

*Orkney International*  
**SCIENCE FESTIVAL**

**6 - 12**

**SEP**

**2018**



# Welcome to the 28th Orkney International Science Festival!

This programme brochure lists the events, and the Booking Request Form lists all the events for which tickets are required. Tickets are on sale from Kirkwall Tourist Office or online from [www.oisf.org](http://www.oisf.org).

Where no ticket or booking details are entered, or admission is free, advance booking is not necessary. If capacity is limited, you may need to arrive in good time to ensure a place.

For most events, the admission price is £5 (adults) or £3 (concessions). If you are planning to go to a number of these events, a LecturePass can be good value. A ticket price is given for those events where a LecturePass does not apply.

**Additional road transport:** A new pilot scheme is being tried out for the Festival. It used software that takes journey bookings directly from passengers, assesses the nearest vehicle in the system, and arranges for it to pick them up. Built in are everyone's time constraints, so no one loses out - and it's free! More details at [www.simply-connect.com](http://www.simply-connect.com)

## Special island events

**North Ronaldsay:** Astronomy Weekend, Sat 8 & Sun 9 Sept, talks and workshops. Speakers include Maarten de Vries: what to see in the night sky, Matjaz Vidmar: astronomy and space, Maciej Winiarczyk: time-lapse photography of the aurora, Gordon Mackie: a tour of the Solar System, Christian Wilhelm: missions to Mars.

**Eday:** Calligraphy and Chinese painting with Lin Chau, Thurs 6 Sept. Evening on landscape, Sat 8 Sept, with Laura Watts.

**Sanday:** talks and workshops on traditional medicines with Anna Canning, and on particle physics from Durham University, details to be announced locally.



[VISITSCOTLAND.COM](http://VISITSCOTLAND.COM)

Scotland is putting young people in the spotlight, celebrating their talents, contributions and creating new opportunities for them to shine in celebration of the Year of Young People 2018.

Find out more at [visitscotland.com/yoyp2018](http://visitscotland.com/yoyp2018)

Join the conversation [#YOYP2018](https://twitter.com/YOYP2018)

# Thursday 6 September

9.30 - 10.30 am

Town Hall, Kirkwall

## EBBAN AN' FLOWAN

Wave and tidal power have a poetic energy as well as a production one, say writers Alec Finlay and Laura Watts, with links to the old lore and language of the sea as well as to an imagined future – in discussion with Orkney energy and environmental adviser Dr Gareth Davies.

*With the Association for the Study of Literature and Environment*

12.00 - 1.30 pm

King Street Halls, Kirkwall

## OPENING LUNCH & TALKS: FISHING FOR THE FUTURE

Opening by Year of Young People Ambassadors Lucy Leech and Hope Laing. Dr Mike Bell of Heriot-Watt introduces four researchers working on fishing industry sustainable practice: Kate Rydzkowski, Matthew Coleman (Orkney Sustainable Fisheries), Hannah Fennell, Cara Duncan (Orkney Fisheries Association). Followed by a seafood lunch from Orkney Fishermen's Society. Tickets (talks and lunch) £10.

2.00 - 3.00 pm

King Street Halls, Kirkwall

## THE BLUE ECONOMY

Traditional marine industries like fishing and shipping are being joined by growth sectors like seaweed and shellfish farming. Dr Kate Johnson and Dr Sandy Kerr of Heriot-Watt University are joined by Prof. Bill Sanderson who describes plans to redevelop oysters in the Dornoch Firth by using them for natural cleaning of distillery water.

3.30 - 4.30 pm

King Street Halls, Kirkwall

## BLUE CARBON

Carbon dioxide from the air is stored by natural processes in the sea, in shells and seaweed. Life in the sea can help an atmospheric balance – as Dr Joanne Porter and Dr David Woolf (ICIT), Prof. John Baxter (SNH) and Mary Spencer Jones (Natural History Museum) explain.

5.15 - 6.15 pm

King Street Halls, Kirkwall

## The Grimond Lecture

### WHAT CAN WE DO WITH THE LAND?

Tree plantations, windfarms, conservation, rewilding, land ownership, farming's post-Brexit future – all these areas are generating conflict and, says Prof. Roger Crofts, it's no wonder after so many policy mistakes of the past. Can we think afresh to solve problems?

*Sponsored by Loganair*

5.15 - 6.15 pm

Town Hall, Stromness

## ORKNEY – ISLANDS OF ENERGY

What's happening now with energy from wind, wave and tide, and what might the future hold? Tidal turbines in island causeways, electrically-powered ships, hydrogen shipments from the Flow? Ian Johnstone and Mark Hull look at present and future prospects.

*In collaboration with ASLE and OREF*

7.30 - 8.45 pm

Town Hall, Stromness

## FRANKENSTEIN ON A CHANGING PLANET

Dr David Higgins, University of Leeds, looks at the scientist Victor Frankenstein's failure to take responsibility for his creation, and modern debates on our impact on the Earth. Rosanne van der Voet, Amsterdam, looks at storytelling to confront threats to the oceans. Dion Andre Dobrzynski, Orkney, follows a plastic microfibre's invisible odyssey, adrift among the plankton.

*In collaboration with ASLE*

**7.30 - 8.30 pm**

***The Orkney Brewery, Quoyloo***

**SONGS OF SEALS AND SEABIRDS**

Singer/storyteller Claire Hewitt and folk musician Sheena Wellington join with the St Andrews New Music Ensemble, featuring soloists Catherine Hooper and Judy Brown, to explore how music reflects the changing relationship between Scottish coastal communities and the animals sharing their precious resources. Tickets £10.

