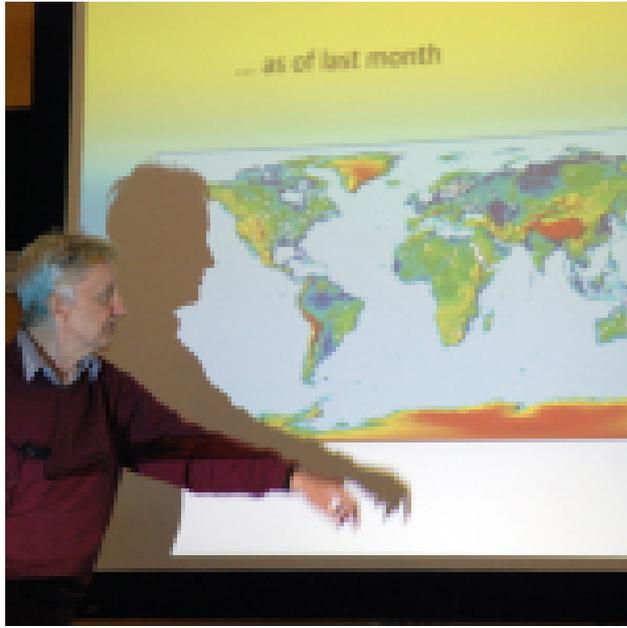


**Orkney International Science Festival  
Report on lectures in 2013 Festival sponsored by the Institute of Physics**

This was a package of four lectures by three separate speakers.

**'Cosmic Roulette' - Prof. Bill Napier of Buckingham University. Town Hall, Kirkwall, Saturday 7 September.**



Prof. Napier surveyed the huge upheavals sometimes mass extinctions experienced by life on earth over several billion years and identified causes on a cosmic scale from the dynamics of asteroid impacts and comet passages, as well as the astrophysics of supernovae. There were 45 people present.

**'The Terrible Taurids' - Prof. Bill Napier of Buckingham University. King Street Halls, Kirkwall, Tuesday 10 September.**

Prof. Napier looked at the event 12,900 years ago known as the Younger Dryas, when the late Ice Age melting went into a sudden period of reverse lasting for 1300 years. The boundary is marked by a 'black mat' layer several cm thick at many sites in the US, with high levels of soot indicative of continental-size wildfires, as well as nanodiamonds produced by shocks, which are only found in meteorites or impact craters. He developed an astronomical model that showed how the features could be explained by the Earth running into a dense trail of material from a rapidly disintegrating comet. He listed evidence for such a comet entering the inner planetary system between 20,000 and 30,000 years ago and fragmenting ever since, giving rise to the meteor streams and associated asteroids known as the Taurid Complex. There were 56 people at the talk.

**'The Solitary Wave and the Ship-Building Scotsman' - Prof. Alan Champneys of Bristol University. Town Hall, Kirkwall, Monday 9 September.**

Prof. Champneys told the story of the remarkable John Scott Russell, born in Glasgow in 1808, who built the Great Eastern in collaboration with Isambard Kingdom Brunel and in 1834 discovered the wave of translation which developed into the modern theory of solitons, the applications of which range from fibre optics to tsunami predictions. He also developed the wave-line system of ship construction and was a promoter of the Great Exhibition of 1851. There were 60 people there.



**'The Father of the Big Bang' - Revd Dr Gareth Leyshon. King Street Halls, Kirkwall, Tuesday 10 September.**

Revd Dr Leyshon trained as an astrophysicist, taking a PhD at Oxford University on the infra-red polarizations of high-redshift radio galaxies, and subsequently trained as a priest, continuing his interest in astrophysics and giving talks on numerous aspects. He is thus an ideal speaker on the story of the work of Georges Lemaître, the Belgian Jesuit priest, astronomer and professor of physics who was the first to propose the theory of the expansion of the universe and to derive what is now known as Hubble's Law, and also to make the first estimate of what is now called the Hubble constant, which he published in 1927, two years before Hubble's paper. Lemaître went on to propose that the universe had expanded from a single point which he called the 'primeval atom', the theory which later became known as the 'Big Bang'. There were 45 people there. Dr Leyshon also spoke to 40 people in the Hoy Kirk on Friday 6 September on the latest explorations of the Solar System, and to 18 Primary 7 pupils at Dounby School on Wednesday 11 September.

**Photos and features**

The photos are from the gallery on the OISF website at [www.oisf.org/portfolio-items/events-2013/?portfolioID=2928](http://www.oisf.org/portfolio-items/events-2013/?portfolioID=2928). See also:

[www.frontiersmagazine.org/the-solitary-wave-and-the-ship-building-scotsman](http://www.frontiersmagazine.org/the-solitary-wave-and-the-ship-building-scotsman)

[www.frontiersmagazine.org/georges-lemaitre-the-father-of-the-big-bang](http://www.frontiersmagazine.org/georges-lemaitre-the-father-of-the-big-bang)