Chapter 11

Industry

Sectors of the Economy

Figure 6.11 (p. 150)

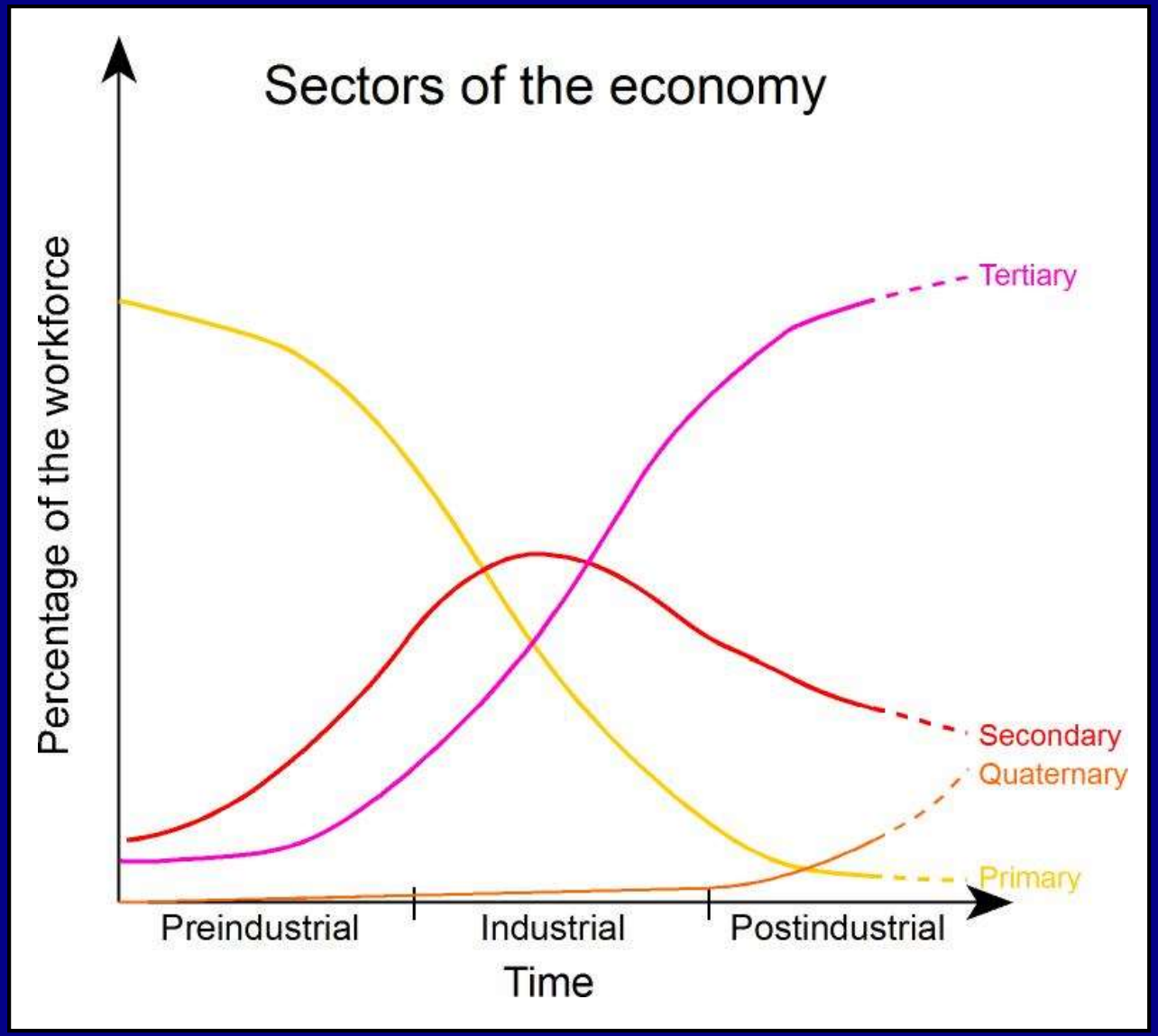
Primary-directly from Earth (ag, mining, fishing etc.)

Figure 6.1 (p. 138)

Secondary-Process, transform, and assemble raw materials

Tertiary-services in exchange for payment (banking, law, education, gov't

Quaternary-intellectual industries such as computing, consultancy, R & D, etc.



Structural change of the economy

Figure 6.10 (p. 149)

World Industrial Regions

- Europe
  - Western Europe
  - Eastern Europe
- North America
  - U.S. industrial areas
  - Canada’s industrial areas
- East Asia

Manufacturing Value Added

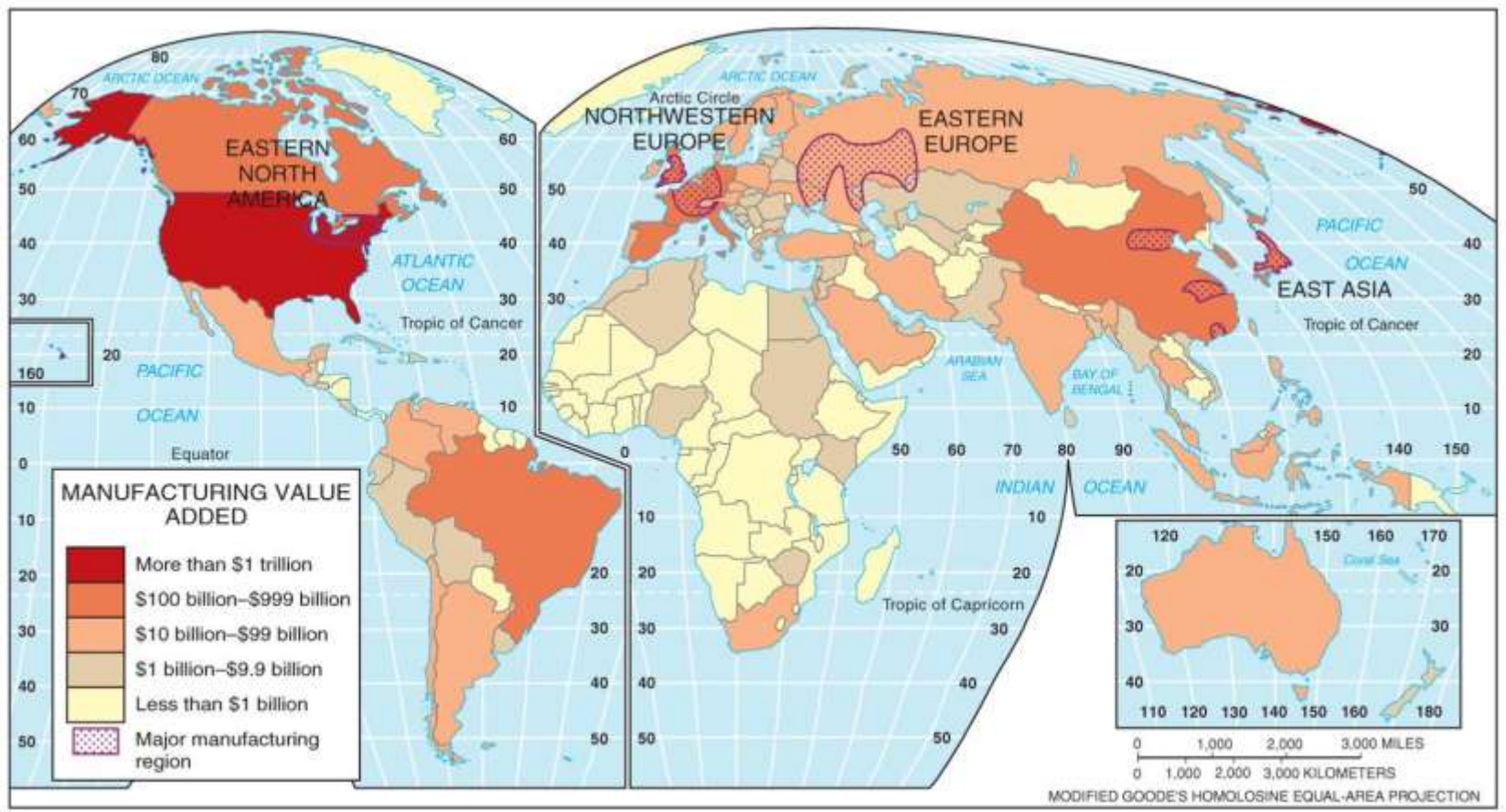


Fig. 11-1: The world's major manufacturing regions are found in North America, Europe, and East Asia. Other manufacturing centers are also found elsewhere.

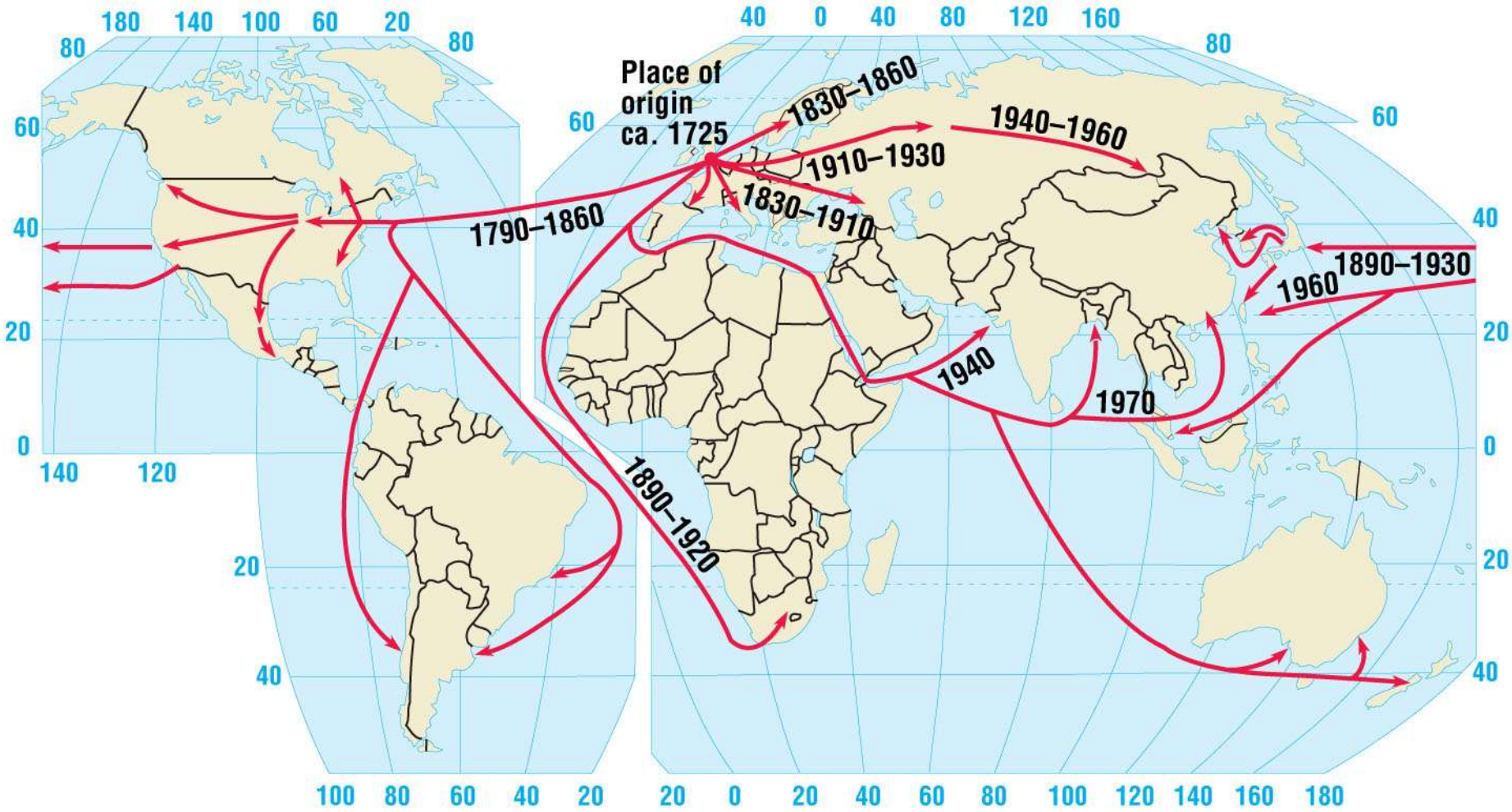


Figure 9-9 ***The Human Mosaic, Tenth Edition***

Diffusion of the Industrial Revolution

Manufacturing Centers in Western Europe

The major manufacturing centers in Western Europe extend in a north-south band from Britain to Italy.

They are centered on coal fields and iron ore deposits and cross roads of transportation.

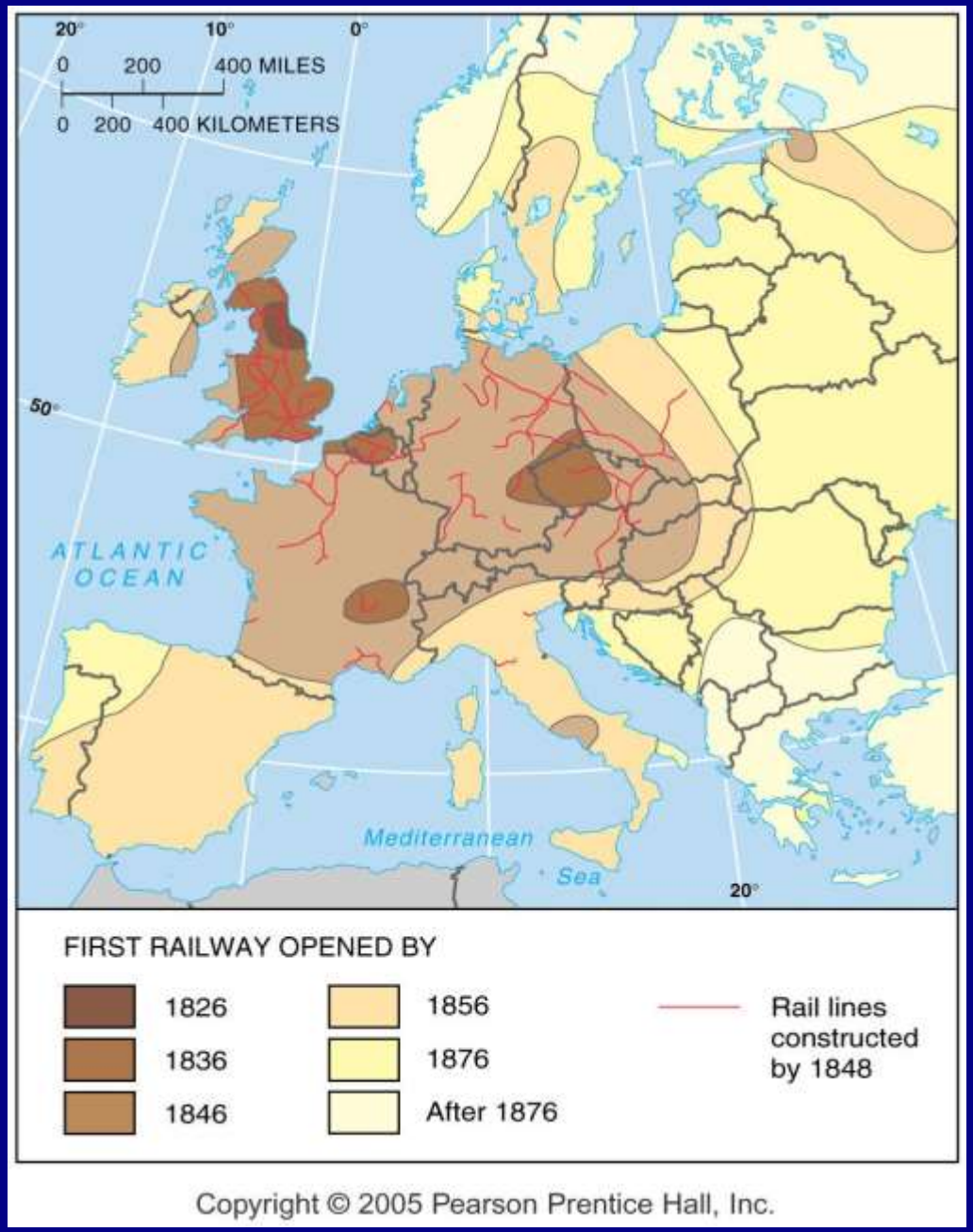
Industrial Revolution Hearth

Fig. 11-3: The Industrial Revolution originated in areas of northern England and southern Scotland. Factories often clustered near coalfields.

Diffusion of Railways

Fig. 11-4: The year by which the first railway opened shows the diffusion of railways and the Industrial Revolution from Britain.

