In September, one of the UK’s most prestigious events was hosted by Swansea University. The British Science Festival is Europe’s longest-standing national event which connects people with scientists, engineers, technologists and social scientists. First held (as the inaugural and then annual meeting of the British Association for the Advancement of Science) in 1831, the Festival has been the stage for many iconic moments in history – such as the famous debate on Darwin’s controversial theory of evolution between Thomas Huxley and the Bishop of Oxford in 1860. It also saw the first use of the word ‘scientist,’ in 1834. The annual meeting has previously been held in Swansea on four occasions: 1848; 1880; 1971 and 1990, however 2016 is the first time that Wales has held the Festival in its current format.

Across the Festival and the Family Weekend, thousands of people came together to celebrate the latest developments in science and to engage in open discussion about issues that affect our culture and society. The Festival encompassed a number of events such as a beach party with fireworks display, a ‘Culture Crawl’ in Uplands and star speakers including Swansea University alumnus Lyn Evans of CERN and Honorary Fellow George Abbey of NASA.

I am proud that the Festival also included a celebration of women in science and I chaired a panel discussion with leading female scientists Dr Alison Rust, Jacqueline Rosette and Dr Selina Orr. I am the University lead for ATHENA SWAN, so this topic is very close to my heart. In March this year, on International Women’s Day, a report I co-authored was published entitled “Talented Women for a Successful Wales”. Getting more women into science is critical for the economic future of Wales and the report recommends finding ways to encourage more girls and women in Wales to study STEM (science, technology, engineering and mathematics) subjects and pursue careers in the science sector. The report identifies the need for a sea change in attitudes across society to break down existing barriers and create the skilled workforce needed to support the future economic growth of Wales.

The Festival was the perfect opportunity to capture the buzz and vibrancy of the University’s research community, and to highlight the fascinating research being undertaken across campus.

I hope you were able to visit Swansea for the British Science Festival and if not, then this issue of Sail will give you a flavour of the occasion.
Europe’s longest standing national event, the four-day British Science Festival organised by the British Science Association and Swansea University was held this year at the University’s Singleton Park campus from Tuesday 6 to Friday 9 September.

The Festival was followed by a family weekend featuring an array of activities, workshops and hands-on family fun at the National Waterfront Museum and surrounding venues.

Thousands of visitors experienced an exciting range of talks, debates, performances, tours and workshops on campus and across the city from morning into the night. Hundreds of leading scientists from all around the world came together to showcase the latest in science and technology in the free public events which were open to everyone.

Academics from the university talked about the healing role of maggots, the relationship between sleep, dreaming and memory, the study of demonology and the story behind the £3 billion underground machine which is unlocking the secrets of the universe. Alumnus Lyn Evans, who graduated from Swansea with a doctorate in Physics, talked about his 47 years at CERN. Honorary Fellow George Abbey was also in conversation discussing his work at NASA.

The British Science Festival is an event designed to inspire everyone as to how extraordinary science is and how pervasive it is in our lives. It has provided a fabulous opportunity to put Swansea University and its work on the world stage.

Check out our Flickr album for more photos of the Festival: flickr.com/photos/Swansea_alumni
For many of the brightest and most motivated students, arts and culture may determine their choice of university, whatever subject they plan to study. By building up student music at Swansea, we can help to attract the best young minds to the city, to study, to work and to live. The music they make here will enrich the city and region, enhancing Swansea’s reputation in the wider world, and making a deep and lasting impact on many people’s lives. And through work with local schools, we will use our music making to engage with children on a wide range of topics, including science, education and the arts.

The magnificent Great Hall is home to the Sir Stanley Clarke Auditorium and a wonderful starting point and catalyst for these aspirations, but to realise its full potential for the University and the city, we need additional resources: equipment, instruments, scholarships and rehearsal facilities. We need to create a nationally-leading University Music Service, to recruit, nurture and support our student musicians – and to make their achievements widely known. I hope you will agree that this is an outstanding, once-in-a-generation opportunity.

**HOW YOU CAN HELP**

**SCHOLARSHIPS**

Instrumental, choral and organ scholarships will be a key part of the process of attracting talented musicians to study at Swansea. Worth £1,000 a year, these will make us more competitive in attracting the finest student musicians to Swansea.

