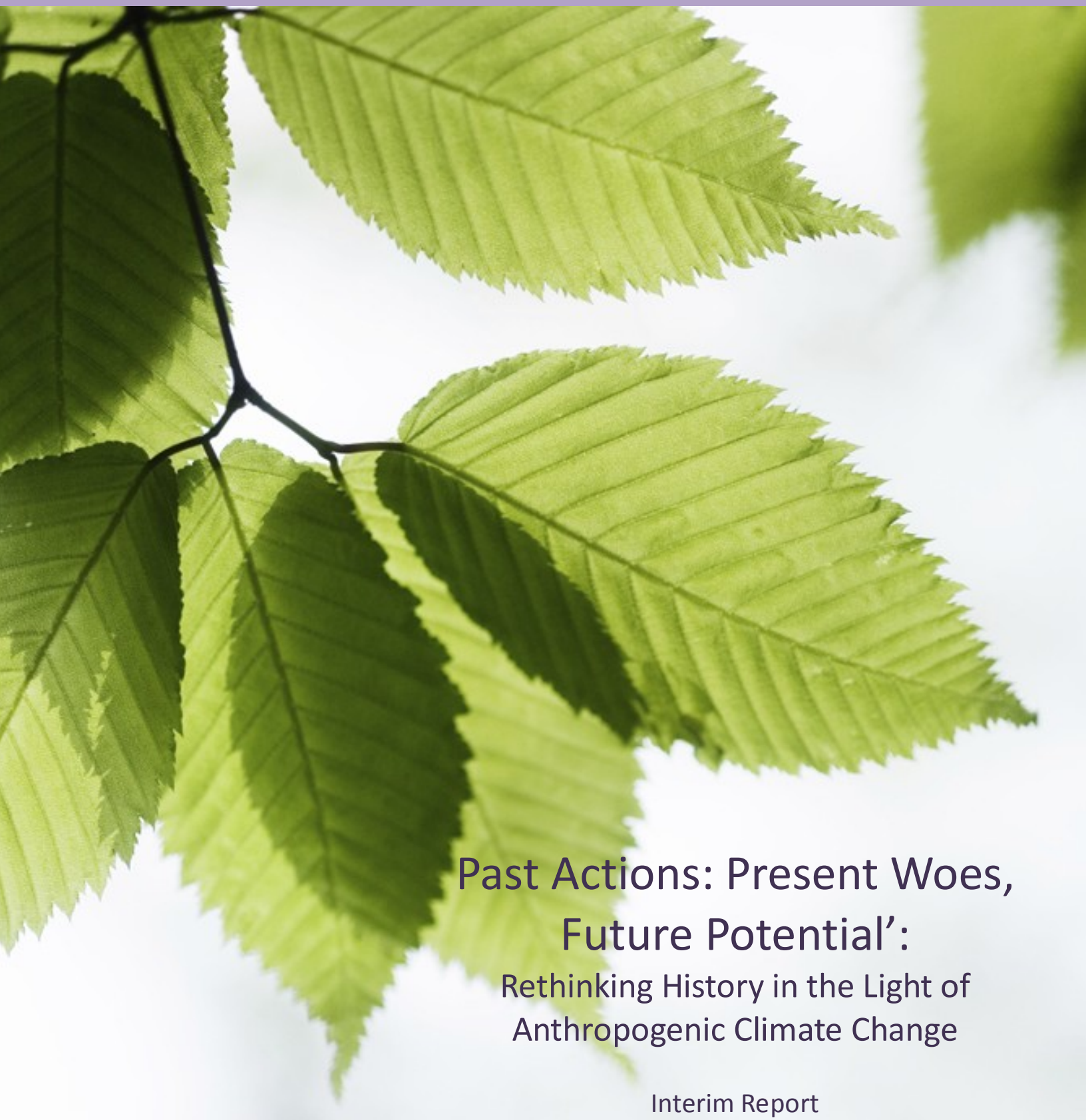
The Higher Education Academy History



Past Actions: Present Woes, Future Potential':

Rethinking History in the Light of Anthropogenic Climate Change

Interim Report

A Model University Syllabus for History and Related Subjects (HEA)

Course Title

Past Actions: Present Woes, Future Potential': Rethinking History in the Light of Anthropogenic Climate Change

Key Words

Teaching Methods, Education for Sustainable Development

Summary (c. 180 Characters)

A model syllabus for historians and other students of the past to engage with issues of anthropogenic climate change through the medium of history and related disciplines. Developed by a small team associated with the Rescue!History network.

