Monika Yardonova Jack Cribb

View online here!

# Living through the apocalypse — a warning from the sky?

ENVIRONMENT

Monika Yardonova Environment Editor

fter weathering three storms it is Atime to tally up the damages. At the time of writing, three lives have been lost and 114,000 homes have faced disruptions to electricity and even water supplies in the middle of winter. The Met Office has issued a red alert to warn of the severity of the expectant winds. Now, record-breaking winds of 122mph have been reported and the strong gusts have uprooted, broken and destroyed millions of trees, vital carbon sinks for our planet. The storms have also resulted in major damage to many buildings, including the roof of London's beloved O2 arena, and disruptions along travel networks, including flooded roads at the height of Storm Franklin.

Scientists agree that global warming could worsen the outcomes from such climatic events. As sea levels rise, coastal storm surges can become more common and increase risks of flooding. Flooding risks could be further worsened by predictions of elevated rainfall during the winter season. Another major cause for concern, according to the Center for Climate and Energy Solutions, is rising sea surface temperatures as a

result of Earth's warming climate.

Surging sea s u r f a c e

temperatures may heighten wind speeds

of storms, resulting in more damages to nature and property. Furthermore, rising temperatures have been linked to increased precipitation from cyclones, providing further basis for increased flooding risks. Are we prepared to mitigate these risks? An Unearthed investigation published in 2021 suggests not. The investigation shows that assessments carried out by Environmental Agency inspectors have found more than 1,000 of England's privately-owned flood defences are classified as either "poor" or "very poor" condition. Furthermore, data from these

reports distinguish areas that face disproportionately high flood risks as "high-consequence areas" and management of such areas by private companies was twice as likely to result in poor management relative to cases where such areas were managed by the Environment Agency. Put simply, these private companies are placing vulnerable communities at greater risks of flooding by not enacting adequate measures to mitigate these risks.

result of the As a investigation, Olivia Blake MP, Labour then Shadow Minister for Nature, Water Flooding, had and responded, "as our winters get wetter, the climate emergency will put flood defences under greater strain. The government must act to ensure there are clear responsibilities and adequate measures

in place so that any flood defences which are privately owned and critically important to the protection of the public are properly inspected and maintained". Yet these words ring hollow as the investigation reveals a slew of cases where poor management has resulted in misjudgement of risk and no correction to management measures.

While they are frightening, and their effects long-lasting and devastating, storms like the ones we recently witnessed are a rare once-in-a-decade events. The shifts in the UK's climate, however, are here to stay and likely to increase the risks posed by such storms. Perhaps this event should therefore serve as a warning to better equip our cities before it becomes too late.





Edited by: Tara Pal Chaudhuri Joe Riordan

# MUSIC

#### Don't miss the gig -Battle of the Bands Heats @ Reynolds Bar, 25th February

The long awaited Imperial bands competition hosted by Live Music Society is going to take place at Reynolds Bar.



Remember to make it to the heats and support your favourite bands. Tonight: Parc Firm, L. A. D., and more!

#### Single of the Week

#### "2am" by Foals

Since their release of *'Everything Not Saved Will Be Lost Part I*, it was evident the Foals were beginning to test the waters with dance music – elements of which you can hear in



the synth-driven beats of "2am", a single from their upcoming album "Life is Yours". Yannis Philippakis sings about life's various yearnings at 2 AM in a voice that fans can recognise from a mile away. Our favourite part of the song is undoubtedly the in-your-face percussion, mixing techno cowbell-sounding elements with their characteristic, highly articulate drum beats.

#### **TODAY IN MUSIC HISTORY**

It's 1985 and Tears for Fears releases their sophomore album 'Songs from the Big Chair', featuring an eventual



SYNTHPOP CLASSIC: "Everybody Wants to Rule the World". Meanwhile, in 1995, it's Frank Sinatra's last live performance, and in 1998, Roy Orbison and Bo Diddley receive Lifetime Achievement Grammy awards.

### Gig Reviews Devastating News: I'm Proven Wrong



The Kooks continue a three-night run at O2 Brixton - and I actually liked them

Written by Joe Riordan Music Editor

This week, two Felix music editors graced O2 Brixton ready to unleash scathing critiques on the other guests of the night, BRIT-nominated indie royalty, The Kooks.

