



Conference

New Light on Old Britons

Wellcome Trust Lecture Hall

The Royal Society

6-9 Carlton House Terrace, London SW1Y 5AG

on

Wednesday, 30th October, 2019

Admission is free, but strictly by ticket, available from:

www.eventbrite.co.uk

or

The General Secretary, the Galton Institute
19 Northfields Prospect, London SW18 1PE

executiveoffice@galtoninstitute.org.uk

www.galtoninstitute.org.uk

Speakers and Chairmen

Professor Nick Ashton	British Museum
Professor Ian Barnes	Natural History Museum
Dr Silvia Bello	Natural History Museum
Professor Sir Walter Bodmer, FRS	Department of Oncology, Weatherall Institute, Oxford
Dr Selina Brace	Natural History Museum
Dr Lara Cassidy	Trinity College Dublin
Professor David Coleman	University of Oxford
Professor Sir Barry Cunliffe, CBE, FBA	University of Oxford
Professor Turi King	University of Leicester
Professor Caroline Relton	University of Bristol
Professor Chris Stringer, FRS	Natural History Museum
Professor Dallas Swallow	University College London
Professor Veronica van Heyningen, FRS	President of The Galton Institute, Institute of Ophthalmology University College London and MRC Human Genetics Unit, IGMM, Edinburgh

**Conference organisers:
Professors David Coleman, Caroline Relton and Dallas Swallow**

New Light on Old Britons

- 9.55-10.00am** **Welcome and Introduction: Professor Veronica van Heyningen, FRS**
- 10.00-10.40am** **Chair: Professor David Coleman**
Professor Nick Ashton
The climate, palaeogeography and early human settlement of Britain over the last million years
- 10.40-11.20am** **Dr Silvia Bello and Professor Chris Stringer, FRS**
The First Britons: bones and behaviour
- 11.20-11.50am** **COFFEE**
- 11.50-12.30pm** **Chair: Professor Dallas Swallow**
Dr Selina Brace and Professor Ian Barnes
Ancient DNA and the changing structure of the prehistoric British population: from the Mesolithic to the Bronze Age
- 12.30-1.10pm** **Professor Sir Walter Bodmer, FRS**
The genetic structure of the populations of the British Isles
- 1.10-2.10pm** **LUNCH**
- 2.10-2.50pm** **Chair: Professor Veronica van Heyningen, FRS**
Professor Turi King
Genetics and history: how DNA can be used as a window onto the past
- 2.50-3.50pm** **The Galton Lecture 2019**
Professor Sir Barry Cunliffe, CBE, FBA
The 'Celts' in Britain – a romantic fiction?
- Presentation of the Galton Plate by Professor Veronica van Heyningen, FRS**
President of the Galton Institute
- 3.50-4.20pm** **TEA**
- 4.20-5.00pm** **Chair: Professor Caroline Relton**
Dr Lara Cassidy
The genomic history of Ireland

NEW LIGHT ON OLD BRITONS

The climate, palaeogeography and early human settlement of Britain over the last million years

The human settlement of Britain stretches back to almost a million years, but it has been a history of brief incursions governed by the cyclical changes in climate and the changing status of Britain as an island or as a peninsula of the European mainland. This talk will discuss research from the last twenty years that has provided new sites, better dating frameworks, rich environmental information and a growing understanding of the importance of the North Sea Basin and the Channel region for human access to Britain. It will focus on the earliest evidence from Happisburgh where pioneering populations first appeared over 850,000 years ago, to recent results from Barnham with evidence of new technologies and more permanent settlement at 400,000 years ago. The talk will conclude by showing how occupation became increasingly rare due to cold climate or insularity. Larger populations returned as climate warmed at the beginning of the Mesolithic c. 11,000 years ago.

Nick Ashton

The First Britons: bones and behaviour

The British fossil human record begins with the possible *H. heidelbergensis* fossils from Boxgrove at ~500 ka, followed by the Swanscombe cranial bones at ~400 ka, which may represent an early Neanderthal. Later Neanderthal teeth are known from Pontnewydd and La Cotte de St Brelade, at about 230 and 50 ka respectively, while early *H. sapiens* is represented at sites such as Kent's Cavern, Paviland and Gough's from about 40 ka onwards. Investigating the association of hominin remains with specialised bone tools, ritualistic objects and artistic representations allows for a better understanding of the technological and cultural development of these early Britons.

Chris Stringer and Silvia Bello

Ancient DNA and the changing structure of the prehistoric British population: from the Mesolithic to the Bronze Age

For much of the last century, archaeologists have debated the relative roles of migration, admixture and acculturation in determining prehistoric societal change. Recently, advances in DNA sequencing technologies have provided a means to generate genome-wide datasets from archaeological remains dating back over thousands of years, enabling us to test between long-standing proposals of cultural diffusion versus human movement. In this talk we will review two recent studies which use ancient DNA to explore the demography of Britain between the Mesolithic and the early Bronze Age. Both studies identified large-scale population turn-over events, driven by migrations from continental Europe, with little evidence for admixture. Paper references are Olalde *Nature* 555, pps 190–196 and Brace *Nature Ecology and Evolution* in press.