Introduction

This model History syllabus is offered as a guide to university teachers and students wanting to develop an understanding and knowledge base of the relationship between history and anthropogenic climate change. It does so, without the requirement for specialist environmental or other scientific knowledge. It can be used as whole, or in part, especially where teachers feel they can adapt a unit in line with their already existing expertise. Thus the rationale of this syllabus is to encourage university History teachers to get to grips with a contemporary issue of the utmost future significance by consideration of:

a) How we historically arrived here and
b) The lessons history might teach us about mitigating the efforts of anthropogenic climate change or adapting to it in ways which will be for the long-term survival and wellbeing of humanity.

In short, this syllabus is founded on the premise that climate change is not simply an area for scientific study but in its multiple challenges to humanity, essential to historical and related curricula too.

It is organised and developed through Rescue!History http://www.rescue-history.org.uk/ which seeks to engage students of the past with the challenge of climate change. Part of the Rescue!History remit is to develop curricula that will enable all those engaged in university education to consider the implications of climate change and how we might best respond as communities, societies and polities.

The course is intended for completion by autumn 2010.

It is composed of twelve units considering the issue from a variety of angles, as set out below. At this stage some of the elements remain incomplete. However, each unit will consist of the following:

a) General theme, setting out the broad issue at stake
b) Case Study, a specific historical example and development of the issue under discussion
c) Student-Centred Exercise (for seminar development)
d) Bibliographical and other Resources

The Team

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- Dr Kate Prendergast, director ISIS consultancy, Oxford, archaeologist of prehistory
- Prof. Dave Webb, Praxis Centre, Leeds Metropolitan, engineer and specialist on technology and human rights

Course Outline

Unit (General Theme)	Contributor	Case-Study	Student-Centred Exercise / Text
1. How do we know the climate is changing? Us and the 'Anthropocene'	Vladimir Jankovic	From Fourier to the IPCC.	The Keeling Curve
2. Climate Change and the Emergence of Human 'History'	Kate Prendergast	The Onset of the Neolithic	
3. Climate Change as Harbinger of Disaster: The Malthusian Connect Population –Food-Climate Change Nexus	Jim Galloway	The coming of the Black Death	
4. The Coming of the 'Anthropocene': Coal	Jim Galloway	From Wood to Coal	
5. Capitalism, the Environmental Revolution and the Anthropocene	Tim Cooper	The Advent of western capitalism and its organisation of nature.	
6. The Acceleration of the 'Anthropocene': Oil	Jean-Francois Mouhout	The Full Emergence of the Fossil Fuel Economy	Machines as Slaves?
7. Consequences of the 'Anthropocene': Profligacy	Vladimir Jankovic	The Culture of Abundance (Stuff)	
8. Dealing with Climate Change: The National and International Arena	Jan Oosthoek	Legislating for Environmental Change	
9. Dealing with Climate Change: The Drive to Technological 'Solutions'	Dave Webb	From the Manhattan Project to Geo-engineering	
10. Denying Climate Change	Teresa Ashe	Denial in History	Holocaust Denial
11. Transcending Climate Change 1: A return to the ethical?	Sharla Chittick	Religion, spirituality and ideas of restraint	
12. Transcending Climate Change 2: A return to history?	Tim Cooper	The Emergence of Climate change Consciousness and Resistance	

A taster for the full range of the syllabus is provided by Jim Galloway's unit 3 as follows:

Unit 3:
Climate Change as Harbinger of Disaster: Population, Famine and Disease in the 14th Century

