

HPSC3052

Nature, Technology and the Environment

Syllabus

Session	Term 1
Web site	See Moodle site
Moodle site	moodle.ucl.ac.uk
Timetable	www.ucl.ac.uk/timetable

Description

This course explores the intersection of history of technology and environmental history. This is the history of the material world, both natural and artificial. It explores historiography – what are the methods for exploring and interpreting this intersection – and it examines and discusses case studies. Topics may include: large-scale technological systems and the environment; invasive species in history; commodity history with respect to nature and technology; pollution; hybridities; the anthropocene; artificial life; nature and bureaucracy; war and nature.

Key Information

Assessment	50%	Essay 1
	50%	Essay 2
Prerequisites	none	
Required texts	readings listed below	

Module tutors

Module tutor	Professor Jon Agar
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Assistant	None
Contact	-
Office location	-
Office hours:	-

Aims and objectives

aims

The aim of the module is to provide students with the knowledge of a range of case studies of the intersection of history of technology and environmental history, as well as an introduction to the historiographical methods that assist understanding them.

objectives

By the end of this module students should be able to:

- Knowledge of a range of case studies of the intersection of history of technology and environmental history
- Skills for further study of the history of technology and environmental history

Module plan

Schedule

	UCL Wk	Date	Topic	Activity
1	1	4.10	Introduction	
2	1	4.10	Historiography	READ: Maslin and Lewis
3	2	11.10	Paleo-tech	
4	2	11.10	Fire	READ: Pyne
5	3	18.10	Ancient to Early Modern	
6	3	18.10	Ecological and Technological Imperialism	READ: Crosby
7	4	25.10	First and Second Nature in the United States	
8	4	25.10	Wilderness	READ: Cronon
9	5	1.11	First and Second Industrial Revolutions	
10	5	1.11	Industrialized Organisms	READ: Russell
			Reading Week	no lectures
11	7	15.11	History of conservation in the UK and US	
12	7	15.11	Campaigns	ACTIVITY: Controversy case
13	8	22.11	Weed Theory	
14	8	22.11	Agency	READ: Mitchell
15	9	29.11	Technologies of Survival	
16	9	29.11	Limits and Pollution	ACTIVITY: pollution in London
17	10	6.12	Mediating Nature	
18	10	6.12	Grizzly Man	WATCH: <i>Grizzly Man</i>
19	11	13.12	Engineering Nature	
20	11	13.12	Rewilding	READ: Monbiot

Reading list

Week 1 Session 1 4 October 2016

Introduction

Introduction to the course. Definition of key terms. Determinisms and critique. Eight types of interaction between technology and environment.

Background Reading

Technology

Donald MacKenzie and Judy Wajcman, 'Introductory essay', in Donald MacKenzie and Judy Wajcman, *The Social Shaping of Technology* (Open University Press, 1985), pp2-25

Langdon Winner, 'Do artifacts have politics?', in *The Whale and the Reactor: a Search for Limits in an Age of High Technology*, Chicago, University of Chicago Press, pp.19-39. Also reprinted in MacKenzie and Wajcman (1985)

Nature

Neil Evernden, *The Social Creation of Nature*, Baltimore: Johns Hopkins University Press, 1992

Peter Coates, *Nature: Western Attitudes since Ancient Times*, Cambridge: Polity Press, 1998

Raymond William, 'Nature', *Keywords*, London: Fontana, 1976, pp. 184-189

Week 1 Session 2 4 October 2016

Historiography

“History of technology” and “environmental history” as specialties within history with different approaches, topics, and development, but also intersections. The “Anthropocene” as subject and debate

Essential Reading

Simon L. Lewis and Mark A. Maslin, ‘Defining the Anthropocene’, *Nature* (2015) 519, pp. 171–180 <http://www.nature.com/nature/journal/v519/n7542/abs/nature14258.html>

Background Reading

Donald Worster, “Doing Environmental History,” from Donald Worster (ed.), *The Ends of the Earth*, Cambridge: Cambridge University Press, 1988, pp. 289-307

Jeffrey K. Stine and Joel A. Tarr, ‘At the Intersection of Histories: Technology and the Environment’, *Technology and Culture* (1998) 39, pp. 601-640

Edmund Russell, James Allison, Thomas Finger, John K. Brown, Brian Balogh, and W. Bernard Carlson, “The Nature of Power: Synthesizing the History of Technology and Environmental History,” *Technology and Culture* 52 (April 2011): 246-259.

