Imperial College London

reporter

Issue 240 ▸ 24 November 2011

Sharing stories of Imperial's community

Step lively

Imperial's diabetes centre in Abu Dhabi makes strides to keep the population healthy

CENTRE PAGES

TECH CITY

Imperial enters agreement to create a centre for research into future cities

PAGE 3

DEBATING GREEN TECHNOLOGIES

Dr Ling Ge on presenting at the European Commission

PAGE 9

HIGH FLYER

Google Vice President on how to stay ahead of the game

PAGE 10

EDITOR'S CORNER

Social feast

This month I was reminded just how much the Imperial community loves food. At the cake sale in aid of **Children in Need** last week (see *Meet the reader* on page 12), the tables of iced and baked treats disappeared in under half an hour. And at the recent **vegetarian cooking workshop** held at Imperial College Union, I joined a mix of staff and students from Imperial and the Royal College of Music, keen to develop their culinary skills. One of the reasons I enjoy preparing food with friends is that it is such a social way to share **cultural traditions**. At the workshop, led by Chaplaincy Hindu Faith Advisor, Sachi Kishore, we worked together to blend spices, rice and vegetables to create a traditional Indian dish called kitchiri. As we cooked, the conversation turned to recipes passed down through families and it made me wonder what festive food tips the Imperial community had up its sleeves. A quick post on *Reporter online* and **mouth-watering recipes from around the world** came flooding in. Do take a look and share your own favourites: **http://bit.ly/Reporterrecipes**

EMILY ROSS-JOANNOU, EDITOR

Reporter *is published every three weeks during term time in print and online. The next publication day is 15 December.*
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Donor thank you event

On 17 November the Rector hosted an event to thank alumni and supporters whose donations to the Rector's Scholarship Fund helped to fund the studies of 85 students who started at the College this term.

Over 200 donors and their guests attended the reception, double the number present at last year's event. Twenty scholars also attended, including Charlie Hayward, a first year undergraduate biologist and Rector's scholar. He observed that the donors' support showed they understood the link between opportunity and achievement. Thanking them, he said: "In the past, my family, my schools and my teachers have given me the chances to achieve, and to me that's exactly what the Rector's Scholarship does. With a scholarship, you have given me and all of the other scholars the full opportunity to make the most of our studies, allowing us to achieve our best."

With the support of donors, for the year 2011–12 the College was able to award 61 undergraduate scholarships (three times more than in 2010–11), 20 Master's scholarships (five times more than in 2010–11) and four PhD scholarships (double the number awarded in 2010–11).

Rector's scholars Claire Brash and Charlie Hayward join alumni and supporters at the donor thank you event on 17 November.

During the 2010–11 financial year over £9.9 million was raised philanthropically – 19 per cent more than the previous financial year. Over that same period the number of alumni donors more than doubled.

—ELIZABETH ATKIN, COMMUNICATIONS AND DEVELOPMENT

The race against time to save the last 'Flying Pencil'

Scientists from the Department of Materials are in a race against time to help save the last remaining intact German World War II Dornier Do-17 light bomber, known as the Flying Pencil (Fliegender Bleistift), which lies underwater in the English Channel off the Kent coast.

The researchers are donating their time and scientific expertise to help the Royal Air Force Museum rescue the submerged aircraft, which was discovered in the shallows off the Goodwin Sands in 2010. Shifting sands uncovered the aircraft, which was previously protected by layers of sediment, exposing it to the corrosive effects of seawater and threatening to destroy the plane entirely. Preventing corrosion will enable the museum to display the plane in a gallery that they plan to build in tribute to those who lost their lives during the Battle of Britain.

Dr Mary Ryan (Materials), who is working on the project, said: "We have been analysing fragments already brought to the surface and it is absolutely fascinating to see how this bomber, which crash-landed more than 70 years ago, has been so well-preserved by the layers of sand. We are relishing the challenge of finding a way to help save this historical treasure, so that it can be raised and put on display for future generations."

One of the challenges for Imperial researchers is devising a method for cleaning and removing the corroded layers from the Flying Pencil's aluminium fuselage. It contains large amounts of the corrosive agent chloride, which comes from the seawater. The researchers are currently testing environmentally friendly solution based on citric acid.

—COLIN SMITH, COMMUNICATIONS AND DEVELOPMENT

Boost for research into **cities of the future**

London is becoming a global leader in future cities research, after Imperial College London, Cisco and UCL entered into a three year initial agreement to create a Future Cities Centre in the capital on 10 November.

The Centre will be a physical space in Shoreditch where businesses, academics and start-ups can openly collaborate. It will be part of Tech City, which is the fastest growing technology cluster in Europe.

The Future Cities Centre will focus on the thematic areas of Future Cities and Mobility, Smart Energy Systems, the Internet of Things and Business Model Innovation. It will form a major node of Cisco's National Virtual Incubator, which is a sustainable public technology network that promises to stimulate entrepreneurship by connecting physical sites through IT infrastructure.

Under the agreement, new Research Associates from Imperial and UCL will co-locate in the new facilities, where they will embark on new research activities whilst also drawing on the institutions' existing research excellence.

At Imperial, researchers are already working on two research programmes that are exploring how cities can become more intelligent and sustainable. The Climate Knowledge and Innovation Community is looking at issues such as dramatically reducing cities' carbon consumption. The multidisciplinary Digital Cities Exchange is investigating how digital technologies can boost the capabilities of the energy, health, transport and utility resources in our cities.

Deputy Principal Research and Business Engagement for the Business School, Professor David Gann, said: "Understanding users and markets for new services and creating entrepreneurial capabilities will be done in tandem with developing engineering systems and technologies. This combination will fuel the business models that we need for jobs and growth in the digital economy. Imperial's internationally leading researchers in the areas of infrastructure, transport, energy, ICT and business will develop new ideas for making our cities smarter, more resilient and more sustainable."

—LAURA GALLAGHER, COMMUNICATIONS AND DEVELOPMENT

Buddying up for a taste of Imperial life

This month schoolchildren from disadvantaged areas in London were buddied with Imperial students for a day to explore Imperial's South Kensington Campus and find out what it is like to study at university.

One of the school pupils tries out medical scrubs for size

Through a scheme arranged by Imperial's Outreach Office in partnership with the organisation IntoUniversity, school pupils aged 12–13 were met by a College buddy, a student volunteer, on arrival at Imperial, who then took them on a campus tour. After lunch they took part in a workshop organised by some of their buddies, who spoke about their experiences of studying at Imperial.