I'll put it plainly: I was not expecting to be thrilled. I saw The Kooks at Leeds Fest in 2019 and a mix of incessant drizzle, a packed field and a lacklustre performance did not win me over. Conflictingly, anyone I spoke to who had seen the band at one of their own headline gigs raved about the energy and liveliness the band brought. After seeing them on the second night of their three-night run at O2 Brixton, I have been converted into the devout energetic camp. This was the best gig I've seen at the venue. I'll admit the sample size is not huge (4) and the mathematicians will not be convinced by my conclusion, but I stand by it; the Kooks are an incredible live band.

After underestimating Storm Eunice (RIP O2 Arena), I made it to Brixton with minutes to spare after navigating the confusing (to my Fulhaminhabiting self) bus routes of south London. The Kooks began their set as I was queuing for a drink at the bar, so this was quickly skipped for a spot closer to the stage. Navigating the crowd, it was easy to infer the band were massive in the mid-2000s. The average demographic of the crowd is 30-year-old couples where one is obviously more invested in the band than the other. On the far end of this spectrum are the 15-year-olds just going through their indie phase - as the original fans once were back in 2006. The set is loved by everyone though with the band mainly playing hits from their first album.

After kicking off their set with a campfire-side



acoustic sing-along to *"Seaside"*, it is obvious the crowd are all devout fans of the band, feel so Ι slightly out of place in my neutrality towards them – but this is fast changing. Getting the

crowd jumping, the whole band join lead singer Luke Pritchard for a raucous rendition of "See The World". Now, Pritchard states their intent, a playthrough of the band's debut album Inside In / Inside Out as a celebration of the 15-year



anniversary of its release, fitting for an *Inside In / Inside Out* 15<sup>th</sup> Anniversary Tour.

Firing through fan-favourites like "Sofa Song" and "Eddie's Gun", my personal favourite Kooks song is finally reached as the band play through their first album in genuine listening order - "Ooh La". It reminds me of secondary school. It reminds me of going to house parties in my hometown. I admit I had a deep, deep Dark Fruits indie phase (minus any Gallagher-esque raincoats though). The crowd has been building in excitement through the whole set and this explodes as the first muddy notes of "She Moves In Her Own Way" echo through Brixton. I think it was then that I realised this was one of the loudest crowds I'd ever been in with shouts and screams applauding any action of the members of the band on stage.

After seven continuous '*Inside In/Inside Out*' tracks, The Kooks finally reveal they have actually written other albums in the last 15 years, showing off hits like "*Bad Habit*" and "*Junk Of The Heart (Happy)*" while also sprinkling in the remaining songs from the debut album that we were there to honour. By the time the band left the stage, everyone was sated. However, one more thing remained if this was going to be a proper commemoration, the band's biggest song – "Naïve". Returning to chants for one more song, Pritchard belted out a calming "No Pressure" before ending the night with "Naïve".

I wandered out of the gig with a new view of The Kooks, my experience at Leeds Fest rewritten, and now I would recommend to anyone to go see them if they get a chance, mainly down to the energy they bring to their sets and that the crowds belatedly reciprocate.

### MUSIC Wolf Alice Play Their Greatest Hits

The band round off their three-night run at Hammersmith Apollo

#### Written by Joe Riordan Music Editor

A nother day, another gig with two Felix music editors in attendance. This time it's an easier deci-

sion for who got to write about the experience though because only one of us can actually remember enough about the night to put any words on the page. If you want to check out Rosie's thoughts on Wolf Alice, you 'A Love Letter



can find them in Wolf Alice (photo: Joe Riordan)

To Wolf Alice' on Felix Online. Now for my thoughts. I'll summarise already. This gig had everything; it was amazing. Support was provided by Matt Maltese, who I didn't realise was the singer of *"As The World Caves In"* – a song I've heard so many times on TikTok. This was a surprisingly calm start to the night with Maltese himself sitting behind a keyboard, and the rest of the band standing around in a circle making for a very intimate set.

In a completely opposing set, Wolf Alice themselves came on stage and immediately embarked on a venuefilling rendition of *"Smile"*. The whole band exudes confidence, they're seasoned performers who are absolutely in love with what they are doing. From the beginning of the set and throughout I was entranced by guitarist Joff Oddie's playing. Looking suave in a suit, Oddie exhibited sounds that he'd perfected for each song.