**7.30 - 8.30 pm**

***Orkney Theatre, KGS, Kirkwall***

**UPSIDE DOWN SCIENCE**

Mike Gore, Sue Stocklmayer and Mark Ellison are here from Canberra to celebrate 20 years of presenting at the Science Festival with a look at some of their favourite demonstrations. The show will have an occasional Australian flavour and will be surprising, challenging and entertaining for an audience from 8 to 80!

**9.00 - 10.00 pm**

***Orkney Theatre, KGS, Kirkwall***

**THE SULTAN, THE STARS, AND THE LAND'S SLOW DRIFT**

Howie Firth is joined by young Uzbek presenters Savlat Rashidov and Sharofat Makhmudova to tell the story of Ulugh Beg, grandson of the conquering nomadic leader Tamerlane, who built the finest observatory of the age and turned Samarkand into a cultural city of learning.

*In collaboration with the National Association of Electronic Mass Media in Uzbekistan and with the support of YOYP 2018*

**9 - 11.30 pm**

***Meet up at the Festival Club at The Reel***

## Friday 7 September

**10.00 - 11.00 am**

***King Street Halls, Kirkwall***

**BLACK HOLE AT THE GALAXY'S HEART**

Most large galaxies, like our own, seem to contain a supermassive black hole, and some of these, called Active Galaxies, give out so much energy they outshine all the stars. Prof. Ian Robson of the Royal Observatory of Edinburgh tells all.

**11.30 am - 12.30 pm**

***King Street Halls, Kirkwall***

**EVOLUTION: COMPETING OR COLLABORATING?**

Does selfishness drive evolution in a struggle where the strong survive? Or is evolution more about a diverse interacting web of life? Molecular biologist Prof. Ford Doolittle of Dalhousie University, Nova Scotia, opens up the possibility of bringing together the two approaches.

***The One O'Clock Toast at the Peedie Kirk today: artist Sylvia Wishart, by Carol Dunbar***

**2.00 - 3.00 pm**

***King Street Halls, Kirkwall***

**The John D. Mackay Memorial Lecture**

**THE ORIGINS OF LIFE ON EARTH**

The first living creatures can be traced back to more than 3 billion years ago. But how did they form? Prof. Karim Labib of the University of Dundee looks at the latest evidence.

**3.30 - 4.30 pm**

***King Street Halls, Kirkwall***

**STARLING SONGS**

Messy, friendly, bully... threatened? How much do you really know about the common starling? Conservationist and writer Rachel Dowse explores these birds with an award-winning talk from the Hay-on-Wye Festival.

*In collaboration with ASLE*

**5.15 - 6.15 pm**

**Orkney Theatre, KGS, Kirkwall**

**BUT OH MY LOVE! THE CHAIN OF TIME**

The 19th-century Irish mathematician Sir William Rowan Hamilton reshaped physics in a visionary language of waves and light, on which quantum theory later drew. A master of many languages in childhood, he was friends with Coleridge and Wordsworth, and wrote poems of lost love. Howie Firth tells his story with music from the Lorcán Mac Mathúna Quartet and readings by Dave Grieve.

*With the support of YOYP 2018 and Culture Ireland*

**7.00 - 9.30 pm**

**Hoy Kirk**

**HOY EVENING**

Take the 5.45 pm ferry from Stromness to Hoy to hear of the art and science of brewing and distilling from Lewis Hill, Rob Hill, Marie Stanton, Eric Walker, Tim Dolan. See the spectacular mountain-themed performance 'Orographic' from the group Oceanallover with music and costume design. There's a light supper too - and admission free. Book ferry from Orkney Ferries 01856 872044

**7.30 - 8.30 pm**

**Orkney Theatre, KGS, Kirkwall**

**IN SHACKLETON'S FOOTSTEPS**

He led his men through the harshest conditions of Antarctic seas and brought every one to safety. Polar historian Dr Maria Pia Casarini tells the story of Sir Ernest Shackleton, and Martin Gray and Dr Alison McLure show scenes of places on his route.

**9.00 - 10.00 pm**

**Orkney Theatre, KGS, Kirkwall**

**MUSIC FOR MEADOWS AND STORMY SHORES**

St Andrews New Music Ensemble with music for the natural world – from Hildegard of Bingen and Gabrieli, Handel and Haydn, Schubert and Liszt, to Malcolm Arnold and a new work by Emily Doolittle. With accompanying images from Orkney shores to Newfoundland waters and polar ice. Tickets £8 & £5.

**9 - 11.30 pm**

**Meet up at the Festival Club at The Reel**

## Saturday 8 September

**10.00 am - 4.00 pm**

**King Street Halls, Kirkwall**

**FAMILY DAY - DON'T MISS IT!**

Operate a robot arm to remove marine litter. Find out about seashells and the creatures that live in them. Draw with a laser. Make a molecule or a geometric lantern. Try out papermaking with natural materials. Learn how to turn old fabrics into new styles in the upcycling workshop. Pilot a drone in simulator software. Learn about kelvins and candelas. Test your abilities with the BodyWorks. Make a cloud chamber and see particles from outer space. Learn to use an astronomical telescope and steer a Mars rover. Study a meteorite. Freshly prepared rolls, Orkney ice cream available. £4 & £2 for the day.

