

# The Driving Forces of Evolution: From Darwin to the modern age

3<sup>rd</sup> - 4<sup>th</sup> July 2008

At The Linnean Society of London, Burlington House, Piccadilly, London, W1J 0BF

## Organisers

Dr Frank Ryan FLS, Sheffield University and Prof David Cutler PLS, Royal Botanic Gardens, Kew



*Heliconius – a homoploid hybrid butterfly*  
Photography by Juan G. Montañés, Production by M.Linares

In the early 1930s the synthesis of Darwinian natural selection, mutation and Mendelian genetics gave rise to the paradigm of “modern Darwinism”, also known as “neo-Darwinism”. This has contributed greatly to our understanding of evolutionary change. But increasing knowledge of other forces, such as symbiogenesis (including our growing understanding of the role of virus-host interactions), hybridogenesis, horizontal gene transfer in prokaryotes, epigenetics, and events specific to evolutionary development, all variously coupled to natural selection, have widened our horizons to a diversity of evolutionary possibilities. In celebration of the 150<sup>th</sup> anniversary of the presentation of Darwin’s theory of evolution to the Linnean Society of London, in July 1858, we have brought together experts from these key arenas to present a more comprehensive explanation of how, in Darwin’s own words, ‘endless forms most beautiful and most wonderful have been, and are being, evolved’.

## Speakers

**Hugh Dickinson**, Sheradian Professor, Department of Plant Sciences, University of Oxford and  
**Robert Grant-Downton**, Postdoctoral Research Fellow, Department of Plant Sciences, University of Oxford

*Epigenetics in Plant Evolution*

**Eva Jablonka**, Professor at the Cohn Institute for the History and Philosophy of Science and Ideas at Tel Aviv University and **Marion J. Lamb**, formerly Senior Lecturer Birkbeck College, University of London

*The Role of Epigenetic Variation in Adaptive Evolution*

**Erik Larsson**, Professor of Pathology, University of Uppsala, Sweden

*Evolutionary Aspects of Human Endogenous Retroviruses (HERVs), Based On Their “Activities” in Human Tissues*

**Mauricio Linares**, Jefe Departamento Ciencias Biológicas, Universidad de los Andes, Carrera, Columbia

*Homoploid Hybrid Evolution in Heliconius butterflies*

**Barbara Mable**, Senior Research Fellow, Department of Environmental and Evolutionary Biology, University of Glasgow

*Hybridisation in Animals: Why Should Only Plants Have Flexible Reproductive Systems*

**Lynn Margulis**, Distinguished Professor, Department of Geosciences, University of Massachusetts, *Origin of Eukaryotes in the Proterozoic Eon: Symbiogenesis in the Sulfuretum*

**Lynn Riddiford**, Professor of Biology, Emeritus, University of Washington, currently Senior Fellow, Howard Hughes Medical Institute, Janelia Farm Research and **James Truman**, Professor Emeritus, Department of Biology, University of Washington, currently Group Leader, Howard Hughes Medical Institute, Janelia Farm Research Campus  
*Molecular and Endocrine Perspectives on the Evolution of Metamorphosis in Insects*

**Loren Rieseberg**, Department of Botany, University of British Columbia, Vancouver, BC Canada, and Department of Biology, Indiana University, Bloomington, IN  
*The Role of Hybridisation in Plant Evolution*

**Marilyn Roossinck**, Professor, Plant Biology Division, Samuel Roberts Noble Foundation, Ardmore, Oklahoma  
*RNA Viruses in Symbiosis and Symbiogenesis*

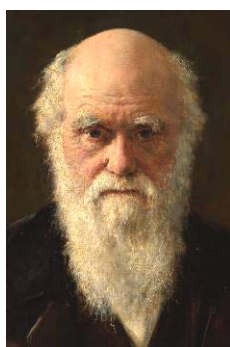
**Frank Ryan**, Consultant Physician, Sheffield PCT, and Honorary Research Fellow, Department of Evolutionary Biology, University of Sheffield  
*Viruses as Symbionts*

**Jan Sapp**, Professor, Department of Biology, York University, Toronto  
*Evolution Reconsidered: On the Origin of Kingdoms*

**Michael Syvanen**, Professor of Medical Microbiology & Immunology, School of Medicine, University of California, Davis  
*Gene Transfers During the Metazoan Radiation*

**Luis Villarreal**, Director of the Center for Virus Research and Department of Molecular Biology and Biochemistry, University of California, Irvine  
*The role of Virus in Host Evolution: Haystack Models From a Viral Perspective*

**Don Williamson**, Emeritus Reader in Marine Biology, University of Liverpool  
*Larval transfer and the Cambrian Explosion*



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