Destruction of WW II- German factories were rebuilt- competitive edge over older factories of North America



Manufacturing Centers in Eastern Europe and Russia

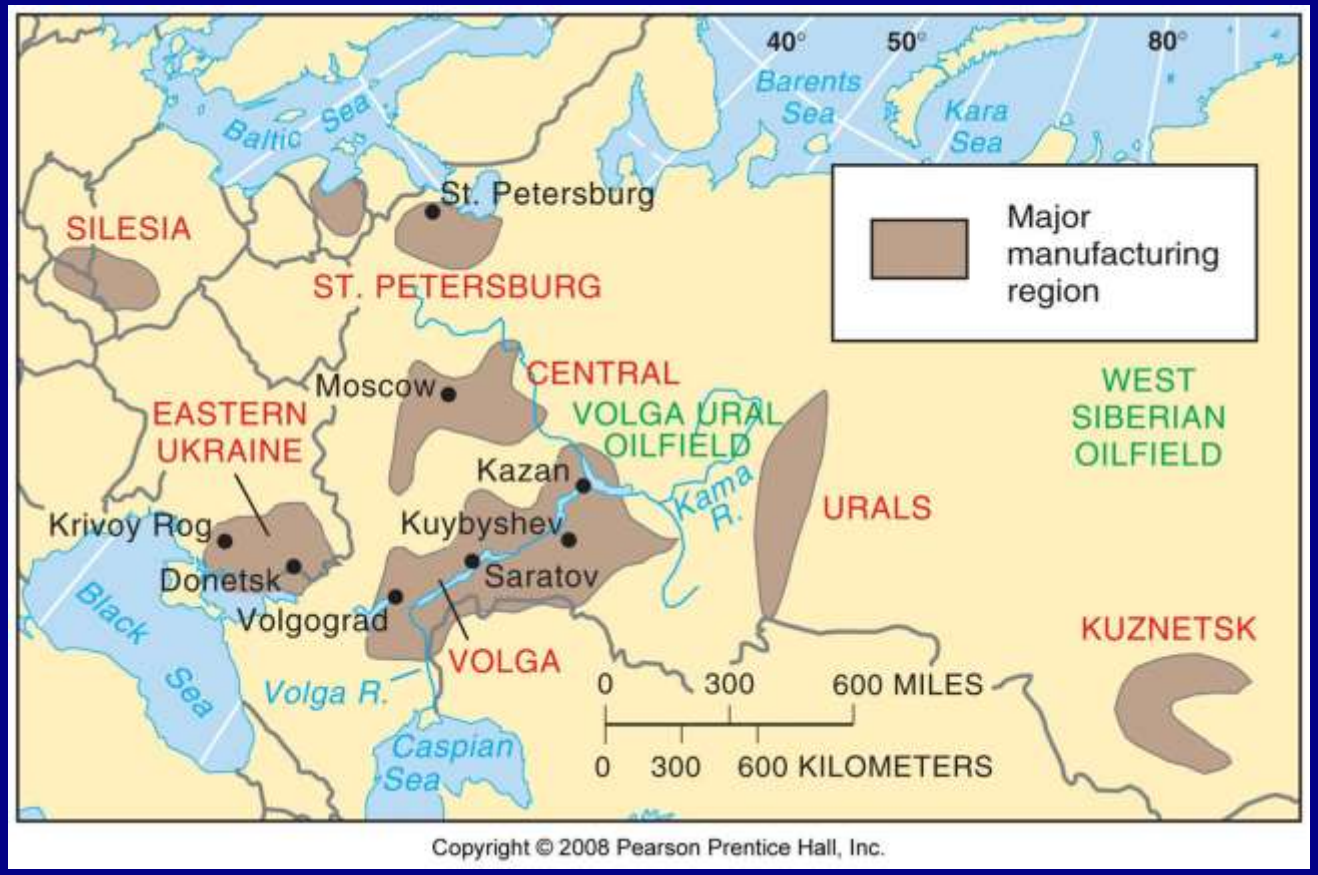
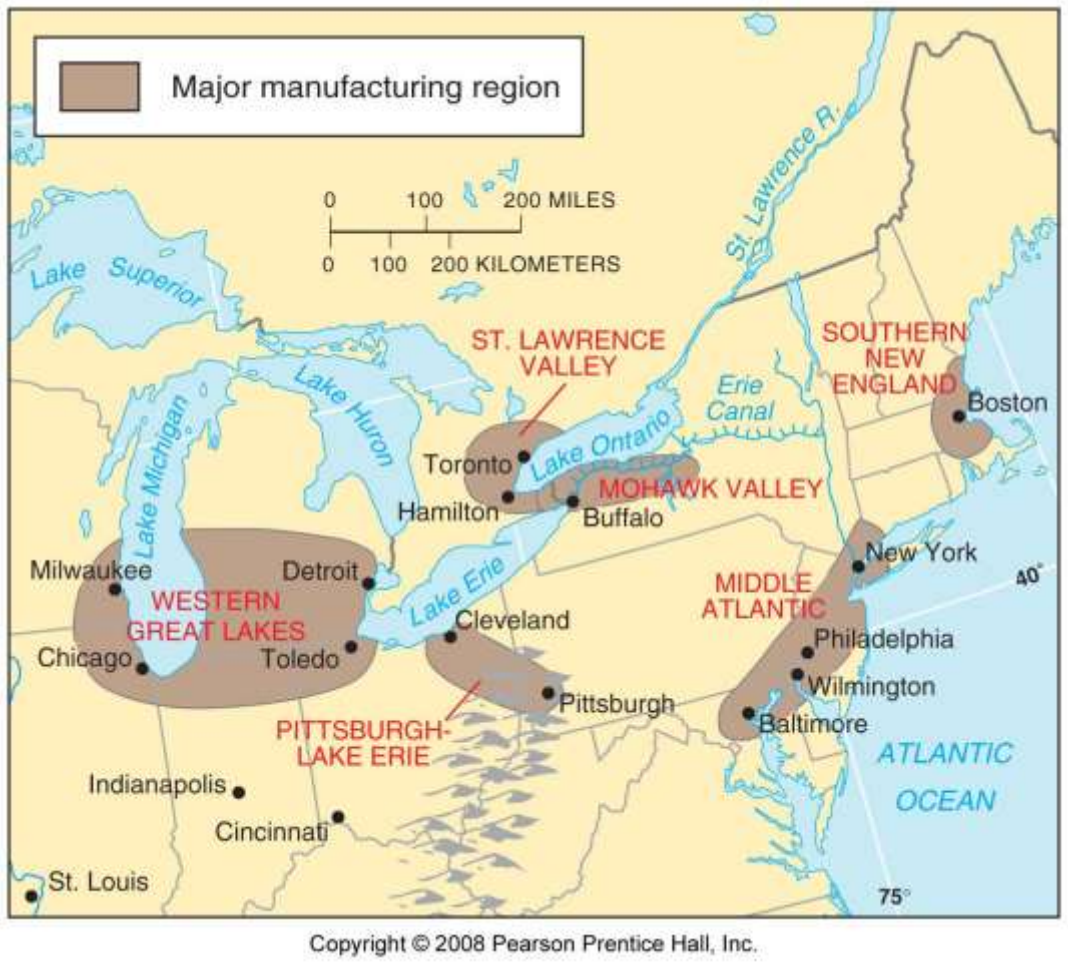


Fig. 11-5: Major manufacturing centers are clustered in southern Poland, European Russia, and the Ukraine. Other centers were developed east of the Urals.

Major Manufacturing Regions of Russia

Industrial Regions of North America

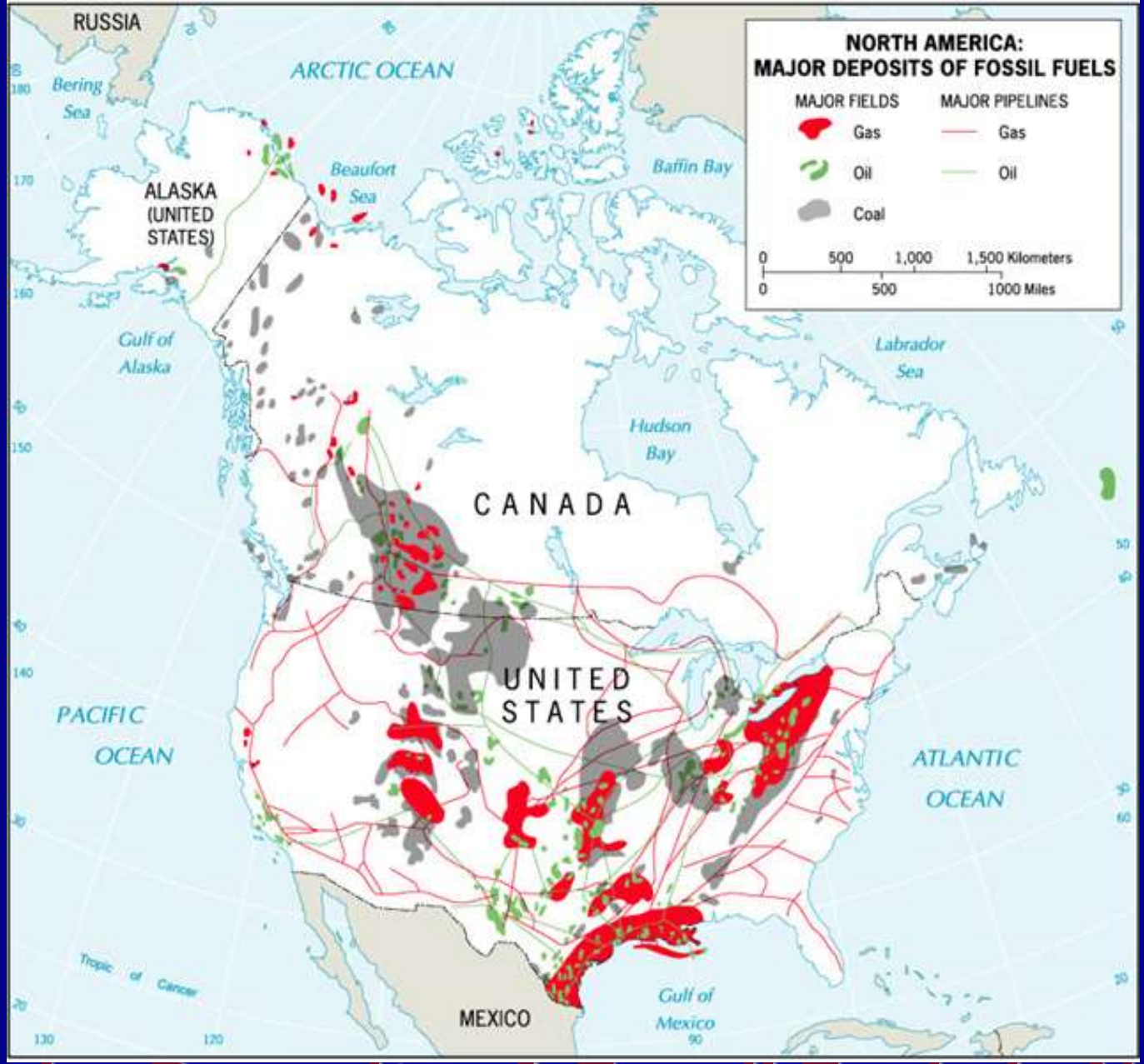


- NYC Port is a **break-of-bulk** (cargo shifted from one mode of transport to another) center.
- Buffalo on Lake Erie grew after the Erie Canal was finished-early 19th cent.
- Interior nodes-Pittsburgh, Cleveland, Detroit, Chicago-Gary, Milwaukee, St. Louis & Cincinnati-Appalachian coal & Mesabi iron ore-autos, bulldozers, harvesters, & appliances

Fig. 11-6: The major industrial regions of North America are clustered in the northeast U.S. and southeastern Canada, although there are other important centers.

- Travel times from New York City, 1800-it took a day to travel from New York City to Philadelphia and a week to reach Pittsburgh
- 1857-the travel time to Philadelphia was only 2 to 3 hours and to Pittsburgh less than a day-since the canal provided a faster means of travel
- 1890 Railroad expansion which began in the 1850s increased the mobility of goods and people dramatically-by 1890 railroads crossed the nation-most dense in the eastern half

Major Manufacturing Regions of North America



Major Deposits of Fossil Fuels in North America

Open Pit Coal Mine in southern Illinois

Coal train moving across Montana is 1½ miles long. It carries barely a day's fuel for a large power plant. The US burns over 1 billion tons of coal a year-has the world's richest coal deposits-enough to last 250 years.

MINE-MADE BADLANDS | One of the largest strip mines in West Virginia, Hobet 21 sprawls across almost 12,000 acres. Forests edging these mountaintop mines often block the view of them from the ground, though nearby households, right, suffer from the proximity.

Manufacturing Centers in East Asia

Fig. 11-7: Many industries in China are clustered in three centers near the east coast. In Japan, production is clustered along the southeast coast.

Chapter 9 Opener ***The Human Mosaic, Tenth Edition***

Shoe factories in Guangdong Province China

Figure 9-26 ***The Human Mosaic, Tenth Edition***

A Dormitory for Workers in Dongguan, China

Industrial Location Factors

- Situation factors
  - Proximity to inputs
  - Proximity to markets
  - Transport choices

- Site factors
  - Labor
  - Land
  - Capital

Copper Industry in North America

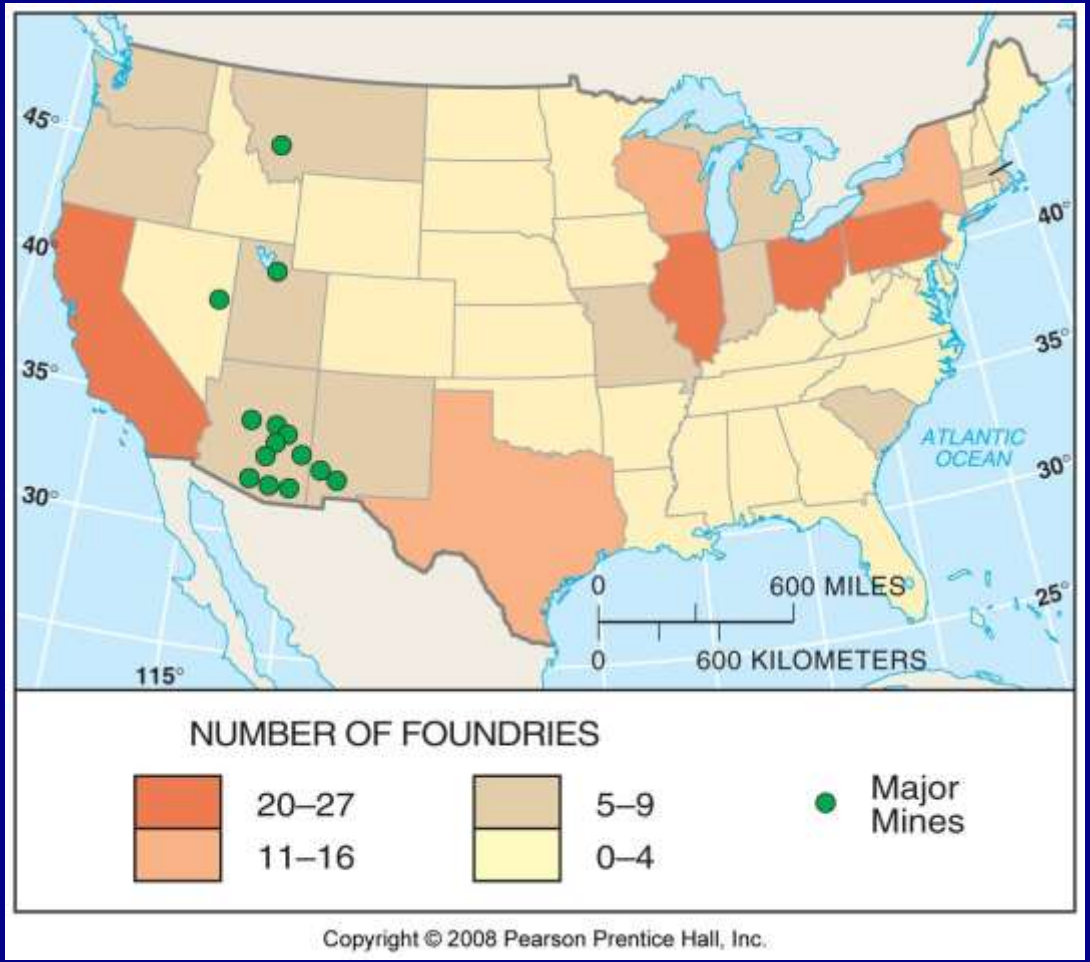


Fig. 11-8: Copper mining, concentration, smelting, and refining are examples of bulk-reducing industries. Many are located near the copper mines in Arizona.

Copper Mine in Arizona

The Lavender Pit Copper Mine in Bisbee, Arizona operated between 1951 and 1974.

