

REPORTER

#306

14 MARCH 2018

SHARING STORIES OF IMPERIAL COLLEGE LONDON'S COMMUNITY

**“ I REMEMBER HEADING
DOWN HEAD-FIRST INTO A
CAVERN OF ICE...**

**ANTARCTIC
ADVENTURE** 18

Tales of daring exploration
in the Grantham lecture

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THE GENES** 8

The promise of
transformative medicine



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News, debate and
opportunities in education



THE NEW STARS OF CAMPUS SERVICES

Meet the new recruits proving that
they're more than willing and able.

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EDITOR'S LETTER

Potential within

Welcome back to the new-look, 306th edition of *Reporter*. We hope you like it! We've really tried to listen to what readers want in a campus newspaper, and we'll be bringing you more human stories and voices from all sections of our diverse and dynamic community. Of course, we'll still keep you up to date with news, coming and goings, awards and honours. But we might also point you to other sources such as the Imperial News website and Imperial Today e-newsletter for the very latest developments. The point is, *Reporter* has the potential to keep growing and evolving as more people contribute and get involved. Indeed, potential is something of a running theme in this issue. From Campus Services, we have some new recruits from who are just starting to show their potential despite facing some additional challenges. From the research side of things, we take a look at the field of gene therapy, which for 30 years has promised a revolution in medicine, and is starting to look like finally fulfilling that potential. Lastly, in each issue going forward we're hoping to hear from some of our innovative teachers who will show how Imperial has the potential to become a trailblazer in new techniques and approaches to learning in the 21st Century.

Andrew Czyzewski
EDITOR AT LARGE

Reporter is the voice of the staff community at Imperial College London and we're always keen to share success, both on and off campus. If you've a story you'd like included in a future edition, please contact Andrew Czyzewski.

▶ **GET IN TOUCH:** reporter@imperial.ac.uk



REPORTER HAS THE POTENTIAL TO KEEP GROWING AND EVOLVING AS MORE PEOPLE CONTRIBUTE AND GET INVOLVED.



Imperial College London

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FEATURE

Meet four new recruits in Campus Services who are turning stereotypes around.



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RESEARCH

Meet three Professors leading teams to investigate the potential of gene therapy.



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EDUCATION

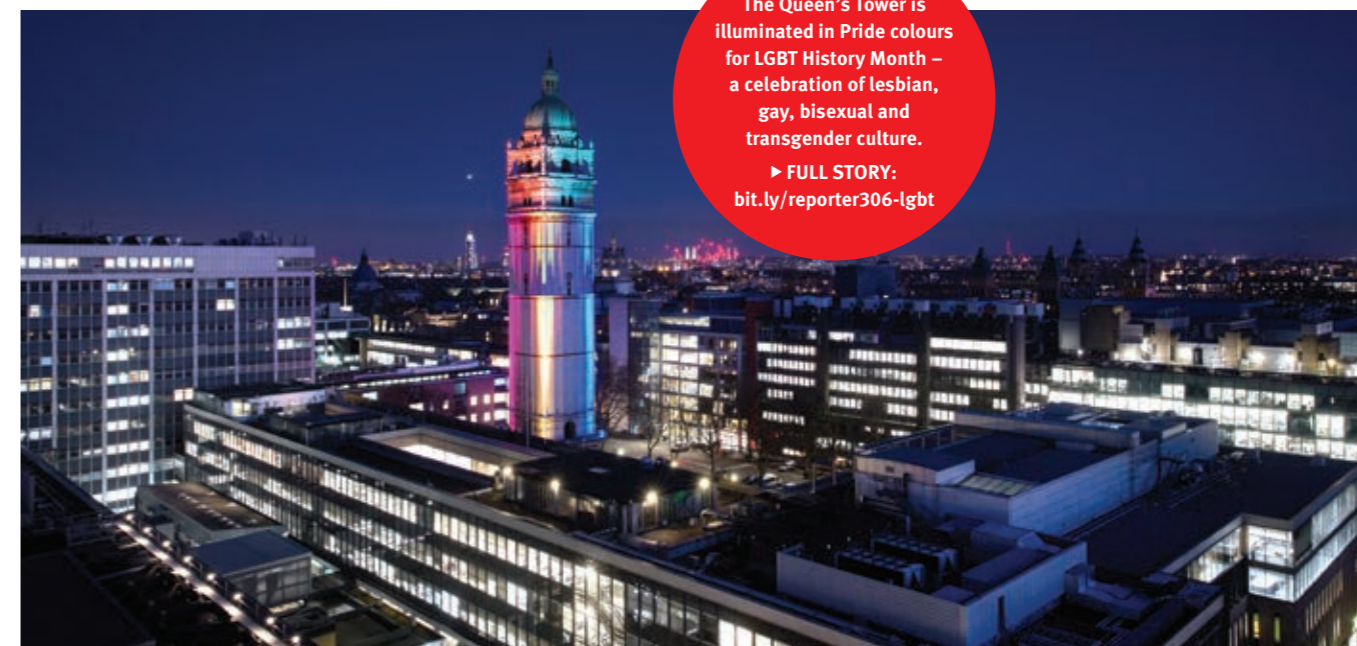
The lecture is dead, long live the lecture! Giskin Day reports on active learning and the importance of choosing your words carefully.



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COMMUNITY

We celebrate Imperial's long servers, our first national boxing champ and fluid instability within soap bubbles.



The Queen's Tower is illuminated in Pride colours for LGBT History Month – a celebration of lesbian, gay, bisexual and transgender culture.

▶ **FULL STORY:** bit.ly/reporter306-lgbt

IMPERIAL IN BRIEF

NEW PROVOST

WELCOME PROFESSOR WALMSLEY

Physics pioneer and university leader, Professor Ian Walmsley FRS, has been appointed as the next Provost of Imperial. An alumnus of the College, he is currently Pro-Vice-Chancellor (Research and Innovation) at the University of Oxford and will take up his role on 1 September 2018, succeeding Professor James Stirling on his retirement.