Medical students gave the pupils, from Queen's Park Community School, insight into the training they had received, describing the skills that doctors use when speaking to patients. Some of the pupils had the opportunity to don stethoscopes or scrubs, while all tried their hand at being GPs for the afternoon, diagnosing their new buddies.

For Syed, 13, meeting his buddy and spending a day on campus has meant he now understands a lot more about university life than he did before: "I thought it was just exactly like school – I didn't know you had the chance to do so much cool stuff and have fun as well."

He added: "I'm going to get a book to read more about science, because I think I'd like to come and study it in the future."

The pupils' teacher Alex Paton said: "The schoolchildren just don't have any contact with young people at university, so this is a fantastic opportunity for them to find out what life's like at that level. It's never too early to plant the seed that higher education is something they can think about aiming for."

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

in brief

Schistosomiasis funding

Scientists from Imperial's Centre for Synthetic Biology and Innovation have won £100,000 from the Bill and Melinda Gates Foundation to fund research to prevent the spread of the disease Schistosomiasis. Using a proof-of-concept idea that was initiated by Imperial's 2010 iGEM competition team, the researchers have genetically engineered bacteria that change the colour of water contaminated with the parasite that causes Schistosomiasis, identifying it as unsuitable to drink. Professor Paul Freemont (Life Sciences), pictured, leads the project with Dr Geoff Baldwin (Life Sciences) and Professor Richard Kitney and Dr Tom Ellis (both Bioengineering). Professor Freemont said: "We hope this funding will help us to turn these ideas into reality, and lead to further funding."

Meet the student bloggers

Twelve students have begun sharing anecdotes from their life at Imperial on the student blogs website, managed by the Communications and Development Division. Offering a range of perspective, from that of Richard, an undergraduate studying Information Systems Engineering to that of Keou, a postgraduate taking the MSc in International Health Management, the website aims to show prospective students what it's really like to be a student at the College. Visit: **www.imperial.ac.uk/studentblogs**

Director of the Centre for Environmental Policy

Dr Zen Makuch has been appointed the new Director of the Centre for Environmental Policy. Dr Makuch joined the College in 1995 and has directed the Sustainable Transitions research theme for the past four years. Speaking to *Reporter* about his new role, Dr Makuch said: "My ambition is to work within the Imperial community to develop a College environmental strategy that will shape the way we deliver its research and teaching missions".

To read the full interview, visit: **http://bit.ly/zenmakuch**

Silicon Valley comes to Imperial

Entrepreneurs from Silicon Valley, the Californian technology hub, visited the College on 18 November to share their experiences as part of the nationwide programme SVc2UK and inspire students. The event, organised by the Department of Computing and Imperial's Entrepreneurship Society, also saw UK-based alumni speak about their own enterprises.

Look out for the full story on Reporter Online soon

media mentions

—JOHN-PAUL JONES, COMMUNICATIONS AND DEVELOPMENT

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BBC ONLINE ▸ 10.11.2011

Step forward for detecting consciousness

UK and Belgian scientists have uncovered a way of communicating with people who are brain damaged and appear to be in a vegetative state, *BBC Online* reported. The scientists measured electrical activity in the brain to see if patients were trying to respond to certain requests, such as to imagine squeezing their right hand, using a technique called electro-encephalography. During a trial of 16 patients, brain activity suggested that three were complying, and there are hopes that it may be used as a way of detecting consciousness in the future. Professor Paul Matthews (Medicine) said: "The approach suggests a simple, practical way in which some of these patients might be helped to communicate. This innovative work has taken fundamental brain science right to the bedside."

BBC ONLINE ▸ 11.11.2011

Fabulous fibre

Imperial researchers have found that increasing fibre intake could reduce the risk of developing colorectal cancer, *BBC Online* reported. The researchers analysed 25 previous studies featuring data from almost two million people. They found that for every 10 gram a day increase in fibre intake, particularly in cereal fibre and whole grains, there was a 10 per cent drop in the risk of bowel cancer. The study's lead author, Mr Dagfinn Aune (Public Health), told the BBC: "The more of this fibre you eat the better it is. Even moderate amounts have some effect."

THE DAILY TELEGRAPH ▸ 14.11.2011

Stem cells to help hearts

US researchers have found that an injection of stem cells can improve the ongoing weakness that occurs due to heart attacks, according to *The Daily Telegraph*. The researchers injected the stem cells into the hearts of 14 trial participants, with another group receiving nothing. Prior to injection the cells themselves had been taken from healthy parts of the patients' own hearts before being cultivated in a lab. There was a 12 per cent increase on average in the pumping capacity of the heart for those who received the stem cells. Professor Michael Schneider (NHLI) said: "If these results, including both safety and the strong indication of effectiveness, hold true in larger studies then it will represent a major improvement."

THE ENGINEER ▸ 15.11.2011

Light at the end of the tunnel

The future still looks bright for careers in the rail industry in Britain, *The Engineer* has reported. Predictions suggest that the next decade will see an increase in rail traffic of 30 per cent, making the UK's railway network the fastest-growing in Europe. A number of large projects are underway, including Crossrail and a new high-speed trainline between London and Birmingham. Professor Roderick Smith (Mechanical Engineering), who is also President of the Institution of Mechanical Engineers, told *The Engineer*: "Passenger numbers are rising; rail is seen as an answer to congestion on the roads, and it can make some contribution to our environmental credentials."

awards and honours

ENVIRONMENTAL POLICY

OPAL scoops Lottery Award

The Open Air Laboratories project (OPAL) was recognised as one of the UK's best environment projects at the National Lottery Awards 2011 on 5 November. Led by Dr Linda Davies and a team from Imperial's Centre for Environmental Policy, OPAL outshone hundreds of other projects, which had all received funding from the National Lottery, to take home a runner-up trophy at a ceremony which was broadcast live on BBC One.

ENGINEERING

Howard Medal for Popo-Ola

Dr Sunday Popo-Ola (Civil and Environmental Engineering) received the Howard Medal at an Institution of Civil Engineers awards ceremony held on 24 October. The award recognised the high standard of Dr Popo-Ola's joint paper, *Durability of light steel framing in residential applications*. The paper tackles the problem of predicting how long thin-gauged steel would last if used for building houses. He points out that homes are most people's biggest ever investment: houses need to last much longer than a lifetime.

COLLEGE

Green Gown Awards

Imperial's carbon reduction initiatives, which led to a saving of 4,400 tonnes of CO_2 per year, received recognition at the Green Gown Awards ceremony held on 3 November at the Connaught Rooms in London. The College was highly commended in the Green ICT and Carbon Reduction categories of the awards scheme, which was established to recognise exceptional initiatives taken by universities and colleges across the UK to become more sustainable. See *Reporter online* for the full story.