Integrated Steel Mills

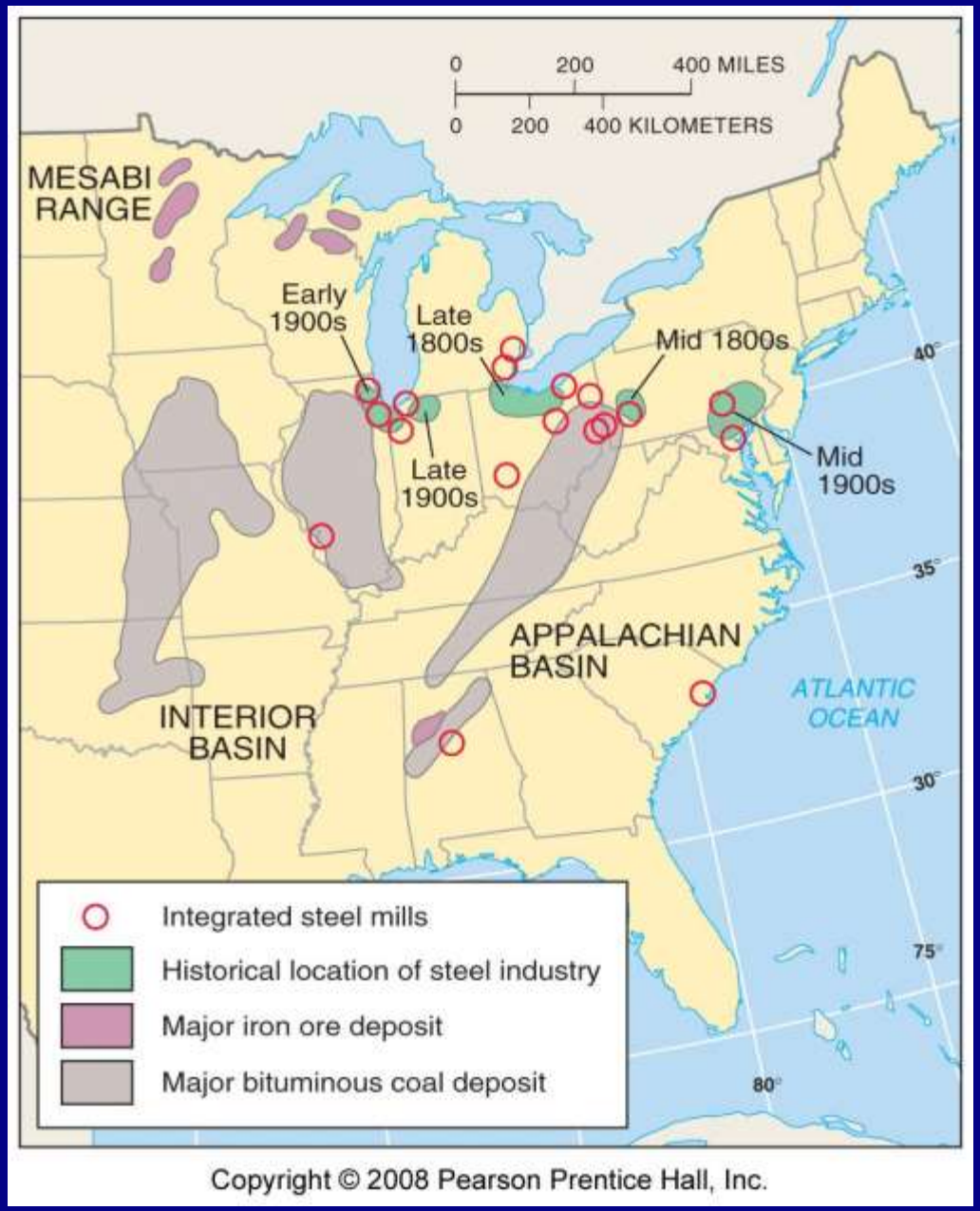


Fig. 11-9: Integrated steel mills in the U.S. are clustered near the southern Great Lakes, which helped minimize transport costs of heavy raw materials.

U.S. Steel Mill (Gary, Indiana)

The integrated steel mill of U.S. Steel in Gary, Indiana.

Nucor Steel Minimills

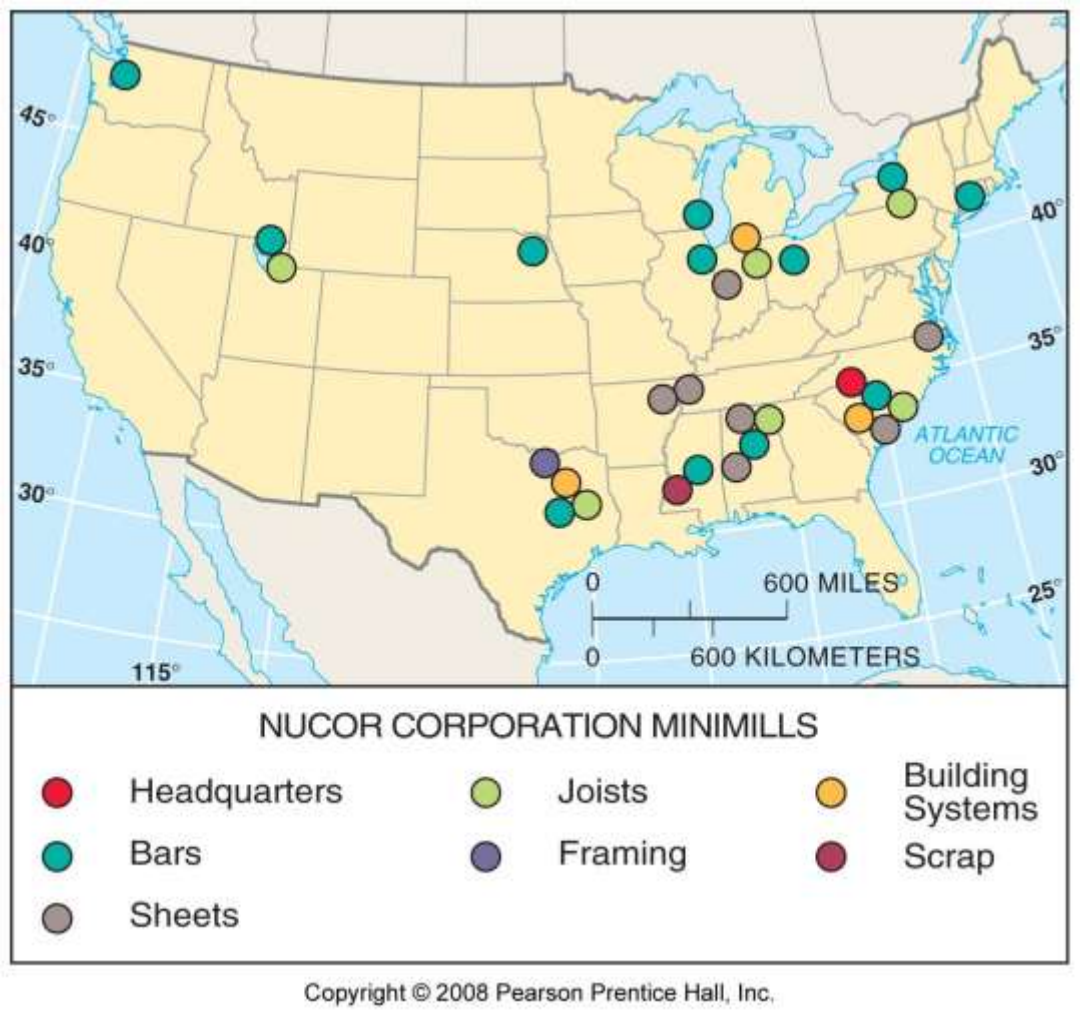


Fig. 11-10: Minimills produce steel from scrap metal, and they are distributed around the country near local markets. Nucor is the largest minimill operator.

Location of Beer Breweries

Fig. 11-11: Beer brewing is a bulk-gaining industry that needs to be located near consumers. Breweries of the two largest brewers are located near major population centers.

Chevrolet Assembly Plants, 1955

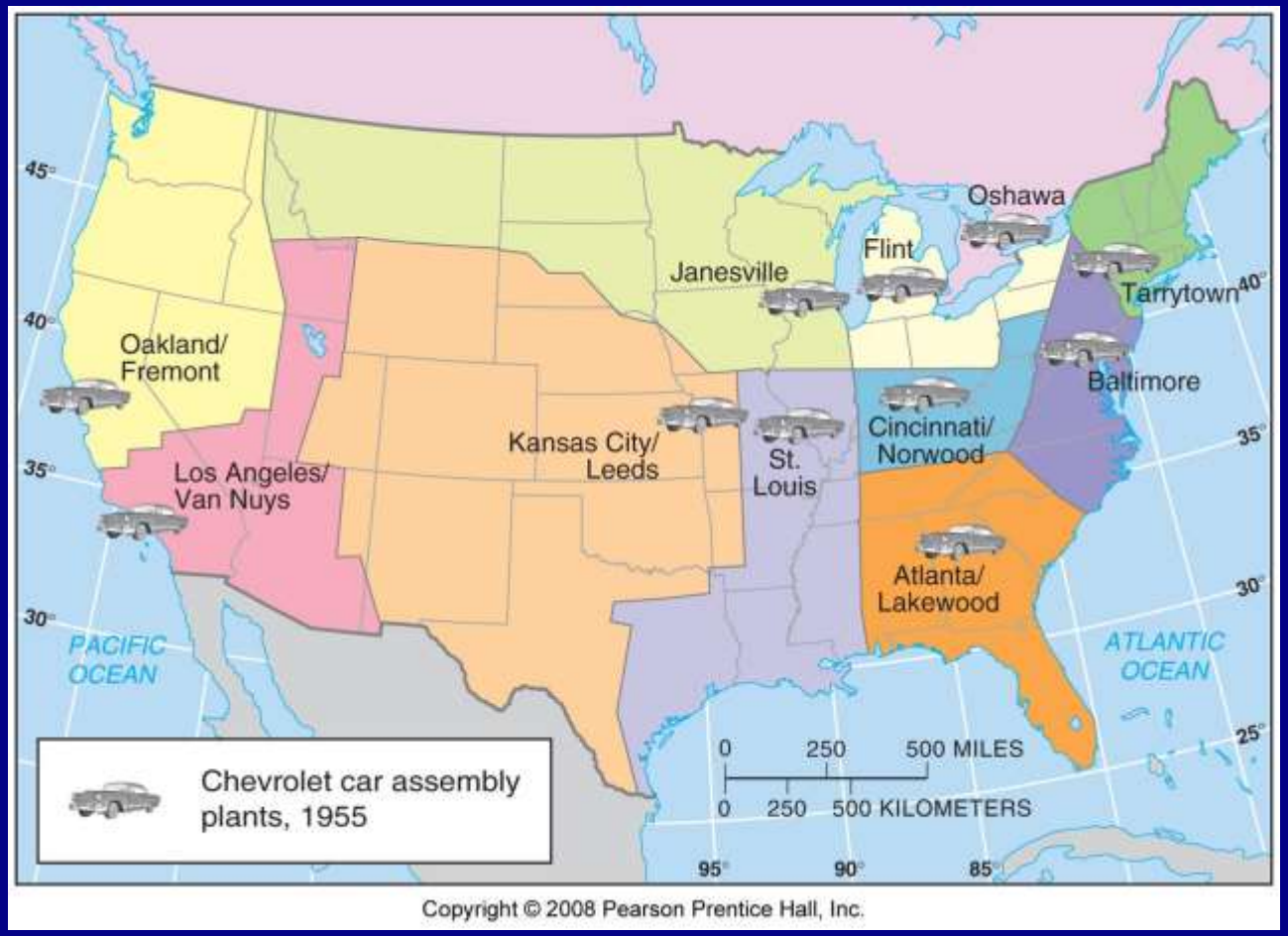


Fig. 11-12a: In 1955, GM assembled identical Chevrolets at ten final assembly plants located near major population centers.

Chevrolet Assembly Plants, 2007

Fig. 11-12b: In 2007, GM was producing a wider variety of vehicles, and production of various models was spread through the interior of the country.

Site Selection for Saturn

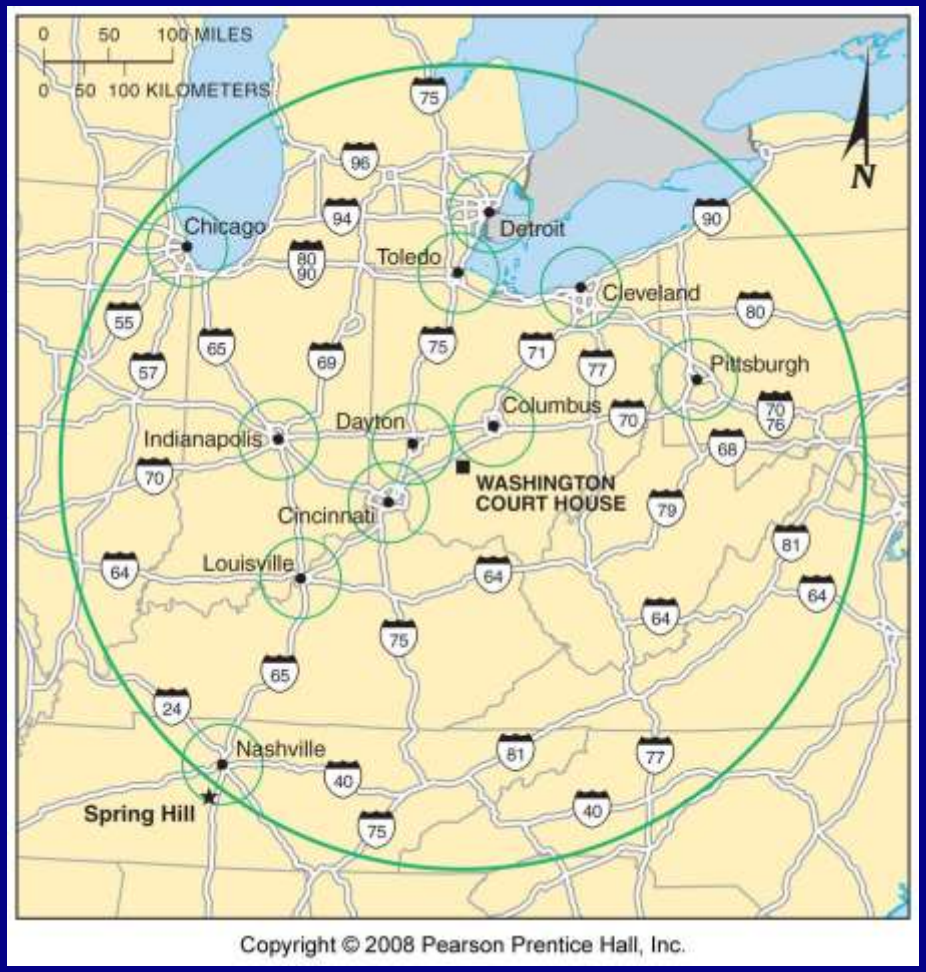


Fig. 11-1.1: GM considered a variety of economic and geographic factors when it searched for a site for producing the new Saturn in 1985. The plant was eventually located in Spring Hill, TN.