Introduction and Learning Outcomes

The Black Death, a devastating outbreak of epidemic disease which swept across Europe between 1347 and 1350, was the greatest medical and human catastrophe in recorded history. One in every three people died in the first of what were to be repeated outbreaks of plague. Some historians have interpreted this disaster as essentially a 'Malthusian crisis', brought about by population growth outstripping agricultural production, leaving the people of Europe malnourished and easy prey to a disease to which they had no immunity. Others have seen the Black Death solely as an 'exogenous shock', an outside force which devastated a society and economy which still had capacity for development. Recent work, however, strongly suggests that the Black Death must be viewed in a wider context of climate change and environmental crisis, which provoked major subsistence crises in the generations before the arrival of the plague.

In this unit, students will learn the outline of climate change in the later medieval period, and how climate deterioration culminated in a Europe-wide famine in the years 1315-18. They will then learn about the circumstances of the Black Death's appearance in Europe and will be encouraged to consider the links between this event and the wider climate-influenced crisis. A suggested student exercise will encourage thought on the contemporary relevance of the medieval experience, and an optional supplementary exercise will focus on a local aspect of the late medieval crisis.

Climate and Society in Medieval Europe

In 1300 Europe's population had reached a peak, after several centuries of growth. Agriculture had spread into previously wooded areas and uplands, and Europe's farmers had been able to feed not only themselves, but also the people of the continent's many and growing towns and cities. Surpluses were produced and redistributed through a complex system of local and regional markets and fairs, in an economy that had moved a long way from subsistence. Conditions were harsh for the majority, however, and many country people eked a precarious livelihood from small holdings of land, from which they had to pay customary renders to their lord and periodic royal taxes.

In part the expansion of farming, and the great growth of population which it supported, had been helped by a benign climate in the period between the 10th and the 13th centuries. This period is known to historians as 'the medieval warm period' (MWP); summers were warm, winters were comparatively mild, and stormy weather seems to have been relatively rare. Documents and various types of scientific evidence – including analysis of tree-rings, lake sediments and ice-cores from the Arctic – all point to these central medieval centuries as having a generally favourable climate, well suited to the expansion of grain cultivation - and it was grain, above all, which fed Europe's people in town and country alike.

By the later thirteenth century there are clear signs that things were beginning to change, and that a deterioration of the climate was setting in. Average temperatures in the Northern Hemisphere seem to have been dropping from soon after 1200, and by *c.*1270 glaciers in northern Europe and the Alps were

advancing once again. Episodes of severe storminess began to occur, especially affecting the countries bordering the North Sea. Flooding of reclaimed land occurred, harbours and vessels were damaged and in extreme cases whole districts and towns were lost to the sea. These types of event were becoming more and more common as the fourteenth century dawned.

Meanwhile, as temperatures dropped and winters became more severe, farming communities in the more upland and northerly parts of Europe began to experience more regular harvest failures and hunger. In parts of Scandinavia, especially Norway, some settlements began to be abandoned after 1300 in response to the harsher conditions for agriculture, which would soon to be joined by other associated threats. Glaciers began to spread in Iceland, and a long-term process of settlement retreat began there.

On the far edge of the medieval European cultural world, the Viking settlement on Greenland was shrinking towards extinction. First discovered by the Vikings before 1000AD, Greenland's climate was sufficiently mild in the early centuries of the settlement for a type of European farming to be imported in coastal regions, with cattle-rearing and even some cereal cultivation. However, the colony was precarious because of its distance from Europe and its scanty resources. The downturn in the climate had extremely serious implications for a society which proved unable to adapt, or to learn from the Inuit people who were moving into Greenland at this time. The Vikings tried to stick to their European farming and lifestyle, and the colony steadily shrank in what must have been very desperate circumstances. Cereal growing became impossible, pasture for livestock shrank as the permafrost encroached and contact with Scandinavia became increasingly sporadic as sea-ice increased. Fourteenth century visitors to western Greenland found abandoned settlements, with cattle wandering around but no people to be found. The last report from the colony reached Norway in 1410, and spoke of the burning of a sorcerer – this may suggest that the last remnants of the Viking colony had turned on each other in their desperation.