"I am delighted to return to Imperial. It is a fantastic institution with a wonderful future."

▶ **FULL STORY:** bit.ly/reporter306-provost

PENSIONS

THE NATIONAL DISPUTE OVER PENSIONS

We have taken the view that the fast-moving nature of the current national dispute over university staff pensions makes it very difficult for Reporter to cover the story properly, given its long lead-in publication times. This lack of coverage in Reporter should in no way be seen as somehow minimising the importance with which the College regards the current dispute, or be interpreted as not recognising its very great impact on staff and students. Please visit the College website for all the latest communication about the dispute from College leadership and up to date information on the changes to the USS Scheme and industrial action

▶ **USS UPDATES:** bit.ly/reporter306-pensions

FORBES 30 UNDER 30 EUROPE

Imperial students shine on Forbes list

Eight Imperial innovators made it into the 2018 Forbes' 30 Under 30 Europe list. The list celebrates 300 young innovators, entrepreneurs and leaders across Europe under the age of 30 who are transforming industry, technology, finance, media and marketing, law and policy, retail and e-commerce, science and healthcare, social entrepreneurship, art and culture and entertainment. Featured Imperial students and alumni include:



MALA MAWKIN

An undergraduate student in Imperial's School of Medicine, who features in the Science & Healthcare list. Mala was recognised for her research at the European Space Agency (ESA), and for her work with healthcare start-ups to improve NHS services.



YUSUF SHERWANI

Graduate of Imperial's School of Medicine and CEO and co-founder of Digital Therapeutics – a start-up that has developed the Quit Genius app to deliver gamified cognitive behavioural therapy to smokers trying to quit.



PAE NATWILAI

Founder of Trik, which uses automated drones to check for damage or defects to large structures – such as oil rigs, bridges, or multi-storey buildings. Pae began developing her invention as a student in Imperial's Dyson School of Design Engineering.

Unlocking the potential

In November last year, four new members of staff joined the College in various roles across Campus Services, having successfully completed trial periods.

REECE O'CONNOR, JONATHAN GRAHAM, HILMI Al-Ghaithy and Stanley Aitken have all shown their potential in the last few months; but might not have had the opportunity or the confidence to apply for jobs at the College through the usual routes. All four have learning disabilities and were identified by the charity Action on Disability (AoD) – which has been working closely with the College's Equality and Diversity Unit – as having skills that could match roles at Imperial.

Jon Rees, Employment Service Manager from AoD explains: "People with learning disabilities face significant barriers to employment and consequently the employment rate is shockingly low, at around six per cent, despite most wanting to work and having the skills and qualities to do a great job. Working with Imperial has been a joy as they understand that with a few adjustments and an open-mind, they could acquire some hard-working, dedicated and skilled employees who'll have a positive effect on the teams they're working with."

The initiative has been championed at Imperial by the College's Director of Campus Services Jane Neary, who explains:

"I was aware of similar initiatives at other organisations and felt like it was the right time to bring this to the College.

"Already our recruits have had a transformative impact on the teams in which they've been working, and impressed all of their colleagues with the speed in which they've learnt new tasks, their conscientiousness and imagination.

"I wish them all the very best at Imperial – and in their future careers."



MEET THE NEW RECRUITS

Hilmi Al-Ghaithy
HALLS OF RESIDENCE ASSISTANT

Hilmi works in Evelyn Gardens Halls of Residences, which is home to 262 continuing undergraduate students. He's based mostly at reception, where his roles include receiving and distributing mail for the students. He works closely with all members of the team including Village Manager, Carlos Lozano Velasco.



I JUST FEEL FREER SINCE HAVING A JOB AT IMPERIAL.



Jonathan Graham
LIBRARY CAFÉ ASSISTANT

Jonathan works in the bustling Library Café, where many students come to refresh and recharge after hitting the books. His role entails preparing salads in the kitchenette, helping to brew coffees, taking payments at the cashless tills and clearing tables.

Jonathan said: "I mostly enjoy packing the panini plates and using the coffee machine. I've found it quite easy talking to the customers. Overall, this job has made me very happy and I feel more confident about talking to people. I just feel freer since having a job at Imperial."

Mentor Mindaugas Petrauskas, Catering Venue Supervisor, says: "Jonathan is incredibly hard-working and is entirely unfazed by the hustle and bustle of the café. He's integrated into this tightly-knit team already, and has really lifted all our spirits and improved the general morale. We often have the radio playing in the background and we've all got our favourite songs to sing along to whilst working – Jonathan is no different and becomes particularly animated when Little Mix comes on!"



Reece O'Connor
CATERING STORES ASSISTANT

Reece (pictured inset and below, left) works in the hive of activity that is the catering storeroom – where he takes deliveries then organises and re-distributes stock for the kitchen and food outlets around the campus.

“I have really liked getting to know all the different areas at Imperial. I like the environment I work in because it is very busy and wouldn’t want to change anything, I have learnt a lot of skills. I am now much more happy and confident outside of work.”

Colleague Chris Foorde (below, right), Stores Supervisor said: “I’ve genuinely been taken aback by how quickly Reece has picked up various protocols in this place and got to know all the many names and faces that constantly pass through here on an hourly basis.”



