

NEWSLETTER

THE MAGAZINE FOR THE STAFF OF THE UNIVERSITY OF CAMBRIDGE

FEBRUARY/MARCH 2011



Back with a bang The Science Festival returns



UNIVERSITY OF
CAMBRIDGE



**The unsung
work of research
volunteers** page 8

**Professor Ann
Dowling: a life in
engineering** page 10

SNAPSHOT

Iceland ahoy: Dr Emily Lethbridge has embarked on an epic voyage in search of the roots of the *Íslendingasögur*, the centuries-old sagas of the Icelanders. Dr Lethbridge's year-long research trip will rely on an ex-Ministry of Defence Land Rover ambulance to navigate frozen wildernesses as she visits the settings of the 30 plus sagas, which hold a unique place in the country's consciousness. Emily's progress can be followed at <http://sagasteads.blogspot.com/>.

Major's papers: Former Prime Minister Sir John Major's personal papers have been placed alongside those of Sir Winston Churchill at the University's Churchill Archives Centre. Sir John, pictured delivering a lecture to mark the event in November, oversaw the handover. The archive totals more than 800 boxes, and will need to remain closed for several years while it is conserved and catalogued.

People matter: Local groups and charities teamed up with University departments in December to raise awareness of equality and diversity in the workplace. People Matter Day featured presentations from a variety of support services and performance poetry from Hollie McNish. Hollie is pictured with (from left to right) Equality and Diversity Champions Professor Ian White, Dr Nick Bampos and Professor Dame Athene Donald.

Hot stuff: Pheromones and sex, the science of food, and the universe according to Dr Who are just three of the subjects featured in this year's Science Festival, which runs from 14-27 March. There will also be plenty of activities for families and children. For further details and information on how to book, visit www.cam.ac.uk/sciencefestival.



DAVID BATEMAN, COPYRIGHT CHURCHILL COLLEGE



DAVIDIAN GILLIE



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Front cover photograph: Nathan Pitt

Inset photograph: Sir Cam

NEWSLETTER

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NEWSLETTER ONLINE

www.admin.cam.ac.uk/univ/newsletter

WHAT'S NEW



Your comments and contributions are always welcome. Please send them to the Editor at newsletter@admin.cam.ac.uk. The deadline for the next issue is **25 February**.

Academics celebrate New Year Honours

SIX CAMBRIDGE academics have been recognised in the Queen's New Year Honours list.

Professor Mike Gregory, Head of the Institute for Manufacturing (IFM) and the Management Division of the Department of Engineering, received a knighthood for services to technology.

After an early career in manufacturing engineering and management in the machine tool industry, Professor Gregory was the founder member of the Manufacturing Engineering Group at Cambridge, the forerunner of the IFM, which was established in 1998.

Professor Gregory, a Fellow at Churchill, said he was delighted to have received the honour. "I welcome this recognition of the important role

that manufacturing industry plays – and will continue to play – in the economy."

Professor Caroline Humphrey, Fellow of King's and Director of the Mongolia and Inner Asia Studies Unit, was made a Dame for services to scholarship.

Professor Barry Kemp, Fellow of Wolfson and Senior Research Fellow at the McDonald Institute for Archaeological Research, was made a CBE for services to technology, education and international relations. Ronald Laskey, Charles Darwin Professor of Animal Embryology, and lately Joint Director of the Medical Research Council Cancer Cell Unit, was also made a CBE for services to science.

The other academics honoured

NEIL GRANT



Professor Sheila Bird of the Medical Research Council Biostatistics Unit was made an OBE for services to social sciences

were Professor Christopher Lowe, Fellow of Trinity and Director of the Institute of Biotechnology, who was awarded an OBE for services to science, and Professor Sheila Bird of the Medical Research Council

Biostatistics Unit, who was made an OBE for services to social sciences.

Margaret Irene Johnston, formerly administrator at the Department of Earth Sciences, was made an MBE for services to higher education.

Disability brought into focus



THE DISABILITY RESOURCE Centre (DRC) has launched a photography competition for staff and students of the University.

Submitted photographs should illustrate the experiences of disability at Cambridge. The brief is deliberately wide, and the judges will consider natural, unaltered images, as well as those that have been enhanced using photographic or computer software.

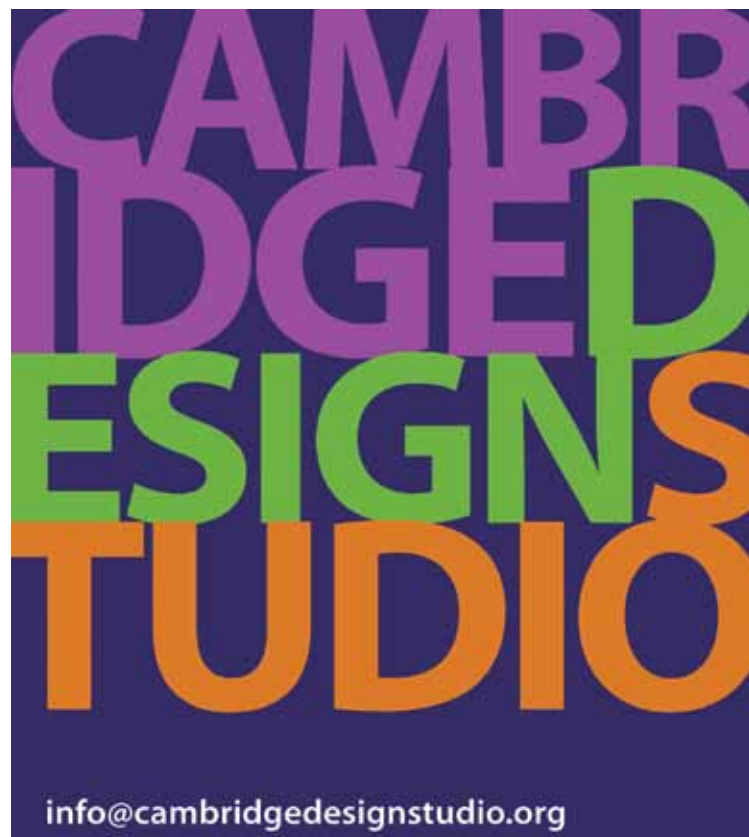
Some photographs may be used in printed and online materials about the DRC and the University.