Climate deterioration did not have such dramatic consequences everywhere of course, but even in the rich lowlands of western and central Europe the shortening of the growing season and the increasing harshness of winters had a negative impact. Cooler and wetter conditions persisted for the remainder of the middle ages, with a possible temporary amelioration around 1500. Less favourably located settlements shrank or were abandoned, or were deliberately depopulated by landlords seeking greater profit from sheep grazing than could now be obtained from arable farming.

On top of the long-term consequences of a cooling climate, there came severe short and medium-term disruptions to weather patterns which made themselves felt across much of the continent. In 1258 a massive volcanic eruption – the precise location of which remains elusive, but whose 'signature' is visible in both the arctic and Antarctic ice – ushered in two years of dismal weather, crop failures and famine. Then in the second decade of the fourteenth century came the 'Great European Famine' of 1315-18, three successive years of disastrously wet summers, failed harvests and widespread starvation across Europe, resulting in perhaps 7 million deaths in excess of normal mortality. Following immediately upon the famine came a devastating livestock epidemic, which killed huge numbers of cattle, damaging the agricultural system further and hitting the supply of meat and dairy produce for human consumption. This livestock mortality - although triggered by the spread of a disease (probably rinderpest) - was underpinned by the bad weather of 1315-18; the rains devastated grazing land as well as crops, and resulted in malnutrition among animals as well as people. It must have seemed that things could not get worse, but a generation later Europe was to be visited by perhaps the greatest human catastrophe in its history – the Black Death.

Case Study – The Coming of the Black Death

No event in European or world history brought such widespread terror, misery and death as the plague which erupted in Europe in the late 1340s. The absolute numbers of deaths which occurred can only be compared with the World Wars of the 20th Century, and the *relative* impact – in terms of the proportion of the population that died - was far worse. The first visitation of the Black Death is thought to have killed one in every three people in Europe; and subsequent returns of the disease reduced the population yet further, so that in the 15th century it stood at no more than one-half, and perhaps only one-third of the level it had reached at its peak around 1300.

The mid-fourteenth century outbreak of plague undoubtedly reached Europe from central Asia. Bubonic plague (still the most likely, although not universally accepted agent of the Black Death) had been endemic in China, and a new and more virulent strain appears to have spread from there into central Asia in the late 1330s. Nomadic peoples and traders carried the disease westwards to the area of the Crimea by the 1340s. In 1347 Genoese traders unwittingly became infected with the disease at the port of Caffa on the Black Sea (today Feodosiya in Ukraine), and carried it back to Italy on board their galley loaded with spices. Other traders were probably responsible for the simultaneous appearance in 1347 of plague at Constantinople, and at Alexandria in north Africa. From these ports and regions of entry, the disease spread rapidly across Western Europe during the course of 1348, leaving death and disaster in its wake. During 1349 and 1350 the plague extended into the far west and north of the continent.

News spread ahead of the disease itself, so kingdoms and cities knew in advance of the awful blow which was about to fall upon them. Attempts were made to prepare for or avoid the ordeal, but little effective could be done as the nature of the plague, and the means by which it was spread, were not understood. The suffering and fear experienced by people are unimaginable, and the consequences for European society, culture and the economy were profound and long-lasting. The Black Death contributed to a power shift in European society, and, in western Europe at least, hastened the end of traditional forms of lordship and serfdom. Rising real wages gave working people new and unprecedented bargaining power, undermined seigniorial incomes and transformed the economy of town and country alike. Rising expectations among peasants and town-dwellers, blocked by lordly intransigence and recurrent warfare, contributed to some of the great popular upheavals of the later middle ages, including the Jacquerie in France (1358) and the Peasants' Revolt in England (1381). At the same time, declining population added to the pressures on the economy and on the existing settlement system, encouraging the disproportionate abandonment or shrinkage of villages in upland or other climatically and economically marginal locations.