*Supported by many kind people and lively organisations*

**10.00 - 11.00 pm**

**Baptist Church, Victoria Street, Kirkwall**

**HYDROGEN - DRIVING FORWARD**

Hydrogen can store energy from wind and tide to power cars, and ferries, and other things as well. Adele Lidderdale (OIC) and Jon Clipsham (EMEC) join Nigel Holmes of the Scottish Hydrogen and Fuel Cell Association to describe plans and progress.

**11.00 - 11.45 pm** *From Old Academy, Back Road, Stromness*  
**OROGRAPHIC BY OCEANALLOVER**

A performance work/walk up Brinkie's Brae about landscape and our response to it, inspired by Charles Rennie Mackintosh's landscape paintings, our awe of mountains, our desire to ascend. With music both earthy and ethereal. No charge. Wear waterproofs and good shoes!

*Supported by Creative Scotland and OIC Cultural Fund*

**11.30 - 11.00 am** *Baptist Church, Victoria Street, Kirkwall*  
**Prof. Clive Greated Memorial Lecture**  
**KITE POWER FOR THE FUTURE**

A kite above for the wind, a turbine below to generate electricity. Strathclyde University researcher Oliver Tulloch introduces Western Isles engineer Rod Read and the Daisy Kite developed by his company Windswept and Interesting. *Sponsored by Clark Thomson Insurance*

**One O'Clock Toast, Peedie Kirk: Bessie Millie, Stromness's first renewables entrepreneur, by Harvey Johnston**

**1.00 - 4.00 pm** *Broad Street, Kirkwall*  
**VINTAGE RALLY**

Orkney Vintage Club with cars, motorbikes, tractors and stationary engines; plus electric cars, street food from 12 noon, and the Willowburn Valley Stompers at 2 pm.

**1.30 - 2.30 pm** *MacGillivray Room, Library, Kirkwall*  
**SINGALONG WITH MR BOOM**

Make sure you come, now's your chance - do the Solar System Dance!

*Sponsored by Pentland Ferries*

**2.00 - 3.00 pm** *Town Hall, Church Road, Stromness*  
**ANCIENT STORIES, MODERN SEAS**

Oceanographer Dr Neil Banas of Strathclyde University looks at how a story by a master Haida mythteller, Skaay, reflects the marine ecology on the North Pacific Ocean's edge. "He managed to capture the dynamics of ecosystems at the 'edge of chaos' in his mythic frame with an accuracy that mathematical modellers still struggle to duplicate."

**2.00 - 3.00 pm** *Baptist Church, Victoria Street, Kirkwall*  
**BACH: THE MATHEMATICS AND THE BEAUTY**

Under the surface of Bach's harmonies are mathematical patterns. How do they influence the music? Maarten de Vries explains, and Paisley Abbey organist George McPhee demonstrates.

*Sponsored by Loganair*

**3.30 - 4.30 pm** *Baptist Church, Victoria Street, Kirkwall*  
**HE LIT THE LAMP FOR CHEMISTRY**

Sir Humphry Davy discovered chlorine and calcium, produced laughing gas for anaesthetics and a safety lamp for miners. Hayley Russell tells the story of his life, and Dr Edvard Kobal of the Slovenian Science Foundation describes his European travels.

**3.30 - 4.30 pm** *Town Hall, Church Road, Stromness*  
**A BOAT FOR TIDES AND BROKEN WATER**

Len Wilson introduces naval architect Dennis Davidson and retired boatbuilder Ivan Hourston to tell the story of the North Ronaldsay praam, its pros and cons for fishing in island waters, its original Scandinavian design, and the challenges of building it, with archive photos and film from the island.

**5.00 - 6.00 pm** *Stromness Academy*  
**INSPIRATION OF THE MOUNTAINS**

Oceanallover director Alex Rigg describes the development of the ideas between the group's new performance, Orographic, from the landscape paintings of Charles Rennie Mackintosh, into music and costumes and choreography. Admission free.

*Supported by Creative Scotland and OIC Cultural Fund*

**5.30 - 6.30 pm** *Orkney Theatre, KGS, Kirkwall*

**SIR PAUL NURSE IN CONVERSATION**

"I was never very good at exams ... but there were also good extra-curricular activities at school, particularly hill and mountain walking and more surprisingly, learning to fly. I am still a keen mountain walker and an enthusiastic glider pilot." The 2001 physiology/medicine Nobel laureate in conversation with Dave Gray of BBC Radio Orkney.

**7.00 - 7.30 pm** *Broad Street, Kirkwall*

**KIRK WALL CITY PIPE BAND**

with their final parade of the season.

**7.45 - 9.45 pm** *King Street Halls, Kirkwall*

**GOOD LIFE, GOOD DEATH, GOOD GRIEF**

Short films on the subjects of illness, death and bereavement followed by round table discussion.

**7.45 - 10.00 pm** *Town Hall, Church Road, Stromness*

**WEST SIDE CINEMA: MOONWALK ONE - DIRECTOR'S CUT**

The film commissioned by NASA to cover the historic Apollo 11 journey to the Moon in July 1969. Its director had a vision: to create something to mark the journey's historic, philosophical, epic nature. Its producer, Christopher Riley, will introduce this special showing. Doors open 7.15 pm. Tickets at door £5 & £3 (students and Young Scot).

**8.00 - 9.45 pm** *St Magnus Cathedral, Kirkwall*

**THE BIRDS**

Join the St Andrews New Music Ensemble for a rare performance of Peter Maxwell Davies's *The Birds* (soloist: Judy Brown), commissioned in 2007 as a tribute to the birds of Northern Scotland. It will be accompanied by complementary pieces from the 18th to the 21st centuries, including Maurice Ravel's beautiful *Introduction and Allegro* for string quartet, flute, clarinet and harp and Errollyn Wallen's witty and poignant song cycle with string quartet, *Are You Worried About the Rising Cost of Funerals?* Tickets £8 & £5.