A special mention has to go out to the lighting. Usually at a gig the lighting is nice and makes the songs slightly more interesting with the odd strobe effect but today it was noticeable, elegant, a thing of beauty. I wish I could put in a photo during every song of the set but I'll have to pick my top 3: green spotlights scanned through the crowd as an alarm went off all before the band erupted into the manic *"Play The Greatest Hits"*; a white spotlight shining from the front of the stage silhouetted the band as they played a breakdown; a similar spotlight shone on lead singer Ellie Rowsell



*"Safe From Heartbreak",* creating a regal shadow on the back curtain as if she were a Disney princess.

she

sang

In their encore, the band had a staggered entry back onto the stage as Rowsell gave an ethereal performance of *The Last Man* 

*On Earth".* This is my favourite Wolf Alice song and reminds me of my first summer living in London last year. After this emotional track, the band were all back to play fan-favourite and their biggest song, *"Don't Delete The Kisses"* to the delight of the crowd. Off the back of winning the Best Group award at the BRITs this year, Wolf Alice continue to prove they are worthy of the accolade.

### Album Reviews A Very Bon Album Indeed: 'Pompeii' by Cate Le Bon The Welsh songwriter made an album which completely stole my attention from BCNR – don't tell Rosie

#### Written by Benjamin Bateman Music Writer

I feel bad that up until a few weeks ago, I hadn't given Cate Le Bon her time in my headphones' limelight. I'd read multiple reviews of '*Reward*', her previous effort before her newest album *Pompeii*, which hailed her as an innovative songwriter, blender of moods and genres, and I made a mental note to listen to her along with the many, many other new artists that I wanted to get through after deciding I wasn't just going to listen to Radiohead all the time for the rest of my life. Unfortunately, she fell by the wayside, and only when I saw that her newest album was released did I come to appreciate what she had to offer.

Right now, though, I'm sitting awake at 1 AM on a Monday night trying to put into words exactly what makes this album review-worthy for me. I started writing for Felix with the original intent to talk about albums old and new which really affected me emotionally, which was why I opened with Mark Hollis back at the start of the year. This one is different, though. It's been out for around three weeks now, and it's basically all I've been listening to because it's just... really good. Black Country, New Road released an album basically at the same time and I've left it for dead. I like this one more. Maybe I'll give them their due later,



singing; the melody seems predictable enough, but the poetry in her words is another level of wordsmithy that one wouldn't quite expect from current pop artists. "I get by pushing poets aside cause they can't beat the Mother of Pearl," she explains on *"Moderation"*, perhaps the album's catchiest single. She invites us to "Picture the party where you're standing on a modern age," which is a reference to an essay by Lina Bo Bardi chastising Man's attempt at a moon landing when so many still live in poverty.

A lot of the songs in the album carry a similar air of strangeness. Whether it's in Le Bon's vocals or the warbling synths or saxophones that accompany her, it's always there – only 40 seconds into the title track, the vibe changes suddenly. "Get dressed, you're a mess,

but Le Bon is overdue at the moment.

'Pompeii' has been called her "poppiest" album to date, and it's not hard to see why. In the various singles released, the groove and guitar carry her dictable enough but the you're a sight, did you dream about Pompeii?" Le Bon has said the song is a commentary on the ruins themselves – as a preservation of human suffering, how for the first time in so long they've been deserted during the pandemic, and how capitalism has commodified them. "All my life in sentiment / all my language is vulgar and true." The nature of what Le Bon is talking about is in itself absurd here, and as a result, her ideas are clear and concise.

The musical climax comes with the single "Remembering Me" followed by the contemplative "Wheel" – songs that couldn't be more different in the context of this album. In the former, Le Bon talks about the "Remake of my life," emphasising the need to live in the present, not dwelling on previous mistakes. The song is lively, groovy, contrasting the melancholy in the words Le Bon sings. On "Wheel", there's reminiscing, contemplating, and the song is slow, as if to give her some room – in the same way that Le Bon likes to escape to the likes of the Lake District to write and compose. "No prisoner, no peace." she chants on the way out, ending this marvellous collection of dreamlike songs in style.