Dolly Jørgensen, Finn Arne Jørgensen and Sara B. Pritchard (eds.), *New Natures: Joining Environmental History with Science and Technology Studies*, Pittsburgh: University of Pittsburgh Press, 2013

Hugh S. Gorman and Betsy Mendelsohn, “Where Does Nature End and Culture Begin? Converging Themes in the History of Technology and Environmental History,” in Martin Reuss and Stephen Cutcliffe (ed.), *The Illusory Boundary: Environment and Technology in History*, University of Virginia Press, 2010

Bill Luckin, ‘At the margin: continuing crisis in British environmental history?’, *Endeavour* (2004) 28(3), pp. 97-100

Andrew Barry and Mark Maslin, ‘The politics of the Anthropocene: a dialogue’, *Geo* (2016) 3. <http://onlinelibrary.wiley.com/doi/10.1002/geo2.22/full>

Week 2 Session 3 11 October 2016

Paleo-tech

Technology and environment in the earliest periods of human (and non-human) history. Hand-axes and other stone tools, domestication of dogs, fire for environmental control and cooking, weaving

Background Reading

Jill Pruetz 'New evidence on the tool-assisted hunting exhibited by chimpanzees (*Pan troglodytes verus*) in a savannah habitat at Fongoli, Sénégal', *Royal Society Open Science* (2015) <http://rsos.royalsocietypublishing.org/content/2/4/140507>

Sonia Harmand et al , '3.3-million-year-old stone tools from Lomekwi 3, West Turkana, Kenya', *Nature* (21 May 2015) 521, pp. 310–315. See also: Ewen Callaway, 'Oldest stone tools raise questions about their creators: The 3.3-million-year-old implements predate the first members of the Homo genus'

<http://www.nature.com/news/oldest-stone-tools-raise-questions-about-their-creators-1.17369>

Ignacio de la Torre, 'The origins of stone tool technology in Africa: a historical perspective', *Phil. Trans. R. Soc. B* (2011) 366, pp. 1028-1037

Dietrich Stout, 'Stone toolmaking and the evolution of human culture and cognition', *Phil. Trans. R. Soc. B* (2011) 366, pp. 1050–1059

Gary R. Scott and Luis Gibert, 'The oldest hand-axes in Europe', *Nature* (21 April 2015) 461, pp. 82-85. See also: Rex Dalton, 'Europe's oldest axes discovered: Sophisticated tool-making skills more widespread than previously thought'

<http://www.nature.com/news/2009/090902/full/news.2009.878.html>

Thomas Wynn, 'Handaxe enigmas', *World Archaeology* (1995) 27(1), pp. 10-24

Stanley H. Ambrose, 'Paleolithic Technology and Human Evolution', *Science* (2 March 2001) 291(5509), pp. 1748-1753 <http://www.sciencemag.org/content/291/5509/1748.full>

James Serpell (ed.), *The Domestic Dog: Its Evolution, Behaviour and Interactions with People*, Cambridge: Cambridge University Press, 1995

Week 2 Session 4 11 October 2016

Fire

Fire in world history.

Essential Reading

Stephen J. Pyne, 'Consumed by either fire or fire: a review of the environmental consequences of anthropogenic fire', in J.R. McNeill and Alan Roe (eds.), *Global Environmental History*, London: Routledge, 2013, pp. 88-109

Week 3 Session 5 18 October 2016

Ancient to Early Modern

Technology and environment in Ancient (eg Roman), Medieval (eg Europe) and Early Modern worlds. The idea of a "technological environment". Christianity as context for environmental thought

Background reading

Cicero, *De natura deorum*

Clarence J. Glacken, *Traces on the Rhodian Shore: Nature and Culture in Western Thought from Ancient Times to the End of the Eighteenth Century*, Berkeley: University of California Press, 1967

Roberta J. Magnusson, *Water Technology in the Middle Ages: Cities, Monasteries, and Waterworks after the Roman Empire*, Baltimore: The Johns Hopkins University Press, 2001

Jean Gimpel, *The Medieval Machine: the Industrial Revolution of the Middle Ages*, London: Gollancz, 1977

Carolyn Merchant, *The Death of Nature: Women, Ecology, and the Scientific Revolution*, New York : HarperCollins, (1980), 1989

Lynn White, Jr, 'The Historical Roots of Our Ecological Crisis', *Science* (March 1967) 155(3767), pp 1203-1207

Week 3 Session 6 18 October 2016

Ecological and Technological Imperialism

Exploration and imperialism as combined technological and biological processes. Crosby's ideas of the "Columbian exchange" and the "Demographic Takeover"

