

Chapter

11 Industry and Manufacturing



Why are most potato chips manufactured near their consumers? Page 401



Why are most fabrics made in Asia? Page 411

KEY ISSUE 1

Where Is Industry Distributed?



Factories Past and Present p. 395

Much of the world's industry is clustered in three regions.

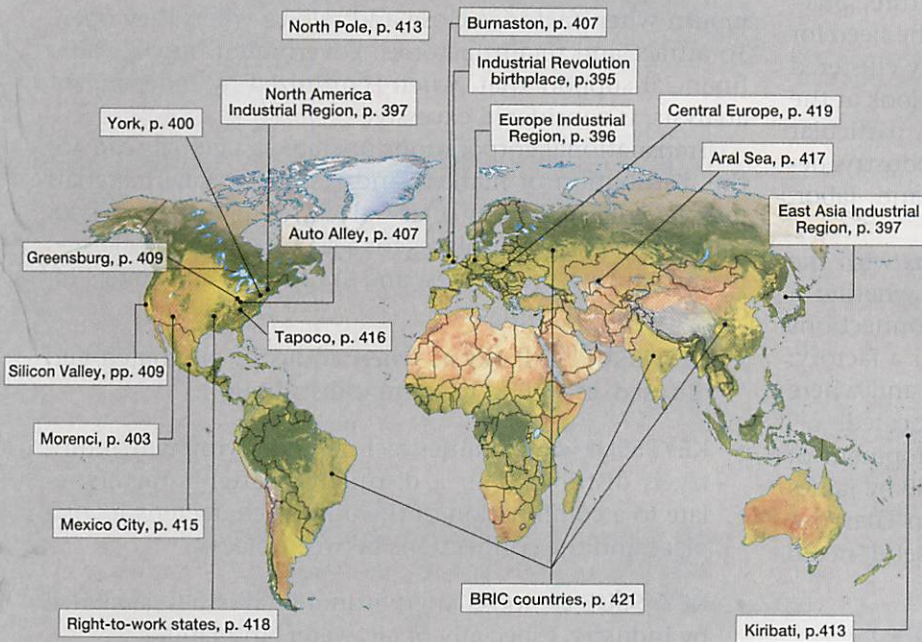
KEY ISSUE 2

Why Are Situation and Site Factors Important?



Factors of Production p. 398

Geographers can explain reasons for the location of factories.



▲ Foxconn may not be a familiar brand name, but it is the world's largest manufacturer of electronic components. Owned by Hon Hai Precision Industry Co., Foxconn is the largest exporter of products from China. Its largest main factory in Shenzhen, China, employs several hundred thousand people. Foxconn has become the world's dominant electronics manufacturer because it does the actual manufacturing for several well-known products, including the iPad, iPhone, Kindle, PlayStation 3, and Xbox 360. Geographers study why a company like Apple, which is based in the United States, chooses to have its products made by another company in another country.

KEY ISSUE 3

Where Does Industry Cause Pollution?



Factories Clean and Dirty p. 412

Some factories pollute our air, land, and water.

KEY ISSUE 4

Why Are Situation and Site Factors Changing?



Industry on the Move p. 418

Manufacturing is expanding into new regions.

Introducing Industry and Manufacturing

The title of this chapter refers to the manufacturing of goods in a factory. The word *industry* is appropriate because it also means persistence or diligence in creating value. A factory utilizes a large number of people, machinery, and money to turn out valuable products.

In the previous chapter, we looked at agriculture, practiced throughout the inhabited world because the need for food is universal. Industry is much more highly clustered in *space* than is agriculture. In this chapter, we look at the *regions* where factories are located and why. A particular *place* may be well suited or poorly suited for industry, depending on the distinctive characteristics of land, labor, and capital there.

Geographers also recognize that *connections* with the rest of the world are critical in determining whether a particular place is suitable for industry. Two connections are critical in determining the best location for a factory: where the markets for the product are located and where the resources needed to make the product are located.

The invention most important to the development of factories was the steam engine, patented in 1769 by James Watt, a maker of mathematical instruments in Glasgow, Scotland (Figure 11-1). Watt built the first useful steam



▲ **FIGURE 11-1 JAMES WATT'S STEAM ENGINE** This Watt steam engine in Wolverhampton, England. Steam injected in a cylinder (inside the brick housing) pushes a piston attached to a crankshaft that drives machinery (right side of engine).

engine, which could pump water far more efficiently than the watermills then in common use, let alone human or animal power. The large supply of steam power available from James Watt's steam engines induced firms to concentrate all their process steps in one building attached to a single power source. Watt's engine and other inventions enabled the United Kingdom to become the world's dominant industrial power during the nineteenth century.

Until the late twentieth century, industry was still highly clustered in a handful of communities within a handful of developed countries, but industry has diffused to many communities in many developing countries. The United States lost one-third of its manufacturing jobs during the first decade of the twenty-first century.

Today, as countries seek to counter the trend toward deindustrialization, government officials everywhere recognize the powerful role of industry in the economic health of a community. Communities around the world view manufacturing jobs as a special asset, and they mourn when factories close and rejoice when they open. To attract and retain factories, government officials offer financial support that, when scrutinized by independent analysts, is considered excessive.

Transnational corporations operate at a global *scale* for the distribution of markets and resources. Raw materials may be collected from many places, sent to factories located in several other places for a succession of specialized manufacturing procedures, and shipped to consumers located in yet other places.

- **KEY ISSUE 1** looks at *where* industry originated and diffused, as well as its current distribution.
- **KEY ISSUE 2** examines factors underlying *why* industry is distributed in a distinctive pattern. Factors relate to a combination of the unique characteristics of a place and the connections between places.
- **KEY ISSUE 3** looks at environmental issues generated by industry, especially of air, water, and land.
- **KEY ISSUE 4** looks at changes in the factors resulting in changes in distribution. Until the late twentieth century, industry was still highly clustered in a handful of communities within a handful of developed countries, but industry has diffused to many communities in many developing countries. With *globalization* of competition to attract new industries—or, in many places, to retain existing ones—each place possesses distinctive location characteristics. Geographers identify the *local diversity* in assets that enables some communities to compete successfully for industries, as well as handicaps communities must overcome to retain older companies.