

TECHNOLOGY IN COLONIALISM, DEVELOPMENT AND GLOBALIZATION
HISTORY 604
WINTER 2003
WEDNESDAYS, 2–5 P.M.

Prof. Gabrielle Hecht
2666 Haven Hall
hechtg@umich.edu
Tel: 647-7937

Class listserv: w3-history-604-001@umich.edu

Office hours:

Mondays, 3–4 pm and by appointment. Note: I cannot come to campus on Thursdays or Fridays, so please don't request appointments on those days.

Introduction

Technological artifacts, processes, knowledges, and ideologies have played a major role in shaping relationships between conquerors and native peoples, metropolises and colonies, and the "First" and "Third" Worlds. In the 17th and 18th centuries, guns, bows and arrows, and ships were vital in the European conquest of Africa and the Americas, as well as in resistance and response to that conquest. In the 19th and 20th centuries, infrastructural technologies — such as railroads, irrigation, or urban planning — were important instruments of colonial rule. Power and social relationships were often negotiated through knowledge and practices concerning land, water, and people. The ideologies of technological progress that helped drive and legitimize colonial rule continued on into the post-World War II period, serving as underpinnings for efforts to "develop" the "Third World." Today, technological systems form the infrastructures for what many refer to as "globalization."

This course takes a historical and anthropological approach to exploring the role of technology in colonialism, development, and globalization. We will pay close attention to the diversity of the historical actors involved in these processes, and focus on the ways in which politically and culturally constructed technologies are involved in the formation of power relationships. The emphasis in discussions will be on theory and historiography.

Requirements: Assignments and Expectations

Reading & Discussion

This is a discussion seminar. Its success depends on the commitment and involvement of all participants. Therefore, you are expected to arrive in class thoroughly prepared and to participate actively in all discussions.

The following books constitute required reading. They are available for purchase at Shaman Drum and on reserve at the library.

- Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance*.(Cornell University Press, 1989).
- Rudolf Mrázek, *Engineers of Happy Land*
- Martin Lewis and Karen Wigen, *The Myth of Continents*
- Peter Redfield, *Space in the tropics : from convicts to rockets in French Guiana*
- Itty Abraham, *The Making of the Indian Atomic Bomb*
- David Held and Anthony McGrew, David Goldblatt and Jonathan Perraton, *Global Transformations: Politics, Economics and Culture*.
- Frederick Cooper and Randall Packard, eds., *International Development and the Social Sciences: Essays on the History and Politics of Knowledge*

Articles are in the course packet, available for purchase at Excel.

Recommended readings are on 1-week reserve in the undergraduate library.

- 1) **Historiographical assignment.** The session on January 22nd is devoted to a collective review of the field. Everyone will read a few short historiographical essays. In addition, you will each select a different book from the list of recommended readings.
 - (a) Read the book, and locate at least 2 scholarly reviews of it (preferably ones that engage *critically* with the book).
 - (b) Prepare a 500–600 word essay that summarizes the book and (with the aid of the reviews and the common reading) places it in historiographical context. Turn this in to the class email list **no later than 10 a.m.** on January 21st.
 - (c) Be sure to read everyone's essay **BEFORE** class meets.
 - (d) Bring to class paper copies of your essay AND the 2 book reviews. **Bring enough copies for everyone in the class.**

- 2) **Recommended reading and leading class discussion.** Three times during the semester after Jan. 22nd, you will select items from the recommended reading list to read and present to the rest of the class, by way of leading class discussion.
 - a) Prepare a 500–600 word summary & analysis of your choice from the “recommended reading” list
 - b) Distribute your paper to the class listserv **no later than 8 PM** the night before class meets
 - c) Before the beginning of class, meet with the other student(s) who are presenting on readings and together prepare a one- page handout (maximum) as an aid to class discussion. This handout should list what you consider to be the three or four most interesting analytical points for the week's reading, including both the main assignment and and the recommended reading you did. The handout should also offer two questions designed to provoke interesting, wide-ranging general class discussion; the questions should focus on how concepts, theories, or historiographical frames from the readings might be applied to other topics or issues. The handout can – indeed, probably should – be in outline or bulleted form (rather than continuous prose).
 - d) At the beginning of that class session, presenters will spend no more than 15 minutes explaining how the recommended reading related to the common reading, and elaborating discussion questions. All presenters should participate in the presentation.
 - e) PLEASE BRING A PAPER COPY OF YOUR PAPER TO CLASS, TO HAND IN TO ME WITH THE HANDOUT.