**8 - 12 midnight** *Meet up at the Festival Club at The Reel*

## Sunday 9 September

**11.15 am - 12.15 pm** *St Magnus Cathedral, Kirkwall*

**SCIENCE FESTIVAL SERVICE**

led by Rev. June Freeth, with St Magnus Cathedral Choir.

**One O'Clock Toast at the Peedie Kirk: Elizabeth Miller, proprietrix of The Orcadian, 1944 - 1982, by James Miller**

**1.00 - 4.00 pm** *from Stromness Museum*

**WORKSHOP: SECRET SEASHORE - THINGS YOU NEVER KNEW ABOUT SEAWEEDS, LIMPETS AND BARNACLES**

Watch and listen in to life in a rockpool. Learn more about the workings of the shore. Play an old Orkney shell game, make some rockpool art. A family event, hosted by Rebecca Marr, Fiona Sanderson, Katherine Diaper, Andrew Want. Tickets £4 & £2. Booking essential: phone Stromness Museum, 01856 850025. Supported by Orkney Field Club.

*Sponsored by Alison Moore Designs*

**2.00 - 3.00 pm** *Pier Arts Centre, Stromness*

**PHOTOGRAPHING THE MOON**

Eric Walker gives an insight into the tools and techniques to successfully observe our Moon - naked eye, binoculars, telescope ("Lunar 100" checklist) - and to capture and process photographic images for yourself. Illustrated by some of his own images taken from his local Highlands observatory. Tickets £4 & £2.

*Sponsored by the Kristin Linklater Voice Centre*

**2.00 - 3.00 pm**

**Orkney Theatre, KGS, Kirkwall**

**A CENTRAL PROPERTY OF LIFE**

At the heart of living systems is their reproduction, and the basis for that is the reproduction of cells. So what controls cell reproduction? Sir Paul Nurse describes the work that led to his sharing the 2001 Nobel Prize for physiology/medicine.

**3.30 - 4.30 pm**

**Orkney Theatre, KGS, Kirkwall**

**LIKE THE CORN CUT DOWN BY THE RIVER**

The story of the battle of Clontarf, and the web of fate, and the 19th-century tidal calculations that confirmed the old Irish annalist's account of the timing of the battle. With the Lorcán Mac Mathúna Quartet, the St Magnus Consort, Sheena Wellington, and Orkney Children's Theatre Club, and readers Ragnhild Ljosland and Dave Grieve.

*With the support of YOYP 2018 and Culture Ireland*

**3.30 - 4.30 pm**

**Pier Arts Centre, Stromness**

**WITH SEQUENCES LIKE CANVASES**

Margaret Tait's films broke new ground in their blending together of photography, painting and poetry. Now, a century after her birth, they are receiving their due acclaim. Dr Sarah Neely of Stirling University and Dan Lee of UHI look at her relationship to place, and particularly Land Makar, filmed at the croft of West Aith over several seasons. Tickets £4 & £2.

**5.15 - 6.15 pm**

**Orkney Theatre, KGS, Kirkwall**

**Prof. R. J. (Sam) Berry Memorial Lecture**

**BORN A HUNTER – NOW SAVING FROGS**

Born into a hunter-gatherer clan in northern Ghana's dry savannas, Gilbert Adum spent half of his life hunting. But when he realised that Ghana's frogs were in danger of extinction, he changed course to co-found SAVE THE FROGS! Ghana, today Africa's leading charity dedicated exclusively to amphibian conservation. Now finishing his master's degree in Conservation Leadership at the University of Cambridge, he tells the story of his journey.

**6.00 - 7.15 pm**

**Skail House, Sandwick**

**Dr John Cumming Memorial Lecture**

**LAND MAKAR**

Margaret Tait's film about crofter Mary Graham Sinclair, who lived, as she did, just across the Loch of Skail. The film of West Aith shows "its beauty and the hard work that goes into it". Introduced by Ida Cumming and followed by an Orkney afternoon tea. Tickets £10.

*With the support of The Cuminga Trust*

**8.00 - 9.30 pm**

**St Magnus Cathedral, Kirkwall**

**THE SCHOLARS AND THE SNOW AND STARS**

The Mayfield Singers and Paisley Abbey organist George McPhee are joined by the Lorcán Mac Mathúna Quartet and Sheena Wellington in songs and music to accompany readings from Irish scholars, from Celtic bards and medieval thinkers to modern times.

*With the support of YOYP 2018, Culture Ireland and Loganair*

**9 - 11 pm**

**Meet up at the Festival Club at The Reel**

## **Monday 10 September**

**10.00 - 11.00 am**

**Baptist Church, Victoria Street, Kirkwall**

**GENES INFLUENCING YOUR DIET**

Dr Nicola Pirastu of the University of Edinburgh describes his research into how genes influence the food you eat, the drinks you like, and even the temperature you drink them at!



**11.30 am - 12.30 pm** *Baptist Church, Victoria Street, Kirkwall*  
**WHAT IS A WHOLE GENOME SEQUENCE?**

Thousands of people are having their DNA sequenced, including in the ORCADES health study, but what does it mean and what can you learn from it? Dr Lucija Klaric of the University of Edinburgh explains the science, using examples from studies in Orkney and Shetland.