**I AM NOW
MUCH MORE HAPPY
AND CONFIDENT
OUTSIDE OF WORK.**



Stanley Aitken
ETHOS SPORTS CENTRE ASSISTANT

Stanley’s role at the Ethos sports centre is enormously varied, taking him to the busy main Energia gym where he makes sure that all the equipment is safe and in working order for users; the sports hall where he takes registers of class participants; and also the pool, where he assists the lifeguards and does regular checks of chlorine levels. ●

If you’re interested in giving someone a work trial, contact Action on Disability’s Jon Rees.
▶ jon.rees@actionondisability.org.uk

New horizons in gene therapy

Researchers at Imperial are developing ingenious new techniques in gene therapy which could offer hope in the treatment of limiting diseases

IN 1972, TWO FARSIGHTED EARLY career scientists working out of the Salk Institute for Biological Studies in California penned a landmark article in *Science*, arguing that 'gene therapy may ameliorate some human diseases in the future,' while strongly encouraging the development of the techniques necessary to do this. One of the authors, Theodore Friedmann, had already shown that adding foreign DNA to cultured cells could correct some genetic defects in a rare but devastating neurological disorder. Fellow co-author Richard Roblin meanwhile, had recently arrived from Harvard University where he was a protégé of James Watson (the co-discover of the structure of DNA).

Since then, over 2000 gene therapy trials have taken place with notable successes and breakthroughs – as well as setbacks and failures.

Researchers at Imperial have played their own part in this ongoing story of biomedical innovation, and across the College there are now several teams working on gene therapy solutions to different diseases and conditions – from inherited blindness and elevated cholesterol levels to heart failure and Alzheimer's disease. We spoke to three researchers taking very different approaches to gene therapy and asked for their thoughts on the future direction of this complex, evolving field of research – 46 years on from that call to action in *Science*.

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WHAT WE NOW
KNOW TO BE
DIFFICULT IS THAT
WE ARE FIGHTING
AGAINST EVOLUTION.

Professor Eric Alton,
(National Heart & Lung Institute)

REPLACING FAULTY GENES IN INHERITED CONDITIONS

Cystic fibrosis (CF) is caused by a mutation in one of our genes called CFTR. This gene contains instructions for our cells to produce a channel to transport chloride ions. A defective gene results in an incorrectly functioning channel and, as a result, patients with cystic fibrosis produce abnormally thick mucus, which can obstruct airways and other tubes throughout the body.

Professor Eric Alton and his team have been looking into how gene therapy might be able to treat this condition for the past 25 years. Their current approach involves using a lentivirus as a vector to deliver a corrected version of the gene into the cells lining the lungs. Once there it will produce a functioning version of the all important channel, relieving CF symptoms.



What made you consider gene therapy as a treatment for Cystic Fibrosis?

Because the lung is accessible to inhalers it would have been foolish not to test the option of delivering a new copy of the defective gene that could help treat the disease. What we now know to be difficult is that we are fighting against evolution. Our target cells conduct air from the outside world to the alveolus at the bottom of the lung. They don't absorb, and what we are trying to do here is put DNA in that gets absorbed into these cells. This isn't in their job description.

How often will treatment need to be given?

There are stem cells that repopulate the lungs. If we could target these it might be possible to only treat once, or a few times. The problem is that stem cells are extraordinarily well hidden and are usually found under a layer of other cells. The lifespan of those epithelial cells is thought to be about 15 to 17 months, so we think that maybe you could give one or two doses every year or so.

How does that compare to CF treatment currently?

Currently, some patients are on four hours of treatment a day, so the real hope here is that we can reduce some of this treatment burden and then of course the second stage is prevention. What you really want to do is to start gene therapy as soon as you have a cystic fibrosis diagnosis and stop lung disease from happening in these patients.

ADDING EXTRA GENE FUNCTION IN COMPLEX DISEASES

Professor Sian Harding and her team are looking at gene therapy for use in heart failure. Unlike Professor Alton's work in cystic fibrosis, where the single disease-causing gene is known, Professor Harding's research has the aim to improve function in a disease which doesn't have a single genetic basis.

The heart has only a very limited capacity to regenerate itself and therefore any severe damage cannot be reversed. To make up for this, the remaining heart muscle has to work harder which can lead to a second wave of heart damage, leaving it with a reduced ability to relax and contract.

Using gene therapy, Professor Harding and her team are trying to increase the levels of a protein called SERCA, to enhance the ability of the remaining heart muscle cells to contract and relax as they should.



How does SERCA improve heart muscle function?

Calcium causes the heart to contract. With every heart beat there's an increase of calcium into the cell which triggers heart contraction and then there's a decrease of calcium so your heart can relax. SERCA is the protein that takes up calcium into a store and if you lose this, your heart can't relax properly, and there is less to release during the next beat for contraction.

How did you discover SERCA to be a good target?

The very first experiments we did were in 2000. We took the failing hearts from patients undergoing transplant operations and we used an adenovirus [a gene therapy vector] to put SERCA back into the heart cells in the lab. We demonstrated that by putting SERCA back in, we could increase cell contraction without causing arrhythmia [irregular heart beat]. It was evident that SERCA was looking like a very good target.

When did you do your first human trial?

Our human trial took place in 2014. It was, and still is, one of the first gene therapy trials in the field of cardiology. We designed it with small numbers of patients looking very carefully at the risks and benefits.

We stopped the trial in 2015. One of the problems we encountered was that we just didn't get enough virus in to deliver the gene therapy. We were being very cautious as you do in these very early studies. There was a hint of a signal from an initial dose finding study, but it was very low and perhaps we needed to go up 10 or even 100 fold in dose.

SELF-MADE GENETIC VACCINES FOR INFECTIOUS DISEASES



A team of researchers led by Professor Robin Shattock is using the tools of gene therapy in ingenious new ways to fight infectious disease such as HIV and Ebola.

By injecting DNA coding for part of a disease-causing virus into muscle, a patient's own cell machinery will produce part of the virus (a protein for example) which is recognised as foreign and will trigger an immune response, providing immunity against that virus should the body encounter it again.

Tell me more about how your research fits into the field of gene therapy.

