

CHAPTER FOUR

THE INDUSTRIAL REVOLUTION AND ITS CONSEQUENCES, 1750-1850

How and why the Industrial Revolution occurred first in Britain is the topic of this chapter, and a wholly new way of thinking about that problem is introduced. Previously, most explanations of the Industrial Revolution focused on attributes specific to Europeans in general or Britons in particular. Rather, this chapter shows that the most advanced societies across the Eurasian continent (using China and England as examples) all were running into similar ecological constraints of the biological old regime. At first only England, because of a combination of factors particular to that time and place, was able to escape from the constraints of the biological old regime by drawing upon colonial resources and applying steam power to industrial production and the tools of war. Britain then used those advantages against Asians, from India to Burma and China, tipping the global balance of power that hitherto had been in Asia's favor.

Key terms/vocabulary

four necessities of life	Battle of Pondichery	paradox
steam power	peculiar periphery	deforestation
Industrial Revolution	colonial legislation	Thomas Newcomen
spinning jenny	free trade	James Watt
water frame	Navigation Laws	labor-saving device
calico	Glorious Revolution of	land-saving device
competitive advantage	1688	science
agricultural productivity	factory	technology
tariff	population dynamics	right of <i>asiento</i>
protectionism	demographic regime (or	Guangzhou system
private trading	system)	Macartney mission
companies	free markets	opium
East India Company	rice paddies	Commissioner Lin
(EIC)	subsistence	Opium War
Sepoy	Thomas Malthus	The <i>Nemesis</i>
nawab	infanticide	Treaty of Nanjing
Battle of Plassey	import substitution	unequal treaties

Study Questions for Chapter Four

A. The big question for Chapter Four is this:

How and why did the Industrial Revolution occur? Why did it happen in England and not China?

B. The following questions build up to and inform that big question:

1. What are the "four necessities of life"? Where do they come from in the biological old regime? Why is that important to know?
2. How does the Industrial Revolution compare with the agricultural revolution?
3. In the 17th and 18th centuries, why did India and China have a competitive advantage in the production of cotton textiles? Who bought their cotton, and why? What did the British do in response? Why?
4. What were the English, Dutch, and French private trading companies? How did they differ from other trading companies? In what ways did they represent innovations in European business organization? How did the English EIC and the Dutch VOC differ?
5. How did the British obtain their colonial foothold in India? Where was it?
6. How is the Seven Years' War and its outcome relevant to the story of how Britain became a cotton-producing country?
7. In what ways was the New World a "peculiar" periphery in the British empire? How did the British try to ensure that their New World colonials produced raw materials (or sugar) and imported finished goods? How might this relate to the causes of the American Revolution?
8. When and why did the British abandon mercantilism and begin to champion global "free trade"?
9. Why would textile production in Britain not necessarily lead to an industrial revolution? What might it have led to instead?

10. What are the usual explanations for why the Industrial Revolution occurred in Europe? What evidence from China does the author cite to suggest that these are not persuasive?
11. How did the Chinese limit their population growth?
12. To what extent can 18th-century China be considered a market economy?
13. Why did the greater personal freedom of peasant producers in China's periphery act as a constraint on industrial development?
14. Explain the paradox that personal freedoms, market exchange, improved transportation, and population dynamics in China led not to an industrial revolution but to a biological old regime cul-de-sac?
15. How and why did Britain escape from the constraints of the biological old regime? What *conjunction* of factors led to an industrial revolution there?
16. In what ways did the Industrial Revolution provide land-saving solutions, rather than labor-saving ones? Which of the four necessities of life now came from sources outside of the biological old regime?
17. How is science distinguished from technology? Why does the author think that science was not connected with the industrial revolution?
18. How and why did the British begin drinking so much Chinese tea? What economic problems did tea imports cause for the British? How did they solve that problem?
19. Who was the Opium War of 1839-42 between, and what was it about?
20. Explain the significance of the *Nemesis*.

21. Why must all explanations of the Industrial Revolution, the one provided in this book included, be tentative?

C. Advanced considerations.

1. Explore the ways in which the American Revolution fits into the story of origins of the Industrial Revolution as told in this book.
2. Read the article by Jan de Vries cited in note 12 (p. 119), and compare his argument about the origins of the Industrial Revolution to the one provided here. How might debates about history like this one be resolved? Additional evidence? New perspectives? Both? Neither?
3. To what extent has our world (the one entering the 21st century) escaped from the constraints of the biological old regime? To what extent are we still subject to its constraints?

Map exercise: On Map 3.1 (pp. 90-91), draw the triangular Atlantic trade linking Britain, Africa, and the New World. Which commodities went in which directions? Who benefitted? Also on Map 3.1, draw the trade flows linking Britain, India, and China. Which commodities went in which directions? How do those relationships change during the 19th century?

Additional Web Sites to Explore

- [Crib Sheet, The Scientific Revolution](#)
- [Copernicus, "Dedication of the Revolutions of the Heavenly Bodies"](#)
- [Francis Bacon, New Organon](#)
- Adam Smith, *The Wealth of Nations*
<http://odur.let.rug.nl/~usa/D/1776-1800/adamsmith/wealth01.htm>
<http://odur.let.rug.nl/~usa/D/1776-1800/adamsmith/wealth02.htm>
- [Women in the Industrial Revolution](#)
Follow the links to one of the following:
Textile Workers
Miners
Seamstresses
- [Karl Marx and Frederick Engels, The Communist Manifesto](#)