

Know how

Postgrads show they have the confidence to succeed, thanks to the Graduate Schools' training

◆ CENTRE PAGES



UAE VISITORS

Undergrads from Khalifa University get a taste of College life

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ALEX KENDALL

On the student union's support for Imperial's new financial aid package

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OUTER SPACE

If you visited a Goldilocks planet, would you expect a warm welcome?

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EDITOR'S CORNER

To do list

Even if the weather's not offering many clues, when Dalby Court becomes the base for excitable **yellow backpacked school children** ready to get a taste of university life, I know that summer has arrived. For many of us, the quieter campuses provide the perfect opportunity to tackle our 'to do' lists. After this issue of *Reporter* goes to press, at the end of an academic year in which my highlights have included learning about the invention of Spray-on fabric and getting a sneak preview of the tailless, super energy efficient plane designs of the future, I'm keen to **draw up my grand plan** for *Reporter's* 2011–12 features. While *Reporter* in print takes a break until September, *Reporter Online* will still be open for business, so please keep in touch, sending me your story suggestions and telling me what you're up to, whether you too are completing your 'to do' lists or **seeking some sunshine**.

EMILY ROSS-JOANNOU, EDITOR

🗉 *Reporter* is published every three weeks during term time in print and online. The next publication day is 22 September.

Contact Emily Ross-Joannou:
✉ reporter@imperial.ac.uk

Cover photography: Research postgraduate Kelly Morris (MRC Clinical Sciences Centre) explaining her research on embryonic stem cells to a lay audience at the GSLMS Symposium.

Magazine makeover

Imperial is the College's revamped magazine for friends, supporters and alumni. Published twice a year by the Communications and Development division, it replaces the alumni publication *Imperial Matters*. The magazine has adopted a new editorial approach and is tapping into both in-house and alumni talent as well as writers, artists and photographers from around the world.

The Spring Summer 2011 issue features new thinking from Professor David Edgerton (Humanities) about the relationship between the Second World War and innovation, and the role that Imperial played in it. Physics alumnus Dr David Polard talks about guiding boys from under-

represented backgrounds into higher education and this year's *Felix* Editor, Kadhim Shubber, writes about social networking and life in the library.

"We want *Imperial* to appeal broadly to our alumni and stakeholders so alongside crisply designed features, we have introduced a travel section, a behind the scenes tour, and articles on transport, fashion and innovation," said Natasha Martineau, Head of Research Communications and features editor for *Imperial*. "It's exciting to see the magazine turn into a reality, and a privilege to have worked with so many people to bring *Imperial* alive for all our readers, whatever their connection with us."



You can download *Imperial* from www.imperial.ac.uk/imperialmagazine, or order copies for distribution at events by emailing imperialmagazine@imperial.ac.uk

UAE students sample College life

Twelve undergraduates from the United Arab Emirates have completed a three-week visit to Imperial, shadowing PhD students from the Department of Bioengineering and gaining an insight into research life in the UK. The students, from Khalifa University in Abu Dhabi, were each assigned a PhD student, whom they then shadowed across the course of the three weeks, assisting with their work and carrying out their own mini research projects.

As well as attending talks by Imperial doctoral students, the UAE guests had the opportunity to present on the work with which they had been assisting, in a symposium held on 8 July, their final day. One of the visitors, Meera Al Mehairi, said: "I was really worried about how I would find postgraduate research, if I decide to pursue it. The last three weeks have really helped to give me a much clearer picture of how this might look



Visiting students Ahouod Almarzouqi and Meera Al Mehairi in the Department of Bioengineering.

and it isn't that scary – even in a world class institution!"

The initiative was proposed and funded by Khalifa University, its aim being to establish strategic links between the institutions' bioengineering departments and to expose the Khalifa students to modern bioengineering research.

Ahouod Almarzouqi, who spent her time at Imperial working on research into the structure of a protein, enjoyed the experience of being in London too: "It's been really easy to adapt to living here, even in the short time we've been at Imperial. I'm really enjoying the rain too! It has rained for the past four days and the novelty still hasn't worn off!"

—JOHN-PAUL JONES,
COMMUNICATIONS AND DEVELOPMENT

Take home a professor

Want to listen to public lectures given by Imperial professors over the last year?



Lies, damned lies and light fantastic

Professor Martin McCall
Department of Physics

Catch up on what you've been missing and sign up for next year's programme at www.imperial.ac.uk/events/catchup

Financial support for students



On 12 July Imperial announced its financial support package for Home undergraduate students joining the College in 2012. Comprising both tuition fee waivers and cash to help students manage up-front living costs, financial support will be offered, on a sliding scale, to students from household incomes of up to £60,000. The College currently spends approximately £3.5 million on financial support; it estimates that by 2015–16, it will spend between £6–£8.4 million on financial aid for UK students.

The College also announced a significant increase in its outreach programme targeted to give disadvantaged students a better chance of achieving the academic standards in science necessary to enter the College and other selective universities.

Rector Sir Keith O’Nions said: “I am delighted that we are able to announce this generous package

of support. Whilst raising fees to £9,000 is necessary to maintain our quality in response to the reduction in government funding, this package will ensure that all those with demonstrated ability to manage Imperial’s courses have the support they need to help manage its costs.”

—SIMON WATTS, COMMUNICATIONS AND DEVELOPMENT

Read an interview with outgoing Imperial College Union President, Alex Kendall, on page 8 to find out how Imperial College Union and the College worked closely to develop the financial support package.

The Imperial package

- A maximum of £6,000 in non-repayable support available per annum to students from household incomes of less than £25,000.
- Financial support available to those from household incomes up to £60,000.
- College estimates amount spent on financial support by 2015–16 will be between £6–£8.4 million.
- A maximum of £9,250 per student per year in non-repayable support available from College and government sources.

Learn more about the new scheme at www.imperial.ac.uk/studentfinance

Concrete structures expert recognised by leading institution

Professor Nick Buenfeld (Civil and Environmental Engineering) has become a new Fellow of the Royal Academy of Engineering – he is among 59 new Fellows from around the world to be recognised this month.



Professor Buenfeld, who will take over from Professor David Nethercot as Head of the Department of Civil and Environmental Engineering in September 2011, was recognised by the Academy for his research and consultancy work with industry on concrete structures, including bridges, tunnels, dry-docks, offshore structures and major public buildings, focused on making them more sustainable, reliable, safe and durable.