Initial entries will be shortlisted by a panel including a professional photographer, staff from the DRC and representatives of Cambridge University Students' Union. Final judging will be carried out by Nicola Martin, Head of the LSE Disability and Wellbeing Service and Chair of the National Association of Disability Practitioners.

Prizes for first, second and third will be announced at the DRC's Annual Disability Lecture, which will be held at St John's on 24 March.

Entrants are free to submit as many photographs as they wish but each image can only be entered once. The competition closes on 1 March.

For detailed instructions on how to enter, and to complete an online submission form, visit <http://www.admin.cam.ac.uk/univ/disability/photo>.



Murray Edwards celebrates 25 years of women's art



Clockwise from top left: *Still Life with Black Bottle* by Barbara Rogers, a detail from *Extase* by Mary Kelly, *Night* by Maggi Hambling. New Hall Art Collection is open daily from 10am to 6pm. For further information on exhibitions, events and the online auction, visit <http://art.newhall.cam.ac.uk>



IT STARTED IN 1986 with a donation from then artist-in-residence Mary Kelly. Now, as it enters its 25th anniversary year, New Hall Art Collection is regarded as the most significant body of women's art in Europe, with more than 400 exhibits by leading female artists.

To celebrate the progress and achievement of its first 25 years, the collection is organising a range of exhibitions and activities throughout 2011. These include shows by many returning artists and those who have long-standing associations with the gallery and the college (now renamed Murray Edwards).

One event that is likely to attract

art-lovers is an online auction of original works by artists included in the collection. So if you fancy owning work by Maggi Hambling, Barbara Rogers or Yvonne Jones, be sure to place your bid between 18 February and 4 March. Funds will go to the Barlow Art Fund, an endowment for the long-term care and conservation of the collection.

New Hall Art Collection's history is one that should inspire emerging galleries. After Mary Kelly donated her work *Extase* to the college, then President Dr Valerie Pearl saw the potential for a permanent body of work. And so, in the early 1990s, she and her adviser Ann Jones wrote

to leading artists practising in the UK asking them to donate to the collection. The college received an overwhelming response, with Judith Cowan, Mary Husted and Maggi Hambling among those giving work.

Today, New Hall Art Collection is a key part of Cambridge's vibrant art scene, and enjoys a global reputation. The challenge now, according to curator Amanda Rigler, is to ensure it continues to inspire and offer high-quality work in challenging economic times.

"We hope this year's events and exhibitions will inspire much-needed support and bring more people to these works," she said.

IN BRIEF...

Culinary success

Chefs and front of house staff from the colleges celebrated their successes following the results of the University of Cambridge Culinary Competition 2010.

Participants in the eight individual food classes were given marks by each judge, which contributed to a Gold, Silver or Bronze award. There was also a class for front of house staff, who had to create table settings on a Christmas theme.

Emmanuel collected five firsts (in the Live Competition, Canapés, Cold Starter, Hot Main Course and Afternoon Tea Cakes classes). Firsts were also won by Sidney Sussex (Hot Vegetarian Main Course), Girton (Under 21s), St John's (Cold Sweet), Christ's (Petits Fours) and Murray Edwards (Front of House).

There were also prizes for Sam Lawrence, Robinson, for Best Newcomer and Kevin Doughty, St John's College for Best in Show.

Pretty good

This year's Darwin Lectures take beauty as their theme, and feature contributions from a host of eminent scholars. The next lecture, entitled 'The Sound of Beauty', is at 5.30pm on 11 February at Lady Mitchell Hall. For further details, visit <http://www.darwin.cam.ac.uk/lectures/>.

Dr Rex Walford

Readers of the *Newsletter* may have heard about the disappearance of Rex Walford, who went missing after a boating accident on the Thames in early January. Dr Walford, an Emeritus Fellow at Wolfson, was a University Lecturer in Geography and Education, and Head of the then University Department of Education. A full tribute can be read at <http://www.admin.cam.ac.uk/news/dp/2011010702>.

GETTING PRACTICAL



Talking it over

Disputes between staff are an unfortunate but inevitable part of working life. The Internal Mediation Service seeks to tackle them in a way that minimises stress to employees and the University

A FEW MONTHS ago Jane contacted the University's Human Resources Division to talk about a problem she was having at work.

She felt that her colleague Sarah was keeping all of the interesting work to herself and only passing on the monotonous administrative tasks. She also felt that Sarah was speaking to other members of the team as if she were her manager. With Jane's agreement, HR spoke to Sarah, who said that she felt that Jane was unmotivated and lacked the necessary experience to be in the role. Overall their relationship had become strained, and they were no longer talking to one another.

This is a fictional scenario, but it is the kind of situation that could be tackled by the University's Internal Mediation Service. Mediation (while just one route that employees can take to tackle

workplace conflict) aims to help people in disagreement explore problems in a constructive and confidential manner.

When the University's Internal Mediation Service is made aware of a problem – either from one of the individuals concerned, a manager, or perhaps through another University support service – it will try to have an initial discussion with both parties. If they agree to take part in mediation, the next step is to arrange a day out of the office so both employees can talk with the help of two mediators – fully trained volunteers who are also members of staff.

One staff member who has used the service describes the experience: "The day was broken down into manageable parts, which reinforced the impartiality of the process. The morning session began with an individual meeting with both mediators before the initial group

discussions. The afternoon session started with another individual meeting with both mediators, to gauge how the day was progressing, before the final group session. This made me feel in control of events and ensured that all issues were covered or emphasised in the final session."

So what is it about mediation that can help improve, and sometimes solve, conflict between individuals?

One of its main attractions is its non-adversarial nature – the process is informal, the mediators are trained to find areas of agreement, and the participants are placed at the heart of the resolution process. It is also confidential, and takes place at a neutral venue.