Motor Vehicle Parts Plants

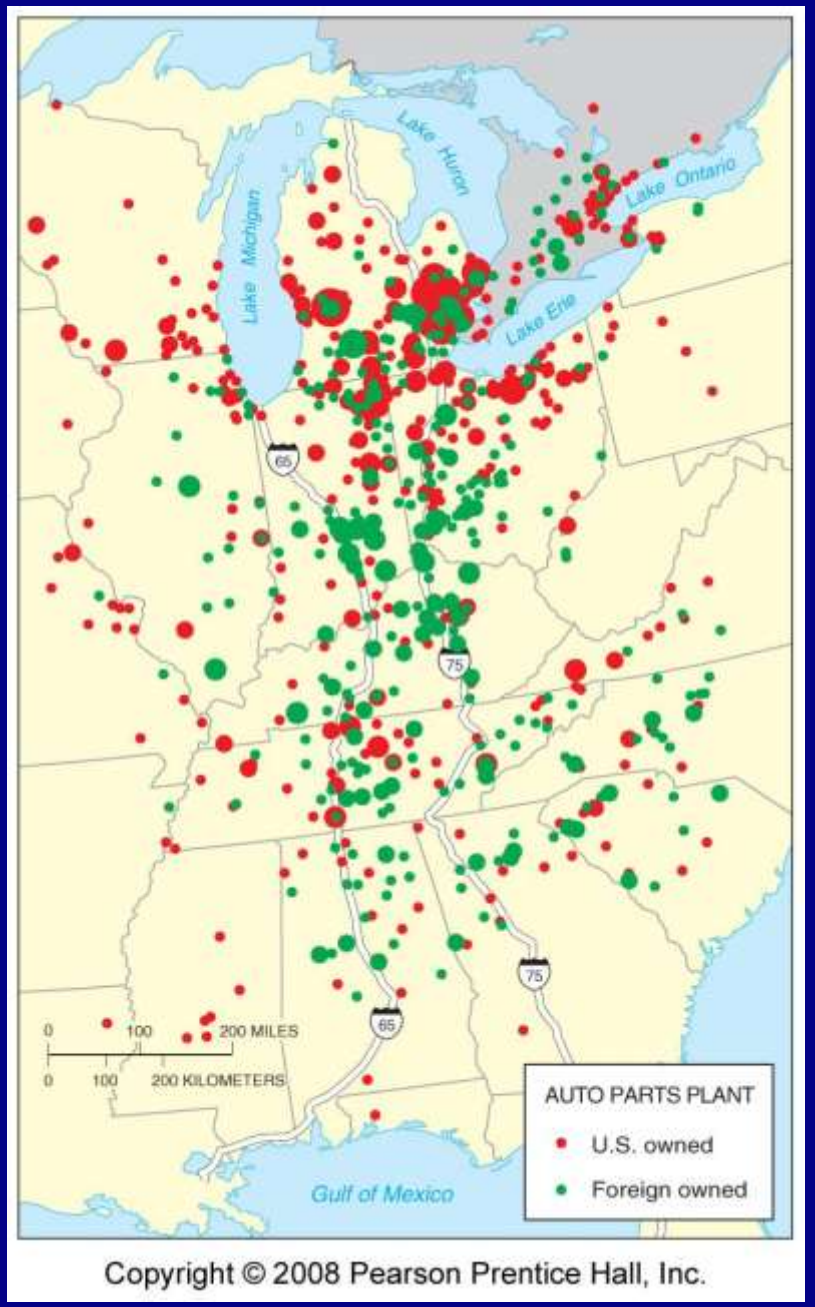


Fig. 11-13: U.S.-owned parts plants are clustered near the main final assembly plants. Foreign-owned plants tend to be located further south, where labor unions are weaker.

Container Ship in Seattle Harbor

Most shipped goods are packed in uniformly sized containers that can quickly be transferred from ships to trucks or trains.

Child Labor in Textile Mills

Child labor was common in the textile industry, which was transformed in the Industrial Revolution. Many spools of thread could be spun simultaneously if they were connected to a steam engine.

Cotton Yarn Production

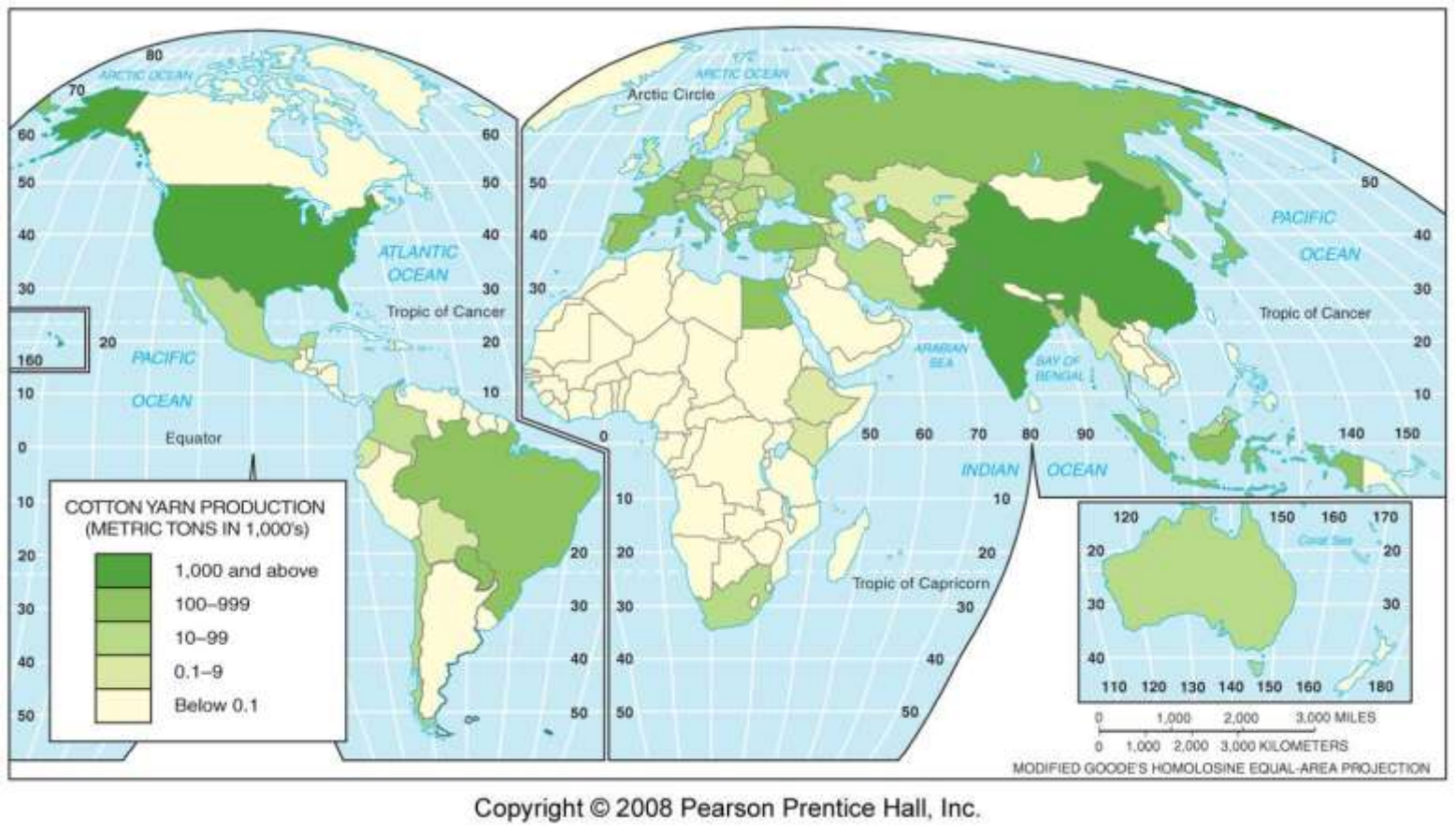


Fig. 11-14a: Production of cotton yarn from fiber is clustered in major cotton growing countries, including the U.S., China, India, Pakistan, and Russia.

Distribution of Cotton Yarn Production

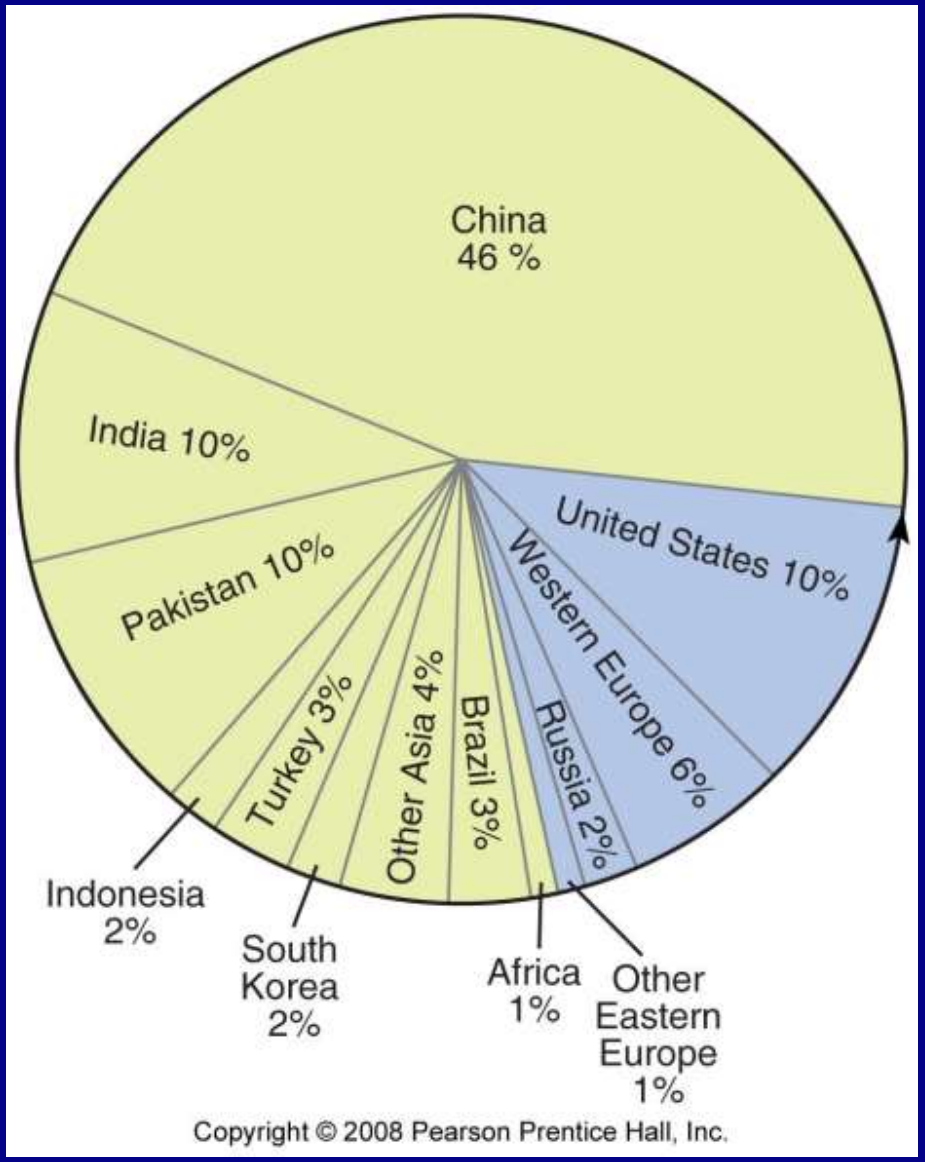


Fig. 11-14b: Three-quarters of cotton yarn is produced in less developed countries.

Chinese Textile Mill

Fig. 11-14c: Machine spinning spools of cotton at a textile mill in Zhengzhou, Henan Province, China.

Woven Cotton Fabric Production

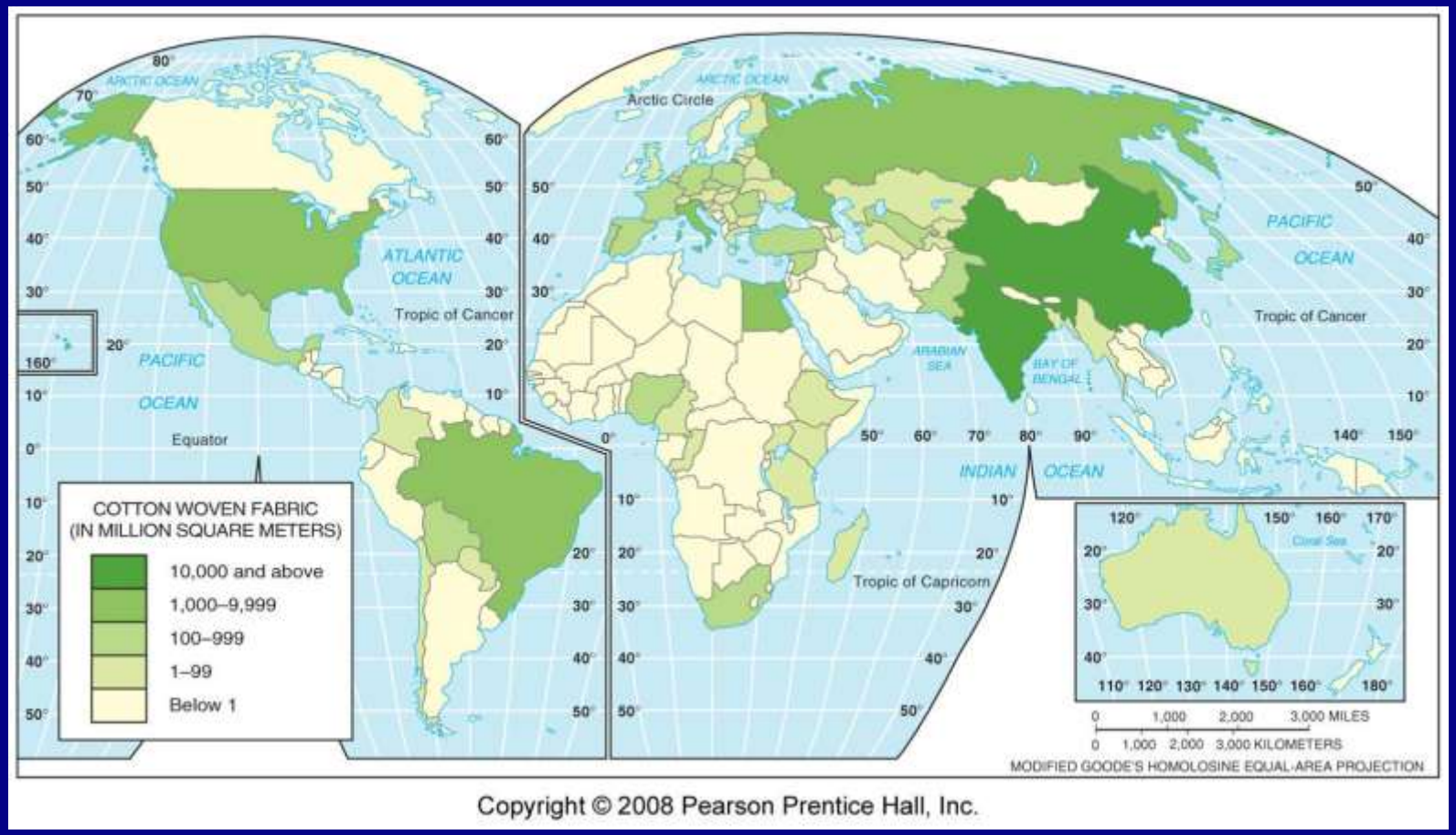


Fig. 11-15a: Production of woven cotton fabric is labor intensive and is likely to be located in LDCs. China and India account for over 75% of world production.

Distribution of Woven Cotton Fabric Production

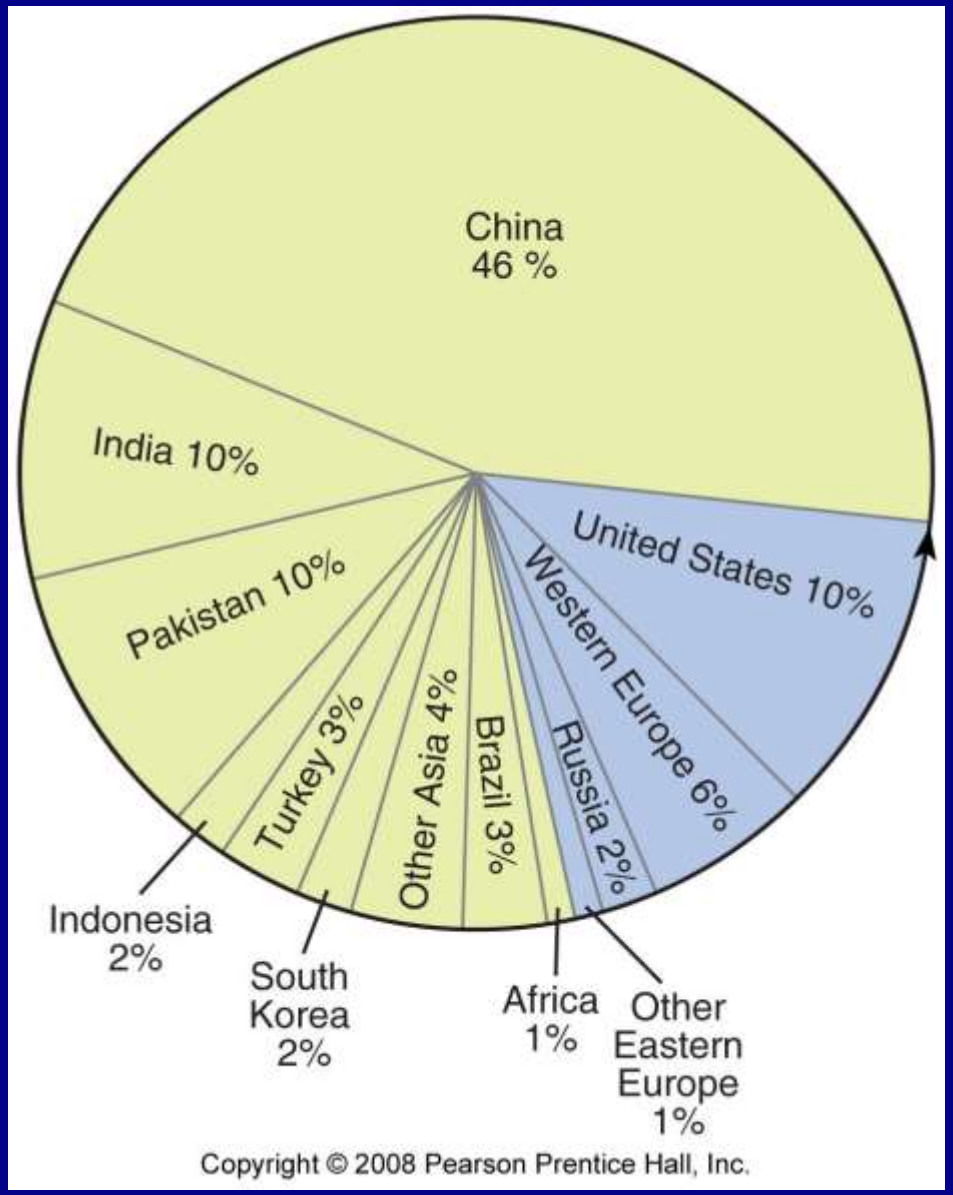


Fig. 11-15b: Over 80% of cotton fabric production is located in less developed countries.