Speaking about his award Professor Buenfeld said:

“I feel very fortunate to be elected a new Fellow by an institution that plays such a vital role in advancing engineering in the UK and abroad. I am indebted to the excellent students and research assistants I have worked with over the years, who have helped to make this honour possible. This recognition is a pat-

work already done on the back for my technical contributions in the fields of concrete technology and structural engineering. It also comes at a time when I am about to take on a new challenge, where my focus will move away from my own research to fostering excellence in the Department, building on the good

work already done to provide an environment where students and staff can excel.”

Professor Jeff Magee, Principal of the Faculty of Engineering, adds:

“Nick’s research ensures that these infrastructures, which we rely on so heavily, will be safe and last for years to come. I am delighted to hear that he has been made a new Fellow of the Royal Academy of Engineering. It is an honour that is well deserved.”

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

“Nick’s research ensures that these infrastructures, which we rely on so heavily, will be safe and last for years to come”

in brief



2011 Circle of Excellence Awards. The event was a collaboration between the Research Communications group, spin-out company Fabrican, the Department of Chemical Engineering and Chemical Technology, Design London, Corporate Partnerships, Conference and Events, and the staff photo club. It was also featured in *Reporter 223*: <http://bit.ly/pHufL8>.

Gold in fashion

The Science in Style spray-on fashion show held at Imperial last September has won a gold medal in the Individual Special Events category of the Council for Advancement and Support of Education’s

Graduate Schools merge

The Graduate School of Life Sciences and Medicine (GSLSM) and the Graduate School of Engineering and Physical Sciences (GSEPS) will merge with effect from 1 October 2011. Professor Richard Kitney, having served his five-year term as Director of GSEPS, will stand down from that date and Professor Andrew George, currently Director of GSLSM, will become Director of the single Graduate School. He will continue his role as Director of the School of Professional Development. See pages 6-7 for more on the Graduate Schools.

New NHLI Head

Professor Kim Fox, Professor of Clinical Cardiology, has accepted appointment as Head of Department for the National Heart and Lung Institute (NHLI) in the Faculty of Medicine from 1 September 2011. He will succeed Professor Michael Schneider, who has led the NHLI since 1 January 2009. Professor Fox was appointed Registrar at Hammersmith Hospital in 1976, where he completed his early clinical and research training as a research fellow and senior registrar. He was awarded his MD in 1980 and appointed to the staff of the National Heart Hospital in 1982. He has been a consultant at the Royal Brompton Hospital since 1990 and was appointed Professor of Clinical Cardiology at Imperial in 2002.

Pride London

Imperial 600, Imperial’s LGBT group, lent their support to the Pride London Festival by marching in the annual Pride Parade on 2 July. Pride London is about promoting understanding, cooperation and education in diversity in a celebratory atmosphere. Pride attracts over one million people, and Imperial staff and students were among the crowds, wearing Imperial T-shirts and carrying banners.

media mentions

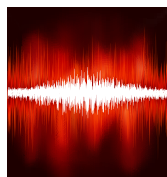
—SAM WONG, COMMUNICATIONS AND DEVELOPMENT



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BBC NEWS ▶ 24.6.2011

Cloaking device shields objects from sound



Scientists have developed a cloaking device that makes objects invisible to sound waves, *BBC News* reported. The technique, developed by a team from Duke University, could be used to make ships invisible to sonar, or to improve the acoustic design of concert halls. The device uses stacked sheets of plastic with regular arrays of holes. The stack redirects sound waves so that reflected waves behave as they would do if the stack was not there. Describing the device, Professor Ortwin Hess (Physics) said: "It's almost like someone could take a pencil and poke holes in a particular way in the plastic". The principle has only been demonstrated in two dimensions, however. "It's a bit more challenging for three dimensions. I don't see any reason why it shouldn't be possible but it won't be just an afternoon's work," he added.

DAILY EXPRESS ▶ 29.6.2011

Diet drinks linked to bigger waists

Researchers in the US have suggested that diet soft drinks may make people fatter, according to the *Daily Express*. A study of 500 people by the University of Texas found that those who drink diet drinks every day had 70 per cent bigger waistlines than those who drank none, and even those who kept to just two diet drinks a day put on almost two inches around the middle. Dr John Stevenson (NHLI) suggested a possible explanation. "In America very obese people can be seen wandering round with a triple cheeseburger in one hand but always with a diet drink in the other, presumably working on the basis the diet drink cancels out the calories in the food," he said.

EVENING STANDARD ▶ 4.7.2011



Capital tops table for low carbon travel

London leads the UK in minimising the carbon footprint of commuting, reported the *Evening Standard*. Londoners emit just 1.3kg of CO₂ per person per day on their journeys between home and work, largely thanks to the high availability of public transport. The research commissioned by EDF Energy has indicated that a large use of public transport, walking and cycling in Greater London has managed to make the busiest UK city the leader in reducing harmful carbon output from travel commutes. Professor Nigel Brandon (Energy Futures Lab) said: "London has shown that it's doing its bit in reducing the carbon footprint and other regions across the UK should follow its lead."

THE GUARDIAN ▶ 5.7.2011

Sulphur pollution masks coal plants' warming

Sulphur emissions from China's rapidly expanding coal power industry have partially offset their effect on global warming, according to the *Guardian*. Droplets of sulphuric acid in the stratosphere reflect sunlight, but this cooling effect will soon be diminished when the power stations install scrubbers that cut down on their sulphur dioxide output. Professor Joanna Haigh (Physics) told the newspaper: "The researchers are making the important point that the warming due to the CO₂ released by Chinese industrialisation has been partially masked by cooling due to reflection of solar radiation by sulphur emissions. On longer timescales, with cleaner emissions, the warming effect will be more marked."



awards and honours

ENGINEERING

Zimmerman's outstanding contributions



Professor Robert Zimmerman (Earth Science and Engineering) received

the 2010 Maurice A. Biot Medal at the annual meeting of the Engineering Mechanics Institute of the American Society of Civil Engineers in Boston in June. The medal is awarded for sustained contributions to poromechanics,

which studies the mechanical behaviour of fluid-filled porous materials, such as rocks, concrete and bones.

ENGINEERING

Robotics award for Hamlyn Centre

Researchers at the Institute of Global Health Innovation's Hamlyn Centre received the Best Medical Robotics Paper Award at the IEEE International Conference on Robotics and Automation, held in May. The winning paper introduces the design features of the joint mechanism used in the i-Snake® device, which incorporates state-of-the-art imaging and intuitive manipulation technologies that will allow surgeons to carry out more complex procedures within the body.



