

## “A man has many fathers, but only one mother” (Mitochondrial DNA and ancestral genotypes)

### Dr Peter Forster

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*Monday, 9<sup>th</sup> May, 2005; 7.30 - 9.00 p.m.*  
*The Wolfson Lecture Theatre, Churchill College, Cambridge*

**Chair:** to be announced  
**Vote of Thanks:** to be announced

### About the lecture:

#### Dr Forster writes.....

Modern DNA, in particular maternally inherited mitochondrial DNA (mtDNA), is now routinely used to trace ancient human migration routes and to obtain absolute dates for genetic prehistory. The errors on absolute genetic dates are often large (50% or more) and depend partly on the inherent evolutionary signal in the DNA data, and partly on our imperfect knowledge of the DNA mutation rate. Despite their imprecision, the genetic dates do provide an independent, consistent and global chronology linking living humans with their ancestors.

Combining this chronology with archaeological and climatological data, most of our own mtDNA studies during the past decade strongly imply a major role for palaeoclimate in determining conditions for prehistoric migrations and demographic expansions.

This lecture summarises our interpretation of the genetic findings. It will cover the initial and modest spread of humans within Africa more than 100ka, and the striking re-expansion within Africa 60-80ka. This led ultimately to the out-of-Africa migration of a single, small group which settled Australia, Eurasia and America during 'windows of opportunity' which were at least partly dictated by fluctuations in sea levels and climatic conditions.

### About the speaker:

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Dr Foster is Researcher in Archaeogenetics, Fellow and Praelector at New Hall College, a Founding Member of the Junge Akademie in Berlin and co-editor of the International Journal of Legal Medicine.

Peter Forster was born in 1967 and studied at the Universities of Kiel and Hamburg, gaining his PhD, entitled *Dispersal and differentiation of modern Homo sapiens analysed with mitochondrial DNA*, in 1997. After postdoctoral research at the Institute of Legal Medicine, Münster University, Dr Forster was appointed to a Research Fellowship at New Hall and became a Research Fellow at the McDonald Institute for Archaeological Research. In 1999 he was appointed Dean of New Hall. He is Editor of *International Journal of Legal Medicine* and is a founding member of the "Junge Akademie" of the Berlin-Brandenburgische Akademie der Wissenschaften and Deutsche Akademie der Naturforscher Leopoldina.

Dr Forster's research interests range from bioinformatics, horse prehistory and reconstruction of proto-languages to the effect of natural radioactivity on human DNA. He specialises in mitochondrial DNA analysis, developing phylogenetic techniques to reconstruct ancestral genotypes from living genotypes. Dr Forster's research on molecular genetic dating of ancestral nodes to determine prehistoric demography and migration was brought to the public eye on the BBC programme *Motherland: A Genetic Journey*. This showed how, using mitochondrial DNA and Y chromosome DNA from cheek cells, the African ancestry of African-Caribbeans living in Britain may be traced.

### **The CSAAR Organising Secretary adds.....**

I am reminded of the old Jewish saying 'A man has many fathers, but only one mother'. Well, we know - or at least, we think we know - that humans are descended from a very shallow gene pool. Sometimes, when I look around, I am reminded of this! We almost died out! Some would suggest that it would have been better if we had done so!

Hopefully, Dr Forster will enlighten us!

**Coffee and biscuits available**, as usual, in the foyer outside the lecture theatre from ~7.00 p.m. Once again, we shall be charging non-members a nominal sum for entry.

### **The CSAAR Summer Visit:**

This is being organised by our redoubtable Elizabeth Platts even as I write!

It will be to **Sutton Hoo**, followed by a tour of **St. Peter's Hall and Brewery**, near Bungay in Suffolk. It will take place on **Friday, 20<sup>th</sup> May**.

Cost (including coach, but excluding lunch) will be **£25 per person**; depart **08:45** from **Churchill**, or **09:00** from **the lay-by opposite** the entrance to the **Madingley Road Park-&-Ride**.

Please book by contacting **Elizabeth Platts** on: phone her on **01223 525681**, or write to her at **29 Mawson Road, Cambridge CB1 2DZ** enclosing a cheque to the CSAAR for the required amount

Richard Freeman  
CSAAR Organising Secretary