This contrasts with the sometimes lengthy and stressful nature of more formal grievance procedures. Unhappy staff can lead to low team morale and productivity, and higher levels of absence from work. Mediation can support individuals, help them nip problems in the bud and improve their working relationships. This in turn may have a positive impact on their colleagues and even their family and home life.

The aforementioned member of staff certainly found mediation a positive process. "I felt totally supported in a safe environment, and therefore able to raise difficult issues without fear of ramification. The outcome was a vastly improved understanding of each other and an illumination of the other person's perspective."

"I would urge anyone who feels they are experiencing any kind of difficulty with a colleague to consider this method of resolution."



FIND OUT MORE

- If you would like to know how mediation might help you or someone you know, phone Mediation Coordinators Sarah Hickling (769257) and Louise Akroyd (760343) or email mediation@admin.cam.ac.uk
- More information, including a list of frequently asked questions, is available at <http://www.admin.cam.ac.uk/offices/hr/policy/mediation/>.

"I felt supported in a safe environment and able to ask difficult questions"

Materials world

Graduate student Samuel Wilberforce and the Medical Materials Group are at the forefront of research into bone implants that could bring therapeutic benefits for years to come. For Samuel, studying at Cambridge is the latest step in a personal journey that started in the small Ghanaian city of his birth

HIGH UP IN a shiny glass building on the New Museums Site, materials scientist Samuel Wilberforce bends over a machine that makes small grey shapes, roughly the size of a teaspoon. He is working on the next generation of bone implant substitutes – biodegradable composites that will one day replace titanium, the alloy most commonly used to pin fractured bones.

The composites and structures that Samuel and his fellow researchers in the Medical Materials Group are developing offer significant advantages over conventional materials.

Metal pins and plates, inserted by a surgeon after a trauma, have to be removed once the bone has mended, requiring a second procedure along with attendant complications. Metal is also much stronger than bone and the healing section of bone becomes “lazy”, relying on the implant for support. In a phenomenon that scientists call “spoon feeding”, the mended bone loses its natural resilience.

New materials – based on plastics and ceramics – can be engineered to degrade at different rates and in different conditions, gradually dissolving into the body with no adverse effects. Materials of this kind are already used for drug delivery – for example in cancer treatments. To date, much of the research has focused on the biological and degradation properties of these materials

rather than their load-bearing properties.

Samuel explains: “The trick is to come up with a material that has precisely the desired mechanical properties for a particular application. This might sound simple but, in reality, we’re talking about playing with a wide variety of load-bearing parameters in terms of strength, stiffness and flexibility to suit the conditions in the site of implantation.

“For example, a material used for finger implants has to be stiff and tough to resist deformation – at the same time as having the flexibility necessary for movement. A material used for high loading-bearing sites that have little movements, on the other hand, must be much stiffer.”

Meticulous testing

Samuel’s research involves up to five stages, each one requiring thousands of hours of meticulous testing and analysis. It demands a grasp of physics, chemistry, maths and biology – as well as an ability to use a wide range of specialist technologies – as he takes raw materials right through to prototype products in laboratory conditions.

First is the creation of the composite mix. Samuel is currently concentrating on polymers (such as poly-L-lactide) and calcium phosphate ceramics – but

Right: Graduate student Samuel Wilberforce at Girton College



PHILIP MYNOTT



his techniques can be applied to other materials too. The polymer and ceramic must be blended in proportions that give the desired characteristics further along the manufacturing chain – a process that involves mixing the polymer and ceramic (by extrusion) and shaping and moulding it (by injection moulding) to obtain the desired shape.

After obtaining the desired shapes, the material is tested to investigate its compressive load-bearing properties at near physiological conditions, since compression is the main loading mode in the human body.

This research, and the skills Samuel has developed in carrying it out, are eminently transferable. It is likely that the materials he and his colleagues are developing will be used routinely by surgeons within the next ten to 15 years. Once he has completed his PhD, he plans to get a job in the medical materials industry as a research scientist or engineer. "I hope to spend my career taking this work forward and working closely with orthopaedic surgeons," he says.

Notable journey

Samuel is notable not only for his ability to handle materials, work across a wide range of scientific fields and tabulate and analyse his results, but his own journey has also taken him from a poor community in Ghana to a laboratory at the forefront of medical materials research, where he is part of a team of scientists from all over the world.

When Samuel was born in Tema, a small coastal city in Ghana, his mother was a single parent and still a teenager. She was extremely bright but had been unable to go to university. His arrival meant she had to focus her energy on providing an income – and she followed her own mother into the fish trade, buying crates of the day's catch at the local harbour and selling them on to market traders.

It was unreliable work, meaning that some days the household had enough for money for three meals a day, sometimes just one. The family home was simple, with just two rooms, but Samuel's mother and grandmother were determined that he should have a good education, and they enrolled him into a private school, St Augustine's College – one of the best in the area.

"Quite often there wasn't enough money to pay the fees and I had to stay away from school. My grandmother, who

"Quite often there wasn't enough money to pay the fees. My grandmother, who was strict in the most loving way, taught me at home from books she'd collected"

"The collegiate system really broadens your horizons – as a student at Girton I sit next to people ranging from social scientists to zoologists"

was strict in the most loving way, taught me at home from books she'd collected. I read my friends' textbooks when they came round to play and all the Hardy Boys stories. When I went back to school I was sometimes ahead of the class. The teachers were quite puzzled," said Samuel.

He got top marks in his final exams and went to university in Kumasi, in the Ashanti region of Ghana, to study Chemical Engineering – where again he was among the best students. Aware that the education he was getting was not up to par, Samuel began to spend hours online applying for scholarships at US universities. "I must have applied to at least 25 when I got an offer of a scholarship to study at an American university in Germany, International University Bremen," he says.

Borrowing money for the airline ticket from an uncle, he flew to Germany with just 50 Euros in his pocket and not speaking a word of German. "It was tough at first as it was an intensive course and the other students arrived knowing a lot more science than I did. But I survived and before long I was enjoying it."

