

Bill Lumsden

Glenmorangie's Head of Distilling & Whisky Creation on sending Ardbeg up to the International Space Station.

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WWF

Five Questions on the environment and international corruption with UK Chief Executive David Nussbaum.

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Academic Research

The latest research and developments, from preventing ocean acidification to researching a cure for diabetes.

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Autumn 2015

In Conversation

The magazine for alumni and friends of Heriot-Watt University

Rankin on Spark

Jean Brodie and Rebus
wouldn't get on



Distinctly Global
www.hw.ac.uk

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Images from our June graduations

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Welcome

In this issue of In Conversation, we are looking at the theme of sustainability. What does sustainability mean to today's graduates? Why should you care? And what are we doing to ensure there's a planet that society can continue to flourish on for the future?

We speak to David Nussbaum, CEO of the WWF in the UK to find out his views on both the positive and worrying trends for the planet. Academics and graduates tell us about how their work and research has sustainability at its core, and we chat with author Ian Rankin who is fronting a campaign to bring together and preserve the archive material of one of our most famous graduates, Dame Muriel Spark.

2015 has been a year of development at Heriot-Watt, providing the foundations for our sustainable future. Not only has construction begun on the Lyell Centre and Oriam in Edinburgh and the official opening of our new campus in Malaysia, we have welcomed new senior members to the University. Professor Richard Williams, our new Principal and Vice-Chancellor, began in September, as did Nuala Boyle, our new Assistant Principal (Development).

With the addition of a new Registrar, Marketing & Communications Director, Research and Enterprise Director and Chair of Court, Heriot-Watt is in safe hands for the future.



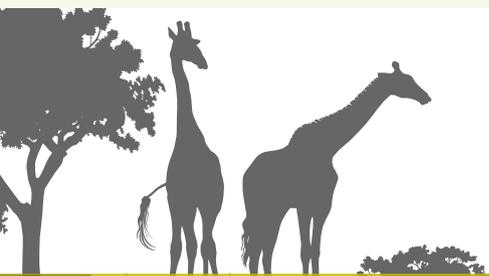
I hope you enjoy this magazine, and do feed back on what you think, and if you have any ideas for future stories we could cover. You can send us an email to watt.club@hw.ac.uk, or fill out our survey at <https://www.alumni.hw.ac.uk/in-conversation-autumn-2015-feedback>

Until next time,

Victoria Reynolds-O'Brien
Alumni Relations Manager



Ian Rankin discusses one of Heriot-Watt's most notable graduates, Muriel Spark



20 David Nussbaum on sustainability and ending international corruption

Watts Up?

Heriot-Watt News



New Developments

Work is now well underway on Oriam, the new £33m National Performance Centre for Sport based on Heriot-Watt's Edinburgh Campus. The ground breaking ceremony was held in March and undertaken by the Minister for Sport, Jamie Hepburn MSP, and the centre is scheduled for completion by summer 2016. To find out more about Oriam, visit www.oriamscotland.com

Across the road is the Lyell Centre, which is due to open in early 2016. The Centre will create a world-leading research cluster bringing science and technology together to tackle major issues of natural resource and energy supply in a responsible and sustainable way.

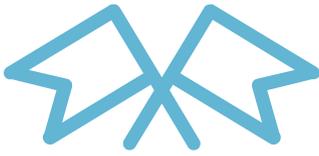
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To view a time lapse of the Lyell Centre build, visit <http://bit.ly/1PCI4DB>

Visit page 16 to find out the latest from our Dubai campus, and page 27 from our Malaysian Campus.



£40.6m

Heriot-Watt brought in more than £40.6 million of research income in the 2014/15 financial year.



The formal gardens and central woodland at Heriot-Watt's Edinburgh Campus have been awarded a Green Flag by Keep Scotland Beautiful.

Graduate employability

Heriot-Watt University has risen in the latest performance indicators for graduate employment, with figures which demonstrate the attractiveness and employability of our graduates.

HESA figures for 2013/14 graduates showed that almost 95% of Heriot-Watt first degree graduates were in employment or further study within six months of graduating, an increase on the 92.6% for 2012/13.

— www.hw.ac.uk/news/heriot-watt-graduates-in-high-demand.htm



University Rankings

Heriot-Watt is in the UK's top 20 universities out of 119 institutions in the Guardian University league tables and is second in Scotland, after St Andrews.

We rank 2nd in the UK for Civil Engineering and 3rd for Electronic and Electrical Engineering and Accounting and Finance. Economics is also ranked in the top five, along with Building and Town and Country Planning.

— www.hw.ac.uk/news/heriot-watt-is-in-uk-s-top-20-in-guardian.htm

Honour for Chair of Court

Congratulations to Heriot-Watt University's Chair of Court Frances Cairncross, DBE, CBE, FRSE, who has been made a Dame of the British Empire in the Queen's Birthday Honours list.

Frances has been given her award for services to education and in recognition of a very successful career as a leading British economist, journalist and academic.

— www.hw.ac.uk/news/queen-honours-heriot-watt-chair-of-court-for.htm



89%

of Heriot-Watt final year full time degree students are satisfied overall with their experience.





On the 1st September 2015, Professor Richard Williams OBE joined Heriot-Watt as Vice-Chancellor and Principal.

New Principal for Heriot-Watt

Arriving from the University of Birmingham, Professor Richard Williams brings a wealth of experience as a senior academic leader, with impressive research credentials and a strong track record in working successfully with governments and industry across the world.

Professor Williams was a natural choice to lead one of the UK's foremost science and business universities. His significant experience in international strategy and relations clearly aligns with a globally-focused university with campuses in Dubai and Malaysia and our network of academic learning partners worldwide.

Professor Williams said of his appointment, "Heriot-Watt's reputation as a world-class institution undertaking global teaching and

research is formidable. The results are reflected in the high quality of our graduates, and over the coming months and years I look forward to meeting as many alumni as possible.

Maintaining a link with our graduates is important to ensure the University stays relevant to the needs of industry. Being able to network globally means that even after leaving Heriot-Watt, our graduates can stay in touch with us, each other, and forge new connections through which world-changing innovation and exploration can continue."

An engineer, leader and innovator, Professor Williams has brought several new concepts, processes and methodologies into practice in the chemical, materials, energy and instrumentation sectors. His work is reported in over 400 scientific papers and several patents.

He has worked extensively in developing relationships with academic and industrial partners in Europe, Middle East, Asia and Africa. He was recognised as one of the UK's top 20 nationally inspiring leaders of UK science and innovation by the Engineering and Physical Sciences Research Council with the designation as a 'RISE Fellow'.

Richard is currently on the editorial boards of The IChemE Transactions (UK); Advanced Powder Technology (Japan); Minerals Engineering (UK) and Particulate Technology (China).

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To find out more about Richard Williams, visit <http://bit.ly/1Ep2o1b>

An engineer, leader and innovator, Professor Williams has brought several new concepts, processes and methodologies into practice in the chemical, materials, energy and instrumentation sectors.

Have your donation to Heriot-Watt *doubled*

The Programme provides enhanced access bursaries to the best and brightest students coming from the most challenging backgrounds.

There's now a great added incentive for you to make a donation to support Heriot-Watt University and substantially increase the value and impact of your gift.

In 2015 the University launched the Robertson Scholarship Trust Access Bursary Programme. Every donation our supporters make to the Programme (including Gift Aid if you are a UK taxpayer) will be matched 100% by the Robertson Scholarship Trust.

The Programme provides enhanced access bursaries to the best and brightest students coming from the most difficult backgrounds.

In addition to much needed financial support, the programme provides workshops and courses to support these young people during their time at university and develop the “soft” skills required in today’s job market.

With your support, the University aims to have 40 students a year availing of this fantastic programme once it is fully up and running. We need your help to establish the Programme and ensure that talented students coming from challenging environments can truly flourish when studying at Heriot-Watt.

There has never been a better time to support Heriot-Watt University. Please help us to take advantage of the Robertson Scholarship Trust Access Bursary Programme and make a gift today!

Simply visit www.alumni.hw.ac.uk/donation here to donate online to the Robertson Scholarship Trust.

If you are eligible for Gift Aid, this would be doubled too, meaning a £100 gift is worth £250 to Heriot-Watt.



Bringing home Muriel Spark's lifelong archive

“The word ‘education’ comes from the root e from ex, out, and duco, I lead. It means a leading out. To me education is a leading out of what is already there in the pupil’s soul.”

These are the words of Miss Jean Brodie, a singularly Edinburgh lady in character, and the literary creation of one of Heriot-Watt’s best known graduates – Dame Muriel Spark.

Born in Edinburgh in 1918, her connection with Heriot-Watt began as a teenager, taking a course in Commercial Correspondence and Précis Writing in 1934. Later in life, she recalled “I remember I was at the night school when Heriot-Watt was a college. The College was offering courses to people who had left school but didn’t want to be drop outs.