We're using the same tools as classical gene therapy to prevent infection - using nucleic acid-delivered approaches for vaccination. We put this DNA into the muscle and the muscle then makes the recombinant protein so you cut out the cost and the time of actually doing that in a lab. We're doing the same thing [as gene therapy] but instead of the nucleic acid encoding a human protein, we're encoding a foreign protein to induce an immune response against infectious disease. For us, what we want is to have a quick burst of protein made by the muscle cells and then for it to go away, so we're not trying to engineer persistence, we just want it to be quick, induce the immune response and disappear so in that respect it's slightly different.

Where stage is your research at?

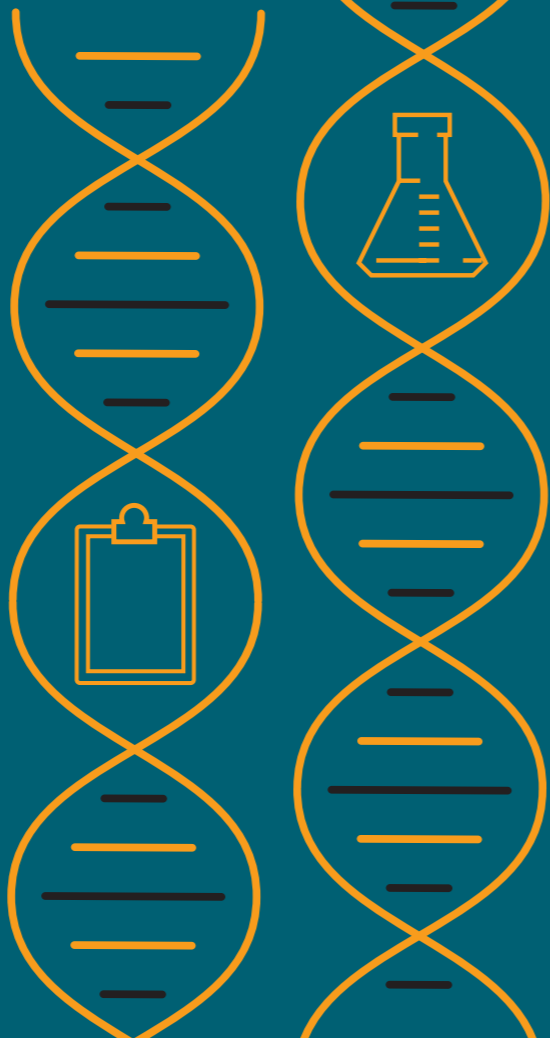
We have three studies at the moment in phase 1 trials, two of those are using injected DNA vaccine approaches against HIV and then a third study is looking at a viral vector approach to vaccinate against HIV. This is one where you actually take an oral attenuated vaccine, not HIV, but an adenovirus that expresses HIV, and we're looking to see if that gives us good responses.

Could that lead to a national vaccination programme?

That's what we're trying for, but for HIV it's a long term challenge. The reason why we're really excited by this technology at the moment is its potential in the field of emerging infections. There might be an outbreak of a new strain of Ebola and we could in theory sequence that strain and put it into an RNA vaccine and make that vaccine within weeks to months so this is what we'll be working towards. In terms of emergency preparedness, it could make a huge difference in the speed in which we can respond and in terms of cost. ●

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Professor Robin Shattock,
(Department of Medicine)



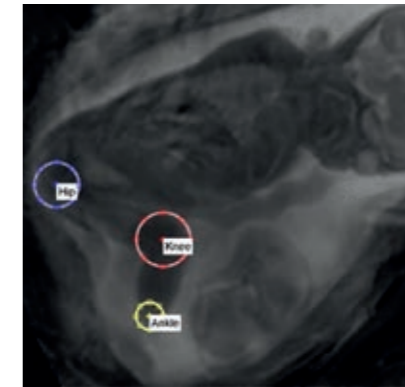
RESEARCH NOTES

ENGINEERING

The kick inside

Bioengineers at Imperial have measured how the force of babies' kicks in the womb change over the course of pregnancy. Their data could help shape diagnosis and treatment of conditions which affect skeletal development in the womb, particularly conditions in which reduced movements play a role.

► FULL STORY: bit.ly/reporter306-kicks



NATURAL SCIENCES

FRENCH CONNECTION

France's National Center for Scientific Research (CNRS), the largest fundamental research organisation in Europe, is to open an International Joint Research Unit at Imperial's South Kensington campus. It will build on existing joint maths fellowships between the two institutions.

► FULL STORY: bit.ly/reporter306-connection

3



The number of planets orbiting the TRAPPIST-1 star that may have atmospheres hospitable to life, according to a study co-led by Dr James Owen (Physics).

► FULL STORY: bit.ly/reporter306-planets

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OUR RESEARCH
RAISES THE
POSSIBILITY THAT
TAKING PSILOCYBIN
CAN PRODUCE
LASTING CHANGES
IN PEOPLE'S
MENTAL OUTLOOK
AND POLITICAL
PERSPECTIVES.”

Taylor Lyons (Medicine),
co-author of the latest in a
series of studies exploring the
psychedelic compound found
in magic mushrooms.



Science Minister Sam Gyimah and Sir Mark Walport meet Zeno, a robot part-developed at Imperial to help autistic children learn non-verbal language cues
► FULL STORY: bit.ly/reporter306-zeno

COMMENT



This is not a lecture

A lively debate is underway over rumours of the death of the traditional lecture. Giskin Day navigates us through and tries to steer a middle ground.

Giskin Day PRINCIPAL TEACHING FELLOW, SCHOOL OF PROFESSIONAL DEVELOPMENT

Giskin Day is Principal Teaching Fellow in the Centre for Languages, Culture & Communication. She has a BSc in botany and biochemistry from Rhodes University and postgraduate degrees in taxonomy from Pretoria University; Science Communication from Imperial; and Literature and Medicine from Kings College London. She is currently rolling out a new intercalated BSc in Medical Sciences with Humanities, Philosophy & Law (see box, opposite).



