Industry, Population, and Revolution

Croix Rousse (Red Roof) district, Lyon, France and Saone River
The Industrial Revolution

• What was it? (that is, how has it been described by historians and contemporaries?)
• How have historians explained it?
• Why is it significant?
• How have historians questioned it?

And did those feet in ancient time,
Walk upon England’s mountains green:
And was the holy Lamb of God,
On England’s pleasant pastures seen!

And did the Countenance Divine,
Shine forth upon our clouded hills?
And was Jerusalem builded here, 
Among these dark Satanic Mills?


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Blake, *Milton, A Poem* (preface)-in 1916 these words were set to music and became the hymn entitled “Jerusalem.”

The Industrial Revolution (as classically described)

shift from animal or human power to machinery
shift from “hand made” to machine made
shift from small family-based businesses to factories
allows increase in rate of economic growth

based in textile industries (especially cotton weaving)
based in Great Britain (especially the Midlands)
roughly 1750-1850

Ingenious Machinery or Satanic Mill?

It is impossible to contemplate the progress of manufactures in Great Britain within the last 30 years without wonder and astonishment. The improvement afforded by ingenious machinery, invigorated by capital and skill, are beyond all calculation.

Patrick Colquhoun, *Treatise on Wealth* (1814).

P.J. de Louterbourg, *Coalbrookdale at Night* (1801)
depiction of the Bedlam Furnaces (iron smelting and casting)

HOW did contemporaries describe “the Industrial Revolution”?
How have historians described “the Industrial Revolution”?

The contrast between the industrial England of 1760 and the industrial England of to-day is not only one of external conditions. Side by side with the revolution which the intervening century has effected in the methods and organization of production, there has taken place a change no less radical in men's economic principles, and in the attitude of the State to individual enterprise. England in 1760 was still to a great extent under the medieval system of minute and manifold industrial regulations. That system was indeed decaying, but it had not yet been superseded by the modern principle of industrial freedom.


Manufacture centralizes property in the hands of the few. It requires large capital with which to erect the colossal establishments that ruin the small tradesman and with which to press into its service the forces of Nature. . . The division of labor, the application of water and especially of steam power, and the application of machinery [to all kinds of work] has annihilated the petty middle-class of the “good old times” and resolved them into rich capitalists on the one hand and poor workers on the other.

Freedom or Annihilation?

Engels and Toynbee commented on the same phenomena, but interpreted them differently. Among these developments:

- enclosure of common lands
- urbanization
- proletarianization*

* Engels’ terminology
  proletariat= have nothing to sell but their labor-power
  bourgeoisie= own the means of production (factories, etc.)

“A Plan of the Parish of Sherington in the County of Buckinghamshire describing the several old inclosures, new allotments, and exchanges as settled by the Commissioners on the Inclosure thereof, 1796”
  (detail from a map)
Why England?

| Estimated Population of Europe | 1650 103,000,000 | 1749 144,000,000 | 1851 274,000,000 | 1950 549,000,000 |

Growth rate of population, 1680-1820
- England 133%
- France 39%
- Spain 64%
- Netherlands 8%

Were more people born or did they live longer?

Demographic Revolution: earlier age at first marriage and higher fertility

Population of Manchester
- 1770 25,000
- 1800 75,000
- 1850 350,000

How have historians explained “the Industrial Revolution”?—material causes
Why England?

Protestantism
“How the impulse to acquisition, to the pursuit of gain and of the greatest possible amount of money, has in itself nothing to do with capitalism…”

capitalism = rational organization of labor
    rational bookkeeping
    separation of business and home
emerges from “irrational” demands of Protestantism
• working hard in a calling
• denial of self-indulgence

How have historians explained “the Industrial Revolution”?—cultural causes
Why England?

English industrial growth was an exception to the general pattern in Europe, 1800-1850. But it was seen by many as a model of what the future (the “modern world”) would be like for everybody:

“We Germans must do all we can to save ourselves from becoming carriers of water and hewers of wood for the Britons...We would be treated even worse than the downtrodden Hindoos... and obliged to produce only toys, wooden clocks, and books on philology.”

List was the first professor of economics at the University of Tübingen. He advocated a German “customs union” (omitting Austria), building railroads, and imposing international trade barriers.

“Industrialization... is at the heart of a larger, more complex process, often designated modernization...In the period of the Industrial Revolution,... industry moved ahead faster, increased its share of national wealth and product, and drained away the labor of the countryside. The shift varied from one country to another...[While] it was the most extreme in Britain... it was slowest in France, a country of small landowners, where a more gradual introduction of industrial technology combined with high tariffs on food imports to retard the contraction of the primary sector.”

The “standard of living” debate: did things get better or worse?

Historians agree that the “average” income rose between 1750 and 1850, but they disagree on:

- **timing**: was there a long period of stagnation (or decline) followed by rise at the end of that era?

- **distribution** of wealth: that is, did the rich get richer and the poor did so as well? Or did the rich get richer and the poor got poorer? Was there a significant difference between sectors of the economy (cotton weaving vs. wool; coal mining vs. toy manufacture)? To what extent were incomes age and sex specific?

- **how to measure “standard of living”**: height as an indicator of nutrition/malnutrition? mortality and fertility rates? housing quality (can this be measured mathematically)? how many hours worked/week, in what conditions?

Was there really an Industrial Revolution?

“proto” industrialization on the Continent: de-skilling without factories; piece work and the “putting out” system—silkweavers in Lyon

in Prussia, industrial growth is state sponsored

biggest employers in Great Britain, 1850

- agriculture
- domestic servants

<table>
<thead>
<tr>
<th>Urban population 1850</th>
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<tbody>
<tr>
<td>Belgium— 48 %</td>
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<tr>
<td>France—25 %</td>
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<tr>
<td>Austria—20 %</td>
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<tr>
<td>Russia—7.8 %</td>
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ironworks in Prussian Westphalia (Ruhr Valley), 1830s