A good degree from International University Bremen won Samuel a place for further study in London, followed by a year in industry. He arrived in Cambridge two years ago to join the Medical Materials Group led by Professor Ruth Cameron and Professor Serena Best, which has many national and international collaborations with both academic and industrial partners.

"Living and working in Cambridge is really demanding and exciting as you're working with people who are incredibly bright and motivated," he says.

"On top of that, the Cambridge collegiate system broadens your horizons. As a graduate student at Girton, I find myself sitting at meals next to people who range from social scientists to zoologists – it's a great chance to exchange ideas and get a glimpse of work going on across lots of different disciplines."

Sadly his grandmother passed away a couple of years ago. However, she died in the knowledge that her grandson had been accepted by the University to take a PhD.

"Working in a lab can be extremely tedious and frustrating at times. What keeps me going through the difficult times is a desire to bring prosperity to my family combined with a need to be innovative and apply my abilities to the benefit of mankind."



ALL PHOTOGRAPHS SIR CAM

On the shoulders of volunteers

From stillbirth and healthy ageing to drug trials and the genetic basis of common diseases, the University's world-class research relies on the thousands of Cambridge residents who volunteer for research studies

THE NEWSLETTER REGULARLY covers major scientific, technical and medical advances made by Cambridge researchers: results are described; methods mentioned; academics quoted; and funders name-checked.

But what about the subjects – those anonymised and data-protected individuals who play such a vital part in the scientific process? Who are they, what kind of studies do they volunteer for, and why do they bother?

Dr Ian Wilkinson, Director of the Cambridge Clinical Trials Unit, believes that where drug trials are concerned, volunteers have three motives. "If you're ill and think you may benefit from a trial, that's a strong motivator," he says.

"There are a lot of people who do it for altruistic reasons, and they tend to be older people with time on their hands. And for phase 1 studies [which are done to work out what the body does to a particular drug] money is an important motivator. If it weren't, then people wouldn't get paid for doing it."

Among those who feel volunteering in trials might help their health are Andrew Scutt and Charles Payne, both part of the British Heart Foundation's Pathway project. Led by Professor Morris Brown, and involving more than 1,000 volunteers across eight UK hospitals, Pathway is looking for new ways of treating drug-resistant high blood pressure.

According to Mr Scutt: "I was keen to

Left: a volunteer at the Pregnancy Outcome Prediction Study. **Right:** inside the Wolpert Lab which, among other research, studies the mechanism of motor learning

take part in a trial that might improve my own health and, as I have a family history of hypertension, being part of this study might help my kids in the future."

Pathway volunteers record their own blood pressure at home and attend their local clinic every six weeks for other tests. "My involvement is minimal: it's just like going in for a periodic MOT," says Mr Payne, whose father and grandfather both died of heart attacks. "I wanted to find a way to reduce my blood pressure as everything else has failed. I'm a runner, and I want to finish running on my own terms, not my body's."

Despite the benefits of being involved in clinical trials, recruiting volunteers is challenging says Dr Wilkinson: "The main reason why most large trials fail is because they can't recruit enough people. It's very difficult, and volunteers are vital – without them we couldn't do a thing."

Recruiting volunteers is a challenge for many investigators, not just those trialling drugs, which is why the Cambridge research community has developed two sizeable volunteer pools for researchers to use.

Set up more than 20 years ago, the Medical Research Council Cognition and Brain Sciences Unit's (MRC-CBU) volunteer panel now has several thousand members. Each week around 100 panel volunteers take part in MRC-CBU studies of attention, emotion, memory and language, and last year helped researchers develop the battery of tests for a major new Cambridge-wide collaborative project on healthy ageing, Cambridge Centre for Ageing and Neuroscience (Cam-CAN).

A population-based study of 3,000 people aged 18 to 88 years, Cam-CAN is recruiting volunteers via GP surgeries, and the MRC-CBU's Dr Sharon Erzinçlioğlu is one of the researchers who will be testing them over the next three years.

"The crucial part of the project is that we will have brain imaging to match to participants' performance on the computer and pen-and-paper tasks to see how brain changes across the life-span relate to cognitive changes.

"Volunteers were absolutely crucial for this research, and we couldn't have set up Cam-CAN without panel volunteers coming in to help us develop the tests

we're going to use," she explains.

The Cambridge BioResource (CBR) is a more recent innovation. Set up by the University of Cambridge and the MRC in 2005, the CBR is one of only two such initiatives in the UK. More than 9,500 volunteers have joined the CBR, each donating DNA via a blood or saliva sample. Researchers then use this DNA data to find volunteers with a specific genetic make-up, and 3,500 volunteers have already taken part in eight different studies aimed at identifying interactions between our genes, the environment and common diseases.

CBR Coordinator Sarah Nutland explains: "We know that many genes are associated with common diseases like diabetes and cardiovascular disease, but we don't know what these genes do. By offering researchers pairs of age- and gender-matched volunteers, carrying different versions of the genes of interest, the Cambridge BioResource allows us to unpick the function of these specific genes – it's enabling research that otherwise would not be possible."

A University researcher before being elected MP for Cambridge last year, Julian Huppert recently joined the CBR's volunteer panel. He told the *Newsletter*: "My experimental work used small pieces of DNA; I could order them and they would arrive in the post, but that's a luxury not available to many researchers. Cambridge needs fantastic research leaders but it also needs volunteers who are prepared to be part of their studies."

Like Mr Huppert, Joy Dring believes volunteering for biomedical studies makes a difference. Part of both the CBR and the MRC-CBU panels, she says: "It's like being a blood donor. It's a pity more people don't do it, give a bit back. It's no problem – nothing unpleasant – and you always have a choice about whether or not to go along when they call you."

Fellow MRC-CBU volunteer Fenella Leigh agrees: "They pay a small honorarium but that's not the main reason why I volunteer. Since I started volunteering ten or 12 years ago I've become really interested and now that I'm retired it's nice to get out.

