

Nick Shackleton – The Isotope Man

The Secret Life of the Scientist

who discovered the Greenhouse Effect

by Richard Corfield

Outline

In a world which now endlessly debates the reality of global warming it is essential that we understand the

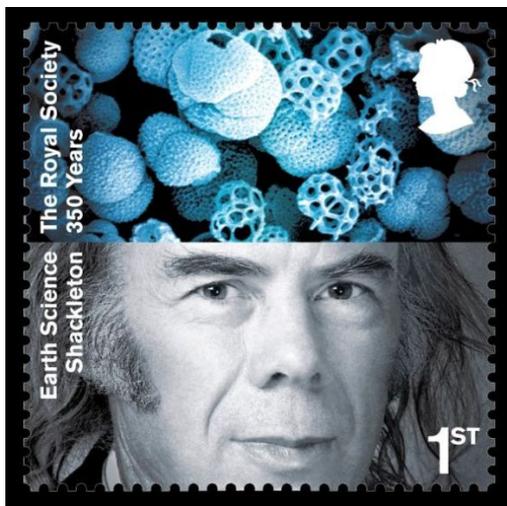


Figure 1 The Royal Society celebrated Sir Nick Shackleton's achievements by commissioning a Royal Mail stamp of him on their 350th centenary. Other scientists featured included Sir Isaac Newton, Sir Ernest Rutherford and Benjamin Franklin.

science that underpins it. One man, more than any other in the twentieth century, is pivotal to that understanding: Professor Sir Nick Shackleton FRS, late of Cambridge University.

Nick Shackleton was a geologist who reached the height of his powers in the 1980s and 1990s as the science of geology gave birth to the new field of palaeoclimatology (the study of ancient climates). Nick Shackleton was the subject's midwife. When he arrived in Cambridge in 1961 it was no more than a set of vague axioms; when he died in 2006 he left it a profound statistical science. Thousands of scientists around the globe now use the methods and ideas that Nick developed

for analysing past climate change to understand what our Greenhouse future will look like.

The Isotope Man will explore how Nick devised the

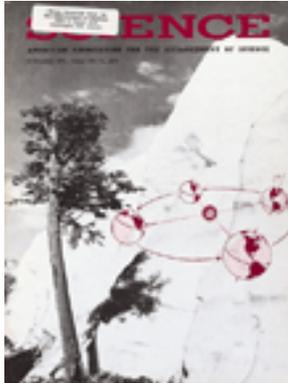


Figure 2 The paper in which Shackleton and co-workers proved that ice ages are caused by variations in the Earth's orbit around the sun.

techniques and intellectual framework that enabled him and his colleagues in the late 1980s and 1990s to prove that the Earth's climate was naturally controlled by variations in the Earth's orbital geometry as it moves around the sun (the Milankovich hypothesis).

Nick also showed that it was variations in the concentration of greenhouse gases (principally carbon

dioxide) that amplified this orbital 'forcing' into climate change throughout the last 2.6 million years of Earth history (the Pleistocene epoch). As his work developed through the 1990s Nick went on to show that climate has been controlled by CO₂ variations for much longer than just the last 2.6 million years however. By the time he died in 2006 it was accepted throughout the scientific community that atmospheric CO₂ change has been the principal control on global temperatures for the entire, **4.5 BILLION YEAR** history of the Earth.

It is appropriate here to remind ourselves that this widely accepted consensus by the scientific community is not shared by all politicians, industrialists and

individuals (witness the recent scandal surrounding the 'Climategate' Affair at the University of East Anglia where hacked emails were interpreted as evidence that scientists had exaggerated the risks of global warming).

The Isotope Man will address this fundamental division between the so-called climate change promoters and sceptics by drawing back the veil about how the science was - and is - done.

The Isotope Man will therefore not only be a useful and entertaining biography of one of the greatest scientists of the twentieth century, but will also be essential reading for everyone who wants to know how the scientific community arrived at the conclusion that global warming (and associated hazards such as ocean acidification) have become the major environmental problem facing the human race.

About the Author

Dr Richard Corfield was the first graduate student to obtain his PhD working with Nick Shackleton.

Richard worked with Nick from 1983 until 1988 - the period when Nick's career took off. Richard was an eyewitness to many of Nick's discoveries including his most important - that greenhouse gases control the succession of climate cycles known as ice ages. Richard was intimately familiar with Nick Shackleton both as a man and as a scientist. They were friends right up until

the time of Nick Shackleton's death on 24 January 2006. Having worked with Nick, kept in touch with him after he



Figure 3 Nick Shackleton and Richard Corfield together in Cambridge in 1985.

set up his own lab in Oxford and as a noted climate scientist in his own right (with over seventy peer reviewed scientific papers to his name) Richard is uniquely qualified to write this book.

In addition Richard has forged a successful career as a populariser of science with three full length books to his name (**Architects of Eternity; The New Science of Fossils, The Silent Landscape; The Scientific Voyage of HMS Challenger** and most recently **Lives of the Planets; A Natural History of the Solar System**).

Richard also contributes to both print and online science magazines (**Chemistry World, Physics World, Astrobiology Magazine, Space.com**), newspapers (**The Washington Post, The Guardian**) and is a regular broadcaster on Radio and TV (e.g. Melvyn Bragg's flagship **BBC Radio 4** program **In Our Time**, also **The Material World, The Report, Equinox** and **Newton Channel** for which he made the acclaimed documentary **An Interview with Craig Venter**).

Richard Corfield is personally familiar with the figures in Nick Shackleton's scientific career, for example, Nick's lab manager **Mike Hall** who worked with him

for the whole of his career, **Professor Richard West FRS** who Nick succeeded as Head of the Sub-Department of Quaternary Research in Cambridge as well as scientists around the globe (e.g. **Jim Hays, John Imbrie, Nick Piasias, Jim Kennett, Wallace Broecker, Ed Birchfield, Wolf Berger, Jan Backman and Willy Dansgaard**) who worked with Nick during the course of his long, ground-breaking, career. Richard is also in contact with Nick's sisters Penelope and Annabel.

In 1999 Nick Shackleton was awarded the Crafoord Prize (the Earth Sciences equivalent of the Nobel Prize) for his work on the Greenhouse Effect and Climate Change.