**INSTRUMENTS**

The provision of an extensive range of musical instruments is the most fundamental and pressing requirement for the establishment of a music service. With your help we hope to raise £150,000 towards the cost of these.

If you are able to help, please complete the donation form provided with this publication or contact the Development and Alumni Relations team.

Thank you for supporting our vision.

Dr Ian Rutt, Director of Music

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**SAIL MAGAZINE 2016**

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**MAKING MUSIC**

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**HRH THE PRINCE OF WALES, President of The Prince’s Foundation for Building Community, officially opened the Bay Campus of Swansea University on 4th July 2016**

The visit celebrated the official opening of the Bay Campus which is part of the University’s ambitious campus development and expansion programme taking place over a number of years.

The Bay Campus is one of the Prince’s Foundation for Building Community’s flagship projects. In 2009, The Prince’s Foundation had the vision to turn an abandoned brownfield site owned by oil company BP into a centre for knowledge and innovation that would revitalise the whole region. This built on their joint work in creating Coed Darcy (a regeneration project in Neath, South Wales) on a contaminated site in 1999.

The Prince’s Foundation developed the strategic brief and led the stakeholder workshops for the campus project. Swansea University and St. Modwen were the project partners, Porphyrios Associates were the masterplanners and the buildings were designed by Porphyrios Associates and Hopkins Architects.

On arrival, His Royal Highness was greeted by Professor Richard Davies, Vice Chancellor of Swansea University and St. Modwen were the project partners, Porphyrios Associates were the masterplanners and the buildings were designed by Porphyrios Associates and Hopkins Architects.

On arrival, His Royal Highness was greeted by Professor Richard Davies, Vice Chancellor of Swansea University, David Toman, Chief Executive of St. Modwen, and other partners before touring the campus.

The Prince met staff and students as he viewed the state-of-the-art research facilities in the impressive Engineering quarter, the Bay library and the accommodation area.

The visit finished with The Prince unveiling a plaque to mark the opening of the Bay Campus in the stunning Sir Stanley Clarke Auditorium of the Great Hall.

Speaking about the Bay Campus, David Toman, Chief Executive, The Prince’s Foundation for Building Community said:

“We wanted to create a community, a place where people can come together to spark innovation and greater knowledge through sharing. Swansea University Bay Campus is an example of the new kinds of economy that can rise from the ashes of the old. Without the vision of His Royal Highness this campus simply would not have been built. The Prince’s Foundation worked tirelessly with Swansea University, Neath Port Talbot CBC, BP plc and St. Modwen plc to regenerate a derelict parcel of land into a world class exemplar of sustainable regeneration which is helping to deliver jobs and growth for Wales.”
SWANSEA EMPLOYABILITY ACADEMY

The Swansea Employability Academy (SEA) provides a network for linking students with employers - ranging from employer talks and workshops through to student led networking events. The Academy supports Swansea University students at each stage of their journey towards a graduate career - from coordinating professional careers advice, managing a range of placement schemes and ensuring face-to-face and online support, to providing guidance for making informed career choices and preparing for interviews.

If you are in a position to support Swansea University students with a work placement or by giving a careers talk, please contact the Development and Alumni Relations Team.

O L I V E R  B R O O K S

Oliver Brooks graduated in July 2015 having studied a MEng in Civil Engineering with a year in industry. The Alumni Relations team kept in touch with Oliver as he embarked on his career.

During his time at Swansea Oliver had a very proactive attitude to his career search, using many of the services offered by staff in the College of Engineering and the Careers team: he attended the College of Engineering ICE evening lectures as well as careers fairs. Also, as part of his course, Oliver undertook a one year industrial placement opportunity in Australia, working as a Project Engineer on a large scale coal seam gas project in the middle of the Australian bush.

In his second year he won the TARGETJobs Construction Engineering and Design Undergraduate of the Year Award, where he was invited to attend a prestigious dinner in London’s Canary Wharf.

“This was probably my proudest moment as a student. I was honoured to be representing the University and the first ever winner of one of the awards from a Welsh University. I particularly remember my first interview as part of the Undergraduate of the Year selection process and preparing for that with multiple mock interviews and talking through things with the advisors – it obviously paid off!”