## Alt-J Have Not Been Caught Napping

#### How do you recreate the magic of a Mercury Award-winning debut from a decade ago? This is fucking how.

Written by Tara Pal Chaudhuri Music Editor

cousin when she first introduced me to alt-J. For a few years after, I'd struggle to explain why "Taro". have escaped listeners on an "Ask Me Anything" ses-

from alt-J's 2012 debut, 'An Awesome Wave', was one of the most played songs in my library. It sat silently in the midst of easily compressible American Top 40 songs I'd picked off the charts thinking I was a true music connoisseur. "Taro" was like nothing I'd ever heard at the tender age of 13. It describes war photographer Robert Capa's dying moments and his reunion with his for-



mer lover, Gerda Taro, also a war photographer who had lost her life earlier in during the Battle of Brunete, all sung against a folktronica interpretation of the Indochina war.

A majority of alt-J's critique over the years has revolved around their sombre outlook of the world and how they channel that darkness into their music. For instance, Joe Newman, the band's vocalist and guitarist, avoids talking about the murder of

his friend's sister but allows that trauma to veil his songwrit-Nevertheless, what's ing. drawn me to their music is their cultivation of а

remember sitting in my mum's hatchback with a unique sound that blends storytelling and obscure references. But when asked about references that may

> sion hosted on the r/Music subreddit, Gus Unger-Hamilton (keyboard and backing vocals) and Thom Sonny-Green (drums) realised that they've slowly gained the confidence to wean off referring to other people's work. "I think in a way it was partly that we felt a little bit of insecurity and almost imposter syndrome," explained Gus. "We started out as a band, because we were quite young and, you know, essentially just like kids at university without a huge amount of life experience."

It is exactly this search for inspiration from within that birthed most tracks on the album. The album opens with a satiated sigh after a crisp sample of a can opening, promptly replaced by alt-J's characteristic ambient guitar twangs and reverberating drums. It's a penetrating sound that chills your bones - and I've missed it so much over their five-year hiatus. Despite "Bane"'s immersive and intoxicating nature, complete with a choir, organ, crumhorn and cello, you'd be surprised to know it's simply an ode to Coca-Cola.

"Hard Drive Gold", the third track and single of the album, is what I'd imagine alt-J to make if Joe Newman replaced Sharpay Evans as the main antagonist in High School Musical. Just as "Fabulous" from HSM2 flaunts Sharpay's (very pink and rich) lifestyle, 'Hard Drive Gold' is a catchy, quick-tempoed song about the appeal of cryptocurrency, evidenced by a refrain that hasn't left my head since I first heard it: "Don't be afraid, to make, to make money, boy!"

"The Actor", also the fourth single released from the album, is what Joe describes as an "imagined retelling of John Belushi's death in the Chateau Marmont". In the '80s, American comedian John Belushi was pounding every door for money to buy drugs until he was given a fatal shot of heroin and cocaine, known as a speedball. The event exemplified '80s drug-steeped America, and was reworked to tell the story of a failing actor "in the deepest end of an empty pool" living it large with drugs, cameras and paparazzis in a lavish hotel. The song begins with a brittle guitar riff that segues into a laid-back head-nodding rhythm taking listeners back to "this whole '80s, Reagan, drug-excess world",

as Joe explains.

The chorus of the second single from the album, "Get Better", started out as a short refrain Newman sang to his girlfriend having period pains. Newman then wove it into an intricate, yet poignant narrative from the perspective of a man who lost his partner. The lyrics reference their common love for Elliot Smith's music, a meeting at the Serpentine as once young lovers, and cringing at "I Love You"s in ICUs. It's a delicate song. They lose their reverbed vocals, and replace them with harmonies (brought to you by Unger-Hamilton Ltd.), but mostly reorient their familiar musical technique to focus on the softness of Newman's voice. You can tell they want you to listen to his lyrics – or rather, poetry.

Although this isn't their most notable track, there's something to say about the minute-long "Delta" because it's such a strong example of the mindfuck that alt-J embodies as a band. What inspired it? Why, of course, the well-known devotion you feel as an atheist when you're standing in the Mississippi delta and witness aliens descending from the sky. A prayer devoid of instruments barring the trademark Newman-Unger-Hamilton vocals, "Delta" features my favourite lyrics in the whole album: "Force fields in the delta/I'm not a prayer man/But I'll kneel to that".