There were people at that time who thought that taking up studies in art and literature was the easy way. But when I was at Heriot-Watt, it was full of serious people. I thought there was a more scientific approach to literature that I could get from Heriot-Watt and I did. And I mean that very much!”

Muriel’s legacy, over and above her writing, is one of the most comprehensive archives of research, thoughts and plans of any modern author. Dating from 1940 until the time of her death in 2006, the archive charts the rise of Muriel from an unknown writer and poet to one of Scotland’s biggest literary names. According to the National Library of Scotland, the archive contains everything from casual correspondence from Jackie Onassis Kennedy, Elizabeth Taylor and Harold Macmillan, to photographs, newspaper cuttings and even shopping receipts.

Bryan Christie, Media and External Relations Officer from the National Library, sees the archives as something that can not only teach us about the life and times of Muriel, but inspire the next generation of Scottish authors. “The archives are a one-of-a-kind. No author has ever left such detailed, personal notes on their day-to-day activity.”



Ian Rankin reads an excerpt from Muriel Sparks’s best known work, the Prime of Miss Jean Brodie.

“Study a little bit of literature as well as science. Learn how to create sentences, the formation of sentences and their effect. I think these things are very important and they are scientific.”

**Dame Muriel’s advice
to Heriot-Watt students**



Ian was given the opportunity to open one of Muriel’s archive boxes, which hadn’t seen the light of day since her death in 2006. On the box was written “Research for Watling Street – research set in Roman Britain”, which was due to be Muriel’s next book.

“We see Muriel’s hopes and regrets; her plans for the future and reminisces of the past. It’s a unique insight into the mind of one of Scotland’s greatest authors, and a valuable resource to preserve for future generations.”

Ian Rankin, one of literature’s greatest crime writers and best known for his Inspector Rebus novels, began studying for a PhD on Muriel Spark in the 1980s.

“I did an undergraduate degree at Edinburgh University, specialising in American Literature. I went out into the cold, hard commercial world for a year and didn’t like it, so I came back and asked lecturers if I could do a PhD here. They told me I wouldn’t get any funding by studying an American author, and so it was Cairns Craig, now a retired Professor, who suggested Muriel Spark. I remembered I had seen the film *The Prime of Miss Jean Brodie*, so I went away to James Thin’s bookshop and bought as many of her books as I could get my hands on.

I found them interesting, so submitted a proposal and, in 1983, got three years funding to do a PhD on Muriel Spark.”

Ian spent this time reading her books and researching her life – but also began to write his own books. “My books ended up taking precedence, which is why I never finished the PhD. I thought, what would Muriel want? Would she want another unreadable PhD thesis, mouldering on the shelf of a university library where nobody ever goes? Or would she want me to use these three funded years to try and become a writer myself? And I pretended I knew the answer to that.”

At this time in the early eighties, Muriel was living in Rome. Meeting her would prove to be difficult, but Ian harangued the Scottish Arts Council Writer in Residence of the time, Allan Massie, who just so happened to have written a book on Muriel. “I would haunt him. I would stalk him. He had Muriel Spark’s address, and he gave it to me on

a scrap of paper which I still have. I hummed and hawed about whether to get in touch and tell her I was doing a PhD on her. But I thought no, I’d do it without her help or hindrance, as it were. I think I was wary of getting too close to the person – there was a mystique around writers at that time I didn’t want to dispel as a fan.”

Towards the end of her life, Muriel came back to give a talk at the Edinburgh Book Festival. “I duly bought my ticket and queued up. There was a party afterwards and I got to meet her. I didn’t say to her, by the way I’m Ian Rankin and I write crime fiction and I’m a big fan, but I sort of vaguely knew she’d know who I was. We had a wee chat about writing and a wee chat about Edinburgh and Italy. I got about fifteen minutes with her, which was blessed time. And I got my book signed and I got my photograph.”



Above
Muriel gains an Honorary Doctorate from Heriot-Watt in 1995.

Left
Muriel Spark was 39 when her first score of novels were published in 1953.
Image © Mark Gerson

When it comes to her archive, Ian is understandably enthusiastic. “The notion of an archive is an interesting one. There is an Ian Rankin archive, and it lives in my house. I wish it didn’t as it takes up so much space, but I recently opened a box of fax correspondence to find that all the pages had faded to nothing. I have boxes and boxes of blank fax paper. So future archives are going to be people’s emails, stored in the cloud, tweets, texts – it won’t be physical letters anymore. Hardly anybody writes a letter now.

But perhaps all my boxes of receipts will one day come to the National Library of Scotland, and some poor student will have to do their PhD, trawling through these blank sheets of fax paper, or looking at my Amstrad floppy discs and trying to track down a machine that they can play them on. And then find out

that they are corrupted anyway and all the information is gone, so there’s nothing there.

Just written on the disc will be “Knots and Crosses”. And there’ll be nothing. It’s weird. We may never get a record of the lives of writers in the late twentieth century again, because all that way of corresponding and storing stuff has already gone. And that makes me sad. Writers always think of their work as being eternal, but somehow the written word is becoming ephemeral, which I never thought would happen.”

When it comes to pondering about what would happen if Inspector Rebus ever met Jean Brodie, Ian smiles. “Jean Brodie presents that posh Edinburgh that Rebus sometimes rails against. He’s a bit of an anarchist – a working class guy. He is very wary of people from the classes above him, and Jean Brodie definitely belongs to one of those classes.

She’s a very particular kind of “Edinburgh Lady”, a few of whom still exist. It’s funny because Rebus lives in Marchmont, where no policeman like him would normally live – because that’s where I lived whilst doing my PhD, in Arden Street. At that time there was a tenement on Bruntsfield Place where Muriel had grown up. I went looking, but never found it. There was always that connectivity between me and her, but Brodie and Rebus? Tough sell.”

Drawing to a close, we ask Ian the question on everyone’s lips. When would Inspector Rebus finally pay a visit to Heriot-Watt? “If you ask him, he will come! Although not everyone wants Rebus there of course, because it means there will have been a horrible gruesome murder happening on the premises – I imagine not every Vice-Chancellor of the University would want that!”

“No author has ever left such detailed, personal notes on their day-to-day activity. We see Muriel’s hopes and regrets; her plans for the future and reminisces of the past.”



Competition

We’re giving away a copy of Muriel Spark’s “The Prime of Miss Jean Brodie” (as read from by Ian in our video) and Ian’s own “Knots and Crosses”, both signed by Ian Rankin, in a competition exclusively for Heriot-Watt graduates.

One lucky winner will walk away with both books. All you need to do is fill out your details and answer a question on Muriel Spark. Heriot-Watt graduates can enter at surveymonkey.com/r/WTWK9P2

Closing date: midnight, 31 January 2016.

Find out more...

To find out more about the Muriel Spark Archive Campaign, and to donate to the fund, please visit: www.nls.uk/support-nls/muriel-spark

To see more videos of Ian discussing his work and the city of Edinburgh, please visit <http://thewattclub.hw.ac.uk/ic2015/>



Research Profile:

Professor Murray Roberts



Advancing understanding of marine ecosystems and the impact of global climate change

Professor Murray Roberts of the University's Centre for Marine Biodiversity and Biotechnology (CMBB) is deeply interested in the sea bed. "There are fascinating communities of animals that live on the sea floor and understanding how they are functioning now, in a time of such rapid change to our oceans, can help us predict their future activity and how they might survive as global climate changes."

Ocean acidification is changing our seas at an unprecedented rate. Murray explains: "It's like nothing that's been before. Our oceans are currently absorbing 25% of human produced CO₂ and global warming would be far worse if it wasn't for this. But ocean acidification is impacting on the important ecosystems in the sea."

The CMBB focuses on organisms that create habitats for others, such as cold-water and tropical corals, horse mussels and sponges. "We look at these communities because they are important for biodiversity but also because they tend to be sensitive to changes in their environment. The changing carbon chemistry of the sea puts these organisms

under a multitude of stresses and threats and by studying them we can examine predicted environmental changes and evaluate their capacity to adapt. The cold-water corals of the deep ocean are particularly useful to study, as unlike their better known tropical cousins they are found worldwide in the oceans, but like them they are made of calcium carbonate. Increasing CO₂ levels creates ocean acidification by lowering the pH of seawater which is causing their skeletons to become weaker and impairing their growth. Corals have evolved over millions of years but today's conditions are requiring them to adapt incredibly quickly."

Murray's research also addresses questions of impact, for example due to the activity of the oil and gas industry. "Deep-water sponges can grow in vast fields across the seabed where they are very metabolically active and filter huge volumes of seawater. They may seem like a lowly animal but they are incredibly important. A key question we're working on is how should the oil industry deal with a subsea oil leak in the vicinity of deep-water sponges? We're looking at the impact of that situation and whether there are ways industry can tackle an accident which would minimise ecological damage.

