

The Industrial Revolution Spreads

By 1850, Britain had become the first industrialized country in the world, with over half of its people living in cities. It controlled 90% of Europe's steam shipping along with half of the world's iron and two-thirds of its coal production. However, outside of Britain, industrial factories were few and far between. There were several reasons for this. For one thing, the competition of cheaper British goods drained the money needed for investment in industry from other countries. Internal tolls and political disunity prevented the integration of national economies needed to industrialize. Coal and iron deposits were usually far from each other, making it hard to concentrate the resources needed for industrialization. Britain itself actively worked to keep its technical knowledge from leaking beyond its shores. Finally, there was widespread resistance to industrialization in other countries, as people were reluctant to give up their traditional ways, feared the loss of jobs to machines, and saw the pollution and squalor of Britain's cities at that time.

Being so far ahead of the rest of the world, Britain decided to hold a magnificent trade fair, the Great Exhibition, in 1851 to show off its technological achievements. Other countries also contributed exhibits, but Britain's were the centerpiece of the show. Among these was the exhibit hall itself, the Crystal Palace, a magnificent structure of iron and glass covering 19 acres and even enclosing the trees of Hyde Park. The Great Exhibition and Crystal Palace symbolized the completion of Britain's industrialization and the beginning of the spread of industry to other parts of Europe and the world. After 1850, the most spectacular industrial advances would take place in Western Europe, the United States, and Japan.

There were several main factors pushing even harder for Western Europe and the United States to industrialize. First, British competition forced these countries to industrialize in order to survive. Secondly, British businesses found ready and cheaper opportunities for building railroads and industries in foreign countries, thus helping them industrialize. Along these lines, Britain was geographically close to the rest of Europe (and even the United States thanks to much faster steamships). Finally, constant contact with Britain meant that its knowledge could not be kept secret. Designs for steam engines and locomotives were bound to leak out, and they did with incredible impact. The first step most countries took to industrialize was to build railroads to link coal to iron deposits and factories to markets. Once a transportation system was in place, factory building and production could proceed.

Belgium was the first country after Britain to industrialize, largely because, being small and compact, its coal and iron deposits were near each other. Its government also established a national railroad in 1834 to tie the nation closer together. In France, as well, railroad construction, directed by Napoleon III and largely backed by British capital, led the way. By 1870, an extensive railway network radiated from Paris linking the agricultural south with the industrial centers in the north. Some said France did not experience an industrial *revolution* since it happened gradually and did not affect most Frenchmen who remained farmers. However, by 1900 France was a major industrial power following much the same pattern as other countries. Germany did not seriously start industrializing until after unification in 1871 when it could marshal all its resources in a concerted industrial effort. However, once unified, Germany saw a meteoric rise in its industrial might. Steel production doubled every decade from 1870 to 1900, passing even Great Britain in the 1890's. Its railroad mileage increased from 3,500 miles in 1850 to 26,000 miles by 1900.

The United States saw even more dramatic industrial growth during this period because of its sheer size and plentiful resources. Railroads (also largely financed by British banks) had developed the interior east of the Mississippi by 1860. The completion of the first transcontinental railroad in 1869 symbolized the opening up of the vast interior west of the Mississippi, with its vast agricultural and mineral resources. Northern factories intensified production during the American Civil War of the 1860's and never let up. In 1870, Europe produced 60% of the world's manufactured goods. By 1914, it had fallen to 40%, that drop being mainly caused by growing American industries.

One non-Western country, Japan, had also industrialized by 1900. Ironically, Japan had shut itself off from Western influences since the 1600's. But, in 1854 the United States forced Japan to trade with the West, and it decided to beat the West at its own game by industrializing. Few paid serious attention to this until 1903 when tiny Japan took on Russia in a war and shocked the world by tearing its army and navy to pieces with its own largely mechanized forces. Japan had arrived as an industrial power, showing that the West's days as the undisputed masters of the globe were numbered.