“During my time at Swansea, I had been able to build a truly remarkable CV on the back of my academic and professional experiences. Because of this, I left the university exceptionally well prepared for what lies ahead and with an unbelievable wealth of opportunities.”

After graduating, Oliver started work with Laing O’Rourke, the UK’s largest privately owned construction company. His new role as a Digital Engineer is focussed almost entirely on an area of construction known as Building Information Modelling (BIM) which concentrates on building and using computer models of construction projects to realise more efficient, more valuable and safer delivery on site.

“My job as a Digital Engineer is to support the delivery of construction projects through intelligent coordination of information and use of advanced digital modelling. I have worked on several building and infrastructure projects across Southern England and Wales including major retail, healthcare, power and rail developments. The variety of work and breadth of exposure continues to be exciting and very good for the development of my Engineering knowledge and networks.

“As a student ambassador in the College of Engineering at Swansea University, I presented frequently to prospective students and their parents. This experience has recently become very valuable to me as part of my job is to deliver skills and software training to other Laing O’Rourke staff and members of our supply chain. It’s another example of how I’m discovering that both the technical and non-technical skills I learnt over my time at Swansea have helped me to succeed in the workplace.

“Looking at the longer term, the company I work for has a wide variety of projects coming up across sectors including nuclear energy, transport, commercial and residential property. As a member of the company’s Civil Engineering Graduate Development Programme, there’s a multitude of directions I could take in this range of work; it’s just a case of taking the opportunities as they arise.

“Above all else though, wherever my career takes me, my priority is to ensure that I’m always learning and enjoy what I’m doing. If I can do that whilst passing on my knowledge and developing others at the same time, I think I’ll have a very rewarding career.

“I’m certainly missing Swansea University and its rather unique setting. During my time at Swansea I found my independence and enjoyed some of the best times of my life.”
Research as Art

Research as Art is a unique competition which provides a platform for researchers, students and staff at Swansea University to convey the importance, emotion, beauty and humanity of their research.

It is an opportunity for researchers to showcase their research to the world, by providing a brief, captivating description and image. The exposure for winners can be significant, achieving a reach of over 50 million people worldwide through press coverage in previous years.

Sail magazine’s cover image was submitted by the College of Engineering’s William Bennett and Daniel Thompson and awarded runner-up this year. Entitled, ‘An Ocean of Possibilities’, this powerful image illustrates the chaos that exists within the coastal system. The image was taken inside the 30-metre research flume which provides a controlled environment in which to study a wide range of hydrodynamic behaviour. By developing a greater understanding of coastal processes we can explore the ocean of possibilities associated with climate change and provide reliable research-based guidance for adapting to the changing environment.

We have included some other 2016 entries here. For more information visit swansea.ac.uk/research/surf/art-competition

Overall Winner - “Mirror of Heaven; Byzantine Silverware in Use”
Heather Hunter-Crawley (College of Arts and Humanities)

“Mountain range”
Callum Gallagher (College of Engineering)

“Tropical rainforest”
Katherine Hooper (College of Engineering)
Datuk Seri Issace John was awarded an honorary degree in July this year.

Datuk Seri Issace was born in Negri Sembilan, Malaysia, and attended the University of Science, Malaysia, Penang where he studied for a BSc Hons degree in Housing, Building and Planning, and where his MSc focused on Town Planning. Between 1983 and 1984 he attended what was then the University of Wales, Swansea for an MSc in Development Economics.

Datuk Seri Issace is now Chief Executive Officer of the East Coast Economic Region Development Council (ECERDC), responsible for the implementation of high-impact, key projects such as the Malaysia-China Kuantan Industrial Park (MCKIP), the first industrial park in Malaysia to be accorded “National Status”.

Datuk Seri Issace is also instrumental in the successful implementation of ECERDC’s human capital development projects, as well as entrepreneurship development initiatives that have helped transform the lives of more than 60,000 people and prepared local talents to meet the needs and requirements of emerging industries.

He is the recipient of multiple awards and medals including most recently the ‘Daijah Seri Mahkota Wilayah’ from HRH The Yang Dipertuan Agong in conjunction with the Federal Territory Day in February 2015.