Ian Barnes and Selina Brace

The Genetic structure of the populations of the British Isles DNA based genetic analysis has made it possible to use very large numbers of genetic markers to do fine genetic analysis of closely related populations such as those of different parts of the British Isles. For such studies, however, it is very important to sample populations in a meaningful way. Volunteers who were from rural areas and whose four grandparents were born within 80km of each other area were used for a fine scale genetic analysis of the UK population. Analysing the genetic variation in this sample using techniques that take into account patterns of linkage disequilibrium revealed a striking concordance between genetic clusters and geography. Further analysis of the shared ancestry between these UK clusters and similarly analysed samples from surrounding European countries revealed regional patterns of genetic differentiation that carry clear signals of events in the history of the UK population. Such studies have been extended to Irish populations and their relationships to the UK regional patterns. In this way we can build up a picture of the origins of the populations of the UK and Ireland as they have developed since the end of the last ice age.

'Leslie, S., B. Winney et al.' (2015). The fine-scale genetic structure of the British population *Nature* 19 March 2015 519, 209. 'Gilbert, E., S.O'Reilly et al,' (2017). The Irish DNA Atlas: Revealing Fine-Scale Population Structure and History within Ireland. *Nature Scientific Reports*.

Walter Bodmer

Genetics and history: how DNA can be used as a window onto the past.

The use of genetics to look at the past, either collective or personal, has undergone a revolution in recent years. From the technological advances allowing the genetic analysis of ancient remains, through to the boom of commercial genetic genealogy, ancestry and medical testing, Professor Turi King will discuss the various ways in which DNA can, and perhaps more importantly, cannot be used to shed light on the past. **Turi King**

The 'Celts' in Britain: a romantic fiction?

Societies need to understand their roots but, in the absence of hard fact, have to use their imaginations. So it was in Britain in the late seventeenth century when antiquarians, learning about Celts from classical texts, named the ancient Britons 'Celts' and 'celtomania' soon gripped the Atlantic facing regions of Europe. For centuries the Celtic debate was dominated by linguists, archaeologists being prepared to follow the senior discipline, but in the 1960's traditional narratives were being rejected and students had begun to explore the rapidly growing body of archaeological evidence shorn of preconceptions. Since 2015 these new models are being challenged and refined as ancient DNA evidence becomes available. **Barry Cunliffe**

The Genomic History of Ireland

The island of Ireland provides a relatively contained microcosm in which to study the defining demographic events that have shaped European populations. It has acted as the northwestern terminus for major continental migrations in the Mesolithic, Neolithic and Chalcolithic periods, while its insular status has afforded it some level of genetic continuity over the past four millennia (Cassidy et al. 2016). Using a dataset of over 100 ancient genomes, encompassing all periods of the island's prehistory, we chart how these processes of demographic change and continuity led to the formation of the modern Irish genome. Dense sampling across time intervals of known population turnover sheds light on the complex interplay between geography and culture in the assimilation of new peoples to the island. During periods of continuity, we use haplotypic data to dissect subtle patterns of relatedness and difference among more homogeneous populations, giving insight into societal drivers of genetic structure in prehistory.

Cassidy LM, Martiniano R, Murphy EM, Teasdale MD, Mallory J, Hartwell B, et al. Neolithic and Bronze Age migration to Ireland and establishment of the insular Atlantic genome. Proc Natl Acad Sci U S A. 2016;113: 368–373. PMID:26712024 **Lara Cassidy**

**THE GALTON INSTITUTE
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APPLICATION FORM**

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Visitor(s):

Coffee/tea will be provided in the morning and afternoon. Participants should make their own arrangements for lunch.

To: The General Secretary, The Galton Institute, 19 Northfields Prospect, London SW18 1PE
executiveoffice@galtoninstitute.org.uk

The Galton Institute was established in its current form in 1989 in memory of Sir Francis Galton (1822-1911), one of the UK's most distinguished Victorian scientists and a cousin of Charles Darwin. The scientific study of human heredity was one of Galton's many areas of endeavour, and The Galton Institute was set up to promote research and understanding in all aspects of this field.

There have been huge advances in the scientific understanding of heredity and genetics over the last century. Partly informed by these insights, there has been a concurrent revolution in social attitudes in considering the contributions of 'nature' and 'nurture' – Galton's terms for today's genes and environment – to human development and achievement. Consequently, the Galton Institute of today reflects the multidisciplinary nature of current research, with geneticists, clinicians, demographers, bioinformaticians, sociologists, psychologists, statisticians, teachers and other professionals working together with the aim of improving knowledge of our species and its challenges.

The Galton Institute is committed to stimulating and informing public debate on human heredity and associated questions, and seeks to promote public engagement with, and communication of, these topics.

Aims

The Institute promotes and supports the scientific exploration of all aspects of human heredity through:

1. Education and communication with all interested individuals and groups.
2. Stimulating and informing public debate on the social and ethical implications and relevance to human well-being.
3. The study and understanding of the historical origins and development of the topic.

Activities

The Institute has a wide range of interdisciplinary interests relating to the scientific study of human inheritance and promotes communication of these investigations through:

- An annual conference in which a topic of current and international importance relating to human heredity is explored by experts from different disciplines. The conference is the occasion for the delivery of the annual Galton Lecture by an eminent invited speaker.
- Support for conferences and other activities of kindred organisations relevant to its aims.
- Publication of the *Galton Review*, available on the website and received free of charge by Members, Fellows and most UK university libraries.
- Publication of occasional booklets on subjects relevant to its aims.
- Support for work on reproductive health and fertility control in the UK and elsewhere under the aims of the Artemis Trust.

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