MEDICINE

New Wellcome Trust investigators announced

Professor William Cookson, Professor of Genomic Medicine, and Professor Miriam Moffatt, Professor of Human Genetics, (both NHLI), have been awarded a Joint Senior Investigator Award by the Wellcome Trust. Professors Cookson and Moffatt will be using the latest genetic and genomic tools to uncover the basic mechanisms that cause childhood asthma and to translate this knowledge into treatments for patients. Asthma is the most common chronic disease of childhood, but its causes are unknown.

Frog trade linked to emergence of killer fungus

The global trade in frogs, toads and other amphibians may have accidentally helped create and spread the deadly fungal disease, chytridiomycosis. An international team of scientists, led by Dr Matthew Fisher (Public Health), found that the trade may have let non-lethal strains of the chytrid fungus from different parts of the world come into contact with each other. This means they've exchanged genes in a process called recombination, creating a new and lethal strain which has decimated frog populations around the world in recent years.

"It's likely that the amphibian trade has allowed different populations of the fungus to come into contact with each other, allowing recombination to occur," said Rhys Farrer from the School of Public Health at Imperial and the Institute of Zoology, who was the lead author of the study, published in *Proceedings of the National Academy of Sciences*. "This has created a hypervirulent strain leading to losses in amphibian biodiversity," he added

The chytrid fungus, *Batrachochytrium dendrobatidis* (Bd), infects the skin of amphibians like frogs, toads, salamanders and newts. The disease has caused many amphibian populations around the world to decline and over 200 species are suspected to have become extinct as a result. In Central America alone, chytridiomycosis has led to the loss of up to 40 per cent of wild amphibians including the Panamanian golden frog.

Despite much research on the disease, scientists have struggled to figure out where it came from or explain how it spread. The problem is even more puzzling because some amphibians coexist alongside Bd with no sign of disease. "This strongly suggests there may be more than one type of strain of chytrid fungus," said Mr Farrer.

—ADAPTED FROM A NEWS RELEASE ISSUED BY THE NATURAL ENVIRONMENT RESEARCH COUNCIL

Gut hormones trick the brain into feeling full

A brain imaging study conducted in the Department of Medicine and the GSK Clinical Imaging Centre at Imperial has found that injecting people with certain hormones produced by the gut causes the brain to act like they have just eaten a meal.

The gut hormones PYY and GLP-1 are known to suppress appetite, but the new study, published in the November issue of the journal *Cell Metabolism*, helps scientists understand the effect these chemicals have on the brain.

The researchers used functional magnetic resonance imaging (fMRI) to measure brain activity in healthy people after they had been given PYY, GLP-1, or both, while fasting. They compared those scans to the brains of the same individuals when they were full from a standard meal.

After a standard meal, people's brains responded less to images of food in regions related to food reward, and they ate less during a subsequent buffet meal. A very similar effect was seen on brain activity and behaviour of hungry people after they had taken PYY and GLP-1 in combination.

> "Participants had eaten no breakfast, but giving them PYY and GLP-1 injections changed the pattern of their brain activity to look as if they had"

Each of the hormones worked to curb appetite on their own as well, but to a lesser degree.

The findings bolster the evidence in humans that these two hormones are key mediators of fullness.

"Participants had eaten no breakfast, but giving them PYY and GLP-1 injections changed the pattern of their brain activity to look as if they had," said

Professor Waljit Dhillo (Medicine), who led the study. "Their brain was tricked into thinking they had eaten breakfast and they subsequently ate less of a buffet meal.

"If we can mimic this effect in a pill that could be taken once a day or once a week, it may prove to be a useful treatment for obesity in the future," he added.

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

Bioenergy benefits

Biomass could provide a fifth of global energy without damaging food production

Energy generated from plant biomass could deliver up to one fifth of global demand without causing a decline in food production, according to a new report launched on 23 November by the UK Energy Research Centre (UKERC).

The report, *Energy from biomass: the size of the global resource*, examines the share that biomass might contribute to the future global energy system and is the first systematic review of the evidence base. Scientists working in Imperial's Centre for Environmental Policy carried out the research to understand why there are a large range of estimates for biomass use and how this affects the wider debate about bioenergy.

The authors found the root cause of contention was that many scientists disagreed about how factors, such as diet, population, future land use and the rate of agricultural innovation, will change in the future. They reached their conclusion after reviewing the results of more than 90 separate studies.

"Supplying up to one fifth of global energy sustainably from biomass would be challenging but by no means implausible," said Dr Raphael Slade, who authored the report with colleagues Drs Robert Gross and Ausilio Bauen. "The more bioenergy you want, however, the harder it becomes to reconcile demand for food, energy and environmental protection."

> "Bioenergy may need to play a part in a future low carbon energy mix"

"Bioenergy may need to play a part in a future low carbon energy mix," said Dr Bauen. "Ensuring bioenergy, food and forests don't compete for land won't be straightforward. But, if we use land more productively and make use of residues and wastes, we should be capable of producing bioenergy, feeding a growing population and conserving the environment at the same time."

—SIMON LEVEY, COMMUNICATIONS AND DEVELOPMENT

Ingredients for health

Perched on a high stool in a glossy modern kitchen, a female presenter laughs and jokes with a large chef as he stirs some beans, onions and spices in a pan. At first glance, the programme looks like the kind of cookery show you might see on Saturday morning TV in the UK, but the two million people who tune into *Sukar Mazbout*, which airs on an Arabic cooking channel, are not just being entertained.

The programme is filmed in a specially created kitchen in the Imperial College London Diabetes Centre (ICLDC) in Abu Dhabi, where it is just one part of a campaign to encourage healthy living and increase awareness of diabetes. Presenter Fatima Sadek is a dietician from the Centre, who has concocted the nutritious recipes for the programme, and who peppers her conversation with advice on healthy eating and questions about the chef's exercise habits.

The Centre, which opened in 2006 as a partnership between Imperial College London and Mubadala Development Company (an investment arm of the Abu Dhabi government), aims to understand, tackle and prevent diabetes in the country. The United Arab Emirates (UAE) has the second highest prevalence of diabetes in the world, according to the International Diabetes Federation. It is estimated that one in five people aged 20 to 79 lives with diabetes, while a similar proportion of the population is at risk of developing it.

This chronic condition, which is often associated with obesity, is caused by too much glucose in the blood. It can lead to a number of serious health problems, such as heart attacks, strokes, eye damage and kidney disease.

Measures like regular exercise, eating a healthy diet and losing weight can enable people with diabetes to keep their blood glucose at a safe and healthy level. This is why a key focus of the Centre is to help people to live more healthily.