*One O'Clock Toast at Peedie Kirk: Christian Robertson, 19th-century shipping agent, by Jocelyn Rendall*

**2.00 - 4.00 pm** *From Mull Head visitor centre, Deerness*  
**WALK TO THE BROUGH**

See this Local Nature Reserve's archaeology, birdlife, plants, invertebrates, and microscopic phytoplankton. Microscopes will be set up by Sydney Gauld from the Orkney Wildlife Information and Records Centre and the Council's Environment Officer, Eileen Summers. Join County Archaeologist Julie Gibson to see the Brough of Deerness and discuss its setting. Booking essential. Tickets £3 & £1.

**2.00 - 3.00 pm** *Baptist Church, Victoria Street, Kirkwall*  
**FROM GENOMICS TO PROTEOMICS**

Moving from large-scale studies of genes to large-scale studies of their products – proteins - will profoundly change biology and medicine. University of Edinburgh postgraduate student Andy Bretherick describes how he is using these new technologies to learn about the underlying mechanisms of disease.

**2.00 - 3.00 pm** *Town Hall, Kirkwall*  
**THE AGE OF REASON AND THE RIGHTS OF MAN**

Prof. Jon Side tells how the Newtonian picture of an ordered universe inspired the 18th-century radical Thomas Paine to envisage a better world, ruled by reason.

**3.30 - 4.30 pm** *Town Hall, Kirkwall*  
**ENGINEERING THE FUTURE**

Global challenges - including environment, food, water and energy - are so great, says Prof. Iain MacLeod of Strathclyde University, that to tackle them we need the complex problem-solving strategies of engineers - and a revolution in education and thinking.

*Supported by IESIS, a Scottish engineering institution*

**3.30 - 4.30 pm** *Baptist Church, Victoria Street, Kirkwall*  
**WE'RE ALL JOCK TAMSON'S BAIRNS**

Go back far enough and we're all related, and our parents are therefore also all related. Prof. Jim Wilson of the University of Edinburgh presents discoveries from the largest ever genetic study of any kind involving 1.4 million participants and which focuses on the effects of inbreeding on health and the risk of disease.

*Sponsored by the Kristin Linklater Voice Centre*

**5.15 - 6.15 pm** *Baptist Church, Victoria Street, Kirkwall*  
**THE WOODS BENEATH THE WAVES: ORKNEY'S LOST LANDS**

Thousands of years ago, when sea level was lower than today, Orkney was a single landmass with a wooded landscape – with remnants which can still appear today at very low tides. These, says Dr Scott Timpany of Orkney College UHI, give us clues to lost lands.

*Sponsored by the Orkney Creamery - Orkney Ice Cream*

**5.15 - 6.15 pm** *Orkney Theatre, KGS, Kirkwall*  
**THE BIG BEAUTIFUL BUBBLE SHOW**

What are soap bubbles made of and how have they influenced scientific research? From tiny bubbles to colourful tubes, Philip Noble will demonstrate some of the amazing properties of the simple soap bubble, and encourage everyone to get involved in the journey of discovery. A scientifically trained visual artist, he has given bubble shows in over 20 countries. Something for the whole family.

**7.30 - 8.30 pm**

**Town Hall, Stromness**

**BIG BILL AND THE GUNS OF ALAMEIN**

The story of how radio operator Bill Sutherland maintained the vital flow of information from the front line with extraordinary bravery, and the equipment he used. Serena Sutherland, Prof. Tom Stevenson, Dorothy Brankin, and Sandy Firth, with a song from Andy Munro.

*Supported by d and h, Kirkwall*

**7.30 - 8.30 pm**

**Orkney Theatre, KGS, Kirkwall**

**SCOTTISH GENETIC STRUCTURE**

Just how are the Scots related to the Irish, Welsh and English? How are people from different parts of Orkney related to one other? Royal College of Surgeons in Ireland postgraduate student Ed Gilbert reveals the results of his studies into these and other genetic questions.

**9.00 - 10.00 pm**

**Orkney Theatre, KGS, Kirkwall**

**Eoin F. Scott Memorial Lecture**

**ORIGINS OF THE ICELANDERS**

Icelanders are genetic cousins to Orcadians, both originating by hybridisation between Norse and Celtic settlers. Prof. Agnar Helgason of DeCode Genetics, Reykjavik describes his studies into Icelandic origins using both ancient and modern DNA.

*Sponsored by the Kristin Linklater Voice Centre*

**9 - 11 pm**

**Meet up at the Festival Club at The Reel**

## Tuesday 11 September

**9.30 am - 12.30 pm**

**Highland Park Distillery, Kirkwall**

**Miniature Whisky School: THREE KINDS OF MALT**

The different qualities of barley for making malt for brewing and distilling are explained by industry experts Marie Stanton, Eric Walker, and Dr Tim Dolan, with a technical tour of the floor maltings. Over-18s only, booking essential. Tickets £12.

*Organised by the IBD*

**10.00 - 11.00 am**

**King Street Halls, Kirkwall**

**FAREWELL TO THE PERMAFROST?**

Methane bubbling up from the seabed, gas explosions blowing craters in the tundra - is a thaw coming to the great Arctic sweep of frozen rock and soil? Prof. Peter Wadhams of Cambridge University provides the latest news and images.

**11.30 am - 12.30 pm**

**King Street Halls, Kirkwall**

**THE PHYSICS OF MOUNTAIN RESCUE**

Mountain rescue teams go out in all weathers, at any time of the day, to try to save people - and part of their ability to perform amazing rescues and to stay safe in the mountains involves physics, as Alison McLure of the Institute of Physics in Scotland, a member of Tayside Mountain Rescue Team, explains.