Datuk Seri Issace has played a key role in facilitating the collaboration between University Malaysia Pahang (UMP) and Swansea University, while promoting working partnerships between both universities in the areas of academia and research.

On receiving the honorary award during the graduation ceremony for the College of Engineering, Datuk Seri Jebasingam Issace John, said: “I am indeed grateful and honoured to receive this esteemed recognition from Swansea University. The invaluable knowledge and experience that I gained during my time in Swansea have helped greatly in my career path and enabled me to contribute significantly to my country’s national development programmes.

“Moving ahead, I look forward to further strengthening and facilitating the working partnership and research collaboration between Swansea University and the industries in Malaysia’s East Coast Economic Region. Swansea University is one of the UK’s leading academic centres of excellence, strong in research and development and with expertise in the fields of engineering and science. Therefore we hope that this collaboration will play a major role in drawing new investments and accelerating economic growth in the region.”

Swansea University held a South Wales Alumni Chapter event on Saturday 10th September.

The aim of the event was to bring together alumni from the local area providing an opportunity for networking and socialising. It took place at the iconic Great Hall on the Bay Campus, followed by guided tours of the world class facilities.

The Development and Alumni Relations team welcomed around 200 guests to the event which included alumni spanning almost eight decades from the 1940s to more recent graduates. We also welcomed Swansea graduates who travelled from London and the US.

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Dr Neil Henessy, who graduated from Swansea in 1999 with a BA in Welsh, was inaugurated as the first Head of the South Wales Chapter. Neil is now a lecturer with the “Coleg Cymraeg Cenedlaethol” in the Cardiff School of Sport having completed an MSc in Coaching Science. Neil is also an elite referee and works closely with the Welsh Rugby Union’s senior and age grade national squads, providing technical support and analysis.

Neil brings drive and enthusiasm to the role and has already set out plans for the Chapter.

“Having spent eight years as an undergraduate and postgraduate student at Swansea University, I am really excited and honoured to be taking on the role of Head of Chapter. The Chapter will play an active part in developing the personal, academic and professional skills of future generations of Swansea University graduates.”

If you would like to hear more about the South Wales Chapter, please email: southwales.alumni@swansea.ac.uk

Stay connected to Swansea University and fellow alumni. Visit page 18 for details on the Swansea Network and Chapters.
Abertawe’n anrhydeddu ‘hyrwyddwr gwyddoniaeth, menywod a’r iaith Gymraeg’

Mae Prifysgol Abertawe wedi dyfarnu grade ar anrhydedd i Elin Rhys, cyn-fyfyriwr Prifysgol Abertawe, a sefydlodd Telesgop, y cwmni cynhyrchu amgyfrwng blaenllaw a leolir yn Abertawe.

Ar ôl gradio â gradd Biocemeg o Brifysgol Cymru Abertawe (fel yr oedd ar y pryd) ym 1978, bu’n gweithio fel gwyddonydd gydag Awdurdod Dwˆr Cymru cyn iði ddechrau gyfrif fel cyflwynydd teledu gyda HTV ac S4C ym 1984.

Ym 1993, sefydlodd ei cwmni teledu ei hun ar mwyn poblogaidd gwyddoniaeth yn y cyfrifiadau a hyynn drwy gyfrif teledu ym MHRG. Yn ôl ystod y flwyddyn cyntaf ei hun, mae Telesgop wedi iâ ddeg cyfrif prifysgol, ac mae ei bencadlys yn ninas Abertawe.

Cyfrifiadau dwieddanol yr cwmni ar gyfer S4C ym 2014, ym MHRG, mae Telesgop wedi iâ ddeg cyfrif cyfrifiadau, a oedd ei hun yn ymwybodol oherwydd y cyfrif, ac mae Telesgop wedi iâ ddeg cyfrif cyfrifiadau, y mwyaf oherwydd, y cyfrif ym MHRG, sy’n gyfrifoli â phrifysgol a welwch ar yr holl teledu. Mae Telesgop wedi iâ ddeg cyfrif cyfrifiadau, a oedd ei hun yn ymwybodol oherwydd y cyfrif, ac mae Telesgop wedi iâ ddeg cyfrif cyfrifiadau, y mwyaf oherwydd, y cyfrif ym MHRG, sy’n gyfrifoli â phrifysgol a welwch ar yr holl teledu.