ENGINEERING

Engineering teaching award

The Faculty of Engineering's ethics course, run by Dr Esat Alpay (Engineering), pictured third from the right, has won the 2011 Higher Education Academy Engineering Subject Centre Teaching Award, sponsored by the Engineering Council UK. The course aims to raise student awareness of the importance and value of ethics in engineering work, study and other professional contexts.

ALSO...

Career award for Lane • Professor David Lane (Medicine), has been selected to receive a distinguished career award by the International Society on Thrombosis and Haemostasis. He will pick up his medal and certificate in Kyoto, Japan later this month. Read about Professor Lane's research on microvascular thrombosis in *PNAS*: <http://bit.ly/DavidLane>

Gadolin Award • Professor Bengt Långström (Medicine) received the Gadolin Award for outstanding achievement in radiochemistry at the Turku Positron Emission Tomography (PET) Symposium in Finland on 28 May. PET is a nuclear medicine imaging technique that produces a three-dimensional image of processes in the body.

Allergy relief possible as protein structure discovered



An international team of scientists has successfully solved the complex three-dimensional structure of the human histamine H₁ receptor protein. This molecule triggers itches, rashes or swelling in the one out of every four people who suffer with hayfever or other allergic reactions to food or pets. The group comprised Professor So Iwata and Dr Simone Weyand (Life Sciences), as well as Diamond Light Source, the Scripps Research Institute in California, USA, and Kyoto University, Japan.

Published in the journal *Nature* in late June, the researchers' discovery opens the way for the

development of a new generation of anti-histamine drugs that are effective against various allergies and do not cause adverse side effects.

Professor Iwata said: "It took a considerable team effort but we were finally able to elucidate the molecular structure of the histamine H₁ receptor protein and also see how it interacts with anti-histamines."

H₁ receptor protein is found in the cell membranes of various human tissues including airways, vascular and intestinal muscles, and the brain. It binds to histamine, which is an important part of our immune system, but in certain susceptible individuals this can

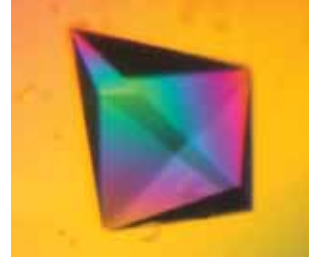
cause an allergic 'overreaction' to non-harmful substances such as in hayfever or food and pet allergies. Dr Simone Weyand said: "First generation anti-histamines such as Doxepin are effective, but not very selective, and because of penetration across the blood-brain barrier, they can cause side effects, including sedation, dry mouth and arrhythmia.

By showing exactly how histamines bind to the H₁ receptor at the molecular level, we can design and develop much more targeted treatments."

—ADAPTED FROM A PRESS RELEASE ISSUED BY DIAMOND LIGHT SOURCE

“We can design and develop much more targeted treatments”

'Smart materials' boost research into new drugs



Researchers at Imperial and the University of Surrey

have developed a new method to make proteins from crystals using 'smart materials' that remember the shape and characteristics of the molecule. The technique, reported on 23 June in *Proceedings of the National Academy of Sciences*, should assist research into new medicines by helping scientists work out the structure of drug targets.

Scientists need to produce crystals of proteins, so that they can study their molecular structure using a technique called X-ray crystallography. The number of proteins identified as potential drug targets is increasing exponentially as scientists make progress in the fields of genomics and proteomics but, with current methods, scientists have successfully obtained useful crystals for less than 20 per cent of proteins that have been tried.

The new method for making proteins crystallise uses materials called 'molecularly imprinted polymers' (MIPs). MIPs are compounds made up of small units that bind together around the outside of a molecule. When the molecule is extracted, it leaves a cavity that retains its shape and has a strong affinity for the target molecule. This property makes it easier for proteins to come together and form crystals.

"Rational drug design depends on knowing the structure of the protein you're trying to target, and getting good crystals is essential for studying the structure," said Professor Naomi Chayen (Surgery and Cancer). "With MIPs, we can get better crystals than we can with other methods, and also improve the probability of getting crystals from new proteins. This is a really significant innovation that could have a major impact on research leading to the development of new drugs."

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

Distant quasar discovered

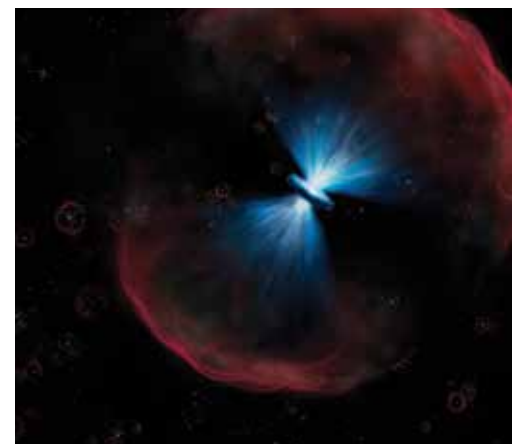
The discovery of the most distant quasar ever seen was announced in a study published in the journal *Nature* on 30 June. A quasar is an extremely bright source of light visible at infrared wavelengths, emitted as gas falls into a very massive black hole. The international group of astronomers, led by Dr Daniel Mortlock (Physics), have named it ULAS J1120+0641. The discovery came to light thanks to data from an ongoing survey of the sky that is being conducted by scientists at the UK Infrared Telescope in Hawaii.

Looking further away in space means looking back in time, because of the time the light takes to travel. Therefore by looking further away

astronomers can view the history of the universe. Light from the quasar reaching Earth now has travelled for nearly 13 billion years (13,000 million years), meaning that we are seeing the quasar as it was when the universe was only six per cent of its present age, just 770 million years after the Big Bang. The newly discovered quasar lies in the constellation Leo, a few degrees from the bright galaxy Messier 66.