We also know that the area around the base of North Sea oil platforms can contain toxic materials and this has implications when a platform is to be decommissioned. What will be less damaging – leaving it in place or taking it apart? We're working to find answers to these questions."

Working in partnership with industry is really important for Murray and his team. "A company like BP works all over the world with platforms distributed in a wide range of locations. By working together we can access data and even get ocean acidification samples from far more places than we can on our own. Currently through BP we are able to monitor the oceans from Angolan waters in West Africa, from the Mediterranean Sea by Libya and from the northern area of the North Sea. It means we can create a much bigger evidence base and join the dots between things so we can really understand oceanographic change."

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To find out more about Murray's work, visit his website www.lophelia.org

Research Profile: Professor Sue Roaf

Adapting to climate change through better building design

Professor Sue Roaf is an award winning designer, teacher and author who is championing better building design to help tackle climate change. “I believe the low carbon revolution is beginning to happen but we only have a limited time-span in which to implement change. We have to urgently cut energy use in our homes and buildings so that we reduce our CO₂ emissions which are having a massive impact on our world.”

Professor of Architectural Engineering at Heriot-Watt University since 2007, Sue works with policy-makers, researchers, engineers, scientists and architects to ensure we are better prepared for a post-fossil-fuel age. “Changing the way we use and generate energy in our homes and buildings is a way to reduce our emissions but it requires a new approach, one that turns architecture from an appearance-driven art form to a performance-driven process. Our key aim from now on must be the creation of resilient, low impact buildings.”

Her own home in Oxford demonstrated how carbon emissions could be dramatically reduced in a domestic setting. “The three storey, suburban Ecohouse I designed utilises solar energy and photovoltaics (PV), and produces around 148kg CO₂ per annum –



a tiny amount compared to the 6500kg a conventionally built, similarly sized house produces. In July I was delighted to host a one-to-one-million solar celebration as the Ecohouse was the first solar roof in Britain and this year, twenty years on, there are one million solar homes in Britain. If half the homes in Britain were solar we could cut UK carbon emissions by 15%, half of what is needed to meet the UK target of 30% reductions by 2025.”

Her work on thermal comfort at Heriot-Watt underpins her own growing understanding of how buildings can be adapted for the future. “The over-heating of buildings is a huge drain on our energy resources and a significant contributor to climate change. Thermal comfort is important in our homes and places of work and is achievable without using the energy guzzling systems we currently have. Across the globe there is evidence that it’s possible to be comfortable in a wide spectrum of temperature, from cold to very hot. My experience of ‘homes’ in other cultures and parts of the world – such as those of the nomads of Luristan, Western Iran, the Windcatcher homes of Yazd in the Iranian desert, and in Japan – has made me aware that it is possible to create resilient buildings which can cope with extremes of temperature and climatic events, and to make them comfortable without resorting to excessive energy use like we do in the Western world.

Developing understanding of thermal comfort is essential for our future and is a focus of our on-going research, which among other outputs, has resulted in a trilogy of books on the subject.”

Currently Sue is working with the Scottish Government, exploring the challenge of adapting to more extreme climates and also of meeting ambitious renewable energy targets.

“Scotland is a world leader regarding its development of renewable energy. With ICARB, the Initiative for Carbon Accounting (www.icarb.org) we have been working on both technical and policy solutions for the mitigation of emissions and also looking at the opportunities offered by energy storage. We need to find ways to increase the energy storage of every home, for example through greater use of solar hot water systems and tanks. What we want to achieve is for renewable energy to be part of the life of every ordinary citizen by making it affordable and accessible. And we are seeing things change. There is a growing generation of solar champions whose ‘people power’ is creating an energy revolution that offers genuine hope for a cleaner, greener future.”

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To find out more about Sue’s work, visit <http://bit.ly/1UaX02u>

Research Profile:

Professor Rory Duncan

Using advanced microscopy to reveal the causes of common diseases

Professor Rory Duncan spends a lot of time looking at life in a way that most of us would find hard to fathom. Using highly advanced microscopy techniques he studies the smallest building blocks of life – protein molecules. These molecules are considered the ‘workhorses’ of life; they are in every structure of our bodies and are involved in all its functions.

Rory explains: “As the essential building material for living cells, proteins are found throughout our bodies; the exact same sequences work in our heads as in our stomachs, we even share them with the lowly, but incredibly useful, fruit fly. Understanding how these molecules work can help us to answer fundamental questions in cell biology and unlock information to help tackle a range of common diseases.”

Being able to see a single molecule in a single living cell is an incredible advance in biological imaging. “We’ve only been able to achieve this level of imaging relatively recently. It’s come about by applying the tools of astronomy to biology. Astronomers spend all their time looking at tiny spots deep within the universe; we’ve turned that expertise around to look at tiny elements deep within the body. It’s required extensive collaboration to achieve this with input from physicists, chemists, mathematicians and engineers who are all part of IB3 (the Institute of Biological Chemistry, Biophysics and Bioengineering) at Heriot-Watt University.”

“A cell is the minimum unit of life and a molecule is the minimum functional unit of a cell. The advanced imaging techniques we are using allow us to probe activity at this minute scale and to look at tens of thousands of cells at once which builds our understanding of the behaviour of molecules. As every disease

is the result of some dysfunction in the way molecules behave and interact within cells, our imaging techniques allow us to look at the causes of disease at their most basic levels.”

Rory’s research is currently focused on two key areas: neurotransmission and diabetes. “Neurotransmission is how nerve cells speak to one another via structures called synapses. Until now, nobody has understood exactly how this works but our imaging methods are allowing us to see how synapses function in real time and with massive accuracy. With regard to diabetes I’m studying pancreas cells which are responsible for hormone secretion, including insulin, which plays a central role in the disease. Understanding communication between cells will help us to understand the causes of diabetes and hopefully lead to better ways to treat it.”

Sharing the techniques and learning from this advanced microscopy is a key aspect of Rory’s and his team’s work. “We publish internationally and give talks all over the world. IB3 has collaborators in countries across Europe, South America, the Far and Middle East and in Australia, the US and China. We’ve worked hard to build this level of reach but it’s the exchange of knowledge and expertise that drives our work forward so it’s essential to success.” Heriot-Watt in Edinburgh has also become a key location for high level exchange: “We have some of the most advanced equipment in the world and as it’s all in one place at the Campus it provides a very convenient resource. We make it available to other researchers and provide training on how to use the advanced microscopes. Our Summer School also provides opportunities to learn from the best experts in the world.”

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To find out more about Rory’s work, visit www.lifescienceinterface.hw.ac.uk



Research Profile:

Dr Sue Thomas

Advocating for ethics and sustainability within the fashion supply chain

Dr Sue Thomas, Director of Studies in the School of Textiles and Design, leads Heriot-Watt's recently launched MSc in Fashion Ethics. Joining the University from the Holmesglen Institute in Melbourne, Australia, Sue is an established expert in the field of sustainability and ethics in fashion.

"This MSc is a research led, taught programme, focused on analysing and understanding the industry. Sustainability and ethics are key issues in fashion which has been lagging behind other sectors in addressing these. I believe that is changing now and education has a crucial role to play in understanding the diversity of stakeholders in the supply-chain, contributing to new solutions, and developing alternative futures for the industry."