Historians have long debated the precise causes and broader context within which the Black Death struck Europe in the mid-fourteenth century. For some, it counts as the prime example of an 'exogenous shock' to the socio-economic system – something striking from outside, unprecedented and unconnected to what had gone before – while others see it as crucially mediated by internal or 'endogenous' factors, hitting a society and economy already weakened by overpopulation, resource over-exploitation and subsistence crises. Recent reinterpretations are placing climate at the centre of the debate, as an overarching influence upon the course of change, as a short-term trigger, and as a specific influence upon the generation which endured the first onslaught of the Black Death.

The years 1314-17 and 1347-51, spanning both the beginning and climax of the Great Famine, and the arrival in Europe and subsequent spread of the Black Death, both emerge as periods of remarkable ecological dislocation, as indicated by divergent the patterns of tree-growth in the northern and southern hemispheres. The torrential rains of the famine years are reflected in a surge in the growth of oaks in the British Isles – but weather which suited trees was disastrous for grain. Analysis of the deuterium content of Greenland ice-cores indicates that the rains were a product of abnormally warm

Atlantic surface waters, which provided moisture and energy both for unusually intense and prolonged summer precipitation and for winter storms. Then, across the temperate world, trees register a prolonged growth trough between 1343 and 1355, while western Greenland temperatures - again reconstructed from deuterium content – register a sharp down-turn, culminating in levels in 1352-3 lower than any subsequent period, including the culminating decades of the Little Ice Age in the late 17th century.

The causes of these apparently global climatic and ecological convulsions are not yet understood – there appear to be no identifiable volcanic eruptions at the time of either the Famine or the Black Death – but their reality is becoming ever more apparent. It is clear that the harvest failures and epidemic diseases of the fourteenth century can no longer be viewed in isolation from this broader environmental context. Links *between* the 1315-18 famine and the Black Death are also receiving renewed attention, and are pointing towards a further, delayed impact of climate change upon the spread of the latter. Archaeological evidence from known Black Death cemeteries in London and elsewhere – set up hurriedly to contain the mass burials of the plague years – indicates that the part of the population most severely affected by the epidemic were young adults in the 26-35 years age group. This group would include those born during the Great Famine, and those whose formative years included those desperate times. Malnutrition in early life is known to predispose survivors to fall prey to epidemic disease.

Moreover, this was not a passing episode of reduced calorific intake. Studies of the livestock epidemics which followed the famine suggest a longer-term diminution of cattle stocks and of the supply of dairy produce which provided vital protein within the diet of the medieval poor. Long-term shortages of protein during childhood and adolescence would also have increased the vulnerability of adults in their twenties or thirties when the Black Death struck. The climate crisis of 1315-18 thus impacted on society at an even more profound level than might at first appear, and takes its place as a key element in the processes of change in later medieval Europe, closely linked to the subsequent plague. Climate did not 'cause' or 'determine' the course of change in the later middle ages, but was closely involved in both the long-term processes of economic change and settlement contraction and in the short-term subsistence and epidemiological crises which rocked the societies of the fourteenth century.

Student-Centred Exercises

1) Medieval Warm Period

The 'Medieval Warm Period' and the associated Norse settlement of Greenland have become contentious 'political' issues, in the context of contemporary climate change. 'Sceptics' have seized on these themes as indicating that climate goes through natural cycles of change, and that contemporary warming is therefore not unprecedented and probably not primarily due to anthropogenic causes. They also accuse climate scientists of trying to minimise the importance of the MWP, in order to preserve the 'hockey-stick' graph of rapid recent temperature change. Thus, Christopher Booker's *The Real Global Warming Disaster* contains no fewer than 16 index references to the MWP!

