4. The Spread of the Industrial Revolution

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4. The Spread of the Industrial Revolution

Abstract
During much of the nineteenth century Great Britain strove with notable success to maintain her position as the world's leading industrial, commercial, and financial power. Her factories continued turning out textiles, machinery, and many other goods which were exported to all parts of the world. Her merchant marine continued to be the largest of any country. London was the financial capital of the world. Britain had adopted the gold standard in 1821; most western European nations and many others eventually followed her lead. The English pound was everywhere acceptable as international exchange. By 1850, when half of all Englishmen were living in towns and cities, England was a food deficit area importing more than she exported. Foodstuffs flowed from her economic satellites in western Europe and from the world over, as well as cotton from the United States and India, wool from Australia and New Zealand, and such metals as copper, lead, and tin from many far-flung outposts. In return, England sent out not only goods, but also the capital and technical ability which helped to build railway systems or develop mines and plantations in many parts of the world. Moreover, England was the center of a mighty empire which in many ways supplemented and complemented her own economy. [excerpt]

Keywords
Contemporary Civilization, Industrialization, Industrial Revolution

Disciplines
European History | History | History of Science, Technology, and Medicine

Comments
This is a part of Section XIV: The Industrial Revolution, Classical Economics, and Economic Liberalism. The Contemporary Civilization page lists all additional sections of Ideas and Institutions of Western Man, as well as the Table of Contents for both volumes.

More About Contemporary Civilization:
From 1947 through 1969, all first-year Gettysburg College students took a two-semester course called Contemporary Civilization. The course was developed at President Henry W.A. Hanson's request with the goal of "introducing the student to the backgrounds of contemporary social problems through the major concepts, ideals, hopes and motivations of western culture since the Middle Ages."

Gettysburg College professors from the history, philosophy, and religion departments developed a textbook for the course. The first edition, published in 1955, was called An Introduction to Contemporary Civilization and Its Problems. A second edition, retitled Ideas and Institutions of Western Man, was published in 1958 and 1960. It is this second edition that we include here. The copy we digitized is from the Gary T. Hawbaker ’66 Collection and the marginalia are his.

Authors

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The consolidation of business firms became pronounced after 1870, when in one country after another production, momentarily at least, caught up with demand. The reaction of governments to this development varied. In Germany, for instance, firms in many industries turned from competing with each other and entered into agreements by the terms of which they regulated prices, divided markets, or pooled profits, and occasionally engaged in all of these practices. The characteristic form which these agreements took has been called the cartel. The German government approved this movement, and there were about 400 such agreements in force in 1914. In England, the usual form of consolidation was the merger, or amalgamation. Here, too, there was little government opposition. It was in the United States that the most substantial governmental efforts were made, within the spirit of capitalism, to control the particular forms which big business took there: the trust and the holding company.

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It was to England's advantage to set the example of free trade before the rest of the world, which to all intents and purposes she did after the repeal of the Corn Laws in 1846. For a brief period thereafter, restrictions on the free international exchange of goods were at a minimum. Then after about 1870 the picture began to change. Other national states resorted to tariffs to protect themselves from British goods while they were developing industries of their own.
The first country on the Continent to be industrialized was Belgium, which had a long tradition of manufacturing as well as access to coal and iron deposits, and which benefited from the assistance of British capital and technicians. Beginning after acquiring her independence in 1830, Belgium was almost as highly industrialized as England herself by 1870. France also began feeling the effects of industrialization after 1830. Here, it was noted for its gradualness and its incompleteness. France developed a railway network and a steel industry, the latter of which was hampered by a lack of good ore and coking coal. But she remained basically an agricultural country, her millions of peasant proprietors undisturbed in their possession of the land. French industrial emphasis was on small-scale manufacturing, especially of luxury goods.

The European state which offered the greatest economic challenge to England before 1914 was Germany. Political disunity hindered her industrial development, but did not prevent it. Even before 1871 many German states had the beginnings of a railway network as well as small coal and iron industries. After 1871 industrialization proceeded rapidly, efficiently, and thoroughly. Assisted by the active cooperation of the government; by the availability of capital and help of German bankers; by the application of science to industry; by the rapid extension of the rail system, which not only helped to unify the country but also enabled it to reach into Russia and the Balkans; and by its ability to take advantage of the achievements of English technology, German industrialization amazed the world. The nearness of limestone, coal, and iron ore (along with the process which made usable the high phosphorous Lorraine ore) made possible one of the greatest concentrations of industry in the world around the steel mills of the Ruhr valley. Even before 1900 Germany was producing more steel than England, and excelled in the chemical and electrical equipment industries. Although it was an Englishman who made the first synthetic dye (1856), Germany had acquired a virtual monopoly of the world production by 1900. The rapid replacement of natural dyes by a synthetic product was something unique, and its lesson was not lost to the world. Also, by 1900 German textiles were in serious competition with English goods in the world markets. German foreign trade in 1914 was second only to that of Great Britain.