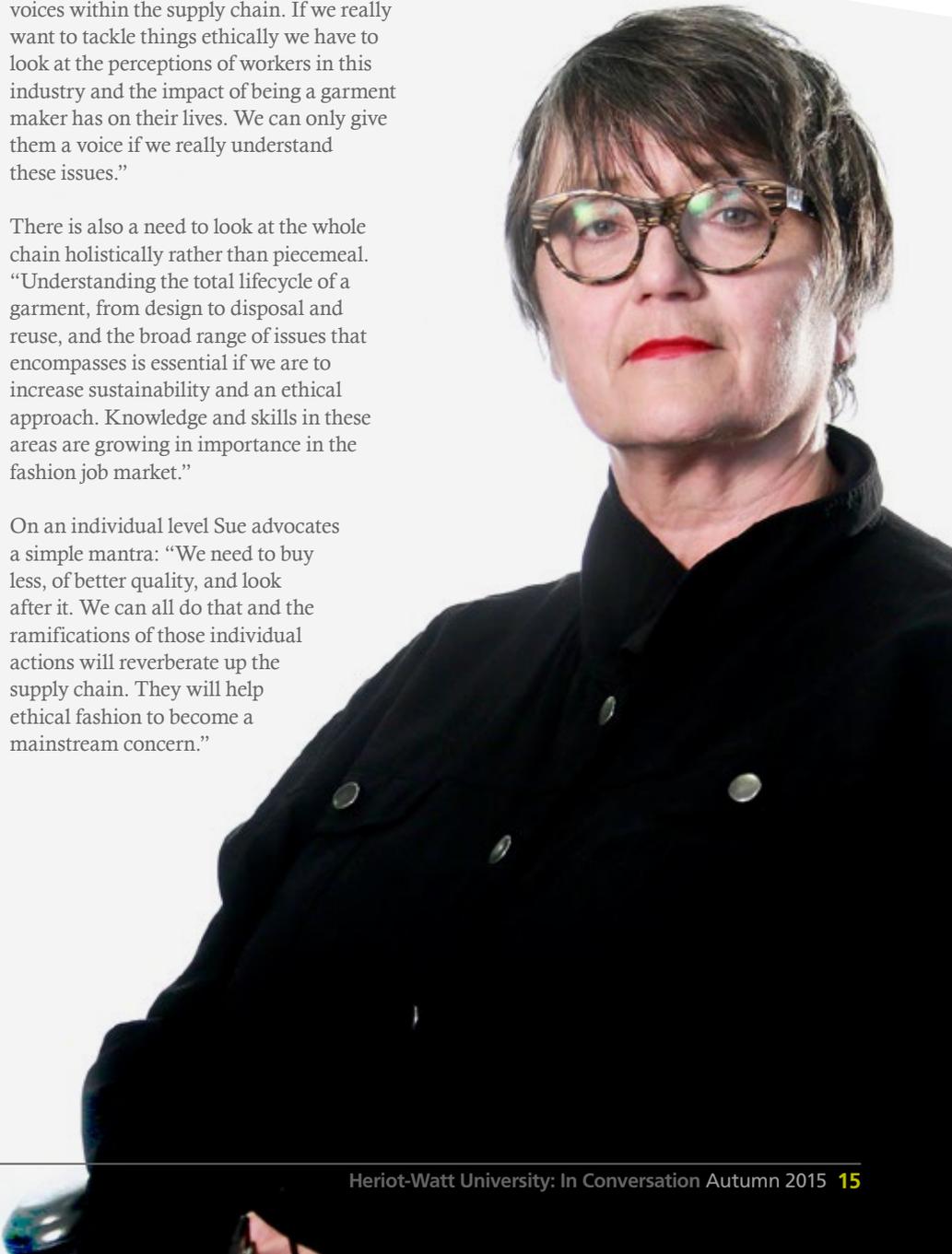
Tragic events, such as the 2013 Rana Plaza disaster in Bangladesh, rightly focus attention on the manufacturing side of fashion and the need to improve working conditions. But Sue identifies two other key areas which must be addressed in order to achieve an ethical supply chain. "Firstly, at the start of the process we need to encourage ethical design, which thinks beyond how a garment will look to embrace the implications of its design on the creation process. The decisions made at the concept and design stage are important for the journey of a garment, through its manufacturing to consumer use, and determine its longevity. Secondly, at the other end of the chain, we need to help consumers not only make informed choices but to build understanding of their role regarding the lifecycle of a garment: how they wear it, care for it and dispose of it, all have an ethical dimension."

To find out more about the MSc in Fashion Ethics, visit www.postgraduate.hw.ac.uk/prog/msc-ethics-in-fashion/

Internationally there is growing demand from the fashion industry for increased ethical practice and improved knowledge of the supply chain. Sue commented: "This demand for better understanding is about going beyond the obvious – mass production, sweatshops and the energy intensive process of fashion – to drill down and consider the voices within the supply chain. If we really want to tackle things ethically we have to look at the perceptions of workers in this industry and the impact of being a garment maker has on their lives. We can only give them a voice if we really understand these issues."

There is also a need to look at the whole chain holistically rather than piecemeal. "Understanding the total lifecycle of a garment, from design to disposal and reuse, and the broad range of issues that encompasses is essential if we are to increase sustainability and an ethical approach. Knowledge and skills in these areas are growing in importance in the fashion job market."

On an individual level Sue advocates a simple mantra: "We need to buy less, of better quality, and look after it. We can all do that and the ramifications of those individual actions will reverberate up the supply chain. They will help ethical fashion to become a mainstream concern."



Dubai Campus



Our Dubai campus continues to grow in strength and reputation. Students at the campus have swept the board at a design competition which aims to use a traditional building material in the construction of furniture, taking all five places in the finals.

The Student Design Challenge involved teams joining a three day workshop and challenged to submit a design for an exterior furniture piece using arish (palm fronds) as the primary build material. Traditional buildings made from the leaves of date palms have provided shelter from the extreme climate of the Arabian peninsula for generations. Just as bamboo is central to many forms of Asian vernacular constructions, so is palm leaf in the United Arab Emirates and surrounding countries.

Bruce Paget, Director of Studies for Interior Design at Heriot-Watt University's Dubai Campus, said, "The Student Design

Challenge provides young designers with the opportunity to connect and learn through collaborative, interdisciplinary activity, as well as having the chance to add to their personal portfolio and showcase their work to a wide public audience.

"To have all finalists from our University is a great moment for our interior design course and we have been extremely impressed with the level of dedication and creativity that has been delivered."

The Campus has also caught the attention of Dr. Mohammed Al Barwani, one of the biggest names in the oil and gas industry.

Dr Al Barwani was awarded a Master's Degree and PhD in Petroleum Engineering from Heriot-Watt University, UK, and in 1986, Dr. Al Barwani founded MB Petroleum Services, and went on to found Marwarid Mining in 1987 and Petrogas in 1999.

Heriot-Watt University Dubai Campus and MB Holding Group used the occasion of his visit to announce the establishment of a PhD scholarship programme. MB Holding Group will promote the scholarship in Oman and host two of the best PhD research students



from Heriot-Watt University's School of Engineering and the School of Energy, Geoscience, Infrastructure & Society. The selected Omani students began their scholarships in September.

— www.hw.ac.uk/news/oil-gas-guru-visits-dubai-campus.htm

— www.hw.ac.uk/news/success-in-the-palm-of-their-hands.htm

Naima Aziz (MSc Construction Project Management, 2009) is a sustainable interior design consultant from Pakistan, based in Dubai. As well as lecturing at Heriot-Watt's Dubai campus, her sustainable design business, The Green Design, focuses on providing environmentally friendly and sustainable solutions to interior design needs.



Transforming Spaces

Having initially graduated in Interior Design from the UK, specialising in textile and furniture design from Italy, she moved into the industry, successfully undertaking many interior design projects.

“I was always very fond of the academic world being the daughter of two professors, and wanted to further my studies. An MSc in Construction Project Management at Heriot-Watt caught my eye and, as a true believer of science and art stemming from one place, I came here to study something that was technical, yet creative. It was indeed the best time of my academic life. I really enjoyed learning, the companionship of multicultural students and the beautiful environment of Heriot-Watt University.”

Since leaving Heriot-Watt, Naima has moved through the design world after specialising in sustainable design, and focuses on creating designs to improve the environmental quality of indoor spaces.

“Learning and growing as a green designer, as well as giving back to society with corporate social responsibility have been my main activities. I have established a Sustainable Interior Design consultancy and product development company, The Green Design, which provides complete interior design solutions as well as soft furnishings where everything is developed from natural and sustainable materials.”

Naima has launched the UAE's first eco-friendly home fashion brand and created an interior design platform for students, designers and the other supply chain members.

Her slogan reflects her aims perfectly: Respect Nature, Protect Environment, Design for Human Comfort.

“My work is not just about establishing a successful interior design business, but about making people aware of the significant role that sustainable interior design plays in their everyday lives. I want to fully integrate sustainability into people's lives via the comfort and aesthetics that interior decoration provides. The concept of 'green living' is still quite novel and I want to provide interior design solutions that help people merge into a green lifestyle completely and seamlessly.

Interior design to me has always been about providing solutions and creative answers to a seemingly-hopeless space. The art of taking a barren, broken space and transforming it to a therapeutic space of aesthetic beauty with the right choices of materials, furniture and textiles is what interior design means to me.”

— www.thegreeninteriordesign.com
www.naimaazizdesign.com



Annual Fund

Heriot-Watt's Annual Fund (previously called the Alumni Fund) celebrates its 20th anniversary in 2015.

With your help, we've raised well over £900,000, every penny of which has gone on to support some great causes.

From travel bursaries to helping student societies grow, the money is used to improve the student experience here.

We caught up with some previous recipients...



If you would like to give to Heriot-Watt's Annual Fund, you can do so easily and securely online now by visiting:

www.alumni.hw.ac.uk/Support-Heriot-Watt





Heriot Watt University Medieval Society

Heriot Watt Medieval Society has benefitted greatly since receiving our award from the Annual Fund. Having been voted society of the year 2013 we felt we were in a position where we could expand our group in a number of ways to offer more to potential new members.