Essential Reading

Alfred Crosby, 'Conquistador y pestilencia', in *The Columbian Exchange*, 1972

Background reading

Alfred W. Crosby, *The Columbian Exchange: Biological and Cultural Consequences of 1492*, Westport: Greenwood Press, 1972

Alfred W. Crosby, *Ecological Imperialism: the Biological Expansion of Europe, 900-1900*, Cambridge: Cambridge University Press, 1986

Daniel R. Headrick, *Power over Peoples: Technology, Environments, and Western Imperialism, 1400 to the Present*, Princeton: Princeton University Press, 2010

Daniel R. Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century*, Oxford: Oxford University Press, 1981

Jared Diamond, *Guns, Germs and Steel*, London: Vintage 1998

Week 4 Session 7 25 October 2016

First and Second Nature in the United States

The transformation of North America by European colonialism. The construction and contest of technological foundation stories of nationhood. Axes and saw-mills.

Background Reading

David E. Nye, *America as Second Creation: Technology and Narratives of New Beginnings*, Cambridge, MA: MIT Press, 2003

Thomas Hughes, *Human-Built World: How to Think about Technology and Culture*, Chicago: University of Chicago Press, 2004

William Cronon, *Nature's Metropolis: Chicago and the Great West*, New York: W.W. Norton 1991

Week 4 Session 8 25 October 2016

Wilderness

Changing conceptions of wilderness

Essential reading:

William Cronon, 'The trouble with wilderness; or, getting back to the wrong nature', *Environmental History* (1996) 1, pp. 7-28.

(Also in Cronon (ed.), *Uncommon Ground: Rethinking the Human Place in Nature*, New York: Norton, pp. 69-90, and Char Miller and Hal Rothman (eds.), *Out of the Woods: Essays in Environmental History*, Pittsburgh: University of Pittsburgh Press, 1997.)

Week 5 Session 9 1 November 2016

First and Second Industrial Revolutions

The first industrial revolution (late 18th Century- early 19th Century) and second industrial revolution (mid 19th Century – late 19th Century) defined and discussed. Tresch on “romantic machines”. Hughes on technological systems. Cronon on Chicago as “Nature’s metropolis” and the urban/regional system of technology and environment

Background Reading

Donald Cardwell, *The Fontana History of Technology*, London: Fontana 1994

Thomas J. Misa, *Leonardo to the Internet: Technology and Culture from the Renaissance to the Present*, Baltimore: Johns Hopkins University Press, 2nd edn., 2011

John Tresch, *The Romantic Machine: Utopian Science and Technology after Napoleon*, Chicago: University of Chicago Press, 2012

William Cronon, *Nature's Metropolis: Chicago and the Great West*, New York: W.W. Norton 1991

Thomas P. Hughes, “The Evolution of Large Technological Systems,” in Bijker, Hughes, and Pinch (eds.), *The Social Construction of Large Technological Systems*, Cambridge, MA: MIT Press, pp.51-82

Week 5 Session 10 1 November 2016

Industrialized Organisms

Evolutionary history approach to “industrialised organisms”.

Essential Reading

Edmund Russell, 'Evolutionary history: a prospectus for a new field', *Environmental History* Vol. 8, No. 2 (Apr., 2003), pp. 204-228

Background Reading

Edmund Russell, *Evolutionary History: Uniting History and Biology to Understand Life on Earth*, Cambridge: Cambridge University Press, 2011

Daniel Schneider, *Hybrid Nature: Sewage Treatment and the Contradictions of the Industrial Ecosystem*, Cambridge, MA: MIT Press, 2011

Edmund Russell, 'Introduction. The garden in the machine: toward an evolutionary history of technology', in Susan R. Schrepfer and Philip Scranton (eds.), *Industrializing Organisms: Introducing Evolutionary History*, London: Routledge, 2004, pp. 1-16

Week 6

**** READING WEEK ****

Week 7 Session 11 15 November 2016

History of conservation in the UK and US

Arguments for the origins of environmentalism in conservation movements in the US and UK. Overview of the history of conservation policies in the UK as bureaucracy, planning and law

Background reading

Samuel P. Hays, *Conservation and the Gospel of Efficiency: the Progressive Conservation Movement, 1890-1920*, Cambridge, MA: Harvard University Press, 1959

Harriet Ritvo, *The Dawn of Green: Manchester, Thirlmere, and Modern Environmentalism*. Chicago: University of Chicago Press, 2009

Adam Rome, *The Bulldozer in the Countryside: Suburban Sprawl and the Rise of American Environmentalism*, Cambridge: Cambridge University Press, 2001

W.M. Adams, *Future Nature: a Vision for Conservation*, London: Earthscan, 2nd edn., (1996) 2003

John Sheail, *Nature in Trust: the History of Nature Conservation in Britain*, Glasgow: Blackie, 1976

John Sheail, *Nature Conservation in Britain: the Formative Years*, London: Stationery Office, 1998

David Evans, *A History of Nature Conservation in Britain*, London: Routledge, 2nd edn, (1992) 1997

Week 7 Session 12 15 November 2016

Campaigns

Case studies of campaigns against technological change and environmental damage.