Fresh approaches

The Centre's co-founder, Dr Maha Barakat, who is its research and medical director and who is a member of Imperial's Department of Medicine, says: "*Sukar Mazbout* is just one of the ways in which we're trying to improve what people eat, how much exercise they do, and how much they know about diabetes."

> "You need unbelievable motivation and discipline to change your exercise habits and nutrition and continue with it long term"

The Centre's public health campaign, Diabetes-Knowledge-Action, also includes activities to screen those at high risk for diabetes, an educational initiative aimed at making sure that children have healthy lunch boxes, a football tournament involving the UAE national team, and an annual walkathon (pictured on the cover) that last year attracted over 17,000 participants.

Enabling people to make lasting changes to their lifestyle is difficult, says Maha:

"You need unbelievable motivation and discipline to change your exercise habits and nutrition and continue with it long term. It's easy to persuade someone for six weeks or maybe six months, but try to persuade someone to do it for the rest of their lives and it's challenging. We hope that through repetition and continuing to roll out initiatives, we will have some impact."

Maha has been working at the Centre since it opened. An endocrinologist by training, she started to develop an initial case for Imperial developing a diabetes centre in the UAE in 2002, when she was working in the Department

of Investigative Science, after she started to explore how the prevalence of diabetes in the region might be tackled.

All inclusive service

Many people come through the doors of the Centre every day; around 500 patients in a building originally designed for 200. The Centre provides diagnosis and treatment to about 40 per cent of all Abu Dhabi nationals with diabetes.

Visiting the Centre, it is evident that everything, from the building's appearance to its layout, has been carefully thought through. The outside is clad in geometric shapes that represent the shapes that you see when you look at a crystallised insulin molecule through an electron microscope. Inside, over three floors, the escalators that bisect the Centre of the building take patients on a logical route from one appointment to the next.

Some patients are referred to the Centre by their general practitioner; others walk in off the street because they suspect they might have diabetes. Before going to a doctor at the Centre, new patients see one of the nurses who carries out a raft of tests, including a blood sample for markers of diabetes control and therapy targets. These blood tests are analysed in 20 minutes in an on-site laboratory. The patient also has urine and vision tests, retinal photography and a tracing of the heart is done to look at early signs of kidney, eye and heart disease associated with diabetes. The results of all these tests then pass electronically via the medical record to the doctor, ready for the patient's first appointment.

> "In the long term, research is the most important thing for preventing diabetes in this country."

"It can all be done on the same visit; the doctor has everything he or she needs to form an opinion about a patient's health and start to treat them," says Maha. "Having all the results available at the time of the consultation electronically saved in the patient's medical record, the program's automated algorithm guiding their management towards international best practice, and the ability to print out a comprehensive visit summary for the patient at the end of the consultation, means we see twice as many patients."

If a patient has suspected complications arising from their diabetes, they will then be directed to the investigation suite, where issues such as their heart and kidney function can be further assessed with non-invasive diagnostics. All patients also visit an on-site dietician for advice on diet and nutrition.

Even the way a patient leaves the building has been thought through. The downward escalator leads to the pharmacy, but it also does something more unusual. "We deliberately made it really slow so that people get bored," says Maha. "We hope it encourages people to walk down the steps!"

The popularity of the Centre has been so great that this autumn another Imperial centre has opened about 150 kilometres away in Al Ain, the UAE second largest city. It is expected to treat around 400 patients every day. "We've reached our physical capacity for taking more patients in Abu Dhabi and demand for our services just keeps growing," says Maha.

The Abu Dhabi Centre's educational work and its diagnosis and treatment activities are well established, so the next step for the team is to develop research programmes to understand more about diabetes and why prevalence is so high in the region. In this population, even an increase in body mass index from 18 to 24, which is still within the range considered 'normal', can trigger diabetes.

"In the long term, research is the most important thing for preventing diabetes in this country. Now we're starting to get research off the ground," says Maha. "What we believe is that there is a genetic predisposition in this region that manifests itself in diabetes only when the lifestyle changes – for example, when people have less activity, a greater intake of high calorie foods, and mild weight gain."

Links with London

Maha and her colleagues in Abu Dhabi are in regular contact with Imperial experts based in London, including Professor Steve Bloom and Professor Karim Meeran (both Department of Medicine).

For Professor Bloom, whose research on the Hammersmith Campus is concerned with obesity and related conditions including diabetes, the links between Imperial and the Diabetes Centre provide valuable insights into a condition that is a problem across the world.

"The prevalence of diabetes is far higher in the UAE than in the UK, but the condition affects the lives of millions of people in our two countries. It is enormously useful to share experience and expertise in handling this problem," Steve says.

There are visits by Imperial staff to Abu Dhabi for lectures, and video-conferenced teaching initiatives, such as weekly journal clubs, where Imperial researchers and Centre staff talk about the latest papers relating to diabetes. There are also weekly video-conferences for ICLDC's doctors to discuss complex cases with experts at Imperial including Karim Meeran.

"Keeping Imperial in touch with what we do at the Centre and vice versa, this is our umbilical cord," adds Maha.

In collaboration with colleagues in London, Maha is planning various research projects, including clinical trials relating to prevention and genomic and metabonomic studies. In the meantime, she and her colleagues continue with their quest to help prevent and manage diabetes by encouraging people to eat more healthily and to exercise.

"It would be great if we had a magic pill called the lifestyle change pill" says Maha. "But in the absence of that, we need to keep encouraging people and never give up."

—LAURA GALLAGHER, COMMUNICATIONS AND DEVELOPMENT

From top: The Imperial College London Diabetes Centre building, which was illuminated blue to mark World Diabetes Day; Celebrity chef Salim gives a live cooking demonstration in a shopping centre as part of the Diabetes Centre's *I Cook Healthily* Ramadan campaign; Thousands participated in a 5km walkathon at the Yas Marina Circuit organised by the Centre.

inside* story

mini profile

Lesley Drake

Dr Lesley Drake, Executive Director of the Partnership for Child Development (PCD) in the School of Public Health, spoke to *Reporter* from Kenya about her efforts to improve the general health of children in low and middle income countries.

What drove you to set up the PCD?

The PCD was created by a group of organisations in the early nineties which saw the need to address the health, nutrition and education needs of schoolchildren. We wanted to provide governments with evidence-based guidance on how to keep kids in school and keep them healthy and well-nourished.

> "We ask: what can schools do for health?"

How do you go about addressing those questions?

We ask: what can schools do for health? There are things in the medical domain that schools can't possibly do, but there are key simple things that they can do to improve the health of kids and at the same time benefit their education, like administering treatments for parasitic worm infections.

What are you doing in Kenya?