The album ends with "Powders", which I didn't listen to as much because of my poor album-reviewing etiquette. When I love an album, I want to listen to it from the beginning every time – and each time I don't make it to the end. But something changed and I spent a whole day listening to "Powders" on loop. Newman describes the song, inspired by teenage love in America, as being about "the spark when you see someone across the room and you're like, 'I want to get to know them tonight." Away from the dark, yet amusing, chaos that permeates the rest of the album, this song feels like, what I'd best describe as, romantic meditation. It starts with Newman's iconic meandering vocals backdropped by the sound of the sea. The music grows to a soft build-up where the instruments hold their breath, and a gentle rhythmic release followed by a relaxed guitar sequence. The song also sees alt-J dabbling in short spoken word insertions, particularly inspired by a Malcolm Gladwell podcast and enacted by Thom and his girlfriend.

As a critic, I'd urge you to listen to the album as soon as you can. But as a devout fan of the Leeds trio, I'd genuinely request you to read lyrics in the album. No artist I can think of can pull a story out of thin air, shift a lens there never was, and allow the world to see it from an entirely unexpected perspective.



Edited by: AHMAD DANESH

**Investment Society** Imperial College London

#### Inflation, Inflation, Inflation...

VESTMEN

### Implications of a hawkish shift by the ECB Credits: Bruno Neurath-Wilson // Unsplash



What has the President of the European Central Bank, Christine Lagarde, been up to? Hye Oh discusses below.

Hye Oh Writer



So, what's been going on here? Let's first talk about current Eurozone Inflation! The European Central Bank (ECB) has

executed 1.85 trillion euro quantitative easing policies to recover the European economy since Covid-19. It has been reported that the monetary policies were successful at reaching its target inflation rate of 2 per cent and at lubricating the eurozone's monetary flows. However, recently, it is also reported that the European economy's inflation rate has exceeded its ideal target rate.

As the figure above shows, in January 2022, the EU has



reached the highest inflation rate, 5.1%, in six years, exceeding the ECB's expectations. The overheating has resulted from quantitative easing. Even though the ECB has insisted to freeze interest rates at low levels until next year with a comment "every reason not to act as quickly or as ruthlessly", it is predicted that persistently high inflation will push the ECB to raise their interest rates within this year.

So, what factors have driven inflation upwards? **Driving Factors of High Inflation** 

Energy prices in the eurozone sharply climbed nearly 30 per cent in early 2022. Europe has faced volatility in its energy markets. For example, European benchmark natural gas prices surged 30 per cent in early 2022 due to a cold winter, low gas inventories, and Russia's limited supply to Europe. Colder weather has driven the increased demand for heating. Also, Europe is significantly dependent on Russia, which supplies close to 40 per cent of the EU's natural gas and a third of crude oil. The heavy supplies from Russia via two major pipelines passing through Poland and Ukraine have been threatened by the border crisis between Russia and Ukraine, resulting in cost-push inflation and shrunken household budgets.

The EU's supply chain is also critically dependent on China. The pandemic has led to disruptions in global supply chains. China has continued a zero-Covid policy leading to demand and logistics volatility during the Chinese New Year. Europe lacks Capex in production and shipping capacities. Especially, metals (basic metals and fabricated metals) and automotive sectors (motor vehicles, trailers and semi-trailers, and transport equipment) were hit the hardest due to a 10 per cent drop in Chinese exports to the EU. Also, the global trade of goods has been reduced by logistic bottlenecks caused by shipping congestions. To sum up, with the volatility in trade flows, consumer spending on durable goods and shortages of inventories repeated in a vicious cycle, giving birth to high inflation.

The outbreak of the omicron variant of coronavirus has weakened the labour market, causing possible wage increases in workforce sectors. The jump in infection rates exacerbated consumer spending such as international travel but triggered spending for consumer durables. Overall, the consumer spending drop was far less than the first outbreak of coronavirus as people feel less afraid of it due to its lower death rate and vaccinations. Furthermore, China's first Omicron cases were reported last December. The new cases boosted the zero-Covid strategy, engendering disruptions on the EU's supply chain.

#### Market Signals For the Hawkish Movement

There are market movements that indicate the possible rates increase in the eurozone. In January 2022, Germany, France, and Spain's inflation rates exceeded expectations at 5.7, 3.3, and 6.1 per cent respectively, oppressing the dovish stance of the ECB. In addition, the EU's unemployment rate hit a record low of 7 per cent last December signalling less supply of labour than the demand for it. This can lead to rising wage inflation in tight labour markets.