Developments in Russia were in sharp contrast to those in Germany. Here there was a bitter controversy between those who were in favor of industrialization and those who opposed the introduction of any Western innovations as destructive of Russia's true greatness. Beginning in the early 1890's Sergei Witte (1849-1915), first as minister of communications and then as minister of finance, promoted the building of railways, so that by 1914 Russian mileage was double that of England. The long Trans-Siberian line, which linked European Russia with Vladivostok on the Pacific Ocean, was completed in 1904. Witte put his country on the gold standard and arranged for heavy investments.
of foreign capital, especially French. Although his opponents forced him from office in 1903, his program continued. By 1914 total Russian manufacturing production was the fifth largest in the world, but per capita production remained very low.

The most spectacular industrial development of all occurred in the United States after 1850, and especially after the conclusion of the Civil War in 1865. The American steel industry surpassed that of England by 1890, and has consistently led the world in production ever since. In seemingly endless quantities steel went into the herculean task of spanning a continent and developing an incredibly complex and diversified economy, in which there was room for mining and agriculture as well as for manufacturing. A key fact in the whole of American history has been its large area. In the half century after 1865 this fact contributed to the uniqueness of American economic growth in at least three ways. First, it encouraged the building of the largest railway network in the world. Second, it made possible the reception of more than 25,000,000 immigrants between 1865 and 1914, truly the greatest mass migration thus far in the history of the world. Third, its large area provided the United States with such a variety of climatic and natural resources that it was much less dependent on foreign trade for survival than any of the other important industrial nations. Another key fact in explaining American economic development in this period was the relative youth of the country when compared to the industrialized states of Europe. This meant that there were fewer long-established institutions which might retard the new forces that were transforming American society.

PERCENTAGE DISTRIBUTION OF WORLD MANUFACTURING PRODUCTION *

<table>
<thead>
<tr>
<th></th>
<th>1870</th>
<th>1913</th>
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</thead>
<tbody>
<tr>
<td>United States</td>
<td>23.3</td>
<td>35.8</td>
</tr>
<tr>
<td>Germany</td>
<td>13.2</td>
<td>15.7</td>
</tr>
<tr>
<td>Great Britain</td>
<td>31.8</td>
<td>14.0</td>
</tr>
<tr>
<td>France</td>
<td>10.3</td>
<td>6.4</td>
</tr>
<tr>
<td>Russia</td>
<td>3.7</td>
<td>5.5</td>
</tr>
<tr>
<td>Other countries</td>
<td>17.7</td>
<td>22.6</td>
</tr>
</tbody>
</table>

By 1914, then, the forces of industrialization had taken rather complete possession of western Europe and the United States. Most of the world's industrial capacity was located there. Beyond this region -- bounded by Sweden, part of Russia, Germany, northern Italy, France, Great Britain, and the United States -- the rest of the world was in varying stages of underdevelopment. After 1870, with government leadership, Japan became industrialized, although by 1913 she is estimated to have

contributed but 1.2% of the total world manufacturing production. With only a few other exceptions, the rest of Asia, Africa, and Latin America had not been able, or had not been willing and able, to abandon the old ways for the new.

5. Some Social Effects of the Industrial Revolution

The demands made by industrialization upon the worker were often severe, whether in England or France, Russia or the United States. He had to give up the somewhat desultory habits of work which had usually sufficed him and his ancestors from the beginnings of time. Significantly enough, one of Arkwright's first steps after establishing his factory was to draw up a code of discipline designed to keep his employees steadily on the job. The worker also gave up the ownership of his tools, if he had not already done so under the domestic system, and was thus left a proletarian, with nothing to bring the employer but his labor. This was an asset which afforded him little in the way of bargaining power, especially as the employers began using women and children, the latter in England often recruited from nearby orphanages, as an alternative source of cheap labor. One English writer advanced the opinion that the labor of women and children might eventually replace that of men entirely. In the absence of trade unions or other effective controls, many early employers often worked men, women, and children from sunup to sundown, and sometimes even longer, six days a week. To make matters worse, these long work periods were interspersed with other periods when business was depressed and unemployment rife. Many employers were reluctant to take even the most elementary precautions for the health and safety of their workers, some of whom were no more than six or seven years of age. In the determination of wages, employers wielded the predominant influence, and as a result wages were often so low that several members of a family had to work in order to meet necessary expenses. Working conditions were not equally bad everywhere and there was a long-run tendency for them to improve somewhat, but no one can deny the abundant testimony that deplorable conditions did exist in the first decades wherever industrialization took hold.

An enormous adjustment for the worker and his family was made necessary by the practical demand that they give up their rural existence and live near the factory. Rural life had long had its widespread poverty and misery, but to many these seemed to be of a less serious order than the poverty and misery of the burgeoning industrial city. Here large numbers of people were crowded together along streets and alleys that soon came to be called slums. Society was painfully slow in providing these people with the sanitary facilities necessary to control disease, the recreational facilities for a more wholesome life,