We've been supporting the ministries of education, health and agriculture to develop school health and nutrition programmes. A key aspect that we're looking at now is linking school meals with local farmers, so we're designing a controlled trial to look at the impact of the programmes on the health and nutrition of the kids but also the impact on farmers and their livelihood.

What other major projects are you involved with?

The PCD are partners in an initiative called Deworm the World. Recently we worked with the government in Bihar, the poorest state in India, to implement the biggest school-based deworming programme ever conducted in the world. There are 21 million school age children in Bihar and 99 per cent of them were infected. Within one year of working with the Bihar government, 17 million children were dewormed. It's an incredible example of where making the education and health sectors work together can lead to good practice.

—SAM WONG, COMMUNICATIONS AND DEVELOPMENT

Practice makes perfect

The Postdoctoral Development Centre (PDC) at Imperial offers a number of services to the College's postdoctoral researchers, including mock interviews for fellowships, academic positions and jobs within industry. Dr Daniel Mortlock (Physics) describes his experience of being on both sides of the interview table.

"My first experience of the mock interviews came about when I was shortlisted for a lectureship in astrostatistics at Imperial at the beginning of this year. I immediately asked for a mock interview as part of my preparation. The interview was treated very seriously by the PDC, with the slightly unsettling air of a real interview very effectively simulated. I found myself quite tense but that, of course, meant that I was more relaxed for the real thing.

> "Even though I didn't have prepared answers, I wasn't caught out as I might otherwise have been"

Another benefit of doing the mock interview was that I was exposed to a number of questions of which I'd never conceived – variants on a few of these were asked at the real interview and, even though I didn't have prepared answers, I wasn't caught out as I might otherwise have been. Finally, the PDC panel gave very good feedback, emphasising the good points of my performance, but also highlighting the things I didn't do so well. The overall result was that I performed better in the real interview than I otherwise would have – and I got the job.

Since then, I've also participated in the PDC's mock interviews as a panellist which has been both fascinating and, I believe, helpful to the postdocs who have also come through this process.

It has been really rewarding to have played a small part in furthering the careers of fellow postdocs. Moreover, sitting on the other side of the table has also given me a useful perspective on how an interviewer is likely to perceive a candidate."

SCIENCE FROM SCRATCH

Bone marrow

As explained by Dr Cristina Lo Celso, Lecturer in Immunology (Life Sciences)

Bone marrow is the tissue found inside our bones. Its main function is the production of red and white blood cells and platelets which are released daily in the body's systemic circulation. These cell types originate from precursor cells that are abundant in the bone marrow. Bone marrow also contains cells involved in the production of molecules able to stimulate the conversion of the precursor cells into new blood cells. Bone marrow cells can be killed by irradiation or chemotherapy, causing a depression in the immune system that makes the body more susceptible to infections. Several diseases, such as anaemia, can affect the bone marrow, altering the production of blood cells, and cancers, such as leukaemia and lymphomas, can also occur in the bone marrow. Bone marrow transplantation, in which precursor cells are isolated from a healthy person and injected into a patient, is highly successful in curing these types of cancers.

—ROBERTA SOTTOCORNOLA, RESEARCH ASSOCIATE (LIFE SCIENCES)

IMPERIAL STUDENTS SHARE THEIR EXPERIENCES OF LIFE AT THE COLLEGE ON THE STUDENT BLOGGERS WEBSITE.

blog SPOT

Student blogger Christopher on

getting to grips with nature at Imperial:

"Silwood [Park Campus]'s expansive grounds give us a unique working environment and field work opportunities are right on the doorstep. Only two weeks deep into the course, and myself and the other MSc students taking Ecology, Evolution and Conservation had already trekked through the woods several times in search of various trees or grasses for identification. Scrabbling around in the earth attempting to distinguish between two impossibly similar species of grass, aided only by the instruction "to look for a grass wearing striped pyjamas like your granddad," only serves to further the common assumption that all ecologists are eccentric and foolhardy."

www.imperial.ac.uk/campus_life/studentblogs

Speaking about green technology

Dr Ling Ge, a researcher funded by a Leverhulme Fellowship in the Department of Chemistry, was invited to speak on green technology at the inaugural Europe China Research and Advice Network (ECRAN) conference held at the European Commission, Brussels, last month. The conference brought together Europe's top experts to inform European policy-makers and other stakeholders about some of the most pressing issues currently facing the EU, China and the EU-China relationship. Experts relayed the results of topics including research into the environment, politics, society, Chinese investment in Europe, migration and EU-China relations in 2020. This was followed by sessions on each of ECRAN's key themes – society, economics, politics – and closed with a session on environment. She shares her experiences:

"I gave the closing talk on green technology, and talked about ionic liquids for batteries, solar cells, fuel cells, water research and nanotechnology, which are flourishing research areas at the College. I also communicated the significance, social impact and investment opportunities of these research areas to both the EU and China, and presented China's plans to become a green economy in the next decade. I think the event is really important, as it facilitates dialogue about environment and climate change between experts and policy-makers, as well as between China and the English-speaking world."

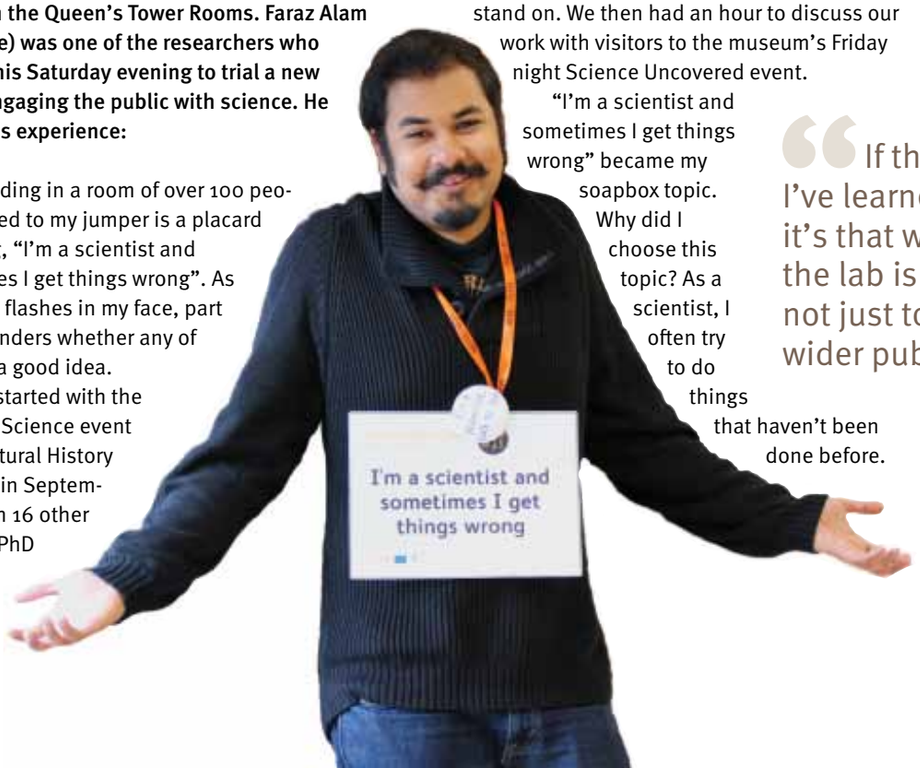
Going public

On 29 October, five 'science minstrels' joined a reception for the Battle of Ideas –a debating festival hosted in the Queen's Tower Rooms. Faraz Alam (Medicine) was one of the researchers who gave up his Saturday evening to trial a new way of engaging the public with science. He shares his experience:

"I'm standing in a room of over 100 people. Pinned to my jumper is a placard declaring, "I'm a scientist and sometimes I get things wrong". As a camera flashes in my face, part of me wonders whether any of this was a good idea.

It all started with the Soapbox Science event at the Natural History Museum in September, when 16 other Imperial PhD students and I picked a question loosely linked to our research. We received some training and a soapbox to stand on. We then had an hour to discuss our work with visitors to the museum's Friday night Science Uncovered event.

"I'm a scientist and sometimes I get things wrong" became my soapbox topic. Why did I choose this topic? As a scientist, I often try to do things that haven't been done before. There are no manuals, no mark sheets and no syllabuses to follow. The only way to get things right is to run out of ways to get them wrong. The public image of scientists as taciturn guardians of absolute facts could not be more different.



> "If there's one thing I've learned from all this, it's that what we do in the lab is important, not just to us, but to the wider public"

Soapbox Science was such a success that we were asked to participate in a similar vein at the Battle of Ideas, although this time, there would be no soapbox. We would be 'science minstrels', mingling with festival goers and talking about our work. Not all of them knew about science, but they all had opinions.

If there's one thing I've learned from all this, it's that what we do in the lab is important, not just to us, but to the wider public. We should take every chance to discuss our work with them."

INVENTOR'S CORNER

Body sculpt

Professor in Mechanics of Materials, Jianguo Lin (Mechanical Engineering), has developed a process which enables manufacturers to create complex shapes from aluminium alloys.

The new treatment can be used to produce complex structures such as car bodies. Because aluminium is so light, this could improve the fuel efficiency of the vehicles by 20 per cent!

Why is aluminium a useful material and which industries can use it?

Aluminium is lightweight and strong, and an ideal replacement for steel in a number of applications, including vehicle body structures and vehicle components. If you replace steel with aluminium in a vehicle body structure, you could increase fuel efficiency by up to 20 per cent, as well as providing a range of performance benefits associated with lower total vehicle weight. However, it is difficult to produce complex-shaped aluminium components economically because aluminium is hard to reshape.

How does your process overcome this problem?

Our technique, known as 'solution heat treatment, forming and cold die quenching' enables complex shaped aluminium components to be formed in one operation and the production cycle time is about 15 seconds. We estimate that the cost savings are very significant: indeed production for some components could be 10 per cent of the cost for superplastic forming – which is currently a popular process. The low cost and high speed of our method makes it suitable for use throughout the automotive and aerospace industry.

How are you developing the invention?

A number of automotive companies are investigating the possibilities of constructing fully aluminium vehicle body structures, and we are talking to a number of automotive and aerospace companies around the world to identify components that could be formed using our process. As well as developing the technique, we have acquired a great deal of knowledge about material behaviour in forming processes, which we have used to create computer models that can predict the formability of materials, as well as assist with process and tool design.

—GAVIN REED, IMPERIAL INNOVATIONS

long service

Staff featured in this column have given many years of service to the College. Staff listed below celebrate anniversaries during the period 14 October–1 November. The data is supplied by HR and is correct at the time of going to press.

20 years

- Dr Anil Bharath, Reader in Image Analysis, Bioengineering
- Mr Peter Gillings, New Media Manager, Communications and Development
- Miss Sheena-Maeve McDonagh, Deputy Village Manager, Accommodation
- Dr Robert Vollum, Reader in Concrete Structures, Civil and Environmental Engineering

30 years

- Mr Geoffrey Barber, Research Officer, Physics
- Mrs Anne Travis, Payroll Administrator, Finance

Google Vice President shares his insights

Matt Brittin, Vice President of Google for Northern and Central Europe shared tales of the organisation's ongoing quest to make the internet faster and its users happier, in a Distinguished Guest Lecture on 10 November at Imperial College Business School. *Reporter* interviewed Matt to find out what it's like to be a high flyer at one of the world's most influential companies.

How do you think the online world will change over the next few years?

Many people are still staggered by the growing importance of the internet economy. A report last year by the Boston Consulting Group, which we commissioned, found that in the UK it represented £100 billion and is growing at 10 per cent each year. Within that big picture, it's clear that mobile is an increasing phenomenon, for consumers and businesses. 79 per cent of smartphone internet users use their phones to help them when shopping – this is already a big deal and is becoming even more important as phones continue to develop and become a greater part of our daily lives.

What does your typical day at work look like?

Hugely varied, from meeting customers, to talking with our incredible engineering teams, to video conferences with the team in the US. There's always something new going on, Google's not the kind of place that has a fixed routine!

What are your biggest challenges?

I think the biggest challenge for everyone working in the technology world is staying ahead of the pace of change. You can't rest on your laurels for one minute. Even popular services like Google search are constantly being developed and improved – for instance, in 2010 we ran over 20,000 experiments and launched over 500 improvements to search.

What advice would you give to budding high flyers keen to come and work with you?

The keys to success are thinking big, taking risks, and being fast to adapt. Google has always taken risks – very successful products like Android, Google Translate, Chrome and so on are all the result of entrepreneurship within the company. Sometimes it's easier to succeed with big ideas than small ones, not least because you're more likely to excite others to join you if you're working on something that will have a huge impact.

—LAURA GALLAGHER, COMMUNICATIONS AND DEVELOPMENT

To read the full interview and to watch a video of Matt's lecture visit: **http://bit.ly/vpyeSa**

moving in. moving on.