Cotton Factory in India

Fig. 11-15c: Cotton looms in a factory in India.

Trouser Production

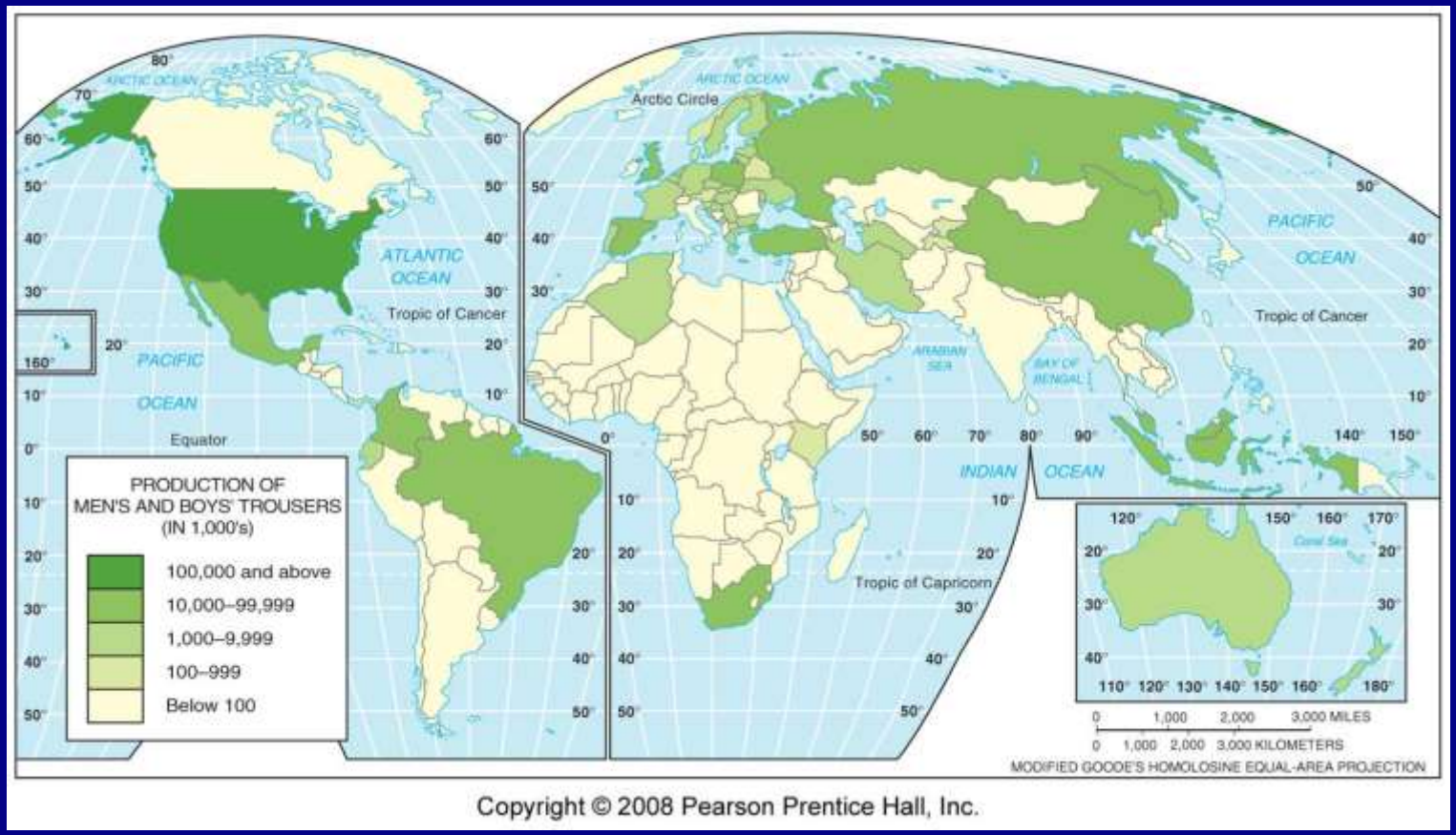


Fig. 11-16a: Sewing cotton fabric into men's and boys' trousers is more likely to be located in developed countries, but much production now occurs in LDCs.

Distribution of Trouser Production

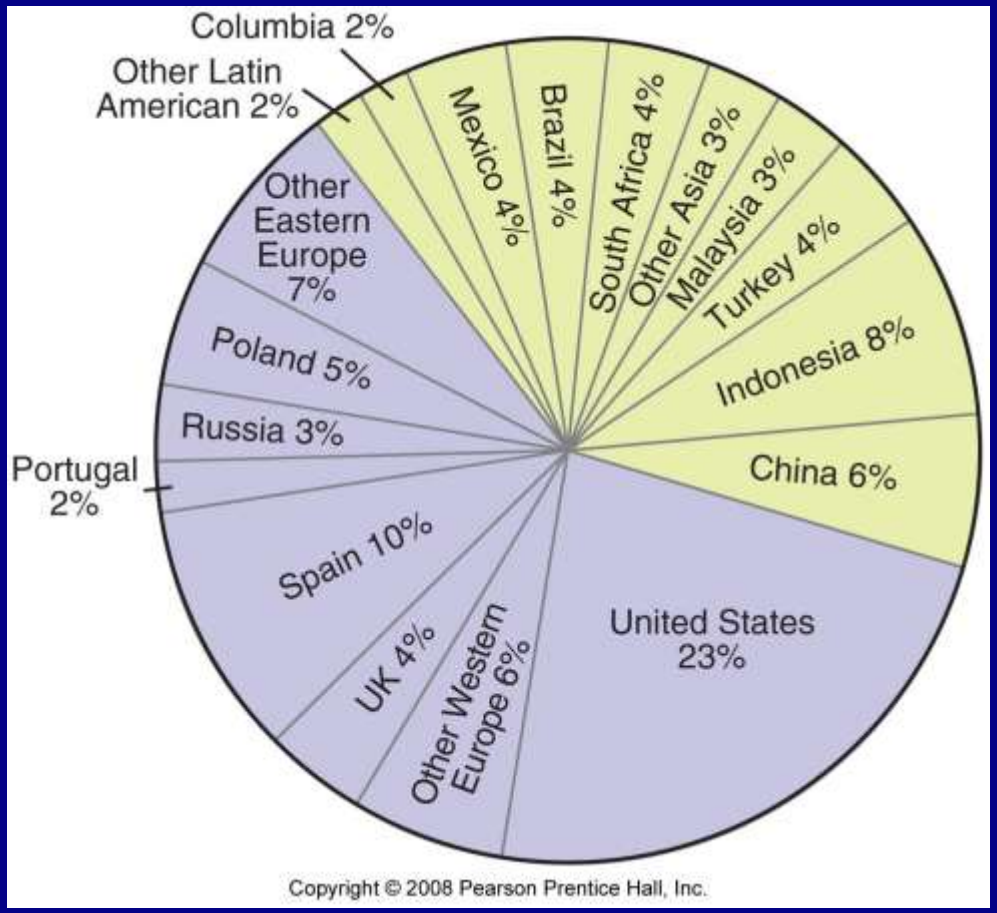


Fig. 11-16b: The majority of trouser production is in MDCs, near customers.

New York Garment District

Fig. 11-16c: Women sewing garments in the Garment District in New York.

Industrial Expansion

- Changing distribution within MDCs
  - Intraregional shifts in manufacturing
  - Interregional shifts in manufacturing

- New industrial regions
  - Asia
  - Latin America
  - “Central” Europe

Deindustrialization –

a process by which companies move industrial jobs to other regions with cheaper labor, leaving the newly deindustrialized region to switch to a service economy and work through a period of high unemployment.

Abandoned street in Liverpool, England, where the population has decreased by one-third since deindustrialization

U.S. Production Workers
1950 & 2005

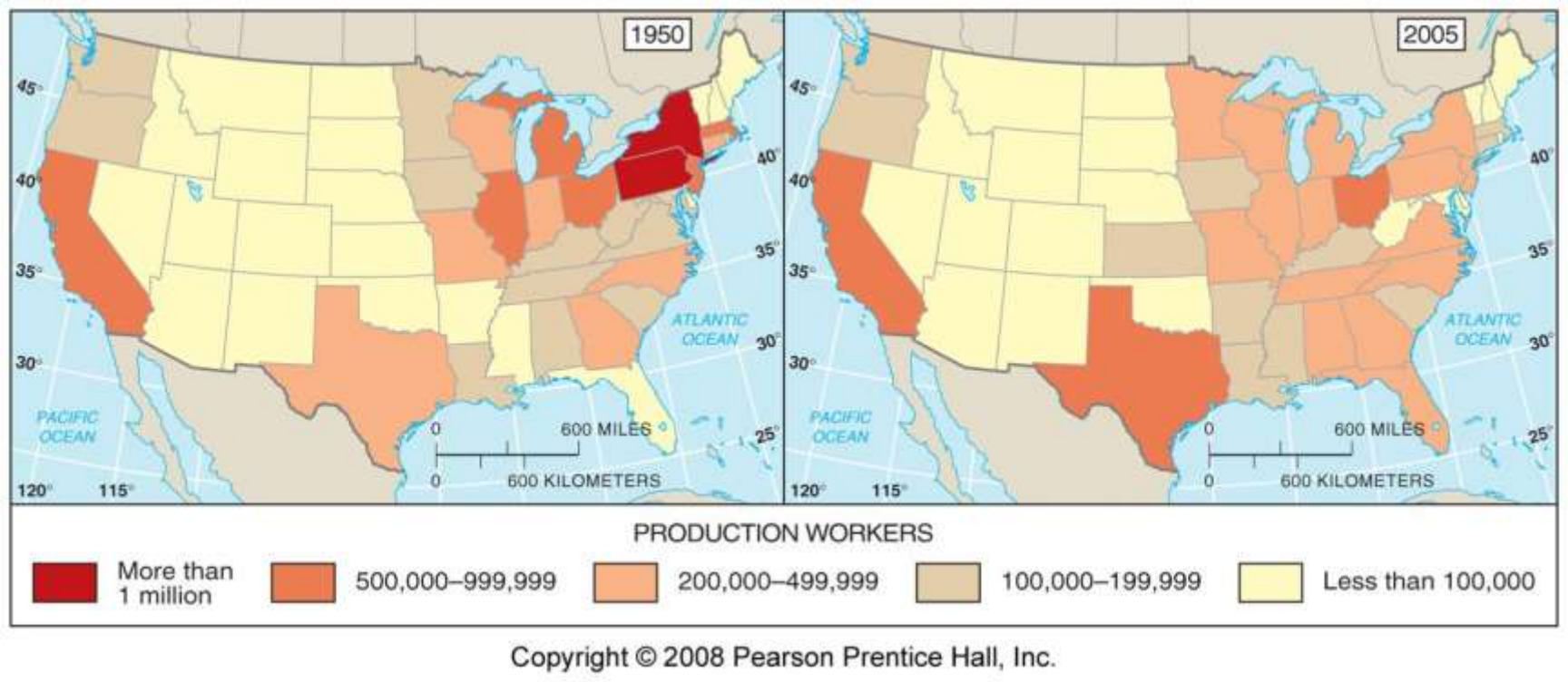


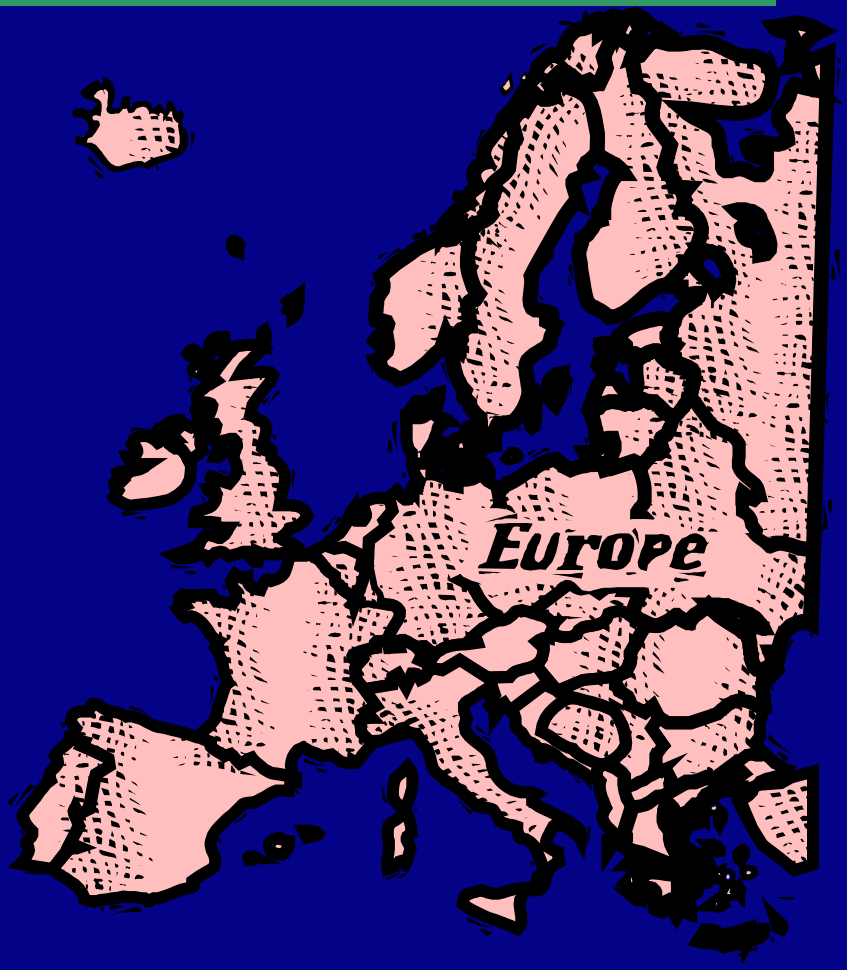
Fig. 11-17: States in the Northeast and Southern Great Lakes traditionally associated with manufacturing accounted for two-thirds of manufacturing in 1950 but only two-fifths of manufacturing in 2005.