During term-time the Medieval Society practice medieval combat and craft in a safe way within the University grounds twice a week. During the summer months we attend large shows all over the UK with other re-enactment groups. The Annual Fund allowed us to invest in an authentic medieval tent for us to use in our displays and equipment for us to use for cooking. The medieval tent has had a massive impact on our display, giving us a base to show our own personal equipment as well as doubling up as sleeping quarters at fully authentic

events like the 700th Anniversary of Bannockburn re-enactment which we were lucky enough to participate in.

We are hopeful that with our new equipment we are able to develop and expand our society more, creating the best environment possible for all who wish to be part of us.

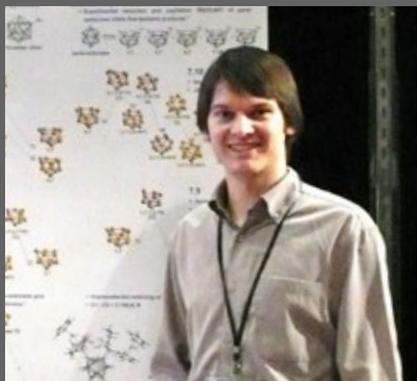
“Having been voted society of the year 2013 we felt we were in a position where we could expand our group in a number of ways to offer more to potential new members.”

Theodore Gazis Heriot-Watt student School of Engineering & Physical Sciences

During the summer of 2014 I was privileged enough to partake in an Opwall biodiversity expedition to the Peruvian Amazon where surveys are being performed to assess the impact of global warming on the Amazonian seasonal floods, a naturally occurring phenomenon.

With such a wide array of surveys to choose from, every day was unique. I would wake up at the first light of dawn and cruise gently on one of the auxiliary boats down the river counting wading birds or macaws. Or I would set off into the forest to spot monkeys or set animal traps for the big animals, like peccaries and jaguars that were, thankfully, too shy to show face when we were stomping about.

I owe the Annual Fund a great deal for helping make this dream a reality. Thank you, from the bottom of my heart.



Dr David McKay Postdoctoral Fellow, University of St-Andrews

During my first year as a PhD student, back in 2008, the Alumni Fund helped in funding me to attend WATOC in Sydney, Australia. As a theoretical chemistry conference this helped me understand the theory I was applying and how it fitted into the huge array of methods out there.

At the time I was excited to present my first poster (which cited my first paper!) and choose between nearly 300 lectures to attend. Since then I have completed my PhD – the understanding of the context of my work greatly helped in the viva – and I am now in my third postdoctoral position, having published 20 papers applying theoretical chemistry methods to real-world chemical problems.

Now, in my current post-doc I'm using different methods, different software and asking different questions to any of my previous experience, but behind that lies the consistent theme of the basic theory behind each new method and its context in the field. Understanding this has helped make me learn quickly and obtain valuable scientific insight.



David Nussbaum (Postgraduate Diploma in Accounting, 1982) is the Chief Executive of WWF in the UK, and Chair of the UK Chapter of the anti-corruption movement, Transparency International, two international non-governmental organisations (NGO).

Q: Some of the world's most endangered animals live on land populated by some of the world's poorest people – the two are often interdependent. How can we help secure against species extinction whilst also supporting the needs of the indigenous population?

We need to find ways which work for both local people and those species. If we can find ways that those animals can provide economic benefits, then that's a win-win. For example – eco tourism. By having opportunities for villagers to be involved in enabling tourists to come and see the wildlife and being paid for providing that service, then you get people thinking okay, this is good, we're benefitting from this.

Sometimes it might involve setting up a national park area, but often indigenous people already have long traditions of co-habiting with large mammals. If we can tap into those traditions, we can encourage them to work with, and alongside, the animals.

Working with the people is key. In some areas, if a tiger kills a cow, there's now an insurance scheme in place so that an automatic payment is made to the farmer for the value of the cow, which avoids a retribution reaction by the villagers against the tiger. It stops the instinctive reaction of "if the tiger killed my cow, I'm going to kill the tiger." We try to find creative, modern, and sustainable solutions that enable people to live alongside wild animals.

Q: Edinburgh Zoo has two pandas, and some say that the money used to keep them is money being taken away from other important conservation work. What is your view on how we balance prioritising conserving one species over another?

Firstly, WWF seeks to avoid species going extinct. Our work to help protect the panda in the wild in China has been positive. The population has gone up; it hasn't declined to next to nothing which it might well have done had we not concentrated our efforts over the last few decades.

5 Questions with David Nussbaum



Secondly, zoos play an important role in our understanding of animals and maintaining varied gene pools. One of the things we recognise is that people find a source of inspiration from encountering animals. That might be on TV, or by adopting an animal, like a panda, through WWF. This helps to educate adults and children not only about the animal itself, but it quickly takes them to its habitat and the wider natural world, so we have to find ways of inspiring people of the wonder of nature. Hopefully, this encourages their lifelong support of the conservation work for the amazing diversity of species we have. It's not a matter about whether we should put the money here or there; it's about how do we inspire people so that we have the money we need to conserve all the diversity of species on the planet.

Q: As Chair of the Board of Transparency International UK, you share a vision of a world free from corruption. What's the single biggest challenge facing this movement? Do you think a day will come where corruption is nonexistent, or is managing the problem the best we can hope for?

We're not going to make corruption nonexistent in my lifetime, but we could have a huge impact on the scale of it.

Corruption is undermining many of the things that we value, whether that is the rule of law, liberty of individuals, trust in political and other leaders, relationships between individuals and groups, or the services provided by the government, whether that's education, health or infrastructure.

We know of cases where buildings have collapsed after an earthquake and killed people. It becomes apparent during investigations that building rules were not followed and there is often evidence that people were able to evade operating within the building regulations through the payment of bribes. Corruption is not something that is just a nuisance or a mild

annoyance, but is a serious challenge to all kind of things we value.

In terms of the single biggest challenge I think arguably at the moment the issue is what I would call impunity. At the moment, across the world, there's a sense of impunity where some people think they can get away with corruption. In relation to the recent FIFA revelations, a lot of people have thought – finally! This has been going on for a long time, and people are asking why they were able to get away with it for so long. That's an insidious feeling, that powerful and rich people who have money are able to get away with it. It creates enormous anger and frustration, which in the right circumstances can lead to violent revolutions, fuelled by people's sense of injustice in the face of corruption, and the sense that the rich and powerful people are getting away with it. I think tackling impunity on an international scale will be one of the most important things we can do to tackle corruption right now.

Q: Have you any advice to graduates looking to work in an NGO?

It's possible to go straight into the NGO sector – although it is very competitive. I came into it from the private sector, but I did have a sense when there that whilst I was enjoying the work, I didn't see myself just being a plc finance director until I was 65 and retiring on an enormous pension. I felt I wanted to do something that was worthwhile in a more profound sense than was likely to be possible working in the private sector. A friend drew my attention to an Oxfam vacancy for a new finance director and suggested I apply. I did. I got the job and moved into the NGO sector indefinitely.

New graduates can get training and experience that might be useful and relevant to a particular charity sector – health, environment or international development for example, but also bear in mind that charities need all kinds of people – good communicators, those who can deal with politicians, events managers ...the list goes on.

If you are serious about NGO work, you need to be clear on how are you going to live with that financially. If you think that just making as much money as possible is what life's about then you are probably not going to want to work in the sector. If you adopt an expensive lifestyle, you could be in trouble: some people have said to me they want to work for an NGO but they can't afford it. Well, they could afford it; but they don't want to, perhaps because they have taken on obligations they won't let go, which means they think they have to earn very large amounts of money. So it's easy to think you're stuck, and it's a shame that some people feel trapped in that way.

Q: What do you think is the most beautiful place on Earth?

That's a dangerous question! I'm a Scottish chartered accountant so perhaps I should be saying some wonderful view in Scotland from around Loch Lomond. But my mother is Welsh and I've spent a lot of time in Wales on holiday so perhaps I ought to be talking about the fantastic beauty of the mountains of Wales. But I'm English! So maybe I should be talking about somewhere in England. However maybe the most visually stunning place I've been is when I was privileged enough to go swimming in a warm river in Brazil. The temperature was 24°C, so comfortable rather than freezing cold. The river was crystal clear – you could float under the water with a snorkel and get a fish-eye view of a river. You see the way the river flows slowly or quickly, the gravel, the trees that have fallen in, and all these fish swimming along with you, so close that you can touch them. Just to see a river from that perspective is so different: an aqueous perspective from the river looking up to the banks. It was amazing.

–
www.wwf.org.uk
www.transparency.org.uk



Fashion is Bananas



Recent graduate in Fashion Technology, Ryan Kirk, has left Heriot-Watt with real drive and determination to bring a change to the fashion industry.

“Within my work, it’s always the fabric or textile that I am drawn to and to make the garments stand out, whether that is the print, textured textile or an unusual material. I have created an outfit, for example, which has been created entirely from banana fibres.

With this being said, this is what I wanted my honours project to focus on and find a way to adapt unusual materials into a contemporary collection.