I NOW MAKE AN EFFORT TO STOP MYSELF EVERY TIME I USE A COERCIVE VERB LIKE 'GET' OR 'MAKE' IN THE CONTEXT OF TEACHING.

IN AN ARTICLE IN THE NEW YORK TIMES, history lecturer Molly Worthen opined that listening continuously and taking notes is 'an unusual cognitive experience for most young people' and that lecture courses should be embraced as an 'exercise in mindfulness and attention building' as a corrective to attention-sapping, mindless social media. A riposte from writer Rebecca Schuman took Worthen to task for teaching to the 'ideal' student rather than the 'real' one: 'real' students, she said, 'have to be taught how to read before they can be taught how to listen'. Then some 'real students' weighed in, crafting a letter in their writing course at the University of Illinois: 'We've had enough of sitting silently in the dark, listening to all of you talk,' they said. 'The lecture seems too much the default option for educating a lot of us at the cheapest price.'

Here at Imperial, we are contemplating ways in which we can change our teaching styles to embrace 'active learning'. This is a key part of our new Learning and Teaching Strategy. Many may share some of Worthen's anxieties that abandoning the lecture format does students a disservice. Is being made to sit and listen a capability that students ought to be expected to master? Does the use of video platform Panopto to record lectures mean that students are spending a disproportionate amount of time trying to achieve top grades in their assignments rather than turning up and tuning in to teaching?

This debate is particularly interesting to me because much of my teaching in the medical humanities is concerned with 'narrative attentiveness' as a skill for incipient doctors. Being able to listen attentively to narrative cues is a valuable skill in understanding patients' accounts of their illnesses. Research shows that the vast majority of diagnoses are still based on the patient's story. Listening out for metaphors – analogies that give an insight into



how patients view their maladies – is vital to understanding the meaning-making framework with which patients approach the clinical encounter. Words matter in medicine. They matter in all disciplines that involve any kind of communication.

Medicine has done much to move away from a model of paternalism. Thinking of 'patients as partners' has been much more effective in devising treatment plans than merely expecting compliance. Similarly, I am pleased to see that there is a commitment in our Learning and Teaching Strategy to 'working in partnership with our engaged and talented students'.

I have, however, noticed parallels in the language doctors use to talk to patients, and the way that educators talk about students. It tends to undermine notions of partnership. Watch any of the multitude of fly-on-the-wall documentaries on healthcare and you will notice that doctors talk about 'getting' patients to do things: 'Can I get you to pop up on the bed for me?' is my personal bête noire. The politeness of the request masks the controlling locus that is implicit in the phrases 'get you to' and 'for me'. I find that medical students often unwittingly absorb the language of compliance.

When we talk about teaching, all too often we slip, unconsciously and unintentionally, into the language of compliance. 'How can we make students...?' 'Can we get students to...?' This might seem trivial, but ways of talking shape ways of thinking. If we consciously change our language, our thinking is more likely to follow suit. The way we talk and think influences how we act. I now make an effort to stop myself every time I use a coercive verb like 'get' or 'make' in the context of teaching. As a result, I find myself figuratively pressing the mental 'undo' key several times a day. I try to exchange coercive verbs for ones like 'inspire', 'encourage' or, even, 'provoke'. By doing this, I have found that course design, and my individual classes, have become more participatory and inventive.

As we move away from a teaching style known as 'chalk-'n-talk' or 'sage-on-the-stage', we have an opportunity to practise ourselves those skills that we so value in our students: listening, synthesising and analysing. This should not be conflated with pandering to students' every whim. We still need to exercise sound academic judgement and be leaders in the classroom. Talking with students, rather than at them, has shown me that students are deeply interested in how we teach and how they learn. Education at its best is always a dialogue rather than a monologue.

NEW PERSPECTIVES

Upon completing their third year, Imperial medical students are required to undertake a one-year BSc. One option is the innovative new BSc in Medical Sciences with Humanities, Philosophy and Law, co-led by Giskin Day. The course is structured around three modules – 'the body', 'the mind' and 'death and dying' – followed by a project module. Sessions in the first term have included sculpting, drama, photography, music therapy and visits to Chelsea Physic Garden. The course seeks to complement students' studies in the sciences with a wealth of additional ways in which to understand the human condition.

In one session, guest lecturer Dr Nicola Streeten explored the use of comics in medicine, based on writing a graphic novel about her own experience of tragically losing her child to a rare heart condition.

Student Syon Lee said: "We can read studies on the emotional burden of losing a child, but that is nowhere near the same as actually listening to someone who's had the experience." ●

TEACHING NOTES

Tool up

January saw the launch of Imperial's online Teaching Toolkit to introduce teaching staff to educational principles and techniques that enable them to improve the effectiveness of their teaching. The Toolkit supports the College-wide Curricula Review and Pedagogical Transformation process

► FULL STORY: bit.ly/reporter306-tools



STRATEGY

Driving change

Following some key and exciting appointments in the past 12 months, Imperial has a talented leadership team in place to drive its Learning and Teaching Strategy.

THE TEAM

- Professor Simone Buitendijk, Vice-Provost (Education)
- Alan Spivey, Assistant Provost (Learning and Teaching)
- Martyn Kingsbury, Professor of Education and Director of Educational Development
- Hannah Bannister, Director of Student Services
- Gideon Shimshon, Director of the Digital Learning Hub
- Dr Benita (Baggy) Cox, Faculty Senior Tutor (Business School)
- Dr Lorraine Craig, Faculty Senior Tutor (Engineering)
- Dr Anita Hall, Faculty Senior Tutor (Natural Sciences)
- Dr Jeffrey Vernon, Faculty Senior Tutor (Medicine)



Simone's Strategy endeavours to ensure students receive a world-leading education.
► FIND OUT MORE bit.ly/reporter306-strategy

Transformer

Departments are invited to bid for a second round of funding for proposals that support pedagogy transformation through an interactive teaching and learning environment, where students are partners in shaping and enhancing their own education. The next deadline for funding will be 25 May 2018 (Stream A only).