NOTE: you may propose alternative selections for review, subject to my approval. Alternatives should be proposed 2 weeks before the session; proposals should include an explanation of why the alternative is suitable for the course and that particular session.

- 3) **Weekly responses.** Every week — except for the ones in which you are leading discussions and doing the recommended reading — you must turn in a 500–600 word response to the required reading. On no account should you exceed 600 words. Rather than merely summarize the reading, you should engage with it analytically. **Turn these in by email NO LATER THAN 8 p.m. on the day before the seminar, submitted to the course's listserv: w3-history-604-001@umich.edu.**
- 4) **Final project.** Your final project will be a paper of around 3000 words (10–12 pp) in length, on some aspect of “technology and the global.” The precise choice of topic and format is up to you. You may choose to write this as a literature review, a grant proposal, an analysis of current events, or whatever other format might suit your needs and inspiration. Whatever you choose, however, your writing must directly engage with some of the theory and methods covered by the course. This assignment has two parts.
 - a) A 300–500 word *proposal*, clearly describing your topic and how it relates to course materials and concepts, is **due to the class listserv no later than 8 pm on March 11.** In addition to the prose, your proposal should contain a preliminary bibliography.
 - b) The paper itself is due at the final class session.

SCHEDULE OF TOPICS

January 8 **Introduction**

January 15 **Technology and the Ideology of Progress**

Michael Adas, *Machines as the Measure of Men: Science, Technology, and Ideologies of Western Dominance*. (Cornell University Press, 1989).

January 22 **The Historiographical Terrain**

Common reading:

Paolo Palladino & Michael Worboys, "Science and Imperialism," *Isis* 1993, 84 (1): 91–102; read with Lewis Pyenson, "Cultural Imperialism and Exact Sciences Revisited," *Isis* 1993, 84 (1): 103–108.

Michael Adas, "A Field Matures: Technology, Science, and Western Colonialism," *Technology and Culture* 1997, 38 (2): 478–487.

Warwick Anderson, "Postcolonial Histories of Medicine" In: *Medical History: The Stories and Their Meanings*. Eds. John Harley Warner and Frank Huisman. Baltimore: The Johns Hopkins Univ. Press; forthcoming, 2003.

Warwick Anderson, "Postcolonial Technoscience," *Social Studies of Science*, 2002, 5/6: forthcoming.

Roy MacLeod, "Introduction" to *Nature and Empire: Science and the Colonial Enterprise*, *Osiris* 15 (2000): 1–13.

Michael A. Osborne, "Introduction: The Social History of Science, Technoscience, and Imperialism," *Science, Technology and Society*, 1999, 4, 2: 161–70. .

Individual readings:

Technology

- Daniel Headrick, *The Tools of Empire: Technology and European Imperialism in the Nineteenth Century*
- Daniel Headrick, *The Tentacles of Progress*
- Jared Diamond, *Guns, Germs and Steel*
- Cipolla, Carlo M. *Guns, Sails, and Empires*.
- Arnold, David. 2000. *Science, Technology, and Medicine in Colonial India*.

Science

- McClellan, James, *Colonialism and science : Saint Domingue in the Old Regime*
- Osborne, Michael, *Nature, the exotic, and the science of French colonialism*
- Storey, William, *Science and Power in Colonial Mauritius*
- P. Petitjean, C. Jami, A. M. Moulin, and Equipe REHSEIS (Centre national de la recherche scientifique (France)), *Science and empires : historical studies about scientific development and European expansion*
- One of the three following books:
 - L. Pyenson, *Cultural imperialism and exact sciences : German expansion overseas, 1900–1930*
 - L. Pyenson, *Empire of reason : exact sciences in Indonesia, 1840–1940*
 - L. Pyenson, *Civilizing mission : exact sciences and French overseas expansion, 1830–1940*

Medicine

- Arnold, David. *Colonizing the Body: State Medicine and Epidemic Disease in Nineteenth-Century India*.
- Curtin, Philip D. *Death by migration: Europe's encounter with the Colonial world in the 19th century*.
- Vaughan, Megan. *Curing their Ills: Colonial power and African illness*.
- S. Feierman, J. M. Janzen, and Joint Committee on African Studies., *The Social basis of health and healing in Africa*.
- R. M. Packard, *White plague, black labor : tuberculosis and the political economy of health and disease in South Africa*
- R. M. MacLeod and M. J. Lewis, *Disease, medicine, and empire : perspectives on Western medicine and the experience of European expansion*

January 29 Industry and Empire: mining colonies and forging connections between macro and micro histories

Greg Lamming with Marti Mueller, *Africa Undermined: Mining Companies and the Underdevelopment of Africa* (Penguin, 1979): 19–228.