This then turned into the issue of sustainability, that is a fairly new subject to me but after this year, it is definitely something I wish to continue.

I found some shocking articles which had never crossed my mind before, including water pollution due to dyeing chemicals

leaking into waterways; the amount of toxins and pesticides that are put onto textile crops and the resultant harm done to farmers’ health, or the overflowing of landfills due to fast fashion and clothing disposal.

Due to there being such an extensive list to sustainable topics, I decided on focusing on the landfill issue within my graduate collection. There are two meanings within the collection for the landfill issues. One side uses natural fabrics, so if they were ever to get sent to landfill they would biodegrade themselves over time and, on the other side, it’s preventing waste going to landfill.”

Environmental considerations are increasingly important issues in the fashion industry, and one Heriot-Watt is facing head-on with a new MSc in Fashion Ethics. Find out more about it, and the course leader Dr Sue Thomas on page 15.

– www.facebook.com/rkdesignsbyryankirk





01

The finale piece of the collection is this remarkable 100% Waste Plastic cape which Ryan created himself. The aim was to prevent any of the waste plastic going to landfill and therefore to give it a new life.

02

The dramatic oxblood Mohair Cape was a signature piece within Ryan's sustainable graduate collection, giving an impact with the shaped hem and enclosed cocoon silhouette, taking inspiration from a moth's chrysalis.



03



05

04

This outfit uses the 100% Banana fibres textile, with a hint of the burgundy Recycled Polyester on one half of the Split Top. The top shows more angular shapes that have been a prominent feature throughout the collection.

05

Innovative sustainable textiles have been at the forefront of the collection, including this outfit which has been created from 100% Banana fibres.

03

Ryan's grey shaped hem dress within the collection is another eye catching sustainable design, this time created using 100% Recycled Polyester (rPET). Recycled polyester derives from plastic bottles which are broken down and spun into the textile fibres.

Spirit in the Sky

"I received a call from NanoRacks, a Texas-based company who carry out contract research for NASA on the International Space Station (ISS)," recalls Dr Bill Lumsden (PhD Microbial Physiology/Fermentation Science, 1986), Head of Distilling & Whisky Creation at The Glenmorangie Company. "They are big Scotch whisky lovers, and in particular are huge fans of Ardbeg, which is one of our whiskies. They asked if I would like to put an experiment on the ISS, and I jumped at the chance. I asked how many weeks I would have to devise, plan and implement such an experiment. That's when they laughed".

Bill had just 24 hours to pull together the materials for one of the most intriguing experiments the company has ever been involved in, before couriering everything out to Texas, where it was then sent on to Kazakhstan ready for blast-off. "It was a hectic twenty-four hours. As I knew they were Ardbeg fans, I grabbed a bottle of new make spirit – an unmaturing malt – and dashed out to our Broxburn cooperage to collect wood shavings from the inside of a bourbon barrel. These were put in a small glass vial separated by a thin layer of glass. Once in space, we synchronised our clocks with the ISS and

at the exact same moment that I broke the vials down here, the astronaut broke the ones on the space station. This allowed the spirit and the oak to mix, and so began the simulation of maturation." The idea is to compare these samples and see what, if any, difference micro-gravity has on the whisky maturation process. The vials returned to earth at the end of 2014, and Bill's team have been analysing the results since.

However, whilst whisky matured in space might grab headlines, it is the work Bill has done to ensure the environmental sustainability of Glenmorangie that is, perhaps, something of which he is even prouder of achieving.

"We take our environmental credentials very seriously in the industry. For example, I recently created Glenmorangie Dornoch, named after the Dornoch Firth which is the estuary on which our distillery sits. For every bottle sold, a donation goes back to the Marine Conservation Society to help them preserve the natural beauty in the area. We're also working to continually reduce our effluent waste, and are fitting a bioplant to ensure all we put back into the sea is water. The Holy Grail for our industry is to be able to take all our by-products and convert them into energy." This will make the industry

For three years, the angels were getting a bigger share of Glenmorangie's whisky than usual...

sustainable in two ways; the carbon foot print of whisky production will be reduced and it will help to make it more economically sustainable.

"I've also been involved in a working group looking at the sustainability of the use of oak barrels. Sadly, there isn't enough Scottish oak for our needs, and it isn't necessarily the right flavour profile anyway. So we use American White Oak; it's vital to the industry that we have a sustainable supply of barrels and we know that for every oak tree cut down for coopering, as many as 100 acorns will seed themselves in the ground, and will actually have to be thinned out to make the forest manageable, so we know what we do has been proven to be environmentally friendly."

"Our drinks, just like those created in small, artisan distilleries, are created with a real, personal input from whisky loving people."





When thinking about the long term sustainability of the Scotch Whisky industry, in particular the rise of craft distilleries, Bill is enthusiastic. “There’s been a recent rise in the popularity of whisky around the world, which I think is being driven by a combination of real lovers of the drink working at the heart of production, and the industry moving away from the use of “Scottish myths” like tartan and Scotty Dogs when trying to sell the produce. When it comes to craft distilleries – I think craft is a funny word, and it’s being misused a lot. Although we produce six million litres of alcohol a year, we wouldn’t be perceived as a craft distiller, but we do it in a way that can be regarded as craft, like our Signet brand. Our drinks, just like those created in small, artisan distilleries, are created with a real, personal input from whisky loving people.” Signet is a personal project of Bill’s that has been long in the making. Inspired by his time studying brewing when at Heriot-Watt’s International Centre for Brewing and Distilling (ICBD), he started thinking about how he could experiment and push the boundaries of whisky production within the confines of a very regulated industry. Signet uses chocolate malt and is made from whisky laid down many years ago when Bill was Distillery Manager at Glenmorangie’s distillery in Ross-shire.

Bill is a man who clearly loves his job, and enjoys all aspects of it, and he has great advice for anyone wishing to follow in his footsteps. “Getting a degree from Heriot-Watt’s International Centre for Brewing and Distilling is a fantastic start!” says Bill. “You have to love the product, you need to have a passion for whisky. Equal to this, you need to have a technical understanding of how it is created, and that is where the ICBD

comes in. Make sure you do your research on companies, download their annual reports, understand their strategy and business. The number of people who I have interviewed who haven’t even bothered to visit our website still staggers me. It used to be that our sales and marketing colleagues would go out promoting the drink, but more often than not these days the press wants to hear from the distillers and creators, so being reasonably eloquent and personable certainly helps too.”

During his own time with the ICBD, Bill was taken under the wing of Professor Sir Geoff Palmer, a leading scientist in the field of brewing. “This was back in the days where we were taught in Chambers Street, and where I could roll out of my flat on Warrender Park Terrace and be in class after a quick stroll across the Meadows in ten minutes. It was also a couple of years after I had my first taste of single malt Scotch whisky in 1984. It was a Glenmorangie 10 year old, and I was instantly hooked. I feel a sense of destiny that I’m now responsible for that very same whisky.”

When asked about the perception of whisky being a man’s drink and the industry dominated by men Bill is quick to rebuff any such suggestion. “The notion that whisky is only for men is utter nonsense, so I absolutely encourage any women wishing to enter the industry to do so. In my experience, women tend to have better noses and palates than men so, theoretically, they should be able to enjoy whisky better than men. I always have two or three members of my small team who are female, and they always give a slightly different perspective on the flavours and finish.”

Thoughts move to the future of whisky. After the ISS experiment, will we one day see whisky matured in space? “Well, it’s unlikely, but you never know! For a start we couldn’t call it Scotch. We’re now testing the liquid that came back from the space station using, amongst other techniques, gas chromatography, and the final thing to do will be to taste the liquid and compare it to normal Ardbeg. We haven’t got much left, so if we can sell a bottle of Ardbeg 1815 for £1,500, then the little vial that came back must be priceless. Experiments like these are what sparks off our imaginations and ideas for new products, so who knows what the future will bring!”

To see more from Bill and learn more about the ISS mission, visit our media pages at thewattclub.hw.ac.uk/ic2015/



New to whisky? Let Bill guide you through some tasting notes in our video.





“We are pleased to congratulate the first of our graduates who have successfully completed their programmes based entirely at our new Campus.”

Malaysia

In early 2015, Heriot-Watt’s Malaysia Campus in Putrajaya was officially opened by Her Excellency Vicki Treadell CMG MVO, British High Commissioner to Malaysia, and Dato’ Seri Idris Jusoh, Minister of Education II in the Malaysian Government. Designed and built to meet the exacting needs of an increasing student population, it builds on the success of our other international campus in Dubai.

We have been teaching in Malaysia since 2013, with the new campus welcoming students since late 2014.

The prestigious and innovative building, based in the heart of the government capital of Malaysia, has been designed to provide an excellent learning environment and base

for research and knowledge exchange, representing an outstanding example of UK higher education in the region.