► FULL STORY: bit.ly/reporter306-transform



IMPERIAL FESTIVAL

Seventh heaven: Imperial Festival returns

The annual Festival returns for its seventh year on 28–29 April at the College’s South Kensington Campus.

THIS YEAR’S FESTIVAL IS SET TO BECOME THE BIGGEST YET, WITH NEW events including a showcase of technological marvels to celebrate of the Year of Engineering, a hands on zone for families, and talks from world-leading thinkers and doers.

The public will have the chance to go behind-the-scenes and explore the latest research and innovations from Imperial through interactive demonstrations, workshops and live experiments.

Creativity and culture will also be at the forefront with vibrant live musical and dance performances, a theatrical performance and exhibition exploring the boundaries between medicine and the arts, plus delicious treats from some of London’s best street food vendors.



150+

exhibits on show from Imperial researchers

3 new zones

including Egnuity, showcasing some novel solutions to celebrate the national Year of Engineering

20,000

visitors across the weekend in 2017



THE FESTIVAL IS A WONDERFUL CELEBRATION OF THE WORLD-LEADING RESEARCH GOING ON AT THE COLLEGE. IT ALSO SHOWCASES THE VIBRANCY AND CREATIVE TALENTS OF OUR COMMUNITY.

Professor Maggie Dallman OBE, Associate Provost (Academic Partnerships)

A taste of what’s to come

The Festival will feature more than nine zones in total – such as Superbugs, Robot and Exploring Worlds – with a host of exciting exhibits including:

- **THE SCIENCE OF DRUMMING:** Visitors can test the speed of their drumming and compete with professional scores.
- **BRAIN POWER:** Play classic video games and compose beautiful music, all with your brain waves
- **LONDON LIFE:** Learn what impact London is having on our health, try out special air pollution sensors, and find out how you could make your daily commute a little bit healthier

The Festival has something for all ages to enjoy, from new technology demonstrations, in-depth talks, lab tours, creative workshops and a packed programme of live music and dance.

▶ **SEE THE FULL PROGRAMME:** www.imperial.ac.uk/festival



REGISTER TO ATTEND – IT’S FREE!

The free public Festival runs 12-6pm on Saturday 28 and 12-5pm on Sunday 29 April. It will be held on Imperial’s South Kensington Campus, Exhibition Road, London, SW7 2AZ.

▶ **TO ATTEND PLEASE REGISTER IN ADVANCE:** bit.ly/reporter306-festival

Get involved: a call for volunteers

Registration is now open for volunteers at the 2018 Imperial Festival, which will take place on Saturday 28 and Sunday 29 April 2018. Additional roles are available to support the delivery of the Schools’ Day on Friday 27 April. Staff interested in volunteering can find out more about the Festival and read about the experience of a previous volunteer.

Find out more about volunteering at the 2018 Imperial Festival: ▶ bit.ly/reporter306-volunteer



AN UNFORGETTABLE EXPERIENCE.

Amani Abdi Mahmoud, Festival volunteer



LONG SERVICE

Staff featured in this column have given many years of service to the College. Staff listed celebrate anniversaries during the period 1 November 2017–28 February 2018. The data are supplied by HR and correct at the time of going to press.

30 YEARS

- Mr Bill Baggott, Maintenance Supervisor, Estates Division
- Professor Julia Buckingham, Visiting Professor, Department of Medicine
- Dr Adrian Chester, Honorary Senior Research Fellow, National Heart & Lung Institute
- Emeritus Professor Anita Holdcroft, Emeritus Reader in Anaesthetics, Department of Surgery & Cancer
- Professor Paul Robinson, Head of Department, Department of Aeronautics
- Ms Paulette Shelley, Admin Support Officer, Information & Communication Technologies
- Mrs Perminder Ajimal, Finance Officer, Faculty of Natural Sciences
- Dr Rodney Eastwood, Visiting Fellow, Faculty of Medicine Centre
- Professor Robert Goldin, Professor of Liver & GI Pathology, Department of Medicine
- Mrs Yvonne Green, Personal Assistant, National Heart & Lung Institute
- Professor Neena Modi, Professor of Neonatal Medicine, Department of Medicine

40 YEARS

- Mr Richard Sweeney, Senior Research Facility Manager
- Dr Steven Wright, Research Associate, Department of Electrical and Electronic Engineering
- Dr Timothy Steiner, Emeritus Reader, Department of Medicine
- Professor Stephen Richardson, Emeritus Professor of Chemical Engineering, Department of Chemical Engineering
- Professor Geoff Kelsall, Professor of Electrochemical Engineering, Department of Chemical Engineering

SPOTLIGHT

PAULETTE SHELLEY

30 YEARS

 I have worked at Imperial since 4 January 1988 for the same department: Information Communication and Technologies. Over 30 years the department has had several names, including Computer Centre and Centre for Computing Services. Many changes have taken place since then. Different people have come and gone. Technology has moved on and will no doubt still get faster.

HONOURS

NATURAL SCIENCES

Tall order

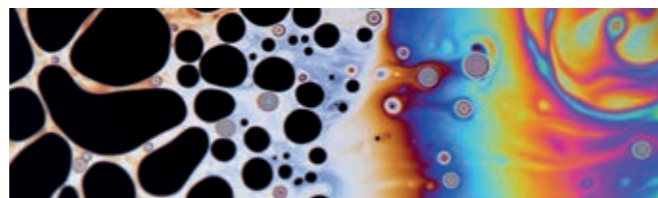
Helen Sharman, Operations Manager in the Department of Chemistry and Britain's first astronaut, was at Windsor Castle on 16 February to receive her Companion of the Order of St Michael and St George medal which was presented to her by the Queen at an Investiture ceremony. Helen received her honour in the Queen's New Year Honours list for her outreach work.