Mae Telesgop wedi iâ ddeg cyfrif cyfrifiadau, a oedd ei hun yn ymwybodol oherwydd y cyfrif, ac mae Telesgop wedi iâ ddeg cyfrif cyfrifiadau, y mwyaf oherwydd, y cyfrif ym MHRG, sy’n gyfrifoli â phrifysgol a welwch ar yr holl teledu.

Mae Elin Rhys wedi adeiladu presenoldeb gyhoeddus ar ddiwedd y saithdegau fel e fallen i’r Almaennig ac ym MHRG, ac mae Telesgop wedi iâ ddeg cyfrif cyfrifiadau, y mwyaf oherwydd, y cyfrif ym MHRG, sy’n gyfrifoli â phrifysgol a welwch ar yr holl teledu.

Abertawe’n anrhydeddu ‘hyrwyddwr gwyddoniaeth, menywod a’r iaith Gymraeg’

This article is available in English on the website: swansea.ac.uk/alumni
Harless versions of the bacteria Salmonella could be used to deliver a new generation of better cancer treatments, research at Swansea University Medical School has shown.

Unlike chemotherapy and radiotherapy, these treatments would be non-toxic, would target only the tumour, leaving healthy tissue unaffected, and could require only one dose. The Salmonella bacteria would be used as a vehicle for delivering therapeutic molecules to attack the tumour.

The technology at the heart of the approach is called RNAi, a natural process that cells use to turn down, or silence, the activity of specific genes. Professor Paul Dyson, who is leading this work, has previously used this technology to develop a pesticide-free weapon against insects that cause sleeping sickness and damage crops, research which was funded by the Gates Foundation.

Professor Dyson is now examining how RNAi can be used to develop better cancer treatments. He and Dr Claire Morgan, cancer research scientist at Swansea University Medical School, have been working for the past year on a proof-of-concept study, a first phase of research, funded by the Welsh Government, using prostate cancer as an example.

Previous research had shown that Salmonella can be modified to produce RNAi, successfully reprogramming individual cancer cells to stop them growing.

In the next phase, the team will test whether bacterial strains can be combined to target the different cancer-causing genes (“oncogenes”) in different types of cancer.

The first phase has also been supported by £8,000 raised for prostate cancer research by local fundraisers Robert Taylor, with the help of consultant urologists Mr Pradeep Bose and Mr Neil Fenn from ABM University Health Board.

Professor Dyson and Dr Morgan aim to continue the research aimed at prostate cancer, but the technology could also be used with other cancers. Additional Welsh Government funding has also been secured to examine whether this approach could also be used to treat breast cancer and colorectal cancer.

Cancer Research UK will be co-funding the next phase of research under its Pioneer Award Scheme, to “develop the cancer treatments of tomorrow”.

Professor Paul Dyson of Swansea University Medical School said:

“One dose of this treatment could be enough. That is the real breakthrough from this first phase of our research. We found that the bacteria multiply and continuously produce the therapeutic molecules which keep targeting cancer cells. This is very different from existing approaches to cancer, where repeated rounds of treatment are necessary.

Using a harmless strain of Salmonella to deliver the treatment would also make it non-toxic, as it would leave healthy tissue unaffected. These are important steps forward, and our tests have shown that everything worked as we had predicted. Further research is necessary, however, to see for example how the technology works with other cancers, and metastatic cells.”

Researchers from within our seven Colleges are currently working on a variety of potentially life changing projects. Whether you’re interested in curing cancer or diabetes, pioneering new ways of conducting medical tests, improving sustainability through more energy efficient practices or getting inside the minds of Wales’ greatest arts contributors, your donation could make a real impact in an area you are passionate about.