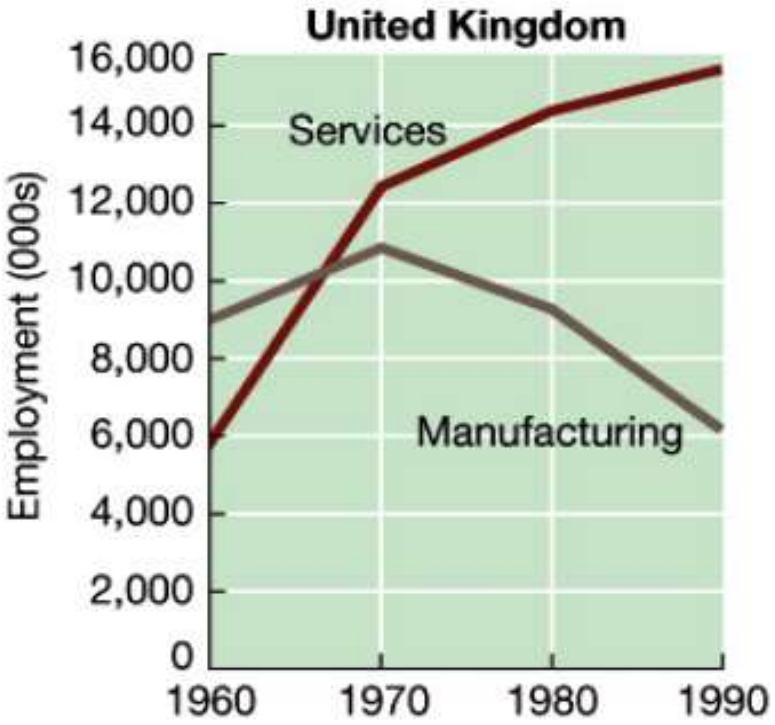
U.S. Change

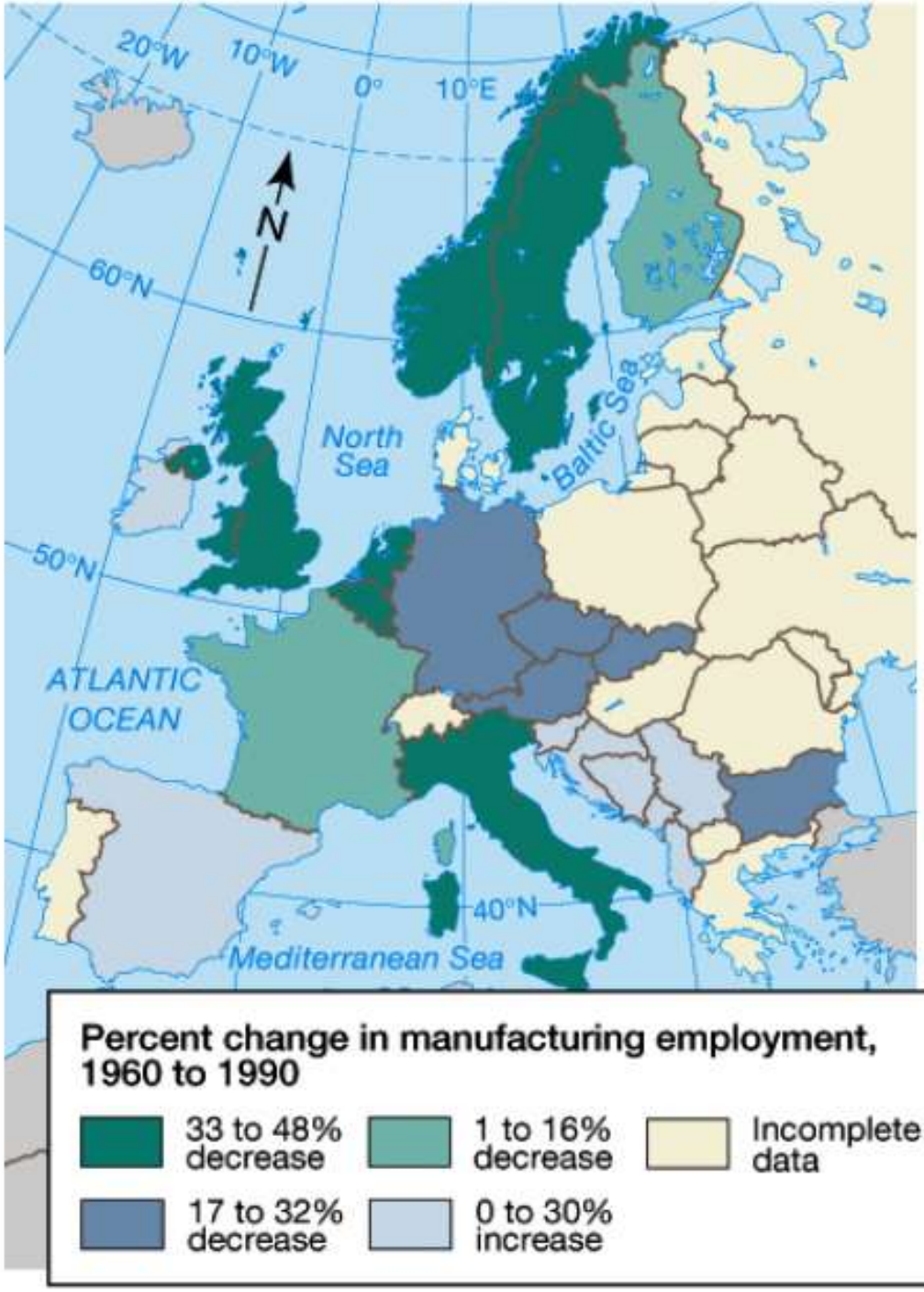
- Industry has shifted from N.E. to S and W
- N.E. -6 million jobs from 1950-2009
- Steel, textiles, furniture moved South
- Unions, labor costs, (air conditioning)

European Change

- Industry has moved West to south and East
- Cheap labor! (because former USSR states
- Central Europe = materials and markets







Change in manufacturing employment in Europe, 1960–1990

DEINDUSTRIALIZATION

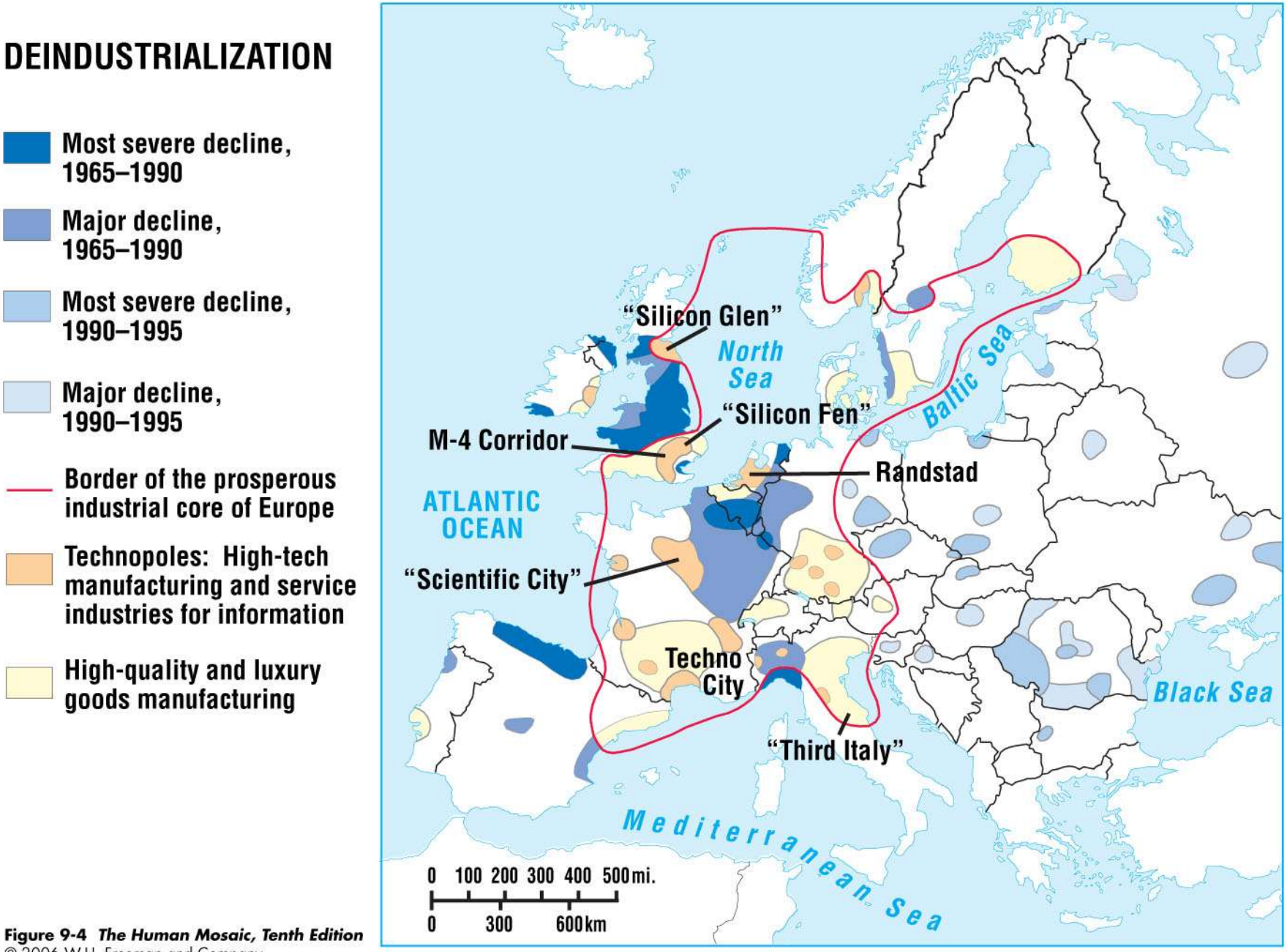


Figure 9-4 ***The Human Mosaic, Tenth Edition***

European Union Structural Funds

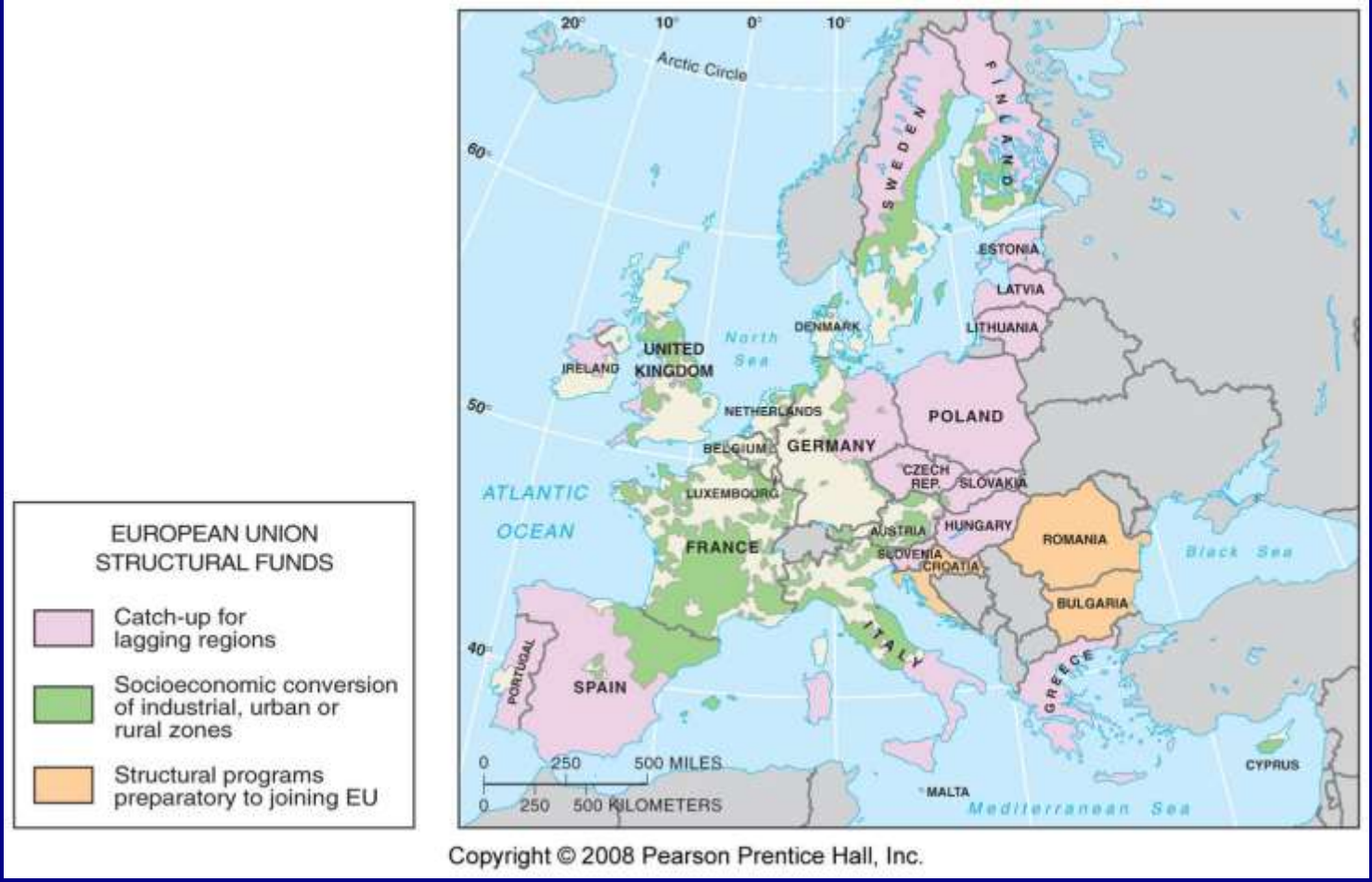


Fig. 11-18: The European Union provides subsidies in regions with economic problems due to declining industries.

Steel Production, 1980

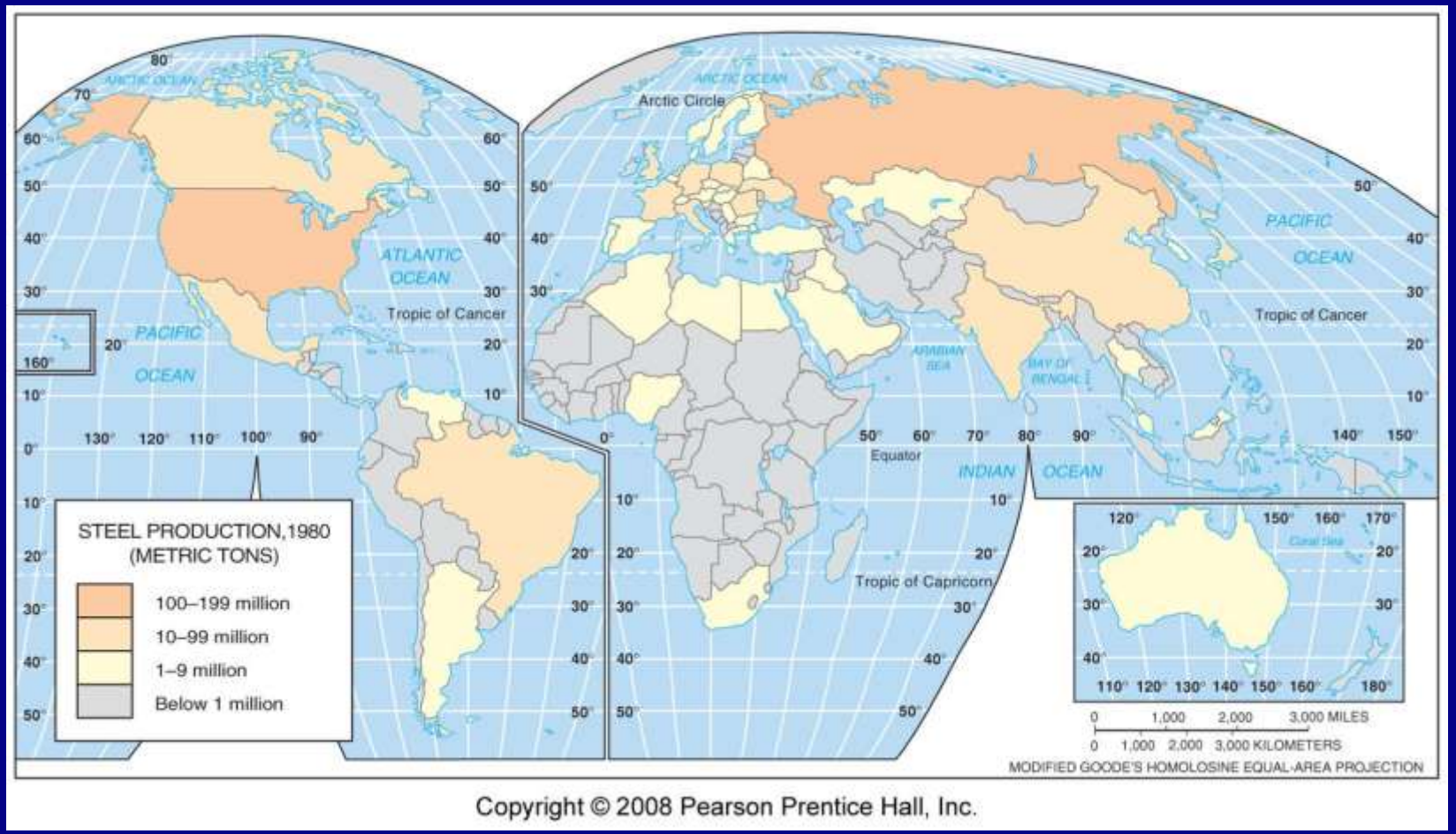


Fig. 11-19a: The U.S., Soviet Union, and Japan were the largest steel producers in 1980.

