

Norah Boyce Science Lectures 2010-2011

19 October 2010,

Jeremy Clare

Understanding Visual Perception

Jeremy Clare is the Treasurer of The University of the Third Age in Cambridge, and gives courses on ornithology. He worked for a time for the Ministry of Defence, and this led to an interest in target recognition. He spent two years working in the Physiological Laboratory in Cambridge with the inspirational Fergus Campbell, whose fascination with visual perception was shared with Jeremy, who will be sharing some amazing phenomena with us. He says: "We readily accept the aphorism "Seeing is Believing", but is what we see the real world, or just a figment of our imagination?"

2 November 2010

Professor Sir David Baulcombe, FRS

RNA silencing: a new approach to control of disease in plants and animals

See <http://www.plantsci.cam.ac.uk/research/davidbaulcombe.html>

David Baulcombe is Regius Professor of Botany in the University of Cambridge and a Fellow of Trinity College. He was born in Solihull, and received his B.Sc. degree in botany from the University of Leeds in 1973. He then moved to the University of Edinburgh, where he received his Ph.D. in botany in 1977. His honours include the Royal Medal of the Royal Society (2006), the Albert Lasker Award for Basic Medical Research (2008) and the Wolf Prize for Agriculture (2010). The two main topics of his work involve the interactions between viruses and their hosts. The first topic involves protein-based innate immunity mechanisms in plants against pests and disease. In particular he focuses on aspects of a molecular recognition process in which plants recognize the presence of a virus. The second topic involves family of RNA-based processes in plants, animals and fungi that are collectively known as RNA silencing. In the last ten years RNA silencing has been harnessed as a routine tool in the study of gene function and it has revolutionised understanding of genetic regulation.

The discovery of RNA silencing illustrates the power of modern molecular genetics and, because it reveals the commonality of diverse organisms, it reinforces the view of

Jacques Monod that "what is true for E. coli is also true for elephants" or, given the involvement of plants, that peas are good models for people".

16 November 2010

Professor Ron Laskey, FRS

Cancer, DNA and Darwin

Ron Laskey started his career at Oxford, followed by post-doctoral posts on the scientific staff of Imperial Cancer Research Fund and the MRC Laboratory of Molecular Biology in Cambridge. There he discovered signals that direct proteins to the cell nucleus and invented a range of sensitive methods for detecting radio-isotopes. In 1983 he moved to the Charles Darwin Chair of Animal Embryology in the University of Cambridge, first in the Department of Zoology, then as CRC Director of the Wellcome CRC Institute and more recently as Director of the MRC Cancer Cell Unit in the Hutchison/MRC Research Centre.. Throughout most of his career, Ron Laskey's main interest has been how cells control DNA synthesis. Some of the proteins studied in this work are emerging as promising markers for the development of screening tests for the commonest cancers. Ron Laskey is Vice-President of the Academy of Medical Sciences and a former President of the British Society for Cell Biology. His work has been recognised by several awards, including the Louis Jeantet Prize for Medicine and the Royal Medal of the Royal Society. On a lighter note, he has written and recorded three albums *called Songs for Cynical Scientists, More Songs for Cynical Scientists* and now *Selected Songs for Cynical Scientists*.

25 January 2011

Patricia Fara

Women and the History of Science

Patricia Fara lectures in the History and Philosophy of Science department at Cambridge University, where she is the Senior Tutor of Clare College. She has written a range of popular and academic books on the history of science.

Her latest book is *Science: a four thousand year history*. Previous books include an account of Newton's reputation, and a study of the role of women in science during the Enlightenment.

8 February 2011

Professor Martin Jones

Why do Humans Share Food

For the majority of creatures on this earth, the elements of our first meals together--a flashing fire, bared teeth, a quantity of food placed in the center of a group of hungry animals--spell trouble in a myriad of ways. For us, the idea of a group of people coming together for a meal seems like the most natural thing in the world. The family dinner, a client luncheon, a holiday spread--a huge part of our social lives is spent eating in company. How did eating together become such a common occurrence for man?

Martin Jones has been George Pitt-Rivers Professor of Archaeological Science in the University of Cambridge since 1990. He graduated in Botany from the University of Cambridge, and moved to Oxford for his DPhil. He works on archaeobotany and archaeogenetics, in the context of the broader archaeology of food. His current research interests include food sharing in the Upper Palaeolithic, the spread of farming across Asia, and the development of agrarian societies and their food economies in later prehistory and historic periods.

His book *Feast: why humans share food*, on the topic of this lecture, was 2008 Food book of the Year (Guild of Food-Writers), and on the 2009 Outstanding Academic Title list of the American Library Association.

1 March 2011

Professor John Mollon, FRS

The Perception of Colour

John Mollon is Professor of Visual Neuroscience at the Department of Experimental Psychology of the University of Cambridge and a Fellow of Gonville and Caius College. His many publications (>200) are mainly on the perception of colour, and he has a particular interest in the historical development of the subject.

17 May 2011

Professor Nicholas Mackintosh, FRS

Intelligence in Old Age

Nick Mackintosh is Professor Emeritus in the Department of Experimental Psychology, and a Distinguished Associate of The Psychometrics Centre at the University of

Cambridge, and Fellow of the Royal Society since 1987. He received the Biological Medal and the President's Award from the British Psychological Society in 1984 and 1986 respectively. Between 1981 and 2002 he was Head of the Department of Experimental Psychology and a Fellow of King's College at the University of Cambridge. He has been Visiting professor at the Universities of Pennsylvania, California (at Berkeley), Hawaii, New South Wales and Yale. His books have included *'The Psychology of Animal Learning'* (1974), *Conditioning and Associative Learning* (1981), *'Cyril Burt: Fraud or Framed'* (1995), and *'IQ and Human Intelligence'* (1998).

24 May 2011

Professor Andrew Wyllie, FRS

Life or Death Decisions at the Cellular Level

Andrew Wyllie qualified in medicine at the University of Aberdeen, and is now Professor of Pathology and Head of the Department of Pathology at the University of Cambridge, an Honorary Consultant at Addenbrooke's Hospital, and a Fellow of St John's College. With two co-authors, he was responsible for the introduction of the concept of "apoptosis" (previously called "programmed cell death"), a process whereby cells organise their own death. It can be initiated by physiological stimuli, or a variety of types of cell injury. The term "apoptosis" is of Greek origin, having the meaning "falling off or dropping off", in analogy to leaves falling off trees or petals dropping off flowers. This analogy emphasizes that the death of living matter is an integral and necessary part of the life cycle of organisms.