> ***From a climate change 'sceptic' website***:
>
> *For the past decade or more, climate-change alarmists have tried to deny the existence of the Medieval Warm Period (which used to be known as the Medieval Optimal before it became politically incorrect to think of a warm climate as desirable). Grapes grew in southern England. Norse settlers established farms in Greenland. And the plagues and territorial wars driven by scarcity that marked the Late Middle Ages were centuries in the future – centuries notable for their coldness during the Little Ice Age (1300 to 1850).*
>
> *This drive to erase the MWP from climate history is what led to the infamous "hockey stick" graph that is so central to the UN's claims that our current warm period is to be feared. Scientists such as Mr. Jones [Prof. Phil Jones of UEA] know that if they can establish that there was no other warm era in the past 1,000 years — if global temperatures were mild and stable for the first 900 years and only shot up in the past 100 years as human production of carbon dioxide has increased — then industrialization can be blamed for threatening a climate apocalypse and the UN (and smart, activist scientists such as those at the CRU and IPCC) will have to be called in to help Al Gore save the planet by directing us all how to live.*
>
> http://www.climatechangefraud.com/enviro-extremists/6540-the-only-thing-heating-up-is-the-debate

Students should be encouraged to read some of the suggested resources on medieval Greenland and medieval climate change (below), to see how the historical data is cited and (mis)represented in the blogosphere and sceptic books and websites, and to form their own critical conclusions on the use and abuse of history in current debates on climate change.

How does historical evidence for the MWP and subsequent climatic deterioration contribute to current debates? How should historians react to the use and misuse of their findings in the political arena? How does one marry personal concern and advocacy of action to tackle climate change in the present with the supposed critical detachment of the historian?

2) Black Death and Climate Change - Local Area Study

An alternative exercise, for those with some experience of or interest in local/ landscape history:

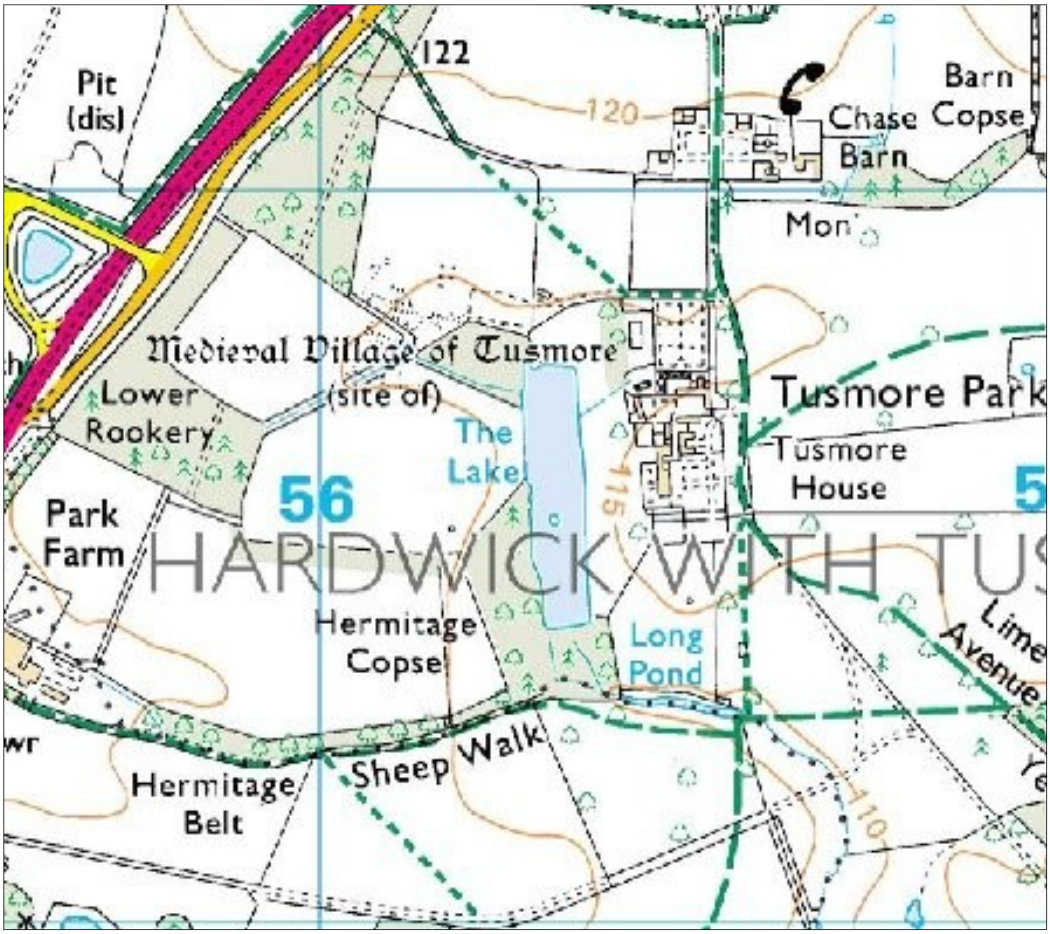
England is dotted with the sites of deserted or radically shrunk settlements of medieval date, and examples have also been identified in parts of Scotland and Wales. Large numbers of similar deserted settlements are also known from continental Europe. In Ireland the contraction of the Anglo-Norman colony there was associated with a decline in grain growing and the abandonment of settlements.