“The thing that is particularly important about this quasar is how bright it is”

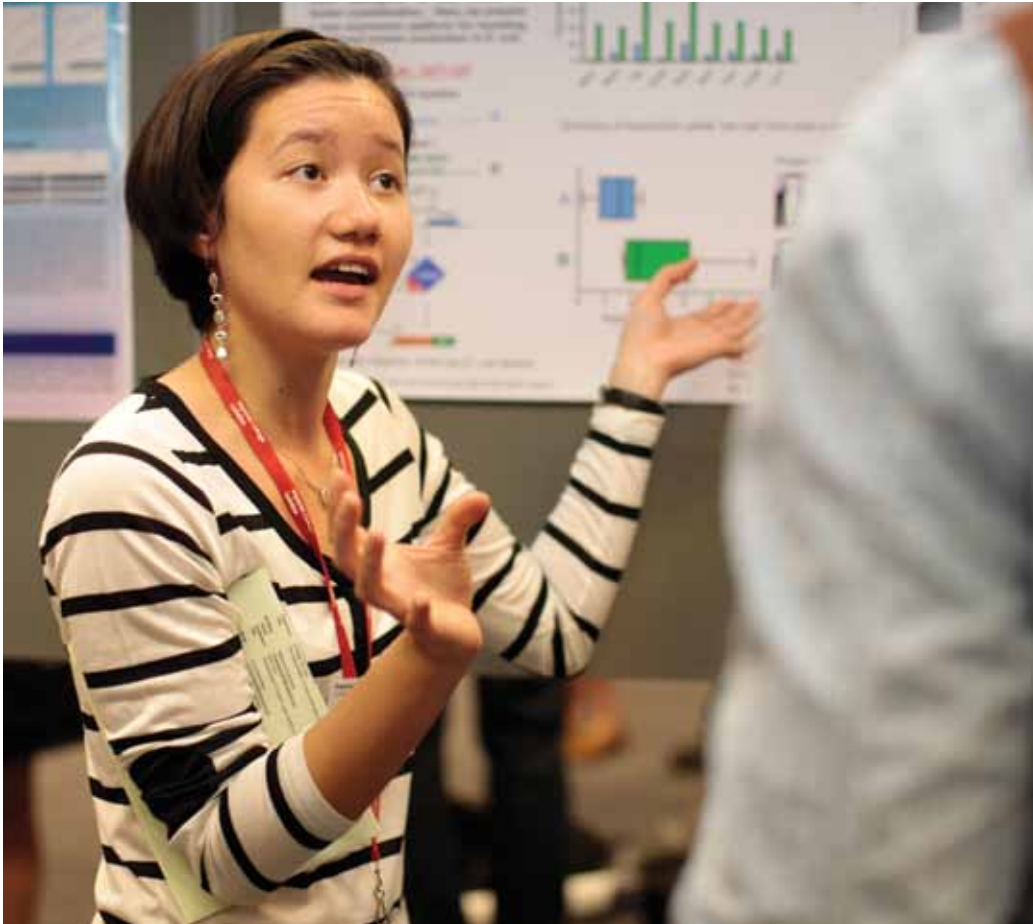
“The thing that is particularly important about this quasar is how bright it is,” said Dr Mortlock. “It's hundreds of times brighter than anything else yet discovered at such a great distance. This means that we can



use it to tell us for the first time what conditions were like when the universe was young.”

The team plans further detailed observations of ULAS J1120+0641, but also hope to find more such distant but bright quasars.

—SIMON LEVEY, COMMUNICATIONS AND DEVELOPMENT



Chiara Lee (Life Sciences) and Daniel Reed (NHL) present their research to staff and student judges at the GSLSM symposium.

Imperial's launch grad

Ten years after the formation of the first Graduate School, the Graduate School of Life Sciences and Medicine (GSLSM) and the Graduate School of Engineering and Physical Sciences (GSEPS) will merge in October.

Reporter investigates how the College is meeting the needs of Imperial's 6,600-strong postgraduate community.

Every year, floods of passionate postgraduates – made up of postgraduate researchers and taught postgraduates – come to the College to intensively study a niche area of science for anything up to four years. Unlike undergraduates, who are guided through their studies, postgraduates have to be self-motivated and willing to dedicate long hours to their research. Many are self-funded or sponsored and have left jobs to return to study, so they have a personal investment in doing a good job, whether they are headed for industry or intend to pursue a career in academia.

Due to the all-in nature of research, postgraduates have less time to take part in activities outside the laboratory and the library than undergraduates. This is where the Graduate Schools come in – they are a postgrad's link to the College as a whole and to each other.

Changing face

Professor Andrew George, currently Director of GSLSM, who will head up the combined Graduate School when it relaunches next term, explains that the plan isn't to completely revamp the Graduate Schools but to join up

the strongest activities, which make them such a vital resource for the postgraduate community. These include putting on high-profile events bringing together postgraduates from different disciplines to learn about science outside their own research interests; hosting social activities, research symposiums and the award-winning transferable skills programme.

Professor Julia Buckingham, Pro Rector (Education and Academic Services), says that rethinking the format will help consolidate the activities carried out by the schools: "Our two Graduate Schools have

served us very well. The new merged school will build upon the good practice developed over the past 10 years to enhance the professional development of our students and their opportunity to gain insight to interdisciplinary science."

Bringing the two schools together will avoid duplication of effort and also recognises the appetite across College for multidisciplinary working. Andrew hopes it will encourage more collaborations as postgraduates from different departments will have more chances to socialise and ferment 'blue sky thinking'.

Skills building

The value of multidisciplinary working is one of the factors being looked at as part of a review of the Graduate School's transferable skills courses. This review, led by Julia, involves staff and representatives from the postgraduate community.

Over the last decade the Graduate Schools have developed a series of courses designed to develop the personal and professional skills needed for postgrads to excel in their future careers.

"Not surprisingly, in the current environment, students are very concerned about their career prospects and are keen to invest time in developing their broader skills," says Julia. The review will ensure that only the most popular and relevant courses go through to the new Graduate School.

Andrew says that one of the common misconceptions of postgraduate researchers, after three years of working in a lab and producing a thesis, is that they are only qualified to talk about their specific field of research, when, in fact, they have gained a whole wealth of skills that are highly attractive to employers, along the way. "They have experience of working in a team in a lab, they have an understanding of both the breadth of a subject and the minute detail. They have the literary skills needed to write a thesis and the communication skills and confidence needed to present at international conferences," he notes.

One of Andrew's aims for the future is to get postgraduates' supervisors more involved in the development of the new Graduate School in the same way that they currently work with course supervisors and the Director of Postgraduate Studies. "Sometimes I think the best

people to train students in professional skills are the supervisors, as they know the student, know the context and know the best time to give the advice. For example, the time to learn how to give a presentation is two weeks before an internal event. I'd really like supervisors to feel part of the Graduate School," he says.