Welcome
new starters

Mrs Anne Alaoui, Business School
Mr Adeel Aqil, Surgery and Cancer
Dr Sam Azadi, Physics
Dr Roy Behnke, Life Sciences
Mr Shailen Bharadia, Physics
Miss Dipika Bhudia, NHLI
Dr Thomas Bond, Civil and Environmental Engineering
Miss Samah Bouchaara, Public Health
Mr Steven Brown, Estates
Mr David Buckwell, Medicine
Mr Edward Burgin, Physics
Mr Yutong Cai, Public Health
Dr Ana-Maria Calcagno Pizarelli, Medicine
Mr David Carr, Life Sciences
Mr Enrique Castro Sanchez, Medicine
Miss Jee-Sun Cho, Life Sciences
Mr James Coakley, Materials
Mr Joseph Cooper, Imperial College Union
Mr Andrew Dalton, Public Health
Miss Helen Day, Reactor Centre
Dr Lise de Jonge, Materials
Miss Niti Dhutia, NHLI
Dr Thai Doan, Mathematics
Dr Alastair Donaldson, Computing
Dr Panagiotis Drymousis, Surgery and Cancer
Ms Cheryll Duncan, Educational Quality
Mr Richard Foulsham, Business School
Dr Katharine Fraser, Bioengineering
Ms Daniela Gamberini, Business School
Miss Shreena Ghelani, Medicine
Mr Samuel Godfrey, NHLI
Dr Roman Gonitel, Medicine
Dr Patricia Gorgojo Alonso, Chemical Engineering and Chemical Technology
Miss Jamila Herman, Medicine
Ms Jennie Hickin, Chemistry
Dr Christine-Maria Horejs, Materials
Mr Anthony Hughes, Security Services
Miss Emily Hyett, Registry
Mr Rozh Jalil, Surgery and Cancer
Dr Yonggang Jin, EEE
Mr David Jorden, Planning
Mr Martin Keats, Medicine
Dr Carol Kerven, Life Sciences
Dr Ali Khiat, EEE
Mr Angus King, Life Sciences
Dr Donnacha Kirk, Physics
Ms Katja Klein, Medicine
Dr Pantelis Koutroumpis, Business School
Ms Tracy Lane, Environmental Policy
Dr Haksung Lee, Physics
Mr Simon Leicester, Faculty of Medicine
Dr Boris Lenhard, Clinical Sciences
Dr Christian Litterer, Mathematics
Dr Silvia Liverani, Public Health
Mrs Gwynneth Lloyd, Surgery and Cancer
Mr John Logan, Medicine
Miss Jennie Long, International Office
Dr Naomi Loyse, Medicine
Dr Gan Lu, Mechanical Engineering
Miss Victoria Manning, Surgery and Cancer
Mr Rafal Marszalek, Chemistry
Miss Victoria Matyjasik, Faculty of Medicine
Professor David McComb, Materials
Mr Steven Michael, Security Services
Dr Angeles Mondragon Jaramillo, Medicine
Dr Reto Mueller, Mathematics
Dr Jenny O'Connor, Business School
Miss Charlotte Page, Surgery and Cancer
Ms Livia Paggi, Environmental Policy
Mrs Lyndsey Pallant, Faculty of Medicine
Mr Melvyn Patmore, Physics
Mrs Camila Pinto Dunsmore, Medicine
Dr Savvas Piperelis, Faculty of Medicine
Mr Luke Reynolds, Chemistry
Dr Sarah Robinson, Life Sciences
Miss Kahillyah Robinson, Faculty of Medicine
Ms Ester Romeri, Public Health
Dr Sumita Roy, NHLI
Dr Stephan Schmidt, Aeronautics
Mr Kyle Shackleton, Environmental Policy
Miss Ninha Silva, Public Health
Dr Alexandros Siskos, Surgery and Cancer
Ms Colette Stevenson, Business School
Ms Tatiana Svermova, NHLI
Mr Orestis Tsinalis, Computing
Dr Mirjam Tuk, Business School
Dr Laura Turner, Surgery and Cancer
Mr Gabriel Valbuena, Surgery and Cancer
Ms Lola Vallejo, Grantham Institute
Dr Naomi Walker, Medicine
Mr Leo Wan, Public Health
Miss Kimberley Warren, Life Sciences
Dr Jonathan Watson, ESE
Mr Tom Whyntie, Physics
Miss Suzanne Williams, NHLI
Mr Timothy Wilson, Life Sciences
Miss Fiona Wong, Environmental Policy
Miss Gemma Wood, Medicine
Ms Lindsay Wright, Faculty of Engineering
Mr Yili Xia, Business School

Farewell
moving on

Dr Andres Acosta Lobos, NHLI
Miss Shirin Ashraf, Medicine
Miss Rachael Barham, Business School
Dr Alice Bell, Graduate Schools
Dr Francesco Berlanda Scorza, Medicine
Miss Anca Bontea, Accommodation
Dr Gwenoline Borhis, Medicine
Dr James Brotherston, Computing
Dr Serena Brusamento, Public Health
Miss Laura Budd, ESE
Dr Viviana Buffa, Medicine
Miss Laila Cancian, Medicine
Mr Mark Carter, NHLI
Dr Nadine Chapman-Rothe, Surgery and Cancer
Mrs Terezia Clarke, Faculty of Engineering
Mr Domenico Corapi, Computing
Mr Enrico Cristante, Medicine
Miss Sarah Davies, Surgery and Cancer
Dr Alexandros Derpapas, Surgery and Cancer
Dr Francesca Fiegna, Life Sciences
Miss Taryn Fletcher, Medicine
Dr Hongmei Fu, Medicine (5 years)
Ms Beatrice Gauthe, Chemistry (7 years)
Miss Tian Geng, Life Sciences
Dr Matthew Gilbert, Materials
Miss Jemima Ho, NHLI
Dr Lisa-Marie Holbrook, NHLI
Mrs Sheena-Marie Holliday, Accommodation
Mr Meirion Hopkins, Life Sciences (9 years)
Dr Verena Horneffer-van de Sluis, Medicine
Dr Owain Howell, Medicine (7 years)
Dr Benoit Illy, Materials
Miss Tiffany Key, Environmental Policy
Professor Salim Khakoo, Medicine
Mrs Angela Knight, Faculty of Engineering
Professor Bob Kowalski, Computing (36 years)
Dr Sylvain Laclef, Chemistry
Dr Pradeep Luther, NHLI (32 years)
Mr Neil Macdonald, Public Health
Mr Jorge Mafla, Security Services (14 years)
Professor Federica Marelli-Berg, Medicine (17 years)
Dr Claudio Mauro, Medicine
Dr Phillip Mueller, Medicine
Mr Daniel Mulhall, ICT
Dr Osama Naji, Surgery and Cancer
Miss Colette O Beirne, Faculty of Medicine
Dr Ciara O'Hanlon Brown, Surgery and Cancer
Miss Saskia Overbeek, Medicine
Dr Yevgen Petrov, Mechanical Engineering (13 years)
Miss Carolina Rolim Pillar Larios, Catering Services
Ms Maja Rynko, Business School
Dr Tina Secuianu, Chemical Engineering and Chemical Technology
Dr Ravikiran Shenoy, Medicine (5 years)
Mr Brian Sorohan, Environmental Policy
Miss Claire Stanley, Chemistry
Miss Joanna Stawikowska, Chemical Engineering and Chemical Technology
Dr Barbara Szomolay, Mathematics
Dr Izabela Szostkiewicz, Life Sciences
Dr Aurica Telcian, NHLI
Dr Mark Thomas, EEE
Dr Robert Valentine, Medicine
Mr James Warren, Accommodation
Professor Jonathan Waxman, Surgery and Cancer (25 years)
Dr John Williams, Public Health
Mr Dongxu Xu, Environmental Policy
Mrs Sharlene Yardley, Life Sciences
Dr Yongming Zhang, Mathematics
Mr Koucheng Zuo, Mechanical Engineering