NATURAL SCIENCES

Portrait of an icon

A painting of the late Professor Sir Tom Kibble is to be displayed at Imperial's Blackett Laboratory. Professor Kibble, who passed away in 2016, was a long-time member of the Department of Physics and made outstanding contributions to the field.



ENGINEERING

In a kitchen far, far away...

This prize-winning image by PhD student Li Shen (Mechanical Engineering), captures fluid instability patterns on top of a spherical soap bubble in a kitchen sink. Judges chose from over 100 images created by researchers who receive EPSRC funding.

NATURAL SCIENCES

Sweet science

Undergraduate student Aileen Cooney has become Imperial's first ever national boxing champion – securing gold in the women's under 57kg category at the final of the BUCS Boxing Championships, held at Staffordshire University in early February. Aileen is a fourth year chemistry student and took up boxing two years ago at Imperial.



My job has changed over the years, but I have remained interested in my duties as they have moved with technology. I first started as Network Administrator and now I am Admin Support Officer. In the early 1990s I obtained a Degree in Professional Studies for Education and taught adults computing for 20 years which I enjoyed. At Imperial I used my teaching skills for a short period.

At Imperial I am a Harassment Support Contact (HSC) and a member of Imperial as One, which is important to me and has involved some enjoyable and memorable events.

My time here at Imperial has been pleasant and enjoyable. I have met many long-term friends here which has been an added bonus, as it is the people that keep you at Imperial.

IN MEMORIAM

Professor Fotis Constantine Kafatos FRS



Professor Fotis Constantine Kafatos FRS, Senior Research Investigator in the Department of Life Sciences, died on 18 November 2017, aged 77. His friend and colleague, Professor George Christophides (Life Sciences), pays tribute.



"We first met in a café in Athens. At the time, I was finishing my PhD and had begun exploring my next steps. Fotis C. Kafatos was a legend in Greece as the revolutionary Harvard professor who established modern biology in the country, and I felt very nervous talking to him. I was instantly captivated by his modesty, clarity of thinking and, above all, vision for science. After one hour or so talking about science, he asked if I would consider joining his group at the European Molecular Biology Laboratory (EMBL) in Heidelberg, Germany. I felt honoured and privileged to be mentored by one of the world's most influential and celebrated biologists, and it didn't take me long to accept his offer. For the next thirteen years, I would be his closest research associate and colleague.

A zoology graduate from Cornell, Fotis C. Kafatos moved to Harvard for his PhD and, aged 29, became the university's youngest professor. There, he pioneered methods for studying gene expression in animal development, helping to transform biology to the science we know today. At the same time, driven by his creative and transformative nature and an innate sense of duty to Greece, he chaired the departments of Biology at the University of Athens and Crete, guiding them towards the new molecular era.

When I joined his group, Fotis was at the start of his second term as EMBL's Director General, a position he took in 1993. Always visionary and forward-looking and, at the same time, a pragmatist and gifted diplomat, he led the expansion and improvement of the institution over the course of twelve years, firmly establishing it as the Mecca of molecular biology in Europe.

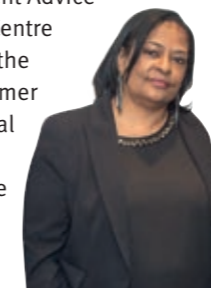
We both moved to Imperial in 2005 and together established a laboratory to continue investigating malaria transmission. After decades of leading research organisations, Fotis was planning to return to being a full-time researcher. But his innate gift of transformative leadership led him to one of his greatest accomplishments yet. Over the next five years, he helped conceive and served as the founding president of the European Research Council (ERC), the leading funding institution of Europe's most talented scientific minds.

Some time after he retired, sitting on a veranda overlooking the Cretan sea, he told me: "Do you see this peak?" pointing to the white mountain on our right. "There, my heart lies..." Despite all these years abroad, Crete always remained his reference point. His body was laid to rest in Heraklion, Crete, in November 2017, but his spirit will live on in the hundreds of scientists he mentored."

CAMPUS SERVICES

Service with a WOW!

Patricia Watson, Student Advice and Accommodation Centre Hub Adviser, has won the WOW! Award for Customer Experience Professional of the Year. WOW! is a national award scheme based on nominations by customers.



COLLEGE

Best of west

Polymateria, an innovative plastic waste reduction company, took home Green Business of the Year' at the West London Business Awards. Founded by Chief Scientific Officer and Imperial alumnus Dr Graham Chapman, Polymateria is a technology licensing company specialising in the development of additives that promote biodegradability in plastics.

REVIEW

Ice-cycle

PEDALLING THE POLES: AN ANTARCTIC EXPLORATION WITH KEITH TUFFLEY, 24 JANUARY 2018

Keith Tuffley's stunning photography perfectly illustrated the fragility of Antarctica as he spoke about his cycling expedition across the continent.

At an event to celebrate the tenth anniversary of the Grantham Institute – Climate Change and the Environment, Antarctic explorer Keith Tuffley gave a special lecture at Imperial on 24 January 2018.

An audience of more than 300 people listened as Mr Tuffley recounted dramatic tales from his most recent expedition, which saw him and his team take a previously-unexplored route to the South Pole, travelling by snow-bicycle and without support vehicles.

The purely exploratory mission began with the team skiing on the Ross Ice Shelf – the largest ice shelf of Antarctica – but once they knew it was safe, Mr Tuffley started cycling, he said: "I shot past them. It surprised me, it surprised my team members. I was going two or three times the speed of the skiers."



After five-kilometres of cycling I would have to stop to ensure I wouldn't lose [my team] in the distance. This was absolute luxury for me.

"I would sit down, pull out some food, put my feet up and wait till they arrived."