Activity

Identify a specific controversy over technological change in modern Britain. Using media sources, such as newspaper or BBC archives, identify the proponents and opponents. Make notes. Write a short description of the development of the controversy (around 500 words), paying attention to technological and environmental as well as social and political issues.

For example, if you chose the Twyford Down controversy, you would identify the planners of the M3 motorway and the campaign groups that opposed it.

Background reading

Edward Abbey, *The Monkey Wrench Gang*, 1975

John Sheail, *An Environmental History of Twentieth Century Britain*, London: Palgrave, 2002

Week 8 Session 13 22 November 2016

Weed Theory

Gardens and weeds as issues of control of nature.

Background Reading

Mary Douglas, *Purity and Danger: an Analysis of the Concepts of Pollution and Taboo*, Harmondsworth: Penguin, 1970

Jane Brown, *The Pursuit of Paradise: a Social History of Gardens and Gardening*, London: Harper Collins, 1999

Richard Mabey, *Weeds: How Vagabond Plants Gatecrashed Civilisation and Changed the Way We Think About Nature*, London: Profile, 2010

Richard Mabey, *The Unofficial Countryside*, London: Collins, 1973 (see also his *Weeds*)

Diane Relf, 'Human Issues in Horticulture', *HortTechnology* (1992), 2, (2), pp. 159-171

Week 8 Session 14 22 November 2016

Agency

Agency as a topic in history of technology and environmental history

Essential reading:

Timothy Mitchell, 'Can the mosquito speak?', in *Rule of Experts: Egypt, Techno-Politics, Modernity*, Berkeley: University of California Press, 2002, pp. 19 – 53

Background reading

Michel Callon, 'Some Elements of a Sociology of Translation: Domestication of Scallops and the Fishermen of St. Brieuc Bay', in John Law (ed.), *Power, Action, and Belief: a New Sociology of Knowledge?*, London: Routledge and Kegan Paul, 1985, pp. 196 – 233;

John Law, 'Technology and Heterogeneous Engineering: The Case of Portuguese Expansion', in Wiebe E. Bijker et al (ed.), *The Social Construction of Technological Systems*, Cambridge, MA: MIT Press, 1987, pp. 111– 134;

Linda Nash, 'The Agency of Nature or the Nature of Agency?', *Environmental History* (2005) 10(1), pp. 67-69

Paul Sutter, 'Nature's Agents or Agents of Empire? Entomological Workers and Environmental Change during the Construction of the Panama Canal', *Isis* (2007) 98(4), pp. 724-754

Week 9 Session 15 29 November 2016

Technologies of survival

Environments in which technological systems are crucial to survival, including: marine, space, mountains, polar regions. Comparisons with technologies of environmental comfort (eg air-conditioning)

Background Reading

Peder Anker, 'The Ecological Colonization of Space', *Environmental History* (2005) 10(2), 239-268.

Peder Anker, *From Bauhaus to Ecohouse: a History of Ecological Design*, Louisiana State University Press, 2010.

Gail Cooper, *Air-conditioning America: Engineers and the Controlled Environment, 1900-1960*, Baltimore: Johns Hopkins University Press, 1998

Week 9 Session 16 29 November 2016

Limits and pollution

Historical examples of pollution. Limits and environmental effects of technological systems, examining London in particular as a case study

Essential Activity

Browse the London Air website:

<http://www.londonair.org.uk/LondonAir/Default.aspx>

Check the quality of your water:

<https://my.thameswater.co.uk/dynamic/cps/rde/xchg/corp/hs.xsl/899.htm>

Background reading

William H. Te Brake, 'Air pollution and fuel crises in preindustrial London', *Technology and Culture* (1975) 16, pp. 337-359

Carlos Frick, 'The movement for smoke abatement in 19th-century Britain', *Technology and Culture* (1980) 21, pp. 29-50