Raymond Dummett, "African Strategic Minerals During the Second World War," *Journal of African History*, 1985, 26 (4): 381–408. .

Jeff Guy & Motlatsi Thabane, "Technology, Ethnicity, and Ideology: Basotho Miners and Shaft-Sinking on the South African Gold Mines," *Journal of Southern African Studies*, vol 14, no. 2 (Jan. 1988).

Randall Packard, "The Invention of the 'Tropical Worker'...", *Journal of African History* 34 (1993): 271–292.

Keith Breckenridge, "'Money with Dignity': Migrants, Minelords, and the Cultural Politics of the South African Gold Standard Crisis, 1920–1933," *Journal of African History*, 1995, 36 (2): 271–304. .

Gabrielle Hecht, "Rupture-talk in the Nuclear Age: Conjugating Colonial Power in Africa," *Social Studies of Science*, forthcoming December 2002. .

Presentations:

Eric Hobsbawm, *Industry and Empire*
Sidney Mintz, *Sweetness and Power*
Kenneth Pomeranz, *The Great Divergence*
Fernando Coronil, *The Magical State*

➔ NOTE: there's a vast literature on mining and colonialism in Africa and Latin America. If you're specifically interested in mining, you might wish to pick something from this scholarship instead.

February 5 Instruments of Rule, Instruments of Change?

Geneviève Bédoucha, "The Watch and the Waterclock," in *Technological Choices: Transformation in material cultures since the Neolithic*, ed. Pierre Lemonnier (London: Routledge, 1993), 77–107.

Bryan Pfaffenberger, "The Harsh Facts of Hydraulics: Technology and Society in Sri Lanka's Colonization Schemes," *Technology and Culture* 31, no. July (1990): 361–397.

Christophe Bonneuil, "Science and State Building in Late Colonial and Postcolonial Africa, 1930–1970," in *Nature and Empire: Science and the Colonial Enterprise*, *Osiris* 15 (2000): 258–281.

Madeleine Akrich, "The De-Description of Technical Objects," 205–224 in Bijker and Law, eds., *Shaping Technology/Building Society* (MIT, 1992).

Richard Roberts, "French Colonialism, Imported Technology, and the Handicraft Textile Industry in the Western Sudan, 1898–1918," *The Journal of Economic History*, Vol. 47, No. 2, The Tasks of Economic History. (Jun., 1987), pp. 461–472. .

Martin Lynn, "Technology, Trade and 'A Race of Native Capitalists': The Krio Diaspora of West Africa and the Steamship, 1852–95," *The Journal of African History*, Vol. 33, No. 3. (1992), pp. 421–440. .

Presentations:

Gwendolyn Wright, *The Politics of Design in French Colonial Urbanism*

James Scott, *Seeing Like a State*

Eugenia W. Herbert, *Iron, Gender, and Power: Rituals of Transformation in African Societies*

Richard W. Bulliet, *The Camel and the Wheel*

Constance G. Anthony, *Mechanization and Maize: Agriculture and the Politics of Technology Transfer in East Africa.*

February 12 Nationalism and Colonialism

Rudolf Mrázek, *Engineers of Happy Land*

Presentations:

Gyan Prakash, *Another reason : science and the imagination of modern India*

Benedict Anderson, *Imagined Communities*

Nihal Perera, *Society and space : colonialism, nationalism, and postcolonial identity in Sri Lanka*

February 19 Inventing “Development”

Cooper and Packard, eds., *International Development and the Social Sciences: Essays on the History and Politics of Knowledge* (Univ. of California Press, 1997): Introduction and chapters 2, 3, 5, 7, 10.

Christophe Bonneuil and Patrick Petitjean, “Science and French Colonial Policy. Creation of the ORSTOM: from the Popular Front to the Liberation via Vichy, 1936–1943,” in *Science and Technology in a Developing World*, ed. Terry Shinn, Jack Spaapen, and Venni Krishna (Dordrecht: Kluwer Academic Publishers, 1997), 129–178.

Suzanne Moon, “Takeoff or Self-Sufficiency? Ideologies of development in Indonesia, 1957–1961,” *Technology and Culture* 39 (1998): 187–212.