It will cater for up to 4,000 undergraduate and postgraduate students to study a range of Heriot-Watt University degree programmes in science, engineering, business, mathematics and design, all key growth areas for the Malaysian economy, including business, finance, accounting, actuarial science, construction and engineering specialisms including civil, petroleum, chemical, mechanical and renewable energy.

The building, designed by Hijas Kasturi Associates, will feature at the World Architecture Festival in Singapore in late 2015, in the ‘Higher Education and Research – Completed Buildings’ category.

We are pleased to congratulate the first of our graduates who have successfully completed their programmes based entirely at our new Campus.

Amirah Jamil pursued the Foundation in Science programme, with plans to enter a career in Chemical Engineering. Amirah believes that the knowledge she gained during the past year will help her as she moves on to her undergraduate studies. “The syllabus is tailored to equip us for our undergraduate programme. What’s more, the lecturers are very competent, and the course challenged and prepared us for the future.” Of course, there is also the university’s strategic location in the heart of the beautiful, modern city of Putrajaya. “Having a lakeside campus with a beautiful view doesn’t hurt either!”

To view more images, check out our Facebook page at www.facebook.com/thewattclub, Flickr at www.flickr.com/photos/heriotwattuni or search #HWUgrads on Twitter.

Congratulations

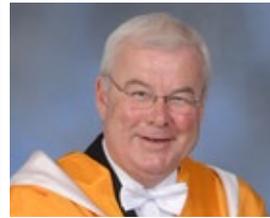
to our Summer 2015 graduates!



**Congratulations to our
honorary graduates of 2015:**



Dame Athene Donald
*Deputy Vice Chancellor,
University of Cambridge*



Dr Douglas Connell
*Chairman, Turcan Connell
Asset Management Limited*



Professor Henk Barendregt
Radboud University Nijmegen



Prof. Charles Bamforth
*Distinguished Professor,
University of California*



Dr Inge Russell
*Editor, Journal of the
Institute of Brewing*



Sir Geoff Palmer
*Professor Emeritus,
Heriot-Watt University*

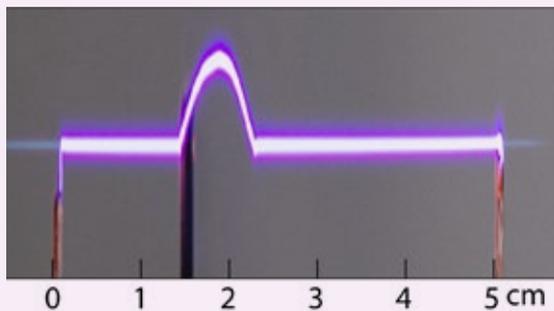


Dr Ken Cunningham
*General Secretary Of
School Leaders Scotland*



Dr Thomas Wilhelmssen
*Group Chief
Executive Officer,
Wilhelmssen Holding*





Bend it like Uri Geller

Livescience.com explained some of the theory behind “bending lightning”, as demonstrated by Dr Matteo Clerici, a research fellow at Heriot-Watt.

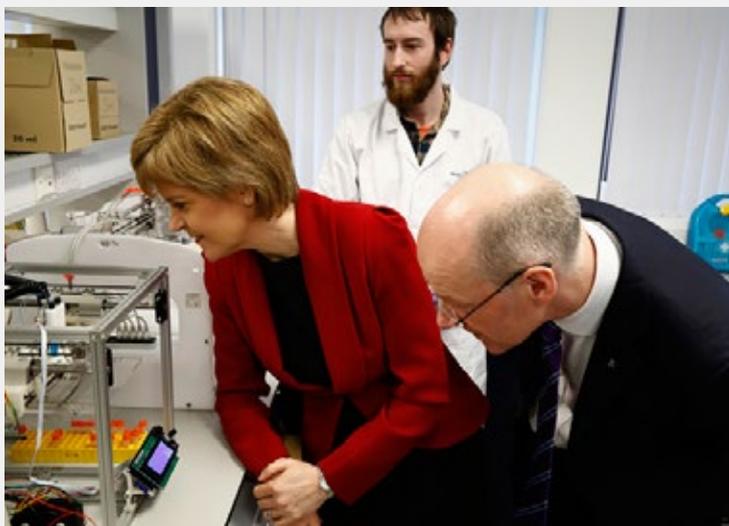
He has shaped electrical sparks, even bending them around an object, meaning that an electron microscope which can see around corners may be a possibility.

—
<http://www.livescience.com/51292-lasers-shape-electrical-discharges.html>



Heriot-Watt in the Media

Heriot-Watt continues to make waves in the media with our pioneering research. Here’s a small selection.



3D Bioprinting

Heriot-Watt’s Institute of Biological Chemistry, Biophysics and Bioengineering (IB3) received a visit from both the First Minister, Nicola Sturgeon, and Deputy First Minister, John Swinney in March.

Bioprinting, the process of creating human tissues through 3D printers, is an immensely important area of technological and medical innovation. Scientists at Heriot-Watt University are leading the way in finding alternatives to organ donations through bioprinting and in doing so revolutionising the future of healthcare.

—
To find out more, watch our video:
<https://www.youtube.com/watch?v=uAC35VboZ04>



Brewing Up A Treat

Professor Sir Geoff Palmer of our International Centre for Brewing & Distilling was interviewed by Professor Jim Al-Khalili on BBC Radio 4's "The Life Scientific".

Geoff talked about his upbringing and entry into the field of brewing and distilling in a Twitter-trending interview.

Described as an "inspirational man" by Professor Al-Khalili, you can find Geoff's interview from the 4th August 2015 here: <http://www.bbc.co.uk/programmes/b015sqc7/episodes/downloads>

The Geography of Homelessness

Geographical used research from Heriot-Watt in an article on homelessness in the UK – how it is defined, and how the problem can be correctly assessed.

<http://geographical.co.uk/places/cities/item/1132-the-geography-of-homelessness>



Converge Continues Successful Growth of Entrepreneurs

The Scotsman carried an article by Heriot-Watt's Enterprise Creation Manager, Dr Olga Kozlova, who is also the Director of Converge Challenge, Scotland's premier company creation competition.

"The creative industries in Scotland now span around 18 sub-sectors, ranging from architecture, music, theatre, television to visual arts, fashion, dance and the games industry. There is no doubt that this is a sector that punches well above its weight and Scotland's higher education institutes are playing a pivotal role in this."

Read the article in full at <http://www.scotsman.com/news/scotland-has-space-to-create-and-innovate-1-3766468>



Robotic Advances

Professor David Lane of the Institute of Sensors, Signals & Systems, was interviewed by the BBC in his capacity as a director at the Edinburgh Centre for Robotics on the future development of smart robots.

"There is now a global race to be the country that develops the best smart robots. We want to be at the front of the race if we can."

Read more here <http://www.bbc.co.uk/news/science-environment-32028539>

Studying Scottish Sexism

The Daily Record reported on Heriot-Watt lecturer Fiona Jardine, who has been looking at advertising images from the 1950s and 1960s.

These include the Tennants Lager Lovelies and the "I wish they all could be Caledonian" tagline from British Caledonian. This work fed into her exhibition at the Tramway in Glasgow, "The Persistence of Type".

<http://www.dailyrecord.co.uk/news/real-life/glasgow-exhibition-tackles-sexism-sale-6033816>