"One study I did was about early-onset Parkinson's disease. I had to do a series of brain-hand coordination tests, and these were repeated while I was in an MRI scanner. In the waiting room I met the wife of a patient and realised that my volunteering was having a real impact on people with diseases like Parkinson's. It really hit home," she says.



"Volunteers are vital – without them we couldn't do a thing"

Understanding what motivates volunteers can help boost researchers' recruitment rates. Three years in to the Pregnancy Outcome Prediction Study (POPS), which is examining new ways of identifying women at risk of stillbirth and pre-eclampsia, Professor Gordon Smith from the University's Department of Obstetrics and Gynaecology has recruited 2,700 of his target of 5,000 women in their first pregnancies.

As well as providing several blood samples during their pregnancies, participants have two extra scans at 28 and 36 weeks. The purpose of the scans is to make a series of measurements of the baby's size and blood flow. But mothers are often very positive about the opportunity to see their baby in the womb, and Professor Smith believes this appeals to his volunteers. He says: "Ultrasound is one of the key ways of studying the baby. But it is also attractive to mothers as they can see their baby and obtain pictures at the time of the scan."

POPS volunteers agree. According to one: "As it's my first pregnancy I thought seeing more scans would be interesting – seeing the baby and getting more pictures. And I hope what they learn from us will be useful for future mums-to-be."



FIND OUT MORE

- For details of how to sign up for BioResource or the MRC-CBU volunteer panel, visit www.cambridgebioresource.org.uk and www.mrc-cbu.cam.ac.uk/panel.
- For details about the CamCAN project, visit www.cam-can.com.





PHILIP MYNOTT

From Concorde to Covent Garden

From a dusty runway in Kent to the Royal Opera House, Head of the Department of Engineering Professor Dame Ann Dowling finds echoes of engineering in some unexpected places

AT FIRST SIGHT there is little obvious connection between opera – which, along with walking, *Debrett's* lists under Professor Dame Ann Dowling's recreations – and Concorde. That's because the connection, at least for Dowling, lies not in sight but in sound. Acoustics, especially aircraft noise,

is one of Professor Dowling's longest-standing academic interests, an interest she traces to a holiday job at the Royal Aircraft Establishment, Farnborough during her undergraduate degree in Applied Mathematics.

According to Dowling: "Farnborough was where I became interested in aircraft

noise, and it influenced my decision about what to focus on during my PhD." Her PhD was related to Concorde and the noise of its turbo jet engines during high-speed flight.

As she was finishing her PhD, Professor Dowling had the opportunity to cross the Atlantic on Concorde. "It was a great thrill," she remembers, but not her most memorable Concorde experience.

That came several years later when, having gained her private pilot's licence, she and her husband Dr Tom Hynes – a fellow researcher in the Engineering Department at Cambridge – were preparing to land their plane at Manston Airport, Kent.

"Concorde was arriving back after a pleasure flight and we had to hold at about 1,000 feet above the end of the runway while it landed underneath us. As it came in, we could see in the dust that it skimmed over the special vortices formed over Concorde's delta-shaped wings that it uses to get its lift. It was beautiful, one of those perfect moments, with Concorde beneath us and the sea on one side," she says.

How things work

It's a recollection that helps reveal the curiosity and creativity Dowling displayed as a child, and which encouraged her into engineering. Despite the fact her father was an engineer, she traces her love for the subject to the simple childhood desire of discovering how things work.

"I've always been interested in how things work. At the age of six I took my bicycle apart to see what things were like inside, but I couldn't get it back together. There were ball bearings all over the place," she says.

"I also had a very inspirational science teacher when I was nine or ten. The lessons were very hands on – playing with magnets and electricity – but he was great at relating that to the everyday, which made me not only want to understand how things work but also wonder how you might design things better."

One of Dowling's greatest opportunities to "design things better" came in 2003 as one of the leaders of the Silent Aircraft Initiative (SAI). A major research programme and part of the Cambridge MIT Institute, the SAI challenged researchers to design an aircraft that on take off and landing could not be heard above the normal background noise outside an urban airport perimeter.

"About 600,000 new engineers will be required by UK industry over the next seven years. Industry is crying out for engineers"

"In the current climate it's more important than ever to join up what people are doing"

"It was a huge opportunity in terms of aircraft noise," she says. "Usually people say: 'Here's the aircraft, now make it quieter.' But in this project we started the other way round."

By the end of the project the SAI had not only met its noise target but also designed an aircraft that would consume 25 per cent less fuel than the newest aircraft of similar size, and its hybrid wing design now forms part of American space agency NASA's 2020-2030 technology plans.

The creative, collaborative aspect of engineering exemplified by the SAI is, Dowling believes, partly why the subject appeals to women, albeit still not in large enough numbers. "Engineering is very open-ended and very creative," she says, "and it involves communication and team work; you hardly ever do anything on your own. It's about bringing together a team with different areas of expertise to do something collaboratively that you can't do individually."

While women make up 14 per cent of engineering undergraduates in the UK, the figure at Cambridge is 25 per cent, a difference Dowling attributes to the course structure.

"Nationally the numbers are disappointing," she acknowledges. "But in Cambridge the recruitment of women into engineering is way ahead of the national average. There are things about our course that women particularly like: we don't ask people to choose their specialisation at the time they start – they come and do general engineering for two years and that gives them time to decide what really interests them."

By giving women time to decide how to specialise, the course compensates for the fact that many women lack earlier exposure to engineering and, Dowling says: "Women are often interested in interdisciplinary areas, so this breadth is quite attractive."

It is a degree of flexibility that benefits all engineering students, male as well as female, which is crucial given the current shortage of engineers. "About 600,000 new engineers will be required by UK industry over the next seven years. Industry is crying out for engineers. While there has been a slow growth in the numbers applying to do engineering, and our application numbers are increasing ahead of the national average, the challenge remains getting enough applicants nationally."

That is why the department invests time and money running hands-on

engineering events for local schools and community groups. "We have an outreach coordinator who does a fantastic job and our undergraduates are great ambassadors," says Dowling. "The important thing is to show just how creative designing and building things can be. Sometimes people think it's a rather routine activity, but engineering is really about innovative ideas creating or improving physical products or devices."