Furthermore, expectations of rates rise precipitated bond securities selling in the eurozone market. This is because the interest rates and the bond prices are in an inverse relationship. To illustrate, if current interest rates or bond yields were to rise, then the price of pre-existing bonds will fall down to attract investors who can potentially deposit their money to the banks which will enable them to offer higher rates of returns. Germany's 10-year government bond yield, which is the benchmark of the currency bloc, rose to 0.313 per cent in February for the first time in three years. Also, Germany's 2-year borrowing costs steeply surged to minus 0.248 per cent in February, hitting a record high in six years. The increased bonds' yields reflected high inflation and expectations of the potential rise in the ECB rates.

#### **Finishing Words**

Just a few weeks ago, the ECB president Christine Lagarde emphasized that the EU economy would stabilize and the inflation would fall off before the end of this year. However, in early February, the head of the ECB refused to rule out a potential interest rate rise this year reversing their stance. If soaring inflation and supply chain disruptions continue, the ECB is likely to turn to a hawkish stance this year.

Hye Oh is a writer for the Investment Society's Writers' Team.

A HAWK, YOU SAY... WHAT DOES THAT MEAN?

An inflation hawk, also known in monetary jargon as a 'hawk', is a policymaker or advisor who is predominantly concerned with the potential impact of interest rates as they relate to a fiscal policy. Hawks are seen as willing to allow interest rates to rise in order to keep inflation under control.

COMMENT

#### LGBTQ+HISTORY MONTH The first UK Pride parade was held on

SATURDAY 1ST JULY 1972. 2022 WILL MARK THE 50th Anniversary of Pride UK

# Félix González-Torres: Conceptualising the HIV Epidemic

Sonzález-Torres created visual art using commonplace objects such that his work appeared simplistic on the surface, but he often touched upon his personal life and the widely ignored emotional toll of the HIV epidemic on the LGBTQ+ community in the 80s. Photo credits: Stavrialena Gontzou on Unsplash

#### Alexander Conway 5th Year Medic

What is art? ... I know, I know, everyone, their secondary school art teacher, and the post-industrial walls of the Tate Modern have heard that one before, but hear me out. Can everyday objects be art? Can a pile of sweets represent a portrait? Can you take away from an artwork to reveal more about it? I hear you shaking your heads indignantly, however I want to explore these questions by celebrating a contemporary LGBT artistaptly named Félix González-Torres.

González-Torres was an openly gay conceptual minimalist artist from Cuba, born in 1957. After graduating from art school in Puerto Rico, he moved to New York City in 1979 and continued to learn and produce there, as well as throughout Europe, until his untimely death at the age of 38 due to health complications from AIDS. His lover, Ross, who died five years prior (also due to AIDS), influenced many of his installation pieces. González-Torres also belonged to an innovative group called 'Group Material' whose aims were social and cultural activism through the medium of conceptual art. Conversely to the inflammatory, overtly sexual, anti-censorship works of many queer artists of the late 1980s and early 1990s' 'culture wars', González-Torres aimed to mitigate controversy and bypass censorship with his commonplace mediums.

Conceptual art refers to art that values the ideas it conveys over the visual or aesthetic representation of a subject, or the materials used to produce it. González-Torres characteristically used everyday objects such as lightbulbs, battery-powered clocks, candles, and sweets to convey personal, social, and political concepts. Similar to the now infamous Comedian (which were three identical certificates of authenticity for the installation of a banana duct taped to a wall, with one selling for a staggering \$150,000 USD), his work was not created for its intrinsic material value or irreproducibility. This meant that it could be reconstructed in galleries by purchase of his specific instructions, outlined in his 'contracts'. His art, however, has an arguably deeper meaning, which I will examine by showcasing one of his most famous works.

González-Torres' most recognisable installations are his 'candy spills'. Employing mounds of shiny, individually wrapped sweets, as per his instructions, which would be weighed and placed in the corners, under inconspicuous walls, or directly in the centre of gallery spaces. Visitors would be encouraged to take a candy and do what they like with it. The piles diminished in volume and mass, but although they did so, curators would constantly replenish the heaps, thus keeping them in a perpetual state of plenty.