A sustainable & balanced Campus

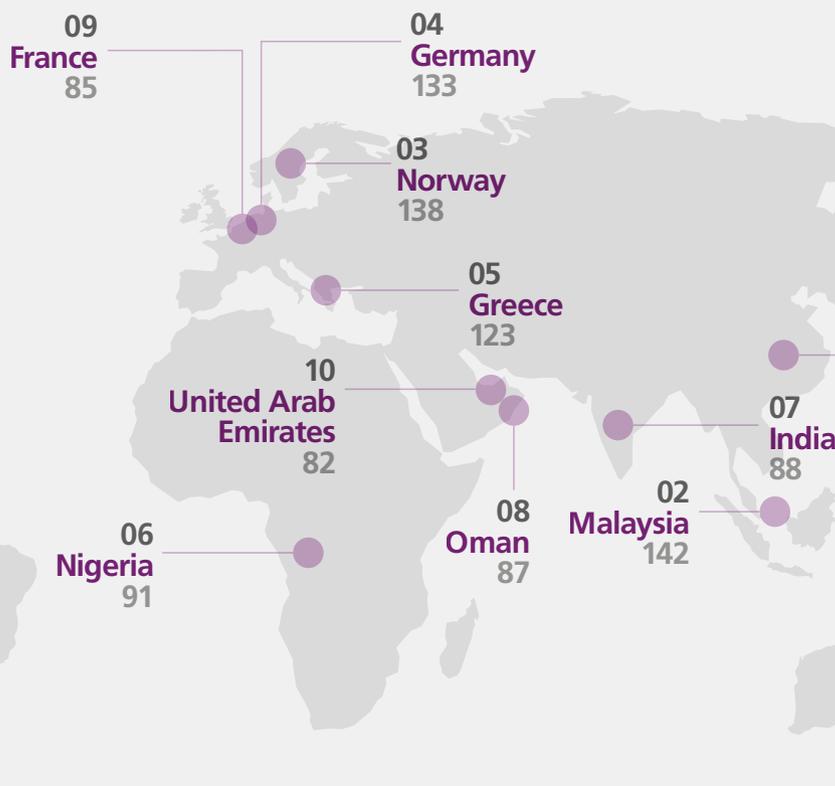
Undergraduates



6132

+16% increase since 2005

Top 10 non-uk domiciled students at Edinburgh, 2014/15



Academic staff



557

+36% increase since 2005

Research staff



216

+20% increase since 2005

Postgraduate Taught



1402

+20% increase since 2005

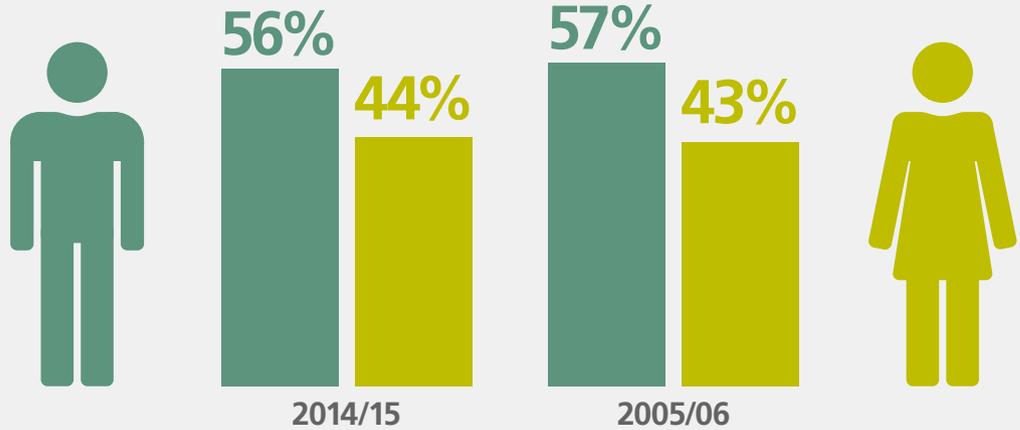
Postgraduate Research



727

+69% increase since 2005

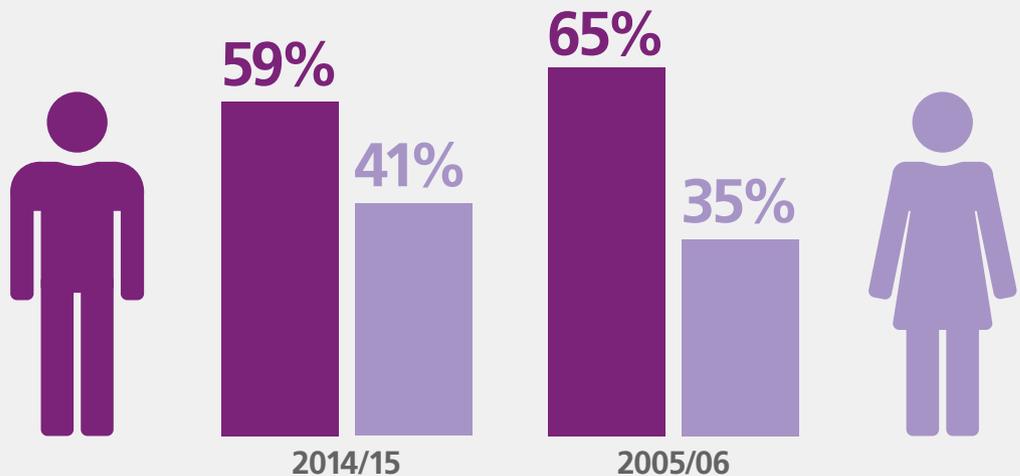
Undergraduate Students by gender



01
China
533

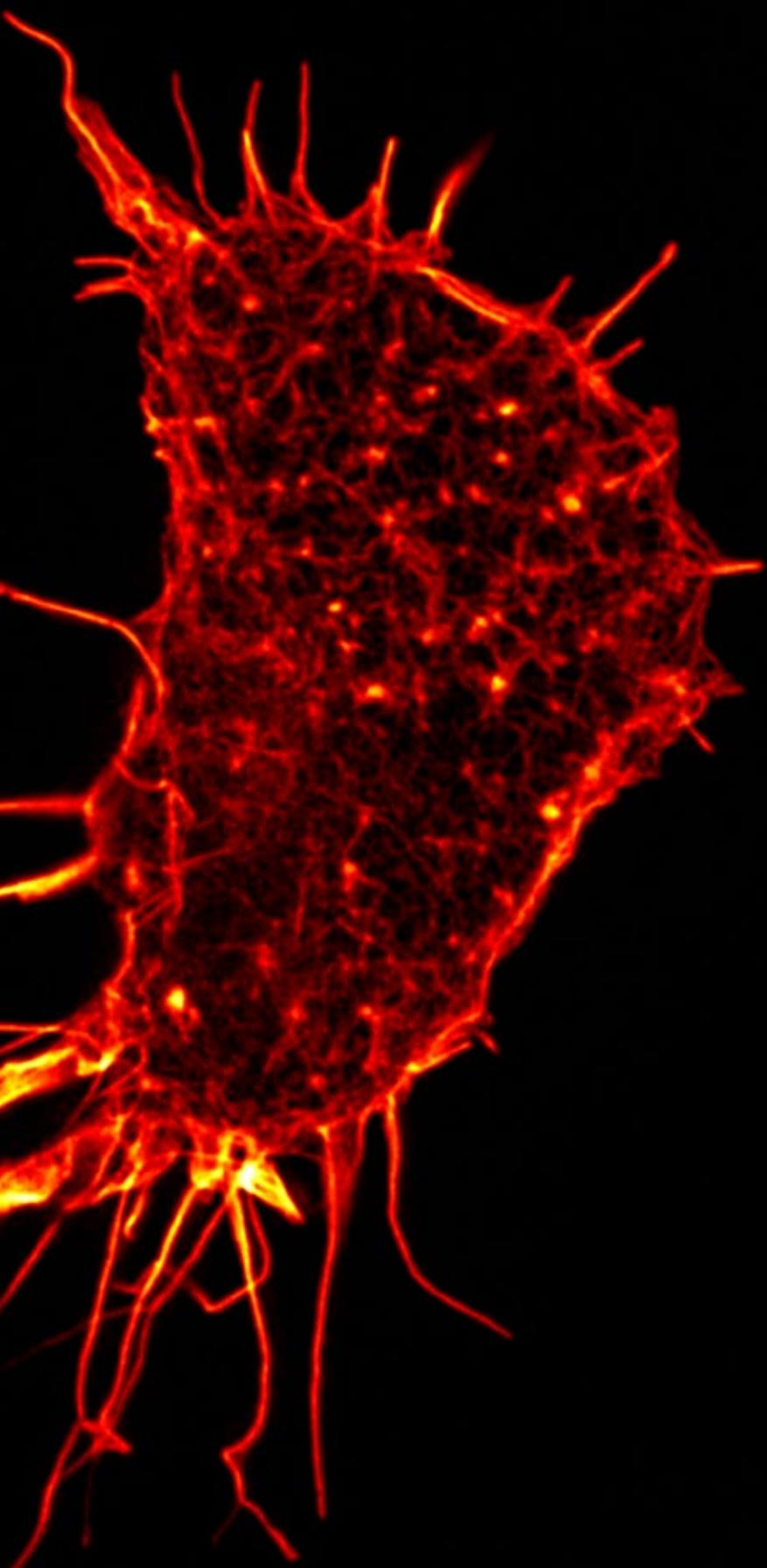
Total number of non-UK domiciled students: 2,812

Taught Postgraduate Students by gender




95%

of Heriot-Watt first degree graduates were in employment or further study within six months.



Help us to continue discovering and supporting new talent at Heriot-Watt

Our students are the lifeblood of Heriot-Watt. Everything we do is focused on enhancing the student experience while they study with us, and supporting them in their careers once they graduate.

One of the ways alumni and friends of Heriot-Watt can support current students is by donating to one of our Funds. Visit www.alumni.hw.ac.uk/support to find out more.



The cell in this image is from a human kidney, 100,000ths of a metre across. Being able to visualise cells in such detail has already had a significant impact on research into drug development and the diagnosis and treatment of diseases such as cancer, parkinsons and schizophrenia.

Image courtesy of the Institute of Biological Chemistry, Biophysics and Bioengineering at Heriot-Watt University.

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