While outreach work continues, since taking over as head of department in October 2009, Professor Dowling has made collaboration the priority. Reflecting this, the department's new research strategy comprises four main themes: energy, transport and urban infrastructure; engineering for life sciences and healthcare; risk, uncertainty and resilience; and future manufacturing.

More collaboration

"One thing I really want to encourage is more collaboration, getting academics to work together on really big challenges, initially by getting teams together, first from within the department, and then working with other University departments such as the science departments and the Cambridge Judge Business School."

Her rationale for this collaborative, integrated approach is pragmatic. "In the current climate it's more important than ever to join up what people are doing. This collaborative approach helps access large-scale research funding and produce results that really make a difference. It's about achieving a critical mass. To make a difference on green energy, for example, you need to pull lots of people together around a big, high-profile collaboration that can really change how people think, rather than working on several small projects."

If getting people singing from the same song sheet underpins Dowling's new strategy for the Department of Engineering, it also resonates with her love of opera: "The thing that fascinates me most is the power of the human voice. I wonder if it's partly my background in acoustics, but when you hear an opera house filled by one person's voice without amplification, I just think that is tremendous – but a choir singing together is even more powerful."

Far left: Professor Dame Ann Dowling, photographed in the anechoic chamber in the Department of Engineering

OBITUARY

Maurice Wilkes

Professor Sir Maurice Wilkes, who was Head of the Computer Laboratory (before 1970 known as the Mathematical Laboratory) from 1946 until his retirement in 1980, died in Cambridge on 29 November 2010 aged 97. He was undoubtedly the University's first and greatest computer pioneer.

The Mathematical Laboratory was founded in 1937 and Sir Maurice was its first full-time staff member. World War II intervened and he left Cambridge for war service in radar. On his return, he found himself the only staff member, and the University duly appointed him as Director. In 1946 he attended a series of lectures in the United States that discussed the building of computers, and he returned to put this into practice. In his memoirs, he tells how he spent the time on the return transatlantic crossing on the Queen Mary designing a computer. Arriving back at the Laboratory he set about establishing and directing a team that built the EDSAC, the world's first programmable digital computer to go into regular service.

The EDSAC ran its first program in May 1949, and was slow and small compared with modern technology, but importantly was orders of magnitude more powerful than the technology it replaced: human operators using mechanical calculating machines. Sir Maurice achieved his objective of bringing about a transformation of the University's research, which advancing technology has continued to do ever



Professor Sir Maurice Wilkes with the EDSAC 1 computer

since. EDSAC served many users across the University in the 1950s, and in particular, contributed to the Nobel Prizes of Sir John Kendrew (molecular biology) and Sir Martin Ryle (radio astronomy).

Under his leadership, the

"Generations of computer scientists owe their careers to his leadership"

Laboratory's pioneering developments included the concept of program subroutines, microprogramming, computer-aided design, programming languages, operating systems, digital communications and distributed computing. Following his retirement in 1980, Sir Maurice worked in industry, first with DEC in Massachusetts and later with the Olivetti Research Laboratory in Cambridge. In 2002, he moved back to the Computer Laboratory where he was an Emeritus Professor.

Sir Maurice was the founding President of the British Computer Society, and gained numerous distinctions. He was a Fellow of the Royal Society and of the Royal Academy of Engineering. He was a Foreign Associate of both the US National Academy of Sciences and the US National Academy of Engineering.

He was awarded many accolades, including the Turing Award (1967), the Faraday Medal from the Institution of Electrical Engineers in London (1981), the Kyoto Prize for Advanced Technology (1992) and the IEEE Computer Society 60th Anniversary award for seminal contributions to the discipline of computing (2007). He was knighted in 2000. Generations of Cambridge computer scientists owe their careers to his leadership, while many at the University have benefited from his legacy in pioneering computing techniques and facilities.

Dr David Hartley, Emeritus Fellow at Clare and former Director of the University Computing Service

OTHER NEWS

WiSETI lecture

THE WOMEN IN Science, Engineering and Technology annual lecture will take place at Robinson College on 16 March. It will be given by novelist and scientist Professor Sunetra Gupta, and is targeted at University staff and students. The lecture is given by a distinguished woman scientist who is invited to speak about her life and work. To book, please visit <http://www.training.cam.ac.uk/equality/event/49375>.

Cambridge scores highly in equality survey

THE UNIVERSITY HAS been ranked in the top 100 employers by a leading survey of workplace equality.

The Stonewall Workplace Equality Index – the basis for the campaign group's Top 100 Employers 2011 – is the definitive national benchmarking exercise showcasing the UK's top employers for lesbian, gay and bisexual (LGB) staff.

The survey, now in its seventh year,

put the University of Cambridge in 90th place with a total score of 148 out of 200. In all, 378 organisations entered.

Sigrid Fisher, Head of Equality and Diversity at the University, said: "This is an achievement of which we are very proud. It is the result of much hard work by many people across the University who have focused on progressing and promoting equality for lesbian, gay and bisexual people at work and study."



PRIZES, AWARDS AND HONOURS



Professor Nicola Clayton

→ Cambridge Neuroscientist **Professor Nicola Clayton** of the Department of Experimental Psychology has won the 2010 Jean-Marie Delwart Foundation award in comparative and evolutionary neuroscience. The award was made at the public session of the Academie Royale des Sciences de Belgique in December.

→ **Dr Colm Durkan**, from the Nanoscience Centre, has been awarded funding from the Samsung Global Research Outreach Program for research and development of novel magnetic devices for information processing.

→ **Professor Ernest Laue** has been awarded life membership of the European Molecular Biology Organisation. Life membership recognises outstanding research contributions in the life sciences. This year saw 63 scientists across Europe, USA, Japan and Taiwan recognised by the EMBO.