“They have the literary skills needed to write a thesis and the communication skills and confidence needed to present at international conferences”

Getting out and about

Another function of the Graduate Schools is to bring postgraduates into the fold of College life. "Research can be a very tough, stressful and lonely pursuit," says Andrew. "I often speak to postgraduate students who are working in a vibrant lab with a really supportive supervisor but still feel like they are the only people going through a particular research problem." The Graduate Schools' socials, symposiums and research lectures are an opportunity for postgraduate students to network and to discover people doing similar research who are going through the same challenges.

Imperial's clubs and societies are historically geared towards undergrads but Deena Blumenkrantz (Medicine), the outgoing President of the Graduate Students Association, has spent the last year working with Imperial College Union to try and accommodate postgraduates' busy schedules by

altering their timings and location. She also set up a Facebook group, which has over 500 active users, to advertise events. "Last term the Badminton Club organised a special night for postgraduates and over 100 people turned up to play, network and have fun – this led to regular badminton meet-ups. I really hope that this approach can be rolled out to more clubs," she says.

Having a voice

Elaine Walsh, Senior Lecturer in Transferable Skills for the Graduate Schools, conducted a well-being survey published in 2010, which revealed that being frustrated with the College's administration systems was one of the key concerns for postgrads. However, due to work commitments, they tend to have less time to address these concerns. One of Deena's aims as GSA chair was to get the postgraduate voice heard and represented on all major committees. To try and get them engaged, Deena informed postgrads about changes at the College that affect them, like the new postgraduate accommodation and the Transferable Skills course review, through the GSA newsletter. She has also encouraged them to pass on their thoughts to their departmental reps.

As for the future, Andrew wants to engage even more with potential employers and help them understand the benefits of employing a PhD student. "A PhD isn't just training for academia – most of those with PhDs make an incredibly useful contribution to the economy and society, beyond the realms of the university campus."

—EMILY ROSS-JOANNOU,
COMMUNICATIONS AND DEVELOPMENT



Michael Wortley (NHLI) has been a postgrad at Imperial for the last three years. On 15 July Reporter caught up with him at the GSLSM Symposium, where he was one of the winners in a poster competition, that judged the presentation of research to a lay audience.

What is your poster about?

My poster focuses on the research I'm doing into the effect of cigarette smoke on the sensory nerves, which alters the cough response in patients with chronic obstructive pulmonary disease, and how the smoke leads to the hacking cough you may recognise from heavy smokers.

How have the Graduate Schools helped you?

It's really easy to become tied up in your research but the Grad Schools help you to broaden horizons with events and meet other people. I've also found the courses really helpful and I'm definitely going on their 'Finish up and Move On' course to get some ideas on what to do once I finish my PhD next year – at the moment I'm planning to stay in academia if I can get the funding.

The value of student input



The outgoing Imperial College Union President, Alex Kendall, has been closely involved with the development of the College's financial support package

announced on 12 July. *Reporter* met Alex to find out how he contributed to the College's discussions and why he backed the final proposal.

When you became President of the Union, did you think you would be as involved with developing financial aid for students as you have been?

No, when I started I didn't know that the College would completely review its provision. I knew something was going to happen with the new fees regime, but I didn't know what form it would take.

How were you and the Union involved?

When the fee level was determined at £9,000, we realised that the extra income meant the financial support package could be more generous. Luckily, the College and I share the view that you can't do this without consulting students.

We came up with the idea of conducting a survey of all the students who currently receive bursaries, which provided some very interesting results – the most important of which was that students need cash-in-hand support to help them with living costs, as opposed to fee remission. Since the College incorporated this finding into its Access Agreement, the people who filled out that survey really helped the new scheme.

What are the benefits of Imperial's package?

The main benefit is that while someone is at Imperial, they will be able to take part in everything that the College offers. They won't have to sit in their room all day eating baked beans, unable to join clubs and societies or have a social life.

In terms of the College's consultation with the Union, who approached whom?

When the Fees and Financial Aid Working Group was set up by the College Secretary, we were asked if we wanted to be a part of it. It was all very amicable. In comparison to other universities, that's practically unheard of. Some student unions were told about the suggested changes and some had seen the relevant documents but I've yet to hear of another university which invited their union to help them write the proposal.

Why did the Union take a different stand to the National Union of Students on the rise in tuition fees?

We are one of the only student unions to publicly support the fees rise in the whole of the UK and it's not an easy position to take. The government wasn't going to spare higher education at the expense of the NHS, and it was decided that £9,000 fees would be what was needed to help universities cover the cost of provision. They could charge less and have less financial aid, but I don't think that's in anyone's best interest. It would be much easier for me to say, "Yeah, let's go on a march". It's easy to complain but it's harder to solve the problem.

“The government wasn't going to spare higher education at the expense of the NHS, and it was decided that £9,000 fees would be what was needed to help universities cover the cost”

What is your opinion of the government's decision to cut funding to arts and humanities subjects?

Essentially, sciences cost more to teach and if we are going with the plan that everyone pays the same, then the government needs to continue to give some funding to the sciences. The biggest issue that has come out of this is that it forces people to think, "Is this degree worth it?" And that's not a bad thing.

What do you hope will happen next?

One thing I hope happens is that the government seriously considers what's going to happen to postgraduate students, because it's going to get more expensive and I don't think they have a real plan about how to help them financially.

What advice do you have for students who are finishing school and thinking about their future options?

Go to Imperial, because they're going to get the best bursary scheme out there!

—JESSICA ADAMS, COMMUNICATIONS AND DEVELOPMENT



inside*

story

mini profile

Arnab Majumdar

Dr Arnab Majumdar, Lecturer and Director of the Lloyd's Register Education Trust Transport Risk Management Centre, researches transport safety and risk for the public good in the Department of Civil and Environmental Engineering. He spoke to *Reporter* about helping a major airline improve passenger and crew safety.

You've worked at Imperial since 1991; can you tell me about one of the consultancy projects you've been working on?

One project has seen us act as consultants for a major low cost airline. They wanted to find out if their pilots and cabin crew were working at an optimum level, to make sure they did not pose a safety risk to passengers by being tired. We carried out a fatigue assessment study of pilots and cabin crew over a period of three weeks.

What tests did you conduct?

There were cognitive tests, sleep diaries and subjective tests where pilots were asked how tired they felt. In addition there were physiological measurements, such as heart rate and skin temperature, which



were measured using a NASA designed bio-harness worn by the pilots. All this data helped us to assess the pilots' performance and whether fatigue affected it.