Bill Luckin, *Pollution and Control: a Social History of the Thames in the Nineteenth Century*, Bristol, 1986

P. Brimblecombe, *The Big Smoke: a History of Air Pollution in London since Medieval Times*, Methuen, 1988

Christopher Hamlin, 'Edwin Chadwick and the Engineers, 1842-1854: Systems and Anti-Systems in the Pipe-and-Brick Sewers War', *Technology and Culture* (1992) 33, pp.680-709

Dale H. Porter, *The Thames Embankment: Environment, Technology and Society in Victorian London*, Akron, 1998

Stephen Halliday, *The Great Stink of London: Sir Joseph Bazalgette and the Cleansing of the Victorian Metropolis*, Phoenix Mil: Sutton, 1999

Emma M. Jones, *Parched City: a History of London's Public and Private Drinking Water*, Winchester: Zero Books, 2013

E Simms, *The Public Life of the Street Pigeon*, Hutchinson Radius, 1979

Week 10 Session 17 6 December 2016

Mediating Nature

Mediating technologies – for example film and television – and the representation of the natural world.

Background reading

Gregg Mitman, 'Cinematic Nature: Hollywood Technology, Popular Culture, and the American Museum of Natural History', *Isis* (1993) 84, pp.637-661

Gregg Mitman, *Reel Nature: America's Romance with Wildlife on Film*, Cambridge, MA: Harvard University Press, 1999

Gail Davies, 'Science, observation and entertainment: competing visions of postwar British natural history television, 1946-1967', *Ecumene* (2000) 7, pp. 432-459(27)

Andrew Darley, 'Simulating natural history: Walking with Dinosaurs as hyper-real edutainment', *Science as Culture* (2003) 12, pp.227 - 256

Week 10 Session 18 6 December 2016

Grizzly Man

Watch excerpts and discuss Werner Herzog (director), *Grizzly Man*, 2005

Week 11 Session 19 13 December 2016

Engineering Nature

The natural world as source and subject of engineering. Engineering metaphor from Loeb to GMOs. Biomimicry. Synthetic biology.

Background Reading:

David George Haskell, 'Fireflies', in *The Forest Unseen*, New York: Viking, 2012

Janine M. Benyus, *Biomimicry: Innovation Inspired by Nature*, New York: Perennial, (1997) 2002

Philip J. Pauly, *Controlling Life: Jacques Loeb and the Engineering Ideal in Biology*, Oxford: Oxford University Press, 1987

Rebecca Lemov, *The World as Laboratory: Experiments with Mice, Mazes, and Men*, New York: Hill and Wang, 2005

Jane Calvert, 'Synthetic biology: constructing nature?', *The Sociological Review* (2010) 58, Issue Supplement s1, pp. 95–112

Week 11 Session 20 13 December 2016

Rewilding

Essential Reading:

George Monbiot, 'My manifesto for rewilding the world'

<http://www.theguardian.com/commentisfree/2013/may/27/my-manifesto-rewilding-world>

George Monbiot, '15 species that should be brought back to rewild Britain'

<http://www.theguardian.com/environment/2015/jul/15/rewilding-britain-launches-with-the-aim-of-restoring-uks-lost-wildlife-and-habitats>

Assessment

summary

	Description	Deadline	Word limit
50%	Essay 1	10 November (TBC)	2,500
50%	Essay 2	12 December (TBC)	2,500

coursework

Please choose essay titles from the list below. The reading suggestions in this syllabus are good places to start, but you will be expected to draw on a wider range of literature, especially environmental history/historiography and history/historiography of technology. Good journals to browse include *Technology and Culture*, and *Environmental History*.

- 1) Our species was once defined as “Man the tool maker”. To what extent has this definition been successfully challenged? What are the consequences for history of technology and environmental history of early humankind?
- 2) Survey the history of a commodity of your choice with special attention to technological and environmental issues.
- 3) Assess Carolyn Merchant’s claim that “seventeenth-century science could be implicated in the ecological crisis, the domination of nature, and the devaluation of women in the production of scientific knowledge”.
- 4) Compare and contrast the contributions of historians Alfred Crosby and Daniel Headrick as analysts of imperialism.
- 5) To what extent should we agree with Cronon’s critique of “wilderness”?
- 6) How has the ‘nature’ of London changed over time, and why?
- 7) Are animals or plants ever technologies?
- 8) Write a historical account of a specific environmental controversy over a technological project in modern Britain.
- 9) To what extent has television shaped its audience’s view of nature?
- 10) What are the pros and cons of “rewilding” in Britain and one other country?