***The One O'Clock Toast at the Peedie Kirk today: Catherine Tulloch of North Ronaldsay and her journey to the World's Fair of 1832, by Sinclair Scott***

**2.00 - 3.00 pm**

**King Street Halls, Kirkwall**

**REMINISCENCES OF AN ORKNEY PARISH**

John Firth, born in 1838 at Redland in the parish of Firth, recorded a wealth of stories about Orkney traditional farming life. Dr Tom Rendall describes harvesting and milling, courtship and wedding customs, with readings by Dr Sarah Jane Gibbon and Brian Flett.

*Sponsored by Orkney Car Hire - James D Peace & Co*

**2.00 - 3.00 pm**

**Town Hall, Kirkwall**

### **MODELLING THE INVISIBLE**

What is our world made of? Molecules and atoms, quarks and leptons? Prof. Alexander Lenz of Durham University introduces particle physics research at centres like the Large Hadron Collider at CERN and its consequences for our understanding of the cosmos.

**3.30 - 4.30 pm**

**Town Hall, Kirkwall**

### **THE COLDEST PLACE IN SCOTLAND**

It's a cloud of rubidium atoms at Strathclyde, at a temperature of less than 0.001 degree above absolute zero. Prof. W.J. Firth of Strathclyde University describes how to get atoms so cold - and what we might do with them.

*Sponsored by the Orkney Creamery - Orkney Ice Cream*

**3.30 - 4.30 pm**

**King Street Halls, Kirkwall**

### **MYSTERIOUS MATERIALS, CURIOUS CURES**

Traditional remedies used some unusual ingredients. Alongside many plants now considered weeds, medicines might include ox gall or badger fat, marble, lead or urine ... How do they stand up to scientific scrutiny? Ethnobotanical researcher Anna Canning takes a look at old treatments and new insights – and why we should keep an open mind.

**4.00 - 5.00 pm**

**Stromness Academy**

### **SINGALONG WITH MR BOOM BENEATH THE MOON**

*The Moon's in Stromness for a spell ...*

*And here is Mr Boom as well!*

Children, bring an adult. Adults, bring a cushion.

**5.15 - 6.15 pm**

**King Street Halls, Kirkwall**

### **THE SIGHT FROM THE SKY OF THE ARMIES BELOW**

100 years ago early aircraft were taking aerial photographs above wartime positions - though angles of approach made analysis slow and difficult. But Orkney artist Stanley Cursiter put his training in perspective to good use, as Prof. Tom Stevenson and Dorothy Brankin of the Museum of Communication, with Sandy Firth of Orkney Wireless Museum, explain.

*Sponsored by e-availability*

**5.15 - 6.15 pm**

**Orkney Theatre, KGS, Kirkwall**

### **MURDEROUS MATHS**

Kjartan Poskitt introduces you to the people who really did put the Murder into Maths! He'll also be showing off some amazing tricks and weird facts including how to make a dragon from a cinema ticket... "but NO NASTY SUMS - guaranteed!" he says. "A stand-up maths routine has children and teachers in fits of laughter..." The Times Educational Supplement. Suitable for the whole family.

*In partnership with Maths Week Scotland*

**7.00 - 9.00 pm**

**Kirkjuvagr Distillery, Ayre Road, Kirkwall**

### **THE SCIENCE OF GIN**

An opportunity to hear about the chemistry of the process and the role of the herbs from sensory scientist Dr Irene Baxter of the Scotch Whisky Research Institute, and to see it at first-hand with samples of the product to try. Over-18s only, numbers limited, booking essential. Tickets £10.

*Organised by the Institute of Brewing and Distilling*

**7.30 - 8.30 pm**

**Orkney Theatre, KGS, Kirkwall**

### **PETER HIGGS IN CONVERSATION**

Nobel physics laureate Prof. Peter Higgs of Edinburgh University with the story of the ideas that led to the discovery of the Higgs boson at CERN in Geneva in 2012 - in conversation with fellow physicist and writer Dr Graham Farmelo. Tickets £6 & £4.

*Supported by the Institute of Physics in Scotland and Loganair*

9.00 - 10.00 pm

Orkney Theatre, KGS, Kirkwall

### THE STRANGEST MAN

Quantum pioneer, predictor of antimatter, Nobel laureate – the physicist Paul Dirac was a man of very few words, and one of the strangest geniuses in the history of science. Dramatised lecture by his biographer Graham Farmelo, with actor David Sumner, co-founder of the Swallow Theatre in Galloway.

*Supported by the Institute of Physics in Scotland and Loganair*

9 - 11 pm

Meet up at the Festival Club at The Reel

## Wednesday 12 September

10.00 - 11.00 am

King Street Halls, Kirkwall

### BECOMING AN ASTRONAUT

Many dream of it - but what are the qualities required? The BBC2 series Astronauts gave tough challenges to a group of 12 contenders, as one of them, physicist Dr Jaclyn Bell from Liverpool, describes.

11.30 am - 12.30 pm

King Street Halls, Kirkwall

### MAKE IT, FIRE IT INTO ORBIT

How will satellite launches in Sutherland develop? Could Shetland follow suit? Matjaz Vidmar of the Royal Observatory of Edinburgh reports on space industry development. Three students from Slovenia's Spacelink Institute - Nik Mohorko, Tjas Cvek and Jost Herman - describe their progress in building a rocket to reach 100 km, to become the first European amateur team to reach space.