What's your greatest achievement at Imperial?

When I started my PhD in air traffic management, I was the only person who was studying it at the College. Now we have a team of 14 people and are regarded internationally as leading players in air traffic management research and teaching.

What do you love most about your work?

Part of my job is to disseminate the research at the Centre for Transport Studies – it's enabled me to travel the world and meet so many people.

—EMILY GOVAN, INTERNATIONAL OFFICE

All Imperial academics can act as consultants; to find out more please visit: www.imperial-consultants.co.uk

Leaders of Tomorrow symposium

PhD student Radomir Tylecote (pictured centre) has recently returned from a Leaders of Tomorrow symposium in Switzerland. Radomir, who is studying foreign investment in China's wind and solar industry in the Business School, tells *Reporter* about his visit.



"Every year, the university town of St Gallen hosts a four-day symposium for 200 young people and, last month, I was lucky enough to be one of them.

The symposium aims to encourage dialogue between the leaders of today and leaders of tomorrow. For four days, we met in the convivial surroundings of a campus overlooking St Gallen and its alpine valley, to hear from today's leaders of business, politics and academia. These included UBS boss, Oswald Grübel; French Finance Minister and new head of the International Monetary Fund, Christine Lagarde; the *Financial Times's* Martin Wolf; and the CEOs of Shell and BP.

Selection for the symposium was based on past achievements and an essay on this year's theme of 'Just Power'. I caught the judges' interest with my essay, *Evolutionary leadership*:

“Constant networking, high-calibre young people from across the planet and a rewarding flow of ideas”

nature in the institution and the institution in nature. The essay looked at the need to understand evolutionary psychology and do away with the false

division between science and social science, in order to help organisations – and ultimately societies – become more adapted to instinctive human nature and better places to live.

The symposium was hosted with, in

the words of the organisers, “constant networking, high-calibre young people from across the planet and a rewarding flow of ideas”. It was really an honour and an awesome experience, and it would be great for others from Imperial to attend in future.

To find out more, see: www.stgallen-symposium.org/Symposium.aspx

► SCIENCE FROM SCRATCH

As explained by Pippa Goldenberg, MSc Science Communication

Goldilocks planets



Goldilocks planets are planets which have the right conditions to support human life, and which may even already support other forms of life. These planets must have a certain mass and diameter, and be the right distance from their star, so that they can maintain liquid water on the surface (rather than ice or steam).

They also need to have an atmosphere similar to Earth's: if they can hold water and have an atmosphere with the right mix of gases, they could support life as we know it. It is possible that new forms of life – whose living requirements we do not yet know about – could inhabit these mysterious planets. Astrophysicists are using the Kepler probe (which can detect the change in light pattern when an orbiting planet comes between it and a distant star) to try to find as many planets outside our solar system as possible, in a continuing search for planets, and maybe life, like our own.

One Goldilocks planet was discovered last year by researchers at University of California, Santa Cruz, and the Carnegie Institution of Washington. It was named Gliese 581g, after the Gliese 581 red dwarf star that it orbits.





INVENTOR'S CORNER

Genes work

Professor Eric Alton is Professor of Gene Therapy and Respiratory Medicine (NHLI). He heads the UK Cystic Fibrosis Gene Therapy Consortium (UKCFGTC), a group of leading cystic fibrosis gene therapy researchers from Imperial, Oxford and Edinburgh Universities.

What's your main research interest?

The main aim of the UKCFGTC

is to find a way to replace the faulty gene in the lungs of patients with cystic fibrosis (CF) with a functioning copy.

One way this faulty gene affects patients is by causing a dysfunction of the lung clearance mechanism, meaning that patients can't rid their airways of bacteria and viruses, which leads to frequent and chronic respiratory infection. Most cystic fibrosis patients die from complications related to these frequent infections and the damage they cause. If we can introduce the working gene, we can reverse this effect and improve CF patients' natural defence mechanisms.

"If we can introduce the working gene, we can...improve CF patients' natural defence mechanism"

What have you developed?

We have a number of products to deliver the working gene to patients with CF. Our first product uses a liposome to deliver the functioning gene. We've run trials to show that it works, but these only lasted a few weeks and so couldn't measure the patient benefit of the treatment. We're currently waiting to start a large clinical trial into this product, which will treat patients over the course

of a year, allowing us to measure and evaluate the benefit to the patient, in terms of reduced lung disease and damage.

Our second product is a modified virus that

delivers a functioning copy of the gene. We've undertaken initial trials, which show that this second product dramatically increases the duration of gene activity and how effective it is. Uniquely, it can also be repeatedly administered. We're waiting to start safety profiling for this product to ensure it will be safe to use in patients.

—GAVIN REED, IMPERIAL INNOVATIONS

www.cfgenetherapy.org.uk



Book review

The White Queen by Philippa Gregory reviewed by Paula Evans, Principal Library Assistant, Business and Humanities (Central Library).

"I always relish the thought of a Philippa Gregory novel. The author holds a PhD and her thorough research of the historical figures, and times that she writes about, shines from every page. Combining imagination and a passion for her subject, she has the ability to turn potentially dry history into a riveting page turner. *The White Queen* is the start of a collection of novels about the 'Cousin's War', set during the Wars of the Roses; the main character is Elizabeth Woodville, a beautiful Lancastrian widow who marries the warrior king, Edward IV of York.

A marriage of such importance between the two warring fac-

tions does not bode well and this is reinforced when you realise Elizabeth is the mother of the two princes in the tower. History records that the princes were seen playing in the grounds of the Tower of London in the summer of 1483, but after that... nothing. Did Richard III, their uncle, have them murdered to secure his place on the throne? The fate of the princes remains a mystery to this day, but

their story can too easily be viewed in isolation; this book brings them to life and makes you speculate what would have hap-

pened if they had lived and ruled. Certainly Henry VIII and Elizabeth I might never have come to the throne. Food for thought!

My lunchtimes over the last few weeks were spent at the foot of the Queen's Tower in the sunshine eating more book than sandwich!"

Pick up *The White Queen* from the Central Library, level 5, 800 GRE.

"The main character is Elizabeth Woodville, a beautiful Lancastrian widow who marries the warrior king, Edward IV of York"

VOX POP

What has been your highlight of Imperial's Open Day?

Imperial held its annual Science and Engineering Open Day on 30 June, attended by 2,200 prospective students and 1,200 parents. Reporter caught up with some sixth formers to gauge their impressions of the College.