Settlement desertion took place for a variety of reasons, social and economic as well as climatic. However, changing environmental parameters provide an overarching context for the shifts in land-use and population distribution in the later middle ages which underlay the abandonment or shrinkage of settlement. Cooler conditions no longer favoured arable farming and nucleated settlement in many upland areas, while increasing wetness made some valley-floor locations inhospitable and some areas of reclaimed marshland experienced long-term flooding by the sea or fresh-water.

Students should attempt to locate examples of shrunken or deserted settlements from their local area, using Ordnance Survey maps, internet resources, local histories or (where they exist) volumes of the *Victoria County Histories* (see example). What can be discovered about the chronology of the settlement's desertion/shrinkage? Was the settlement abandoned soon after the Black Death, or much later? What can be said about land-use in the area? Are there factors in the settlement's location (altitude, remoteness, drainage) which might have predisposed it to being abandoned during a period of climatic deterioration and population decline?

For larger towns/cities, what was the effect of the Black Death upon population and prosperity? How did trade and economy change after 1350?

Example: Tusmore, Oxfordshire



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Tusmore lies on the Great Oolite, which is covered by fine flint gravel along the Hardwick boundary. The soil is mostly stonebrash. Most of the parish lies just below the 400-foot contour line, but it rises to 412 feet in the north... Fourteenth-century tax lists confirm the... picture of a small community: in 1327 only seven persons contributed to the tax. The village's normal tax after 1334 was 21s. 6d., but in 1354 it received an abatement of the whole sum. The Black Death struck the village with particular severity. A writ of 1358 refers to the death from the pestilence of the bondmen on Roger de Cotesford's fee and implies that the whole village had become deserted. He was licensed to enclose it. It never seems to have been resettled: it paid no tax in 1428 since there were fewer than ten householders, and it does not appear on the 16th-century subsidy rolls or in the return for the Compton census of 1676. Division of the parish into enclosures may have soon followed the depopulation and imparking of the 14th century.

From: 'Parishes: Tusmore', A History of the County of Oxford: Vol 6 (1959).
URL: http://www.british-history.ac.uk/report.aspx?compid=63753& Date accessed: 03 June 2010.

Resources

Medieval climate

Wolfgang Behringer, *A Cultural History of Climate* (Cambridge, Polity, 2010), chapters 2 & 3.

