

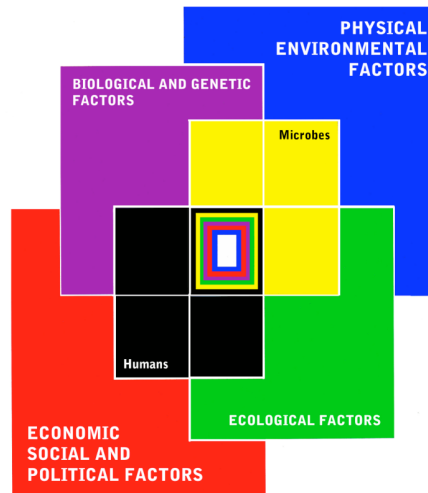
Faculty of History

The Ellen McArthur Lectures 2013

THE GREAT TRANSITION: CLIMATE, DISEASE AND SOCIETY IN THE 13TH AND 14TH CENTURIES

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Lecture dates with provisional titles:

1. **From one socio-ecological status quo to another: the 14th century as tipping point** (Monday 4 February)
2. **The enabling environment: the Medieval Solar Maximum and Europe's high-medieval economic efflorescence** (Wednesday 6 February)
3. **A precarious balance: mounting economic vulnerability in an era of increasing climatic instability** (Monday 11 February)
4. **Disease intervenes: the contributions of climate, disease and society to the Great Transition of the 14th century** (Wednesday 13 February)

Venue: **Mill Lane Lecture Rooms**, 8 Mill Lane, Cambridge. All lectures begin **5.00 p.m.** on 4, 6, 11, and 13 February 2013. **All welcome.** For venue location and access information, visit:

<http://map.cam.ac.uk/> (search for 'Mill Lane Lecture rooms')

<http://www.admin.cam.ac.uk/univ/disability/guide/sites/mlr.html>

Provisional summary:

Around the globe the period c.1270 to c.1420 witnessed profound changes in the trajectory of historical trends. Physical, biological and human processes were all involved in this 'great transition', whose full ecological and geographical dimensions are only now coming to light thanks to detailed research into past climates and renewed scientific interest in the history of plague.

From the 1270s reductions in solar irradiance destabilised long-established global circulation patterns. As one climate regime gave way to another, extreme climate events occurred with a heightened frequency, including consecutive years of persistent heavy rain in north-western Europe and significant failures of the hitherto reliable Asian and Indian monsoons. Rising precipitation in Arid Central Asia's steppe-land interior had particularly significant ramifications, since it boosted populations of plague-carrying gerbils and marmots. Ecosystem stress engendered by acute short term variations in climate may then have triggered initial transfer of the *Yersinia pestis* bacterium from sylvatic-rodent to commensal-rodent hosts and thence human victims.

At this stage bubonic plague's capacity to infect humans was inhibited by reliance upon the rat flea (*Xenopsylla cheopis*) as its sole vector. Not until human ectoparasites, the human flea (*Pulex irritans*) and human louse (*Pediculus humanus humanus*), had become biologically activated as vectors was plague able to spread swiftly and more directly through vulnerable human populations, misleadingly resembling the diffusion pattern of viral diseases spread directly from human to human. Recently opened trans- Eurasian communications plus dense populations and administrative and commercial networks built up during the Latin West's great demographic and economic boom of the twelfth and thirteenth centuries, further aided and abetted introduction and rapid pancontinental diffusion of the deadly pathogen and ensured that humans were as much agents as victims of the pandemic.

Between 1347 and 1375 four major plague pandemics along with more localised outbreaks reduced Europe's population by between a third and a half. Asia's population also shrank, although whether from plague, other 'pestilences', or climatically induced ecological dislocation and political collapse remains far from clear. Institutional resilience and socio-economic responses to these environmental hazards nevertheless varied enormously. In some of Europe's more commercialised regions the loss of numbers proved to be more of a boon than a misfortune. Hence it was in the aftermath of the Black Death that Western Europe gradually began to gain ascendancy over eastern Asia while, within Europe, economic leadership started to pass from Italy to Flanders, Holland and eventually England.

For further information about the lectures please contact Dr Chris Briggs (cdb23@cam.ac.uk)