MARY DAI, STRATFORD-UPON-AVON, WHO PLANS TO STUDY MATHEMATICS

"The presentations in the mathematics lecture – you could see the students really enjoyed what they did and wanted to tell us about it."



SAVANNA, BRISTOL, WHO PLANS TO STUDY BIOCHEMISTRY

"There's a real community feel to the campus which is really nice – I also like that everything is close together."



"The accommodation was really impressive – it looked really modern and tidy."

NICK, SUFFOLK, WHO PLANS TO STUDY AERONAUTICS



"The architecture of the buildings on campus, and how friendly and helpful everyone we have met today has been."

SHRUTI, NEWCASTLE, WHO PLANS TO STUDY CHEMISTRY

Welcome new starters

Mr Omer Abdelrahman, EEE

Mr Mohammad Akhtar, Mathematics

Dr Mina-Olga Aletrari, Medicine

Mrs Salma Alwad-Rahman, Faculty of Medicine Centre

Mr Mudassar Aman, Accommodation

Mr Harsh Amin, Bioengineering

Ms Melissa Antoniou Kourouniotti, Clinical Sciences

Mr Pascal Assani, Accommodation

Miss Bernie Babel, Human Resources

Ms Noura Bahardrian, Medicine

Miss Olukorede Balogun, Accommodation

Ms Nicola Bartlett, Accommodation

Miss Nikola Baty, Accommodation

Miss Ashanti Bentil-Dhue, Accommodation

Dr Sergio Bertazzo, Materials

Mr Gavin Blake, Accommodation

Mr David Boland, EEE

Miss Anca Bontea, Accommodation

Miss Madeleine Bothe, International Office

Mr Adam Britton, Life Sciences

Miss Hannah Butler, Accommodation

Mr Matthew Carney, Accommodation

Mrs Frances Carr, Surgery and Cancer

Miss Lucy Chatters, Accommodation

Miss Chinua Chudum-Ilobi, Accommodation

Mrs Malene Cohen, Medicine

Miss Karina Corware, Medicine

Dr Roxana Danger Mercaderes, Computing

Miss Raygana Davids, Human Resources

Dr Alfonso De Simone, Life Sciences

Mr Jaspal Dhadwal, Accommodation

Mr Adam Dobbs, Physics

Miss Lara Dooley, Accommodation

Dr Tania Dottorini, Life Sciences

Mr Selim Douieb, Chemical Engineering and Chemical Technology

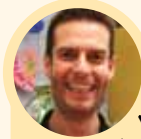
Mr Iheukwumere Duru, Accommodation

Mr Tassos Eracleous, Accommodation

Miss Kirsty Flower, Surgery and Cancer

Mr Antonio Forte, Mechanical Engineering

Dr Robin Fortt, Surgery and Cancer



Daniel Miles, Early Years Educator (EYEC), joined

the Early Years Education Centre in May, following a year working at a nursery in Putney. Prior to this he had spent 10 years in Japan, first teaching English to children and then establishing his own English language school. Daniel says: "At my interview for Imperial, I liked the friendly staff, happy children and attractive surroundings. Luckily, those first impressions still hold true."

Mr Kaviraj Gakhal, Medicine

Miss Tessa Gardner, Research Services

Dr Marco Genoni, Physics

Miss Tahlia Greatbatch, Accommodation

Ms Prachee Gupta, Life Sciences

Mr John Hall, Accommodation

Mr Kim Hanbyearl, Accommodation

Dr John Heap, Life Sciences

Miss Bianca Hinds-Walters, Medicine

Mr Peter Hinton, Faculty of Medicine Centre

Dr Gustav Holzegel, Mathematics

Miss Kira Hughes, Business School

Dr Lisa Iddon, Surgery and Cancer

Mr Aleksandar Ivanov, Chemistry

Miss Sherma Johnson-Gray, Accommodation

Miss Joanna Kefas, Accommodation

Miss Beth Kelleher, Accommodation

Dr Pipin Kojodjojo, NHLI

Miss Natalie Kumah, Accommodation

Mr Matthew Laffan, Aeronautics

Mr Christian Ledig, Computing

Miss Ilona Lewicka, Faculty of Medicine Centre

Mr Craig Lindo, Accommodation

Mr Steven Lovegrove, Computing

Mr Jiefei Ma, Computing

Dr Szymon Manka, Kennedy Institute

Mr Jan Marchant, Life Sciences

Miss Efstathia Maropoulou, Medicine

Dr Stephen McAteer, Medicine

Miss Lynsey McInnes, Life Sciences

Miss Aimee Mckee, Accommodation

Mr Matthew Merker, Accommodation

Dr Gemma Molyneux, Surgery and Cancer

Dr Esther Morel Barcena, Medicine

Miss Natasha Munzi, Accommodation

Ms Vicky Nicolaidou, Kennedy Institute

Miss Esther Ogundeji, Accommodation

Mr Alistair Owen, Accommodation

Mr Harshil Palan, Accommodation

Dr George Papadakis, Aeronautics

Mr Jehan Pasangha, Accommodation

Miss Reeya Patel, Accommodation

Miss Elizabeth Perry, Accommodation

Mr Karl Phillips, Accommodation

Miss Kirsty Poore, Accommodation

Miss Kate Raison, Business School

Mr Thomas Rhoades, Accommodation

Dr Christian Richard, Chemical Engineering and Chemical Technology

Mr Karl Scholfield, ESE

Mr James Serginson, Chemistry

Dr Alekos Simoni, Life Sciences

Ms Sarah Skoff, Physics

Mr Nathan Sparks, Physics

Dr Graeme Stasiuk, Medicine

Miss Christine Strachan, Accommodation

Miss Morag Stuart, Accommodation

Miss Sarah Stubbings, Business School

Mr Liku Tezera, Medicine

Ms Anne Thesenvitz, Accommodation

Dr Mohammed Tirech, Surgery and Cancer

Mrs Swapna Udupi, ICT

Mr Raphael Underwood, Medicine

Professor David van Dyk, Mathematics

Miss Shivane Vigneswaran, Accommodation

Ms Alexandra Weldon, Public Health

Miss Claire Wenden, NHLI

Ms Daryl Yang, Library

Farewell moving on

Miss Marie-Laure Aknin, Medicine

Dr Heiko Andresen, Materials

Dr Victoria Barker, Chemistry

Ms Laura Barker, Development and Corporate Affairs

Dr Natalia Bezaeva, ESE

Dr Julia Blanchard, Life Sciences

Dr Francesco Bottone, Mechanical Engineering

Dr Joseph Boyle, NHLI

Dr Nancy Brewig, Surgery and Cancer

Dr Michael Bright, Life Sciences

Mr Keith Cann, Faculty of Medicine Centre

Mrs Paula Consiglio, Security Services (10 years)