R. Brazdil et al., 'Historical climatology in Europe: the state of the art', *Climatic Change* 70 (2005), available online (SpringerLink) at: http://www.springerlink.com/content/n045572u43265th2/

Bruce M. S. Campbell **,** 'Nature as Historical Protagonist', The Tawney Memorial Lecture 2008, podcast at: http://www.yada-yada.co.uk/podcasts/Blackwell/video/Tawney2008/index.html

Text of the above in *Economic History Review* (2010), online at:

http://www.blackwell-synergy.com/doi/abs/10.1111/j.1468-0289.2009.00492.x

Medieval environmental history timeline, at: http://www.eh-resources.org/timeline/timeline_me.html

Chronology of late Holocene climate change by J.S. Aber, Emporia State University, Kansas:

http://academic.emporia.edu/aberjame/ice/lec19/holocene.htm

Late medieval storminess and flooding

J.A.Galloway, 'Storm flooding, coastal defence and land use around the Thames estuary and tidal river c.1250–1450', *Journal of Medieval History* 35 (2009), online (Science Direct) at: http://dx.doi.org/10.1016/j.jmedhist.2008.12.001

The reclamation and flooding of Romney and Walland marshes are summarised at: http://www.liv.ac.uk/geography/RomneyMarsh/RM%20Hum%20and%20Nat/EarlyMedieval.htm

Christian Pfister, 'Historical climatology and the cultural memory of extreme weather events', podcast at: http://www.eh-resources.org/podcast/podcast2009.html

The Norse in Greenland

L.K. Barlow et al., 'Interdisciplinary investigations of the end of the Norse Western Settlement in Greenland', *The Holocene* 7 (1997), online at: http://hol.sagepub.com/cgi/content/abstract/7/4/489

D.M.Brown, 'The fate of Greenland's Vikings', online at: http://www.archaeology.org/online/features/greenland/index.html

Sceptics and Counter-sceptics

C. Booker, *The Real Global Warming Disaster* (Continuum, 2009)

http://www.climatechangefraud.com/enviro-extremists/6540-the-only-thing-heating-up-is-the-debate

http://www.monbiot.com/archives/category/climate-change/

http://www.skepticalscience.com/argument.php

The Great European Famine

The standard work is W.C. Jordan, *The Great Famine: Northern Europe in the early Fourteenth Century* (Princeton UP, 1996).

Philip Slavin, 'The Fifth Rider of the Apocalypse: the great cattle plague in England and Wales and its economic consequences, 1319-50' available through Google Books, at:

http://books.google.ie/books?id=zeyGOrJ7jjIC&pg=PA165&dq=philip+slavin&hl=en&ei=IzHhS6TuEofP-QaUp4n2Dg&sa=X&oi=book_result&ct=result&resnum=1&ved=0CDMQ6AEwAA#v=onepage&q=philip%20slavin&f=false

Johannes de Trokelowe, a contemporary's account of the outbreak of famine in England in 1315:http://www.fordham.edu/halsall/source/famin1315a.html

The Black Death

Daniel Antoine, 'The Archaeology of Plague', online at: http://ukpmc.ac.uk/picrender.cgi?artid=1715615&blobtype=pdf

Black Death cemetery in London: http://www.museumoflondon.org.uk/English/Collections/OnlineResources/CHB/Database/Medieval+cemeteries/ESmithfieldBlackDeath.htm

R. Horrox, *The Black Death* (Manchester Medieval Sources), (Manchester UP, 1994).

historical protagonist' (see medieval climate, above

Settlement Desertion

A very brief introduction to 'lost villages' from Channel 4's Time Team:

http://www.channel4.com/history/microsites/T/timeteam/snapshot_villages.html

See also 'Lost Villages' in

http://books.google.ie/books?id=INmdwCSkvIgC&pg=PA6&dq=lost+villages&hl=en&ei=msfqS6PTG-CpsQbdks2EDw&sa=X&oi=book_result&ct=result&resnum=7&ved=0CEoQ6AEwBjhG#v=onepage&q=lost%20villages&f=false

Ian D. Whyte and Angus J. L. Winchester eds., *Society, Landscape and Environment in Upland Britain*, Society for Landscape Studies, supplementary series 2, 2004

Victoria History of the Counties of England. The definitive local histories of English counties, with many references to deserted and shrunken medieval settlements. Not all counties are covered, and many remain in progress (after 100 years!). The Institute of Historical Research's *British History Online* provides free online access to 159 volumes: http://www.british-history.ac.uk/catalogue.aspx?type=1&gid=153