Presentations:

James Ferguson, *The Anti-Politics Machine: “Development,” Depoliticization, and Bureaucratic Power in Lesotho*

Akhil Gupta, *Postcolonial Developments*

Francesca Bray, *The rice economies : technology and development in Asian societies*

Arturo Escobar, *Encountering development : the making and unmaking of the Third World*

February 26 Spring Break — no class

March 5 What/is Globalization?

Michael Geyer and Charles Bright, "World History in a Global Age," *American Historical Review* 100 (4), Oct. 1995: 1034–1060. .

David Held and Anthony McGrew, David Goldblatt and Jonathan Perraton, *Global Transformations: Politics, Economics and Culture*. Read: Introduction, Chs 2, 5, Conclusion.

Frederick Cooper, "What is the Concept of Globalization Good For? An African Historian's Perspective," *African Affairs* 100 (2001): 189–213. .

Presentations:

➔ For this session in particular, feel free to propose alternative selections for review. Again, alternatives should be proposed 2 weeks before the session; proposals should include an explanation of why the alternative is suitable for the course and this session.

Manuel Castells – any one of the 3 vols. of *The Network Society*.

William H. McNeill, *The pursuit of power : technology, armed force, and society since A.D. 1000*.

Arjun Appadurai. *Modernity at Large: Cultural Dimensions of Globalization*

March 12 Final paper proposals due

March 19 Indigenous Knowledge, Development, & Hegemony

From Terry Shinn, Jack Spaapen, & Venni Krishna, eds., *Science and Technology in a Developing World* (Kluwer, 1997):

- Terry Shinn, Jack Spaapen, & Venni Krishna, "Introduction: Science, Technology and Society Studies and Development Perspectives in South–North Transactions," 1–34.
- Ali El-Kenz, "Prometheus and Hermes," 323–348.
- Venni Krishna, "Science, Technology and Counter–Hegemony: Some Reflections on the Contemporary Science Movements in India," 375–411.

David Wade Chambers & Richard Gillepsie, "Locality in the History of Science: Colonial Science, Technoscience, and Indigenous Knowledge," *Nature and Empire: Science and the Colonial Enterprise, Osiris* 15 (2000): 221–240.

Stacy Leigh Pigg, "'Found in Most Traditional Societies': Traditional Medical Practitioners between Culture and Development," in Cooper and Packard, eds., *International Development and the Social Sciences: Essays on the History and Politics of Knowledge* (Univ. of California Press, 1997): 259–290

Paul Sillitoe, "The Development of Indigenous Knowledge: A New Applied Anthropology," debate in *Current Anthropology*, Vol. 39, No. 2. (Apr., 1998), pp. 223–252. .

Arturo Escobar, "After Nature: Steps to an Antiessentialist Political Ecology," *Current Anthropology*, Vol. 40, No. 1. (Feb., 1999), pp. 1–30. .

Presentations:

Susantha Goonatilake, *Toward a global science : mining civilizational knowledge*

Ron Eglash, *African fractals : modern computing and indigenous design*

Helen Verran, *Science and an African logic*

March 26 Geography: A Political Technology

Martin Lewis and Karen Wigen, *The Myth of Continents*

Presentations:

Matthew Edney, *Mapping an empire : the geographical construction of British India, 1765–1843*.

Thongchai Winichakul, *Siam Mapped*
Bell, Butlin, and Heffernan, eds., *Geography and imperialism, 1820–1940*.
Godlewska & Smith, eds., *Geography and Empire*.

April 2 Space and Place

Peter Redfield, *Space in the tropics : from convicts to rockets in French Guiana*

Presentations:

D. Graham Burnett, *Masters of All They Surveyed*

Paul Carter, *The Road to Botany Bay*

Marc Augé, *Non-places: an introduction to an anthropology of super-modernity*

James Ryan, *Picturing empire : photography and the visualization of the British Empire*

Catherine A. Lutz and Jane L. Collins, *Reading National Geographic*

April 9 Nuclearity and Postcolonial States

Itty Abraham, *The Making of the Indian Atomic Bomb*

Gabrielle Hecht, "Globalization meets Frankenstein? Reflections on terrorism, nuclearity, and global technopolitical discourse," *History and Technology* (January 2003). .

Piyush Mathur, "Nuclearism: the Contours of a Political Ecology," *Social Text* 66 19 (1) Spring 2001: 1–18.

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Presentations:

Valerie Kuletz, *The Tainted Desert*

M. Susan Lindee, *Suffering Made Real*

George Perkovich, *India's nuclear bomb : the impact on global proliferation*

April 16

Final Essay Due