World Steel Production, 2005

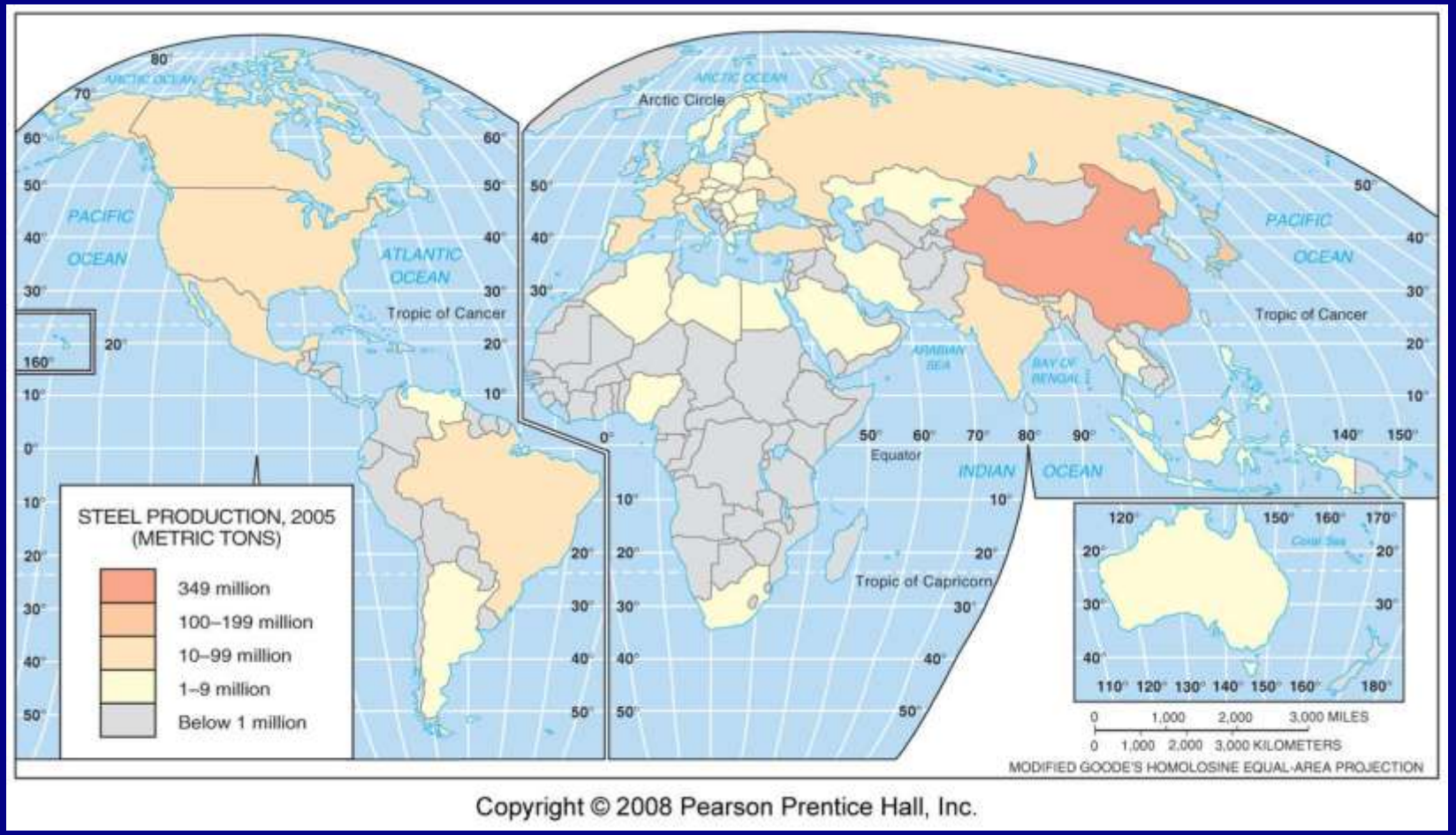


Fig. 11-19b: By 2005, steel production had increased in developing countries but declined in the more developed countries.

Distribution of Steel Production *1980 & 2005*

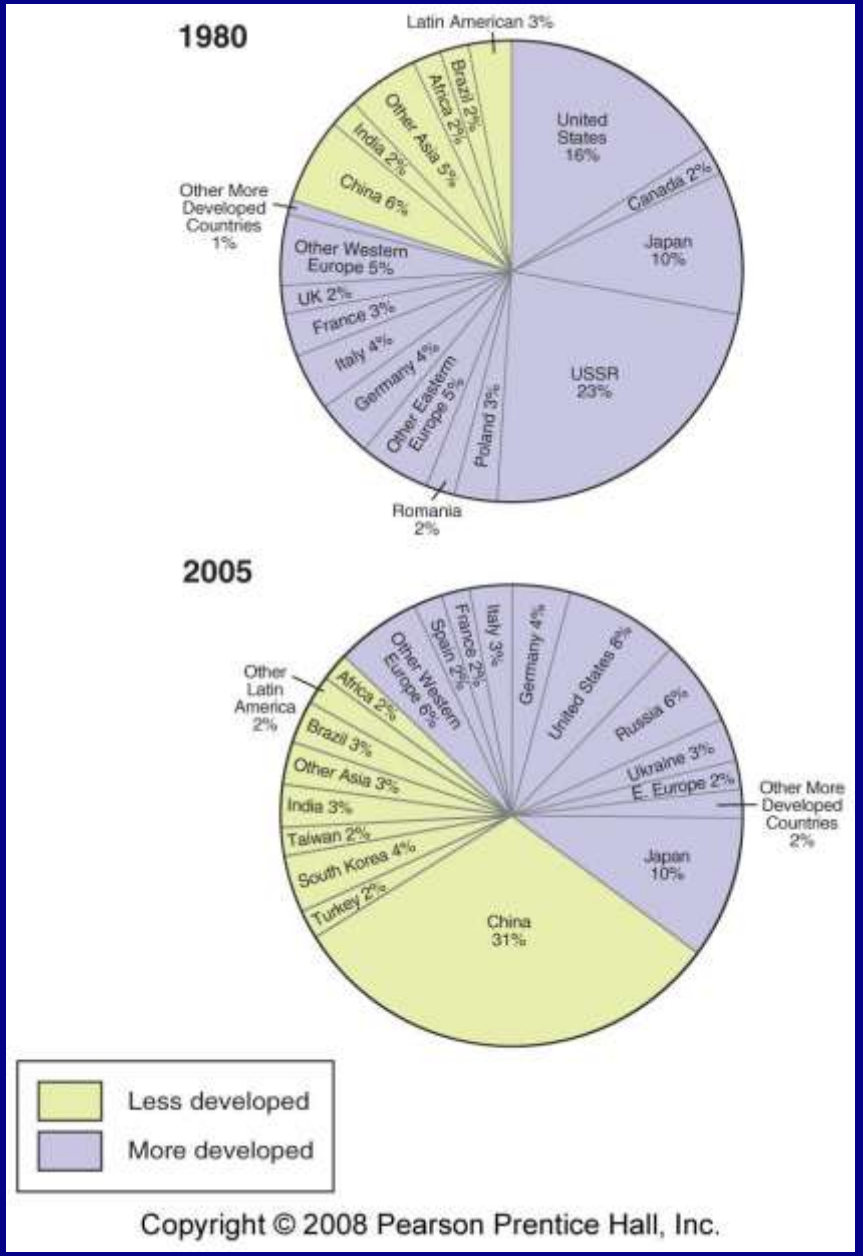


Fig. 11-20: Developed countries accounted for 80% of world production in 1980 but only 45% in 2005. LDCs increased from 20% to 55%. China is now the world's largest producer.

Shanghai Steel Factory

The Baoshan Iron Steel Company in Shanghai, China

Changing Location Factors

- Attraction of new industrial regions
  - Proximity to low-cost labor
  - Outsourcing
- Renewed attraction of traditional industrial regions
  - Proximity to skilled labor
  - Just-in-time delivery

Sock & Hosiery Manufacturing

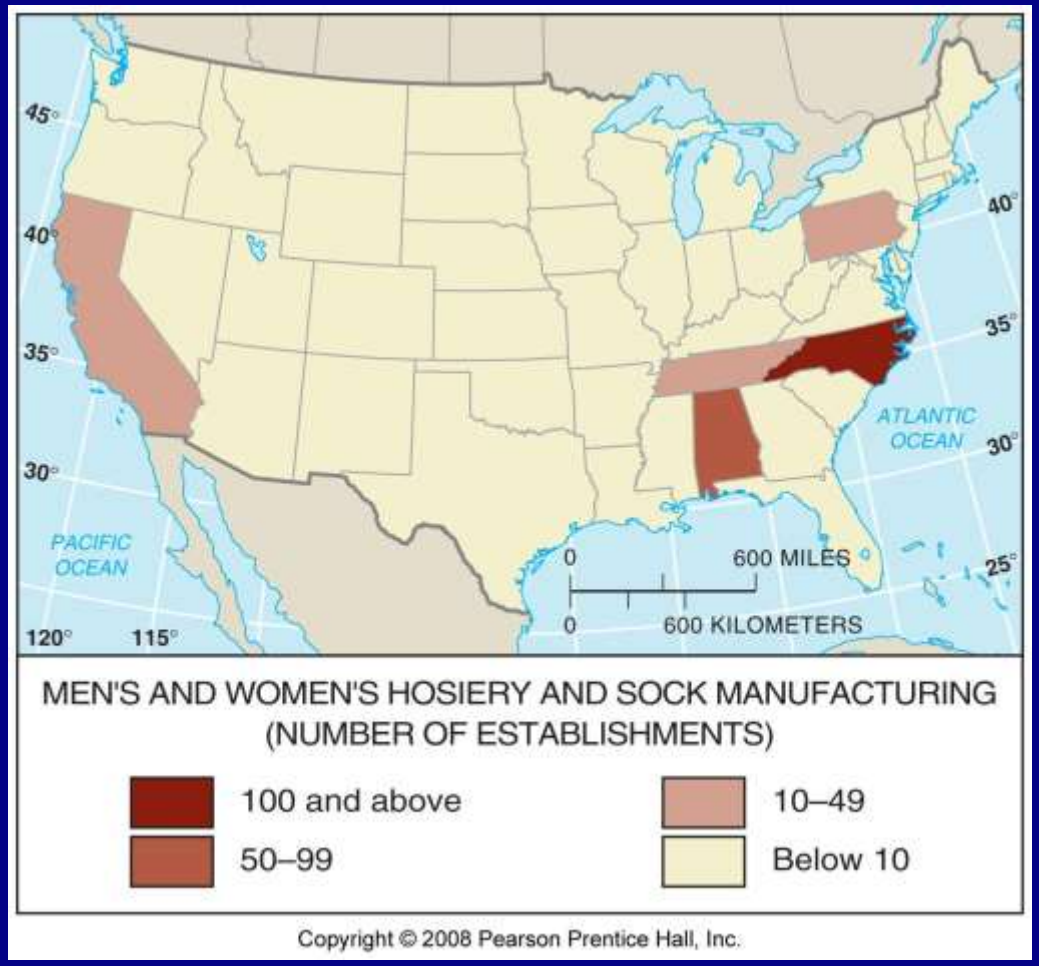


Fig. 11-21: Men's and women's socks and hosiery manufacturers usually locate near a low-cost labor force, such as found in the southeastern U.S.

Labor Cost per Hour
MDCs and LDCs

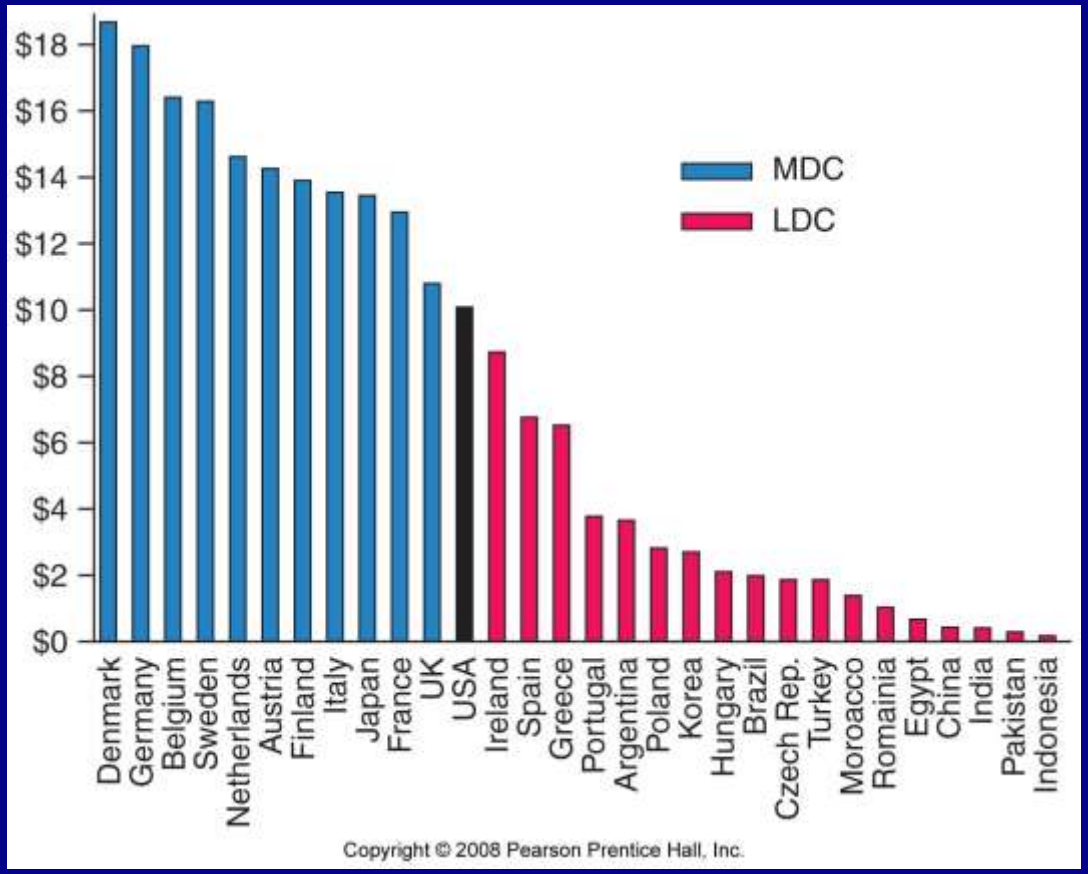


Fig. 11-22: Hourly wages can be under $1 in many LDCs compared to well over $10 in many MDCs.

U.S. Clothing Production
1994 - 2005

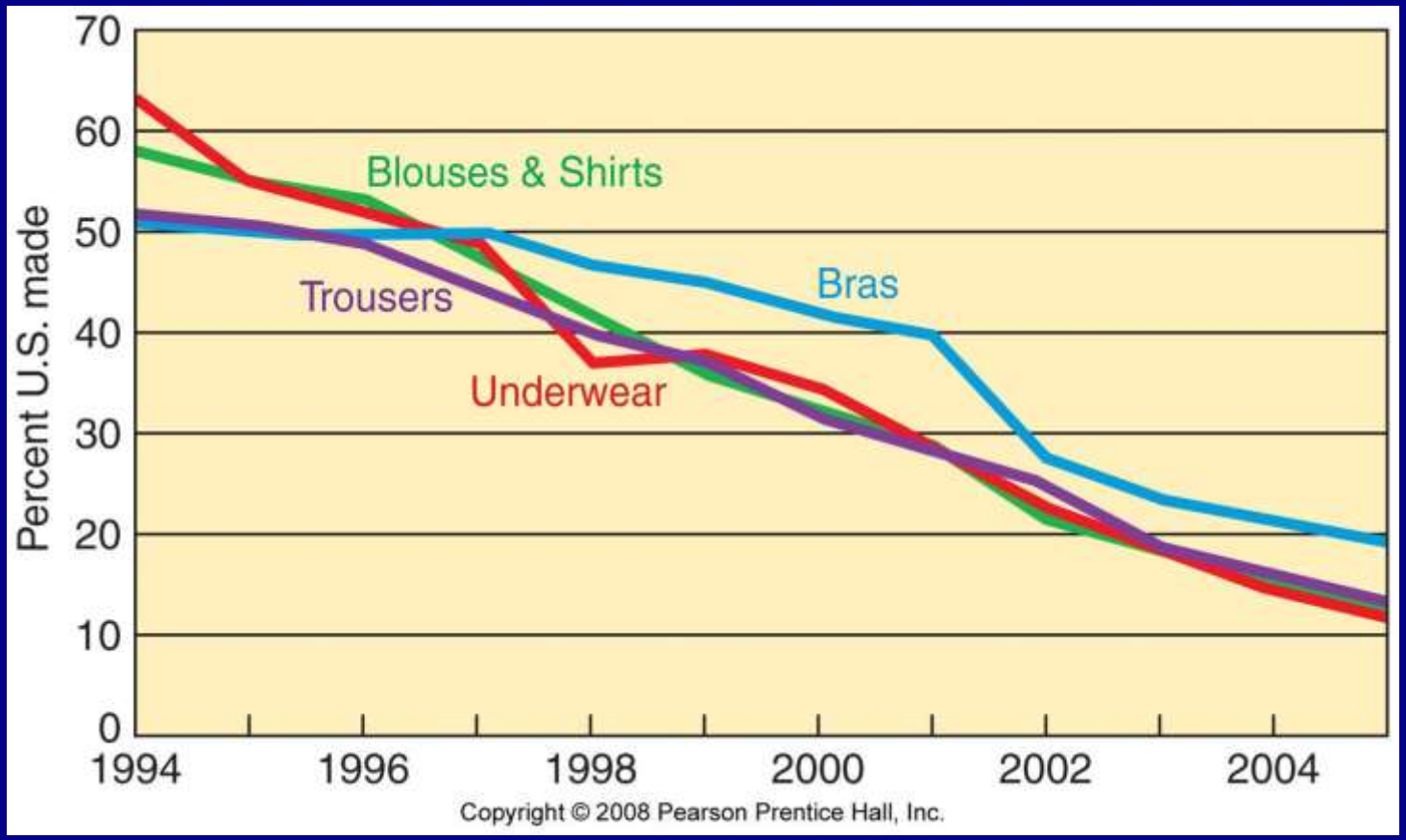


Fig. 11-23: The percent of U.S. made clothing has declined sharply since the 1990s while imports have increased.