→ **Dr Bill O'Neill** has been elected Fellow of the Laser Institute of America, the highest grade of



Professor Ian Leslie

membership in the LIA. The honour is awarded to members of the institute who have attained professional distinction in the LIA mission areas of laser science and technology, laser applications, and have provided outstanding service to their field.

→ **Ian Leslie**, Professor of Computer Science at the Computer Laboratory, has been elected a Fellow of the Royal Academy of Engineering.

→ **Dr Keith Seffen** of the Advanced Structures Group in the Department of Engineering and Dr Matthew Santer, now at Imperial College London, have won a Royal Aeronautical Society Silver Award for their paper 'Optical space telescope structures: the state of the art and future directions'.

→ **Dr Jon Simons** of the Department of Experimental Psychology has been selected to receive the 19th Experimental Psychology Society Prize. The prize recognises distinguished research



Dr Colm Durkan

achievement by experimental psychologists at an early stage in their career. Dr Simons will deliver the EPS Prize Lecture at a meeting next year, which will be published in the *Quarterly Journal of Experimental Psychology*.

→ **Professor Liba Taub**, Director and Curator of the Whipple Museum of the History of Science and Fellow of Newnham, has been awarded an Einstein Foundation Visiting Fellowship. The award will fund her work with the Berlin-based excellence cluster TOPOL: the Formation and Transformation of Space and Knowledge in Ancient Civilisations.

→ The University has been recognised by the European Commission for its commitment to good working conditions and career development for researchers. Cambridge was among 12 UK institutions to be awarded the HR Excellence in Research badge. The announcement was made last month by Minister of State for Universities and Science David Willets MP.

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HOUSES TO RENT (OVERSEAS)

→ Algarve, Portugal

Spacious, family owned apartment sleeps up to five in idyllic village. Private patio and roof terrace with shared pools. Picturesque beach five minutes walk. Restaurants within village. Tennis, golf, water parks and shopping close by. Faro airport 45 minutes. Stunning and quiet location. Short and long breaks available. Email Helen.floto@gmail.com, phone 01954 267291 or visit www.holiday-home-rentals.co.uk (property 4995).

→ Amalfi Coast, Italy

Small B&B in peaceful traffic-free mountain village above Positano. Ideal for those seeking a quiet mountain retreat with modern conveniences. All rooms ensuite with panoramic sea-views of the Amalfi coast. Situated on famous Sentiero degli Dei (Footpath of the Gods). English speaking host. Double room and breakfast from 60 euros per night. easyJet flights to Naples from Stansted. Further information/photos: <http://ninobb.moonfruit.com>, or contact Penny Marrone on 01954 210681.

→ Cevennes, France

Mediterranean climate, dramatic mountain scenery, superb walking/river-swimming. Roman Provence/Rhône and Languedoc vineyards. Two spacious, refurbished, entirely independent apartments with central heating and covered terraces near Mont Lozere. Sleeping eight and up to six respectively. Shady

gardens, boulodrome, barbecue, quiet hamlet, near shops and markets. Available separately but particularly suitable for groups holidaying together. From £280 per week. Easy access via trains and budget airlines. Phone (01527) 541360.

→ Châtel, France

Apartment in Châtel, France for holiday rental. Châtel is a friendly unspoilt village and a great base for walking, touring and skiing. In the heart of Portes du Soleil. Thirty minutes drive from Evian – visit Geneva, Annecy or Lausanne for the day. Apartment ideal for two to four adults or two adults and three children. Double-bedroom downstairs, separable twin beds on mezzanine upstairs. West-facing balcony, unobstructed views overlooking valley and small lake. Email Bob Skelton at rls1000@cam.ac.uk.

→ Lagos, Portugal

Individual, superb four bedroom/ four bathroom villa with pool set among the tree-lined links of the western Algarve's premier golf and leisure resort Parque da Floresta. Near Costa Vincentina Nature Reserve, historic port of Lagos, pristine beaches and quaint fishing villages. Luxury accommodation, sleeps eight to ten. Contact Graham on gb313@admin.cam.ac.uk or Lyn lb334@medschl.cam.ac.uk.

→ Nice, France

Quiet apartment near the Promenade des Anglais and city centre. It is in the 'Musicians' area'

on the fourth floor, accessed by lift. Sleeps two, with living room, bedroom with double bed, separate, fully equipped kitchen, modern bathroom, separate w/c, small balconies front and back. Price per week, including linen, £350 October to March, £400 April, May, September, £450 June to August. Contact Robin Spence on rjs2@cam.ac.uk or 07808932943.

→ Northern Cyprus

Traditional Cypriot house set in Karmi, an idyllic mountain village within easy reach of Kyrenia and beaches. The house has two kitchens and sitting rooms making it ideal to share with friends. One has a double-bedroom with ensuite bathroom, the other a twin bedroom with shower-room. Private courtyard, garden terraces, fantastic roof-terrace, with outdoor shower, all with outstanding views of the sea, mountains and castle. From £250 per week. Contact John. boucher@addenbrookes.nhs.uk.

→ Provence, France

Large, comfortable flat in famous 'Côte Bleue' resort of Carry-le-Rouet, close to the Camargue and Marseilles. Seafront, beach and coves within 100 metres. Excellent for swimming, snorkelling, scuba diving, sailing, walking and cycling. Close to all Provençal places of interest. Twenty minutes from Marseilles airport and 30 minutes from Marseilles TGV station. Sleeps six comfortably. Private parking. WIFI network. Email Anita Ogier on ao10001@cam.ac.uk.

superb beaches nearby. Email brackenhaugh@yahoo.co.uk.

→ North Yorkshire Moors

Low Mill, Farndale, with sitting room, dining room, play room, kitchen, four bedrooms, two bathrooms and garden with lovely views. Sleeps seven. All mod cons. Fabulous walks in all directions. Near Rievaulx, Castle Howard, Runswick Bay. 2011 rate: £390/week. Contact Horace or Miranda Barlow on tel 01223 366618/333867 or email hbb10@cam.ac.uk.