"Untitled" (Portrait of Ross in L.A.) (1991), is a particularly tragic piece, as it directly references his partner Ross and his experience of dying of AIDS-related complications. Its 79 kilograms of "candies in various colo[u]red wrappers"equal to Ross' ideal body mass-were piled up in the corner of a room. As each viewer took a sweet, the mass decreased, representing Ross' rapid weight loss in his final years of suffering. Yet by replenishing the stock, his memory is seen to be perpetually reincar-

nated through the exhibit. Additionally, I think it is a statement of activism. Left discarded in a corner, whilst also being exhibited to the public eye by its context in an art gallery, draws ties to the propagation of information about the HIV Epidemic of the '80s. The disease was covered majorly in the media of the time, yet relatively little was done to help and support those suffering from it. As if they were swept into a corner of a brightly lit room and slowly left to die of neglect in front of everyone. Others have likened the piece to a compound allegory of HIV and its transmission. Everyone that came into 'oral' contact with Ross by eating a candy could easily become 'infected' by the chocolate, the sugar of which goes straight into the consumer's bloodstream. Furthermore, as a medical student, I cannot help but see each individually wrapped sweet as an analogy of an HIV virion; the wrapper representing its membrane, and the sweet its capsid and RNA insides. The visitors, on the other hand, act as T lymphocyte immune cells tricked into engulfing the virus because of its inconspicuous 'wrapper'. The constant replenishment of the sweets, a comparison to HIV's replication in the body and recurrent viral load in those untreated at the time.

The plastic within which the candies have been wrapped is also significant. It reminds many, who saw the works at the time, of the masses of 'plastics' (condoms) given out 'like candy' throughout the gay community in Los Angeles. Others have said that the act of eating such a compartmentalised confectionary off a gallery floor (which one would not normally do) bears witness to the stigma against HIV-positive individuals. González-Torres is basically asking

> us: You wouldn't eat unwrapped candy off the floor? Even today, the notions of 'clean' and 'dirty' affect those who are HIV-positive. The colours of the wrappers are also relevant. In other works, such as "Untitled" (USA Today) he uses red, white, and blue wrappers to symbolise the USA, whereas, in

"Untitled" (Portrait of Ross in L.A.) they were multicoloured. I see this as a direct reference to the rainbow Pride flag and possibly a comparison to the diversity of the LGBTQ+ community.

Mass production and cultural heritage play a role in this piece also. González-Torres actively wanted to avoid the American stereotype of South American art as vibrant, busy, and colourful by using simple, usually monochromatic, mundane objects. The plastic material, uniformity of form, and 'ready-made' replicability of the sweets comments on the rise of modern consumerism. In his instructional contracts, he would outline how the installation's medium was an "endless supply", just like the ubiquitous production of identical goods found in every corner of the USA.

Finally, I would like to end with a quote from an interview in 1995, in which González-Torres says the following regarding his work being featured in an exhibition at the Guggenheim in New York City: "I'm gay. But I don't make work about being gay ... [I] just include it ... [I make the work about being] In love with a man ... it's very political. Because you are going against the grain of what you are supposed to be doing. You are not supposed to be in love with another man, to have sex with another man. ... [My art] is sentimental, but it's also about infiltration. It's beautiful; people get into it. But then, the title or something, if you look really closely at the work, gives out that it's something else." In my opinion, this demonstrates his desire to circumvent the anti-gay narrative and divulge his art to a wider audience, whilst leaving hints for those eagle-eyed LGBT-few. So, now over to you. Next time you see a pile of sweets spilling out of a bag, or a pile of haphazardly placed everyday objects, think about what they could symbolise. Or think of what ordinary things you could use to convey a deep meaning of something important to you.



Untitled (Portrait of Ross in L.A.)

*Edited by:* Amanda Barden Konrad Hohendorf

# Sport Injury as athletes... it sucks

Amanda Barden Sports Editor

Throughout the year, we try to publish articles about the events and sports happening at Imperial. However, this week, nobody replied to our emails, so we've decided to create our

**TO PUT IT** 

**BLUNTLY:** 

**INJURIES** 

IS NO "OH

**SUCK. THERE** 

LOOK ON THE

**BRIGHT SIDE**"

own article about something slightly more generic and outside of Imperial: returning to sports after an injury. The motivation to do this specific topic comes from a variety of reasons: watching the Winter Olympics and seeing some incredibly painful injuries and surgeries, the videos of gym fails circling

Instagram when the weight gets a little too heavy (if you know, you know, and if you don't know, you really don't want to ever find out), and because my back and knees have started playing up this week for no apparent reason, I've decided to use this is a venting opportunity too.