Ms Elizabeth Davis, Library (29 years)

Dr Allyson Egan, Medicine

Miss Idalina Ferreira Gomes, Humanities (5 years)

Miss Kerry Fey, Registry

Miss Heidi Fitzgibbon, Medicine

Dr Pilar Garcia Allende, Surgery and Cancer

Mr Thomas Gent, Life Sciences

Dr Chris Goddard, Physics

Dr Ian Groves, Medicine

Mr Richard Hamilton, Materials (12 years)

Mr Tobias Hannes, NHLI

Dr Silke Heinzmann, Surgery and Cancer

Mr Marcus Heneghan, Life Sciences (5 years)

Dr Markus Horn, Physics

Dr Paul Johnson, Mathematics

Dr Andy Jones, Life Sciences

Dr Simon King, Chemistry

Dr Evelina Klerides, Business School

Dr Emilia Kot, Chemistry

Dr Morgan Mager, Materials

Miss Theresa Manns, Catering Services

Dr Brian McGovern, Biomedical Engineering

Mrs Niga Nawroly, NHLI (8 years)

Dr Keat-Eng Ng, NHLI

Mr Richard Page, Estates Division (18 years)

Dr Candice Palmer, Chemical Engineering and Chemical Technology

Miss Rachel Payne, Surgery and Cancer (5 years)

Dr Plamen Petrov, Physics

Dr Lucinda Rand, Medicine (5 years)

Dr Lionel Rossi, Aeronautics (8 years)

Mr Sam Rudwick, Library

Mr David Savill, Humanities

Mrs Revital Shahar Golan, Public Health

Dr Anser Shakoor, EEE (5 years)

Dr Paul Shearing, ESE

Dr Graham Smith, Clinical Sciences (5 years)

Dr Carol Stanier, Materials

Dr Yaroslav Tenzer, Mechanical Engineering

Dr Xiang Tian, EEE

Dr Gheorghe Tigan, Mathematics

Dr Kevin Twidle, Computing (6 years)

Dr George Tzallas-Regas, Computing (5 years)

Mr Povi Vaughan, Surgery and Cancer

Dr Dominic von Terzi, Aeronautics

Mr Nicholas Witt, NHLI (11 years)

retirements

Mr Clive Curtis, EEE (18 years)

This data is supplied by HR and covers the period 13 June–3 July. This data was correct at the time of going to press.

✉ Please send your images and/or comments about new starters, leavers and retirees to the Editor at reporter@imperial.ac.uk

The Editor reserves the right to edit or amend these as necessary.



22 JULY ▶ SEMINAR

Stand-up mathematics

Mathematician turned comedian, Matt Parker's erudite brand of comedy takes on the topical and daft in equal measure. Matt studied mathematics and physics in Australia before working as a teacher both there and in the UK. He is now based in the mathematics department at Queen

Mary, University of London, and develops and delivers highly engaging mathematics activities. This stand-up routine, open to students and staff, is hosted by the Graduate School of Engineering and Physical Sciences as part of its summer symposium. Matt will talk about his attempts to communicate maths and science with the public and show examples of what goes wrong when people don't understand science.



13 SEPTEMBER ▶ PUBLIC LECTURE

The science of secrecy: ciphers to cyberspace

From ciphers to cyberspace, join the Institute for Security Science and Technology for a romp through the history of cryptography. Guest speakers include science writer Simon Singh,

Government Communications Headquarters biographer Professor Richard Aldrich, Imperial's former Chief Operating Officer Dr Martin Knight and Institute of Physics President-elect Professor Sir Peter Knight. Between them they will cover the past, present and future of cryptography, and take questions from the audience. A drinks reception and the opportunity to meet the speakers will follow the event.

22 JULY ▶ CONFERENCE

Research students' symposium

Hosted by the Graduate School of Engineering and Physical Sciences

16 AUGUST ▶ SEMINAR

Understanding the role of media in health

Dr Tammy Boyce, The King's Fund

23 SEPTEMBER ▶ PUBLIC LECTURE

Science Uncovered

Join Imperial researchers at the Natural History Museum

EXTERNAL EVENTS

29 JULY

After Hours

Explore the Natural History Museum after dark

11 JULY–24 AUGUST

Journey of a lifetime

Exhibition at the Royal Geographical Society

17–18 AUGUST

Lego landscapes

Life-sized Lego building fun at the Science Museum

PHOTO EXPO

On 3 July, Dr Tilly Collins (Biology), pictured centre, took part in a voluntary bird-counting exercise to help Imperial scientists carry out a census of rose-ringed parakeets (right) living in London and the south east of England.

For the full story see: <http://bit.ly/nYcAKF>



Stay in the loop

✉ Visit www.imperial.ac.uk/events for more details about these events and others. To sign up for regular updates about Imperial events please email: events@imperial.ac.uk

take note

HR website

The newly redesigned HR website is now live, with a cleaner look and feel, and improved navigation. Latest information and notifications, including employment legislation, pension updates and changes to College policies and procedures, are now publicised through the HR Notices blog. Increased use of flowcharts and summaries provide 'at a glance' illustrations of HR processes.



See the new look at www.imperial.ac.uk/hr

MEET THE READER



Mechanical Engineering student Amit Mistry, shop assistant at the Union Newsagents, South Kensington Campus.

What are you doing in the picture?

I'm reading *Reporter* in front of the pick 'n' mix section of the shop. Pick 'n' mix is very popular with the customers but I have to be careful that I don't eat too much! Every day I allow myself to buy just five or six chocolate-covered peanuts. I've worked in the newsagent for three years as it's good part-time work and a way to earn some extra income.

What would you do if you were editor of Reporter for a day?

I'd interview someone from Finance to find out what happens to our fees.

Who would be your cover star?

I'd feature a photo collage of the graduating classes for that year, to highlight everyone's achievements. They wouldn't be formal photographs, instead, I'd take pictures of students going crazy at the end of term.

Want to be the next reader featured in *Reporter*? Send in a picture of yourself with a copy of *Reporter* in your location of choice to: reporter@imperial.ac.uk