*In association with the Slovenian Science Foundation and the Rotary Club of Orkney*

**The One O'Clock Toast at the Peedie Kirk: Anne Leith Brundle, first curator of Orkney's archaeology, by Patricia Long**

2.00 - 5.00 pm

From Palace Road, Kirkwall

### BUS TOUR: DISTILLING - THE THEORY AND PRACTICE

Join experts from Scapa and Highland Park for special tours of both. Advance booking essential: over-18s only. Tickets £10.

*Organised by the IBD and sponsored by the two distilleries*

2.00 - 3.00 pm

King Street Halls, Kirkwall

### DO-IT-YOURSELF BROADBAND

Lack of good broadband in parts of the Highlands is stimulating communities and small businesses to come up with their own solutions - and generate business opportunities, as North, West and Central Sutherland councillor Kirsteen Currie describes.

*Sponsored by the IET*

3.30 - 4.30 pm

King Street Halls, Kirkwall

### HELMSDALE, BERRIEDALE, MUIR OF ORD AND DINGWALL

Charles Tait takes to the road for the eastern part of the North Coast 500, with stories and photos of the rocks, the lochs, the brochs and the wildlife, and a song from Andy Munro.

*Sponsored by Pentland Ferries*

5.15 - 6.15 pm

King Street Halls, Kirkwall

### WILLIE LOGAN AND THE TAY BRIDGE

Bridge manager Alan Hutchison tells the story of the road bridge, opened in 1966, and the Muir of Ord contractor who built it and who in order to fly down welders from the north started up the air operations that became Loganair.

*Organised by the Institution of Civil Engineers*

**Remember the Molecule Hunt round the Kirkwall shops!  
There are 20 molecules to find, each connected with the  
business of the shop or organisation where they're located.  
See leaflets in shops and on our website.**

7.30 - 9.00 pm

*The Old Library, Kirkwall*

### **DISTILLERIES LOST AND REBORN**

Once there was Ferintosh and then Ben Wyvis, as distiller Richard Clark describes. Now a new community-owned GlenWyvis distillery has produced its first spirit. Manager Duncan Tait tells the story. Tickets £6 (IBD members free). Over-18s only.

*Organised by the Institute of Brewing and Distilling*

7.30 - 8.30 pm

*Orkney Theatre, KGS, Kirkwall*

### **COLOUR: THE SCIENCE BEHIND THE SENSE**

Join vision scientist Dr Ben Craven for a brilliant show exploring the weird and wonderful world of colour. Through dramatic demonstrations you'll learn that black is white, how two lights can be the same and different at the same time, and why we are all colour blind.

*Supported by the Institute of Physics*

8.00 pm - 12.00 midnight

*Peedie Kirk Hall, Kirkwall*

### **THE HIGHLAND PARK CEILIDH**

with Dave & Co, and Lewis Hou's fiddle and dance steps, for would-be and why-not dancers of all ages. Tickets (with light supper) £10.

*Sponsored by Highland Park*

### **SPECIAL FOOD EVENTS DURING FESTIVAL**

**Daily, from Fri 7 to Wed 12.** Lunches in the Peedie Kirk Hall.

An opportunity to enjoy a wide range of Orkney fare for £10.

From 12.30 pm, with 5-minute Toast to a notable Orcadian at 1 pm.

**Thurs 6, Fri 7, Mon 10 - Wed 12.** Afternoon tea/coffee/biscuits/cakes. By Orkney Fair Trade Group at 3 pm break between talks.

## **Exhibitions**

**skyranMOON IN STROMNESS:** see next page

**YOUTH:** Photographs from Orkney Camera Club, Kirkwall Grammar School pupils and Orkney College students

*Orkney Library & Archive, Kirkwall*

*Daily except Sun*

### **WORLD WAR I**

*Orkney Library & Archive, Kirkwall*

*Daily except Sun, Wed*

### **ORKNEY WIRELESS MUSEUM**

*Kiln Corner, Kirkwall*

*Mon - Sat 10 - 4.30, Sun 2.30 - 4.30*

**MODELLING THE INVISIBLE:** particle physics exhibition from Durham University. Kirkwall Grammar School, Mon 10, Tues 11 evenings, 6.30-7.30, 8.30-9.00 (between talks)

**THE SELKIE'S NEW CLOTHES:** a transformation process  
*Age Scotland Concern window, Victoria Street, Kirkwall*

### **TWO EXHIBITIONS AT THE OLD LIBRARY**

Scientific toys, and paintings inspired by renewable energy by Marianne Greated

### **MARGARET TAIT: film/poems**

*Pier Arts Centre, Stromness*

*To Sat 8 Sept*

**TRACING THE LINES:** Pots and People in the Late Neolithic

*Orkney Museum, Kirkwall*

*Mon - Sat, 10.30 - 5.00*

### **SKARA BRAE REDISCOVERED**

*Stromness Museum*

*Daily, 10 - 5*

**ISLAND TO ISLAND:** woven tapestry and stone, Ros Bryant and Louise Martin, from landscapes from Westray to the Isle of Man.

*Northlight Studio, Stromness, 7-20 Sept.*



## skyranMOON

**Thursday 6 - Saturday 16 September at Stromness Academy**

Luke Jerram's amazing Moon installation has been travelling the world and is coming to Stromness for the Festival, and a few days more - and it's free! The Moon will be open 4 pm - 10 pm weekdays, 10 am - 7 pm weekends, apart from 3 ticketed events:

- **Tuesday 11 September** 4-5 pm Mr Boom, the Man from the Moon, children's show
- **Friday 14 September** 7-8 pm Supporters and sponsors reception
- **Sunday 16 September** 3-5 pm 'Dark Side Under the Moon'

Weekdays 7-8 pm and weekends at other times there will be talks or events to which all are welcome. Saturdays 8 and 15 September will be 'family days' with extra activities for children.