To put it very bluntly: injuries suck. There is no "oh look on the bright side" or positive side to any injury, it's painful, its demoralising, and it feels completely unnecessary for your body to give up on you like that. Sometimes, you get injured due to something potentially stupid you decided to do, maybe like lifting a weight to do with yourself anymore. Or potenyou definitely knew you couldn't lift but you didn't want people in the gym to judge you for taking the plates off, or for something that in all honestly shouldn't have put you out for a week, like walking slightly funny on the curb and twisting

your ankle, or sitting down funny and your knee gives out. Being injured for any reason is incredibly difficult, but being injured as an athlete can be incredibly traumatising.

You might get injured in a game and need to take a day or two out, like when you get hit in the legs by a hockey stick and it leaves a big old nasty bruise, but you know it'll look worse than it is. But sometimes,

you get injured, and your potentially out for weeks, months, or even a few years, and that impacts you so much mentally and physically. When your identity is as an athlete, being taken out of the sport and activity you love to do most can be incredibly devastating.

The first few days, you're just in agony, dealing with the consequences of being injured and barely being able to move. But I think the worst part comes a few weeks after that, after you've been told you have to take however many weeks or months off, and you don't know what tially, it's so devastating you might need surgery, and with the current speed at which surgeries are happening, you might be out for a few months to years with recovery and all till you are back to your normal self. And then what do you do? How can you identify as an athlete when you are no longer able to do your sport? When you know you were on an upward ladder and you were progressing so well, doing the best you've ever done; how do you sit back and watch yourself slip away from who you are and know that was your last chance, and you missed it? And after weeks of recovery, how do you go back knowing how much you have to work at it just to be back to your previous self, if that is even possible now because your confidence is shot?

It's so incredibly hard, and I don't have the answers at all. I don't know what to say or do to make anyone feel better about having an injury, especially because it's so individual and personal. But what I can give you is something that I realised might have helped me during it, and hopefully one of these things might resonate with you. The first thing I had to do was accept that I was injured, and that everything I was feeling was completely valid. It's okay to feel sorry for yourself and to feel miserable, to complain all the time, and to feel completely lost for however long you need. And then, the next thing you have to do, no matter how hard it is, is to accept that it has happened, and stop feeling sorry for

yourself and start looking at getting better. This I found to be the hardest part, and don't get me wrong, every few months, I would completely crash and feel sorry for myself and cry about how I hated the situation I was in and regret everything that I did. But

that is okay, as long as you keep pushing through it and don't let it become your entire personality. You don't want to be the person who had an injury and was never seen again, you want to be the person who had an injury and you got back into it, because it's something you love. Looking back at all my injuries, I keep telling myself that I regret the actions that led to my injury and I would have done it differently, but in the end, I probably would have done it exactly the same again because there was no way for me to expect it to happen.

Then the actual physical part comes in, where you have to work to recover. From a surgery, that means doing the physiotherapy exercise your doctor gave you that looks absolutely ridiculous to other people in public. It means taking it slow, and learning to listen to your body and realize when the pain is helpful versus when the pain is detrimental. It means taking it so incredibly slow you feel like you'll never be where you were before, because if you take it too quickly, you might never be able to go back at all. And I'm not going to lie, seeing everyone progress around you, whether you're in an individual sport or a team sport, while you're not just not progressing but you feel yourself regressing too, is so difficult mentally. So take the time off from training with your team, maybe take the time off from talking to the people who do sports with you. Perseverance goes a long way.

In the grand scheme of things, you'll look back at that time in your life when you couldn't move, a year that felt it lasted a lifetime, and over time, it'll become a small memory of the many things you'll achieve once you're back. Looking back at my last surgery and recovery from four years ago, I still fully remember how absolutely horrific it was to be injured, but I realised I got past it and I'll be able to do new things now, and still be able to grow as an athlete. And, at least to me, a "bright side" to being injured is now I still get to be an athlete, but I also get to be one that got back from an injury that could have stopped me but it didn't.