Please contact a member of the Development and Alumni Relations team to discuss how you can support research at Swansea University.
ACROSS
1. Home of the Red Lady? (8)
7. The sixth note of a major scale (in tonic sol-fa) (2)
8. Part of a shoe (7)
10. Towards the stern of a ship (3)
11. Tree in the genus Quercus (3)
15. Family name of medieval lords of Gower (2,6)
16. A transparent pale green, blue, or yellow gemstone consisting of a silicate of beryllium and aluminium (5)
17. Senior academic (9)
18. British Prime Minister from 1976-1979 (5,9)
19. Shellfish of the class Bivalvia (4)
23. A card that is the only one of its suit in a hand (9)
24. A rhythmical or metrical stress (5)
25. Modern Welsh name for the Viking settlement of ‘Swein’s Island’ (8)

DOWN
2. Co-discoverer of evolution by natural selection (6,7)
3. A large tank to hold liquid (3)
4. Lion? (3)
5. Censoring (anagram) (9)
6. Impersonate - tailless primate (3)
8. Causing or likely to cause damage (7)
9. Abstemious (8)
12. Commercial (2)
13. First Labour MP, eponym for a Swansea University building - A Drier Hike (anagram) (4,6)
14. Castle in Mumbles (1) 11
16. A continuum with infinite gradations from one extreme to the other (5)
20. A card that is the only one of its suit in a hand (9)
21. Layers (6)
22. Bequeath an income to (5)

Complete the crossword and send your answers through to the Development and Alumni Relations Office by 31 January 2017. A winner will be drawn at random and receive a Swansea University Goody Bag. Please provide your contact details.

Alternatively scan this page with your answers and email to DARO@swansea.ac.uk
# Donation Form

## Your Details

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## Gift Aid Declaration

If you are a UK taxpayer, every £1 you give with Gift Aid is worth £1.25 to the University, at no extra cost to you. All you need to do is sign the declaration below. If you are a higher rate taxpayer, you can also claim tax relief in your Self Assessment tax return.

I wish Swansea University to treat any previous (past four years), current or future donations from me until such times as I instruct otherwise, as donations under the Gift Aid Scheme. I confirm that I am a UK taxpayer and understand that if I pay less Income Tax and/or Capital Gains Tax than the amount of Gift Aid claimed on all my donations in that tax year it is my responsibility to pay any difference.

Signature: ___________________________ Date: ___________________________

Gift Aid Notes:

- You can cancel your declaration at any time by notifying the Development and Alumni Relations Office.
- If your circumstances change and you no longer pay the required amount of tax, you must cancel your declaration.
- Please notify the Development Office of any changes to your name and/or address while your declaration is active.

## Allocation

☐ The Greatest Need (Unrestricted) ☐ Student Enrichment (Sport, Culture and Music)

☐ Student Support ☐ Teaching and Research

☐ World Class Campus ☐ Other [please specify] ____________________________

## Single Donations

I would like to make a gift of: ☐ £10 ☐ £25 ☐ £50 ☐ £100 ☐ £500 ☐ Other £ __________

You can make your gift by:

- Cheque / CAF Cheque – please make these payable to Swansea University
- Credit / Debit Card – you can make your credit/debit card gift online at: www.swansea.ac.uk/alumni

Your gift can make a real difference, regardless of its size.

## Regular Donations

☐ I would like to make a gift of £ __________ per month / quarter / year (delete as appropriate), starting on the 2nd of __________ (month) __________ (year)

Please complete the attached Direct Debit instruction or visit our website www.swansea.ac.uk/alumni

## The Direct Debit Guarantee

- This Guarantee is offered by all banks and building societies that accept instructions to pay Direct Debits.
- If there are any changes to the amount, date or frequency of your Direct Debit Swansea University will notify you 10 working days in advance of your account being debited or as otherwise agreed. If you request Swansea University to collect a payment, confirmation of the amount and date will be given to you at the time of the request.
- If an error is made in the payment of your Direct Debit, by Swansea University or your bank/building society you are entitled to a full and immediate refund of the amount paid from your bank/building society.
- If you receive a refund you are not entitled to, you must pay it back when Swansea University asks you to.
- You can cancel a Direct Debit at any time by simply contacting your bank or building society. Written confirmation may be required. Please also notify us.
Cover image

‘An ocean of possibilities’
William Bennett and Daniel Thompson (College of Engineering)
Research as Art 2016 runner up