### **Adventures in the Solar System**

Walk through a scale model of the Solar System guided by young people from Stromness Academy and elsewhere... from Neptune to the heart of the Sun, then back again via the Moon!

Full programme at [skyranMOON.com](http://skyranMOON.com) or [Facebook/skyranMOON](https://www.facebook.com/skyranMOON).



**More details of island events locally and on [www.oisf.org](http://www.oisf.org)  
Contact us on 01343 540844, [orkneyscience@gmail.com](mailto:orkneyscience@gmail.com)**

**Book online and get updates at [www.oisf.org](http://www.oisf.org)**

**Follow us on Facebook and Twitter @OrkSciFest!**

*Disclaimer: The Festival reserves the right to alter, amend or cancel the programme contents at its discretion or as circumstances may necessitate.*

## BOOKING REQUEST FORM

	£ Adult	£ Con.	No. at adult	No. at concess.	Total £	p
<b>Thursday 6 September</b>						
Ebban an' Flowan	£5	£3				
Fishing for the Future	£10	-				
The Blue Economy	£5	£3				
Blue Carbon	£5	£3				
What Can We Do with Land?	£5	£3				
Orkney - Islands of Energy	£5	£3				
Frankenstein Planet	£5	£3				
Songs of Seals and Seabirds	£10	-				
Upside Down Science	£5	£3				
The Sultan and the Stars	£5	£3				
<b>Friday 7 September</b>						
Black Hole at Galaxy's Heart	£5	£3				
Evolution: Competing?	£5	£3				
Origins of Life on Earth	£5	£3				
Starling Songs	£5	£3				
My Love! The Chain of Time	£5	£3				
In Shackleton's Footsteps	£5	£3				
Music, Meadows & Shores	£8	£5				
<b>Saturday 8 September</b>						
Hydrogen Driving Forward	£5	£3				
Kite Power for the Future	£5	£3				
Singalong with Mr Boom	£5	£3				
Ancient Stories, Modern Seas	£5	£3				
Bach: Mathematics & Beauty	£5	£3				
He Lit the Lamp for Chemistry	£5	£3				
Boat for Tides. Broken Water	£5	£3				
Sir Paul Nurse in Conversation	£5	£3				
Good Life, Death, Grief	£5	£3				
The Birds	£8	£5				
<b>Sunday 9 September</b>						
Photographing the Moon	£4	£2				
A Central Property of Life	£5	£3				
Like Corn Cut Down by River	£5	£3				
With Sequences Like Canvas	£4	£2				
Born a Hunter - Saving Frogs	£5	£3				
Land Makar	£10	-				
Scholars, Snow and Stars	£5	£3				
<b>Monday 10 September</b>						
Genes Influencing Diet	£5	£3				
Whole Genome Sequence	£5	£3				
Walk to the Brough	£3	£1				
Genomics to Proteomics	£5	£3				
Age of Reason, Rights of Man	£5	£3				
<b>Sub-total from previous page</b>	-	-	-	-		

## BOOKING REQUEST FORM

	£ Adult	£ Con.	No. at adult	No. at concess.	Total £	p
Sub-total from previous page	-	-	-	-		
<b>Monday 10 September (ctd)</b>						
Engineering the Future	£5	£3				
All Jock Tamson's Bairns	£5	£3				
Woods Beneath the Waves	£5	£3				
Big Beautiful Bubble Show	£5	£3				
Big Bill & Guns of Alamein	£5	£3				
Scottish Genetic Structure	£5	£3				
Origins of the Icelanders	£5	£3				
<b>Tuesday 11 September</b>						
Miniature Whisky School	£12	-				
Farewell to Permafrost?	£5	£3				
Physics of Mountain Rescue	£5	£3				
Reminiscences Orkney Parish	£5	£3				
Modelling the Invisible	£5	£3				
Coldest Place in Scotland	£5	£3				
Mysterious Materials, Cures	£5	£3				
Mr Boom Beneath the Moon	£5	£3				
Sight from Sky, Armies Below	£5	£3				
Murderous Maths	£5	£3				
The Science of Gin	£10					
Peter Higgs in Conversation	£6	£4				
The Strangest Man	£5	£3				
<b>Wednesday 12 September</b>						
Becoming an Astronaut	£5	£3				
Make, Fire into Orbit	£5	£3				
Bus Tour - Distilling	£10	-				
Do-It-Yourself Broadband	£5	£3				
Helmsdale, Berriedale	£5	£3				
Willie Logan & Tay Bridge	£5	£3				
Distilleries Lost & Reborn	£6	-				
Colour: Science Behind Sense	£5	£3				
The Highland Park Ceilidh	£10	-				
<b>LecturePass - all £5/3 events</b>	<b>£40</b>	<b>£32</b>				

(Please note that admission can only be guaranteed if pass-holders arrive at least 15 mins before start)

**Total ticket sum enclosed**

**Name**

**Address**

**Telephone**

**Email**

Please use **BLOCK CAPITALS**, post with cheque & s.a.e. to  
**Orkney Science Festival**, 3 Crantit Park, Kirkwall, Orkney KW15 1SJ  
 Please make cheques payable to **Orkney Science Festival Ltd**