SERVICES

→ Editorial services

Word-nerd and grammar hound seeks work. I offer a proofreading, copy typing, editing and formatting service. Any length of document considered: essays; papers; CVs; articles; webpages; agendas and minutes. Dissertations and theses by arrangement. I have 20 years' experience in preparing all lengths and types of document for publication, presentation or submission to clients. Contact Paula Spowart on 07703 639343 or email jobchazer@gmail.com.

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VOLUNTEERS

→ Help with research

Would you like to help the Medical Research Council with research on how the brain works? Our researchers are always looking for healthy participants aged at least 16 to participate in studies related to language, memory, attention and emotion. Some of our studies involve performing a simple task while having a brain scan and require subjects aged 18-40 years. Testing takes place at the MRC Cognition and Brain Sciences Unit, which is based at 15 Chaucer Road, off Trumpington Road, Cambridge, CB2 7EF. We will pay you at least £8.50 per hour for your assistance. For more information email panel manager@mrc-cbu.cam.ac.uk, phone (01223) 505610 or log on to <http://www.mrc-cbu.cam.ac.uk/panel/>.

→ International development

Want to learn more about, or get involved in, international development? The Humanitarian Centre has just published its 2010 report *Innovation in International Development*. Many of the featured organisations are keen for volunteer help. To find out more visit www.humanitariancentre.org.

→ Advice on volunteering

The Cambridge Volunteer Centre finds volunteering opportunities for people in Cambridge and South Cambridgeshire. For more information phone (01223) 356549 or visit <http://www.cam-volunteer.org.uk/>.

→ Cambridge Science Festival

We would love to find some volunteers, particularly with time available on Saturday 19 and Saturday 26 March to help members of the public find their way into scores of science outreach events around the University. There are also opportunities to volunteer on weekday evenings from 14 to 25 March at our public lecture series, which also gives you the chance to hear interesting talks by leading scientists. To volunteer, please email Emma Wenborn at emma.wenborn@admin.cam.ac.uk.

→ Scouting (for boys and girls)

Do you have an hour a week on a Thursday evening you can offer to help with Beaver Scouts (aged 6 and 7) in Newnham? We organise lots of fun activities, inside and outdoors. Please contact Nicky Buckley at njb1010@cam.ac.uk.

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Our museums – as you’ve never seen them



ELLA WOOLNER

EVER WONDERED what happens in a museum when the lights go out? Twilight at the Museums will give you and your family the chance to find out.

Up to ten Cambridge museums, including the Sedgwick Museum

of Earth Sciences, the Fitzwilliam Museum and the Polar Museum – as well as the Botanic Garden – will open their doors on the evening of 23 February for torchlight trails and other fun activities. Admission is free. Enjoy a deep, dark safari in The

Things that go bump: museums including the Fitzwilliam, Cambridge Folk Museum, the Whipple Museum of the History of Science, and the Museum of Classical Archaeology will be participating in the evening’s entertainment

Glasshouse Range at the Botanic Garden. Spot dinosaurs and witness the magic of minerals under ultraviolet lights at the Sedgwick. Listen out for spooky animal sounds at the Museum of Zoology.

Most museums will hold activities between 4.30 and 7.30pm, with events at the Fitzwilliam starting at 5pm. For detailed information, and to help plan the evening, log on to www.cam.ac.uk/twilight.

If you would like to become a fan of the Cambridge Museums Facebook page, and to share views on exhibitions and events, visit <http://www.facebook.com/cambridgeuniversitymuseums>.

Lord Rees gives inaugural Madingley Hall lecture

ASTRONOMER ROYAL Lord Rees gave the first of a series of public lectures last month at the Institute of Continuing Education (ICE).

The Madingley Hall Lectures feature an international line-up of speakers that also includes Professor David Spiegelhalter, Winton Professor of the Public Understanding of Risk at the University, poet and dramatist Dr Francis Warner, and Senior University Lecturer in Engineering Dr Hugh Hunt. The free lectures take place at Madingley Hall, the headquarters of ICE.

The inaugural lecture by Lord Rees, Master of Trinity, took place on 10 January and was chaired by Vice-Chancellor Sir Leszek Borysiewicz.

Lord Rees, pictured, spoke on ‘Life in the cosmos’, exploring how, on at least one planet around at least one star, life began and a complex



biosphere evolved. The lecture covered questions such as: what lies in the far future; will life from Earth spread far beyond; and is life already widespread?

Other lectures in the first series will be given by Dr Warner, a leading poet and dramatist and Honorary Fellow of St Catharine’s College. He will speak on ‘Armageddon and faith: a survivor’s meditation on the Blitz’

on Saturday, 19 February at 3pm, followed by a piano recital by David Goode, the world-renowned organist and Head of Keyboard at Eton College.

On 14 March, Dr Hunt, Senior Lecturer at the Department of Engineering will give an evening lecture in association with the Cambridge Society for the Application of Research on ‘Dambusters and the engineering behind the bouncing bomb’.

Future lecturers will include Professor Spiegelhalter, on 3 May, and Dr Simon Thurley, architectural historian and Chief Executive of English Heritage, on 14 July.

Dr Rebecca Lingwood, Director of Continuing Education, said: “The Madingley Lectures are an important part of ICE’s commitment to public engagement and they are one of the ways we aim to reach beyond the walls of the University, sharing Cambridge as widely as possible.”

For more information visit www.ice.cam.ac.uk/madingleylectures.

IN BRIEF...

Cycle safety mark



The University Park and Cycle West Cambridge site has retained the Safer Parking Park Mark following a successful assessment last year. Once again the site remained crime-free over the 12 months assessed (the ninth consecutive year that this has happened) with more than 20,000 cycle journeys being made. The site has good lighting, is patrolled regularly and has an intercom system that links to a control room within the University.

Glimpses of the Garden



A collection of photographs of the Botanic Garden by Jacqueline Garget has opened at Pandis. Jacqueline has been visiting the Garden for many years, seeking to capture the beauty and wonder of this celebrated corner of the natural world in Cambridge. The exhibition is free and runs until 4 April. For further details and opening times, visit <http://www.cam.ac.uk/cs/media/pandis/>.