However, pedalling to the pole did present some difficulties, especially when encountering hidden crevasses. "I remember very distinctly holding on to my handle bars, heading down head-first and looking down into this extraordinary cavern of ice. I had two clear emotions, one was fear, but two was the wow-factor."

"Fortunately, fear kicked in first and I was able to clamber out. It was the weight of my sleigh that saved me, it was 90 kg with about 2 kg of Grantham publications, which might have just made the difference to me being alive," he joked.

One of the only depressing moments that Mr Tuffley described was finding two discarded oil barrels in the frozen desert, "it was a sad reminder of how we treat the planet at times, and the fact that we are impacting just about every corner of the planet."

—ABBIE STONE, GRANTHAM INSTITUTE – CLIMATE CHANGE AND THE ENVIRONMENT

REVIEW

"Don't be afraid to get lost", says Nobel laureate

SCHRODINGER LECTURE 2018, 29 JANUARY 2018

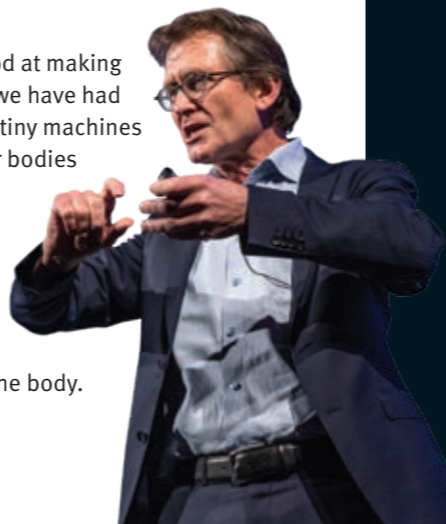
Professor Ben Feringa told a packed crowd to ask questions in science, but remember to "enjoy the beauty of nature" at the 30th Schrodinger Lecture.

Professor Feringa, from the University of Groningen in the Netherlands, used the example of his work building molecular machines to share the joy of pure discovery, telling students in the audience to "ask questions your professor has never asked before."

Professor Feringa's work, which earned him a share of the Nobel Prize in Chemistry in 2016, focuses on imitating natural molecular machines – nanoscopic structures that move.

He said that while we have been good at making synthetic versions of natural materials, we have had limited success replicating the complex tiny machines that carry out many vital functions in our bodies and beyond.

However, the scope for these molecular machines is huge – they could be used for example for targeted therapies and drug delivery, self-repairing materials or even nanorobots that could detect and treat diseases in the body.



Coming up this term at Imperial

From our hottest student start-ups to a descent into a fiery volcano, here's just a selection of what's on offer.

► SIGN UP FOR A EVENTS FULL LISTING: www.imperial.ac.uk/whats-on

15 MARCH, 16.00

Gendered Innovations in Science, Medicine and Engineering

Professor Londa Schiebinger will discuss the importance of integrating gender analysis to achieve excellence in science and technology research..

LG 100, Imperial College Business School, South Kensington Campus

20 MARCH, 19.00

Understanding gravity at all scales

Come and hear about a wide variety of concepts, from the early universe and dark energy to the behaviour of gravity.

Sir Alexander Fleming Building, South Kensington Campus



21 MARCH, 17.00

Imperial Fringe: Invention Dimension

Drop in for a look at 150 years of Imperial inventions. From the idea that saved 100 million lives, to tech start-ups and London's future innovators

College Main Entrance, South Kensington Campus

25 APRIL, 17.30

Volcano descent

Did a career studying ancient volcanoes prepare our geology Professor and BBC documentary maker Chris Jackson for an adventure into a live one?

Lecture Theatre 200, City and Guilds Building, South Kensington Campus



15 MAY, 19.00

State of the universe address 2018

Hear the State of the Universe address from Professor Michael Duff, a theoretical physicist who has made significant contributions to the field of supergravity.

Sir Alexander Fleming Building, South Kensington Campus



HIGHLIGHTS

19 MARCH – 23 MARCH

Enterprise Week

Enterprise Week is a whole week of events to showcase the outcomes of enterprising student initiatives across the College.

Events will held at various different venues, so please do check the individual event page for venue info.



17 APRIL, 19.00

The secret life of flies

Get under the wings of these crucial creatures and adventure into the land of the fly with Dr Erica McAlister, a scientist and museum curator

Sir Alexander Fleming Building, South Kensington Campus



28–29 APRIL

Imperial Festival 2018

Join us for a huge, free weekend of exciting science, new technology, live music, fascinating talks, creative workshops and tasty street food! (see pages 14–15)

Various locations, South Kensington Campus and Exhibition Road



THE ART OF RESEARCH
COMPETITION

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DEADLINE
23 March

Go to
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to find out more

imperial innovations Quickteen IMPERIAL FESTIVAL Background by Neil Dutton Art of Research 2018

Imperial College London

Is your password secure?

Your College password gives you privileged access to systems and information. That's a privilege you need to protect.

What to do:

- Make your password long and strong
- Use letters, numbers and symbols
- Never share your password

Make sure you are protected.
Visit www.imperial.ac.uk/be-secure

Be Secure

TAKE NOTE

Staff Supporters

Staff Supporters are existing members of staff who are part of a trained network of volunteers who provide confidential and positive assistance to all Imperial staff when they need information, guidance and support. Sometimes staff do not know who contact when they have a problem, they might not have access to a PC and perhaps can't talk to their line manager. In these instances the Staff Supporter acts as a signposting and guidance service to provide information direct to staff.

► **CURRENT STAFF SUPPORTERS:**
bit.ly/reporter306-supporters



Nominations for Imperial Garden Party

Imperial's President Alice Gast will once again be hosting the annual summer garden party on Tuesday 19 June to celebrate staff who have received internal accolades and who have demonstrated exceptional work or service in the past year. The nomination process will be launched in staff briefing on Friday 20 April.