retirements

Dr Sheila Lecoeur, Humanities (18 years)
Mr Mark Turner, NHLI (18 years)

This data is supplied by HR and covers the period 17 October –6 November. 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.

Book review

Flowers for Algernon by Daniel Keyes, reviewed by Paula Evans, Principal Library Assistant, Business and Humanities (Central Library).

"Flowers for Algernon is a book I had heard a lot about as it is one of my husband's favourites. I actually borrowed it from the library to take home, so he could read it again after many years. However, I started reading it over a cup of tea and suddenly my husband's trip down memory lane was forgotten!

The story is written in the form of a diary by Charlie Gordon, a kind-hearted soul with an IQ of 68. Charlie has a desire to learn and the book records his journey from an innocent, child-like man through his experiences as the first human subject in an experiment to enhance intelligence. One of the masterstrokes to Keyes's writing is that Charlie's journey to higher intelligence is visible not only through the story but also through the actual words on the page. This makes Charlie's story all the more tangible and real.

It is a heartfelt story that challenges the reader about their own attitudes to intelligence, and to those who have so-called low IQs. An addictive and poignant read, which I would highly recommend to all."

Borrow Flowers for Algernon *from the Central Library, level 5*

events highlights

FOR COMPLETE DETAILS:
www.imperial.ac.uk/events

24 November 2011

6 DECEMBER ▸ PUBLIC LECTURE

The data debate

As scientific data becomes more accessible, science will cease to be the exclusive preserve of the few. But is the push for openness hindering research and even a form of harassment? Or should the scientific community embrace demands to share the fruits of their discoveries? Join the data debate, hosted in collaboration with *Index on Censorship* to mark the launch of their science issue this month. Speakers include the Director of the Wellcome Trust, Sir Mark Walport, author and journalist, George Monbiot, and the philosopher, Baroness Onora O'Neill.

7 DECEMBER ▸ PUBLIC LECTURE

Exploring the deep

Immense pressure, near-freezing temperatures and no light – the ocean floor is an alien and hostile world. But despite this, the seabed is literally teeming with unusual life that thrives on the products of sea-floor volcanic eruptions. In the 2011 Children's Christmas Lecture, Dr Jenny Collier (Earth Science and Engineering) will, with the help of the audience, demonstrate how advances in technology have revealed some intriguing pictures of these seascapes and examine the variety of volcanic activity in the deep ocean – from gentle eruptions at mid-ocean ridges to highly explosive ones at subduction zones.

25–26 NOVEMBER ▸ PUBLIC LECTURE

Iq² If Conference: Big Thinking About the Future

Includes speakers from Imperial

28 NOVEMBER ▸ PUBLIC LECTURE

Bioinspired technology: from cochlear implants to an artificial pancreas

Professor Christofer Toumazou (Electrical and Electronic Engineering) at the Royal Society

30 NOVEMBER ▸ CONFERENCE

Education Day

Guest speakers include politician Dr Evan Harris

01 DECEMBER ▸ SEMINAR

Online dynamic process optimisation: making it real

Professor Lorenz Biegler, Carnegie Mellon University

01 DECEMBER ▸ SEMINAR

Combined approaches to preventing HIV infection: vaccines and ART prevention

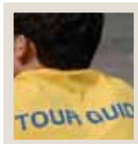
Professor Robin Shattock (Medicine)

06 DECEMBER ▸ MUSIC

Lunchtime concert

Tamsin Waley-Cohen (violin)

07 DECEMBER ▸ OPEN DAY



Postgraduate Open Day

Departmental talks and tours

08 DECEMBER ▸ MUSIC

Lunchtime concert

Katya Apekisheva, (piano)

08 DECEMBER ▸ SEMINAR

Patient safety in the US and UK: a tale of two systems and cultures

Dr Robert Wachter, University of California, San Francisco

12 DECEMBER ▸ SEMINAR

Tuberculosis: from basic immunology to rational vaccine design

Professor Stefan Kaufmann, Max Planck Institute for Infection Biology, Berlin

13 DECEMBER ▸ PUBLIC LECTURE

Global energy perspectives

Professor Nate Lewis, California Institute of Technology

14 DECEMBER ▸ MUSIC

Carols by candlelight at Holy Trinity Church, Prince Consort Road

Open to all staff, students and alumni

15 DECEMBER ▸ PUBLIC LECTURE

Volcanoes and their impact on society

Professor Stephen Sparks, University of Bristol

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

Support for postdocs

Ever wanted to find out what postdocs think about Imperial and the support available to them? During the spring of 2011, the work of the Postdoc Development Centre, which provides support and development for Imperial's 2,000 postdocs, was reviewed and the findings are now available.

Download a copy of the Impact Project Report from: **http://bit.ly/postdocimpact**

MEET THE READER

Katherine Bayliss, Management Trainee (HR)

What are you doing in the picture?
I'm surrounded by edible goodies, including a chocolate cherry cake I made, at a cake sale in the Faculty Building. The sale was in aid of Children in Need and was organised by Liz Howard, Executive Officer to the Deputy Rector. We raised £206.36!

What would you do if you were editor of *Reporter* for a day?
I'd like to do a feature on the architecture of the various buildings on campus, both inside and out. I find it really interesting to see how styles have changed from the Victorian era (for example, 170 Queen's Gate, which was built in 1890) to the present day. It would be great to compare photographs of early laboratories with the ones we have now!

Who would be your cover star?
Continuing with the architecture theme, I'd like to showcase the entrance to the Royal School of Mines as it's seriously impressive.

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**

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