Computing Equipment Manufacture

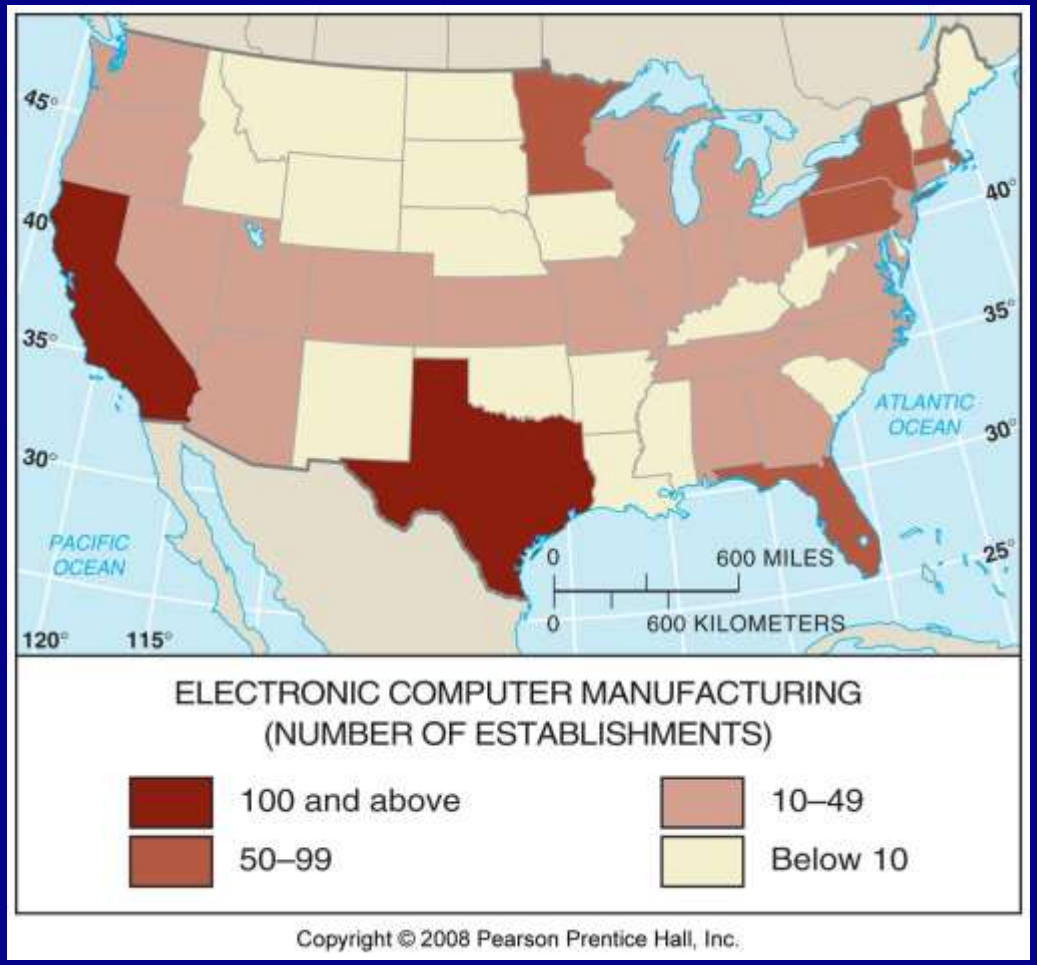


Fig. 11-24: High skill workers are needed for manufacture of computing equipment. California, the Northeast, and Texas are the major sites.

Women's and Girls' Apparel

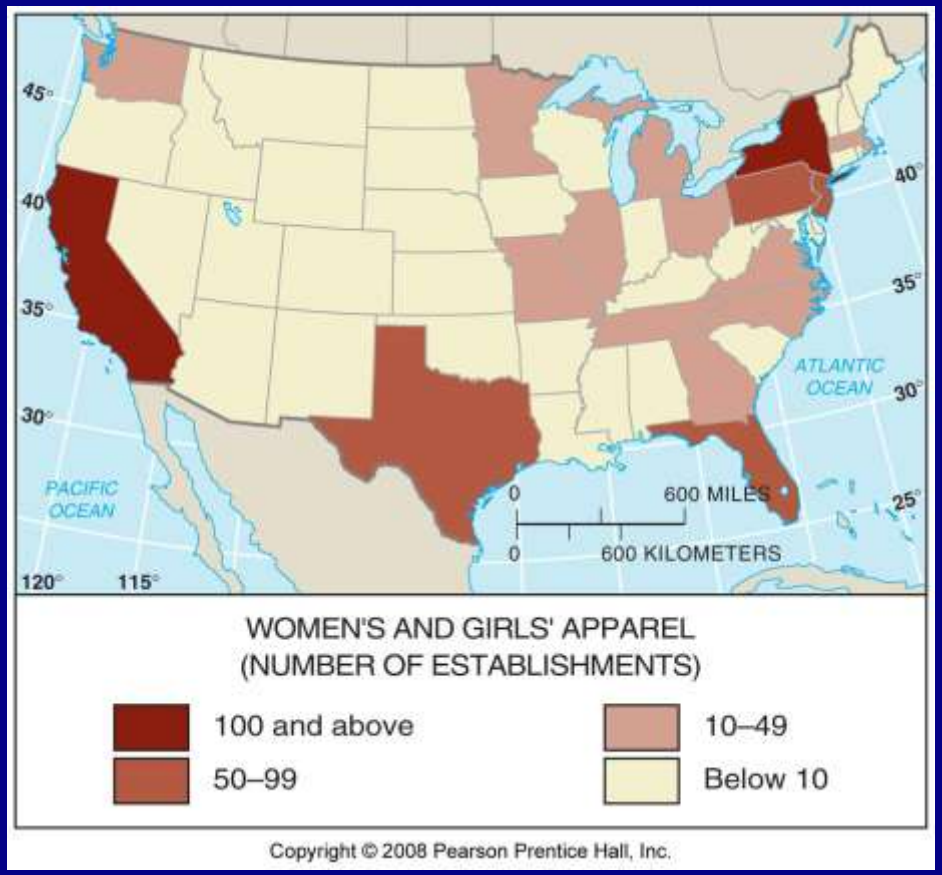


Fig 11-25: Products that require more skilled workers are still produced in or near New York City. Other items are produced in sites with lower cost labor.

How has Industrial Production Changed?

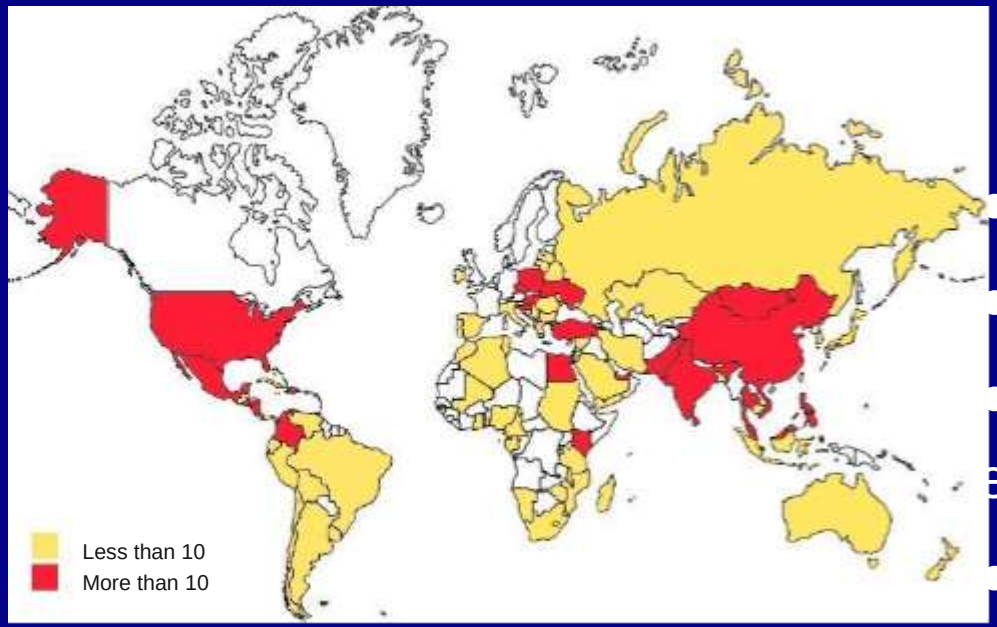
Fordist – dominant mode of mass production during the twentieth century, production of consumer goods at a single site.

Post-Fordist – current mode of production with a more flexible set of production practices in which goods are not mass produced. Production is accelerated and dispersed around the globe by multinational companies that shift production, outsourcing it around the world.

Export Processing Zones

http://survey07.ituc-csi.org/images/photos/Philippines.jpg

http://www.bdpressinform.org/picture.htm



http://www.wilpf.int.ch/images/economicjustice/epzmap.jpg

United States data on map also represents Free Trade zones

- Lower wages than Core
- Lower taxes
- Weaker safety and environmental regulations
- Ability to pit workers against each other, or to repress unions

Gender Roles question on 2008 APHG exam

Newly Industrialized

China – major industrial growth after 1950- Soviet planners helped from 1949 to 1964

Industrialization in the last half of 20th cent. was state-owned and planned:

focus on: Northeast district-Dongbei

Shanghai and Chang district

Today, industrialization is spurred by companies that move production (not the whole company) to take advantage of Chinese labor and special economic zones (SEZs). Rapid

As China's economy continues to grow, old neighborhoods (right) are destroyed to make room for new buildings (below).

Beijing, China

Minimizing Labor Cost

Sources: PBS & Ingolf Vogeler

Maquiladoras **- foreign-owned assembly plants in Mexico (mostly textiles,autos and consumer electronics)**

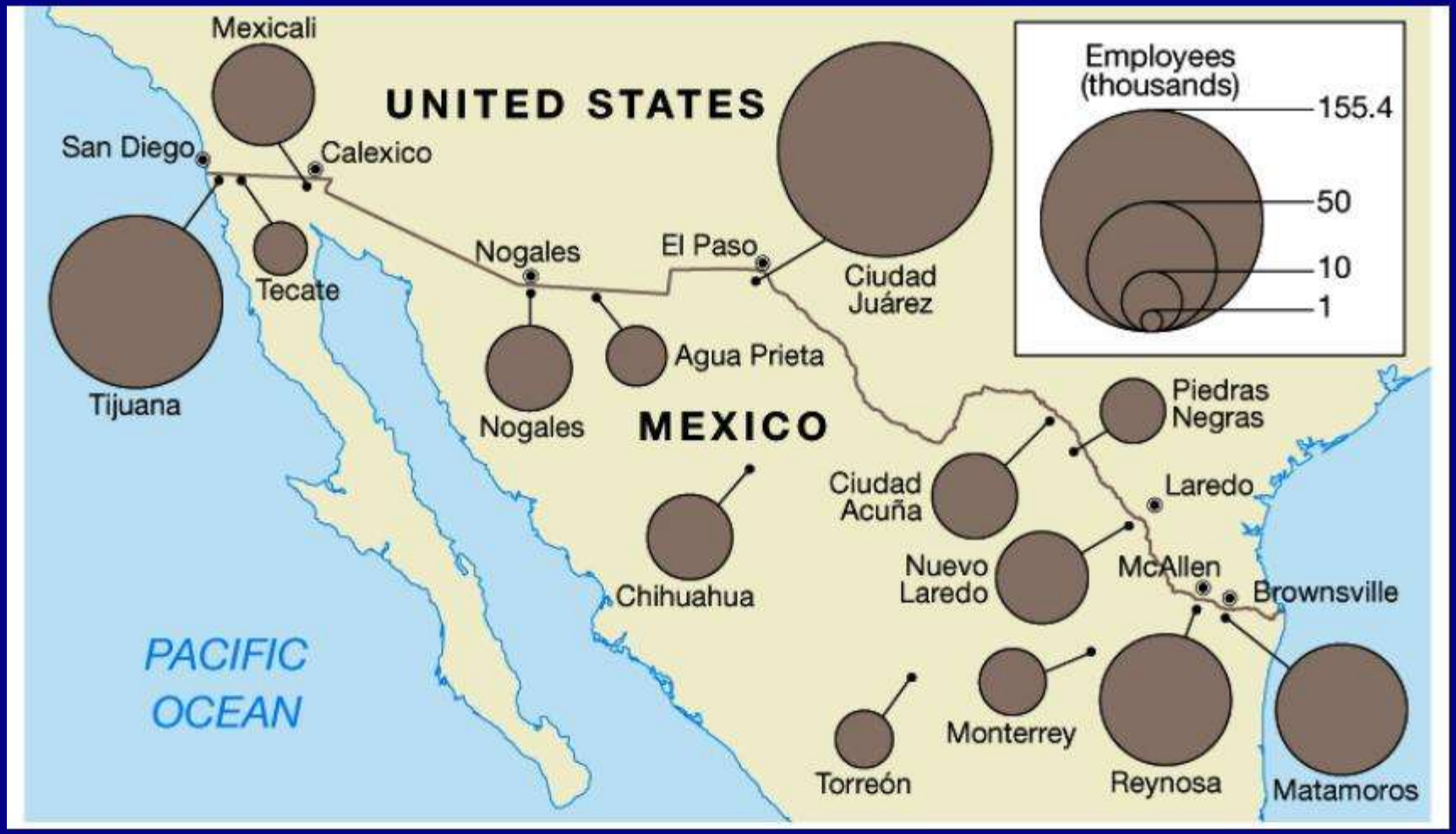
Over 11,500 *maquiladoras* along border with U.S.; employ 2 million+ Mexicans

Revenues from *maquiladoras*, make up 85% of trade between Mexico and U.S.

Average work week is 60-70 hours; wages about $5.75 per day. Women are 70% of *maquiladora* workforce.

Since 2000, some *maquiladoras* have closed as corporations move assembly-line jobs to even lower-wage countries, mainly China.

Maquiladoras



APHG exam question 2004

Left-Chinese industrial air conditioner plant

Right-Singapore container port

Modern Production

Outsourcing –

moving individual steps in the production process (of a good or a service) to a supplier, who focuses their production and offers a cost savings.

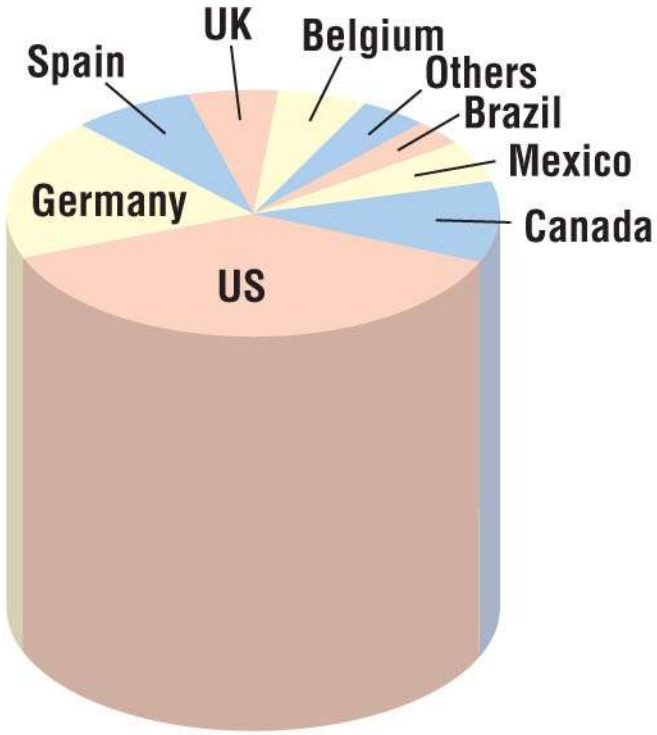
Offshore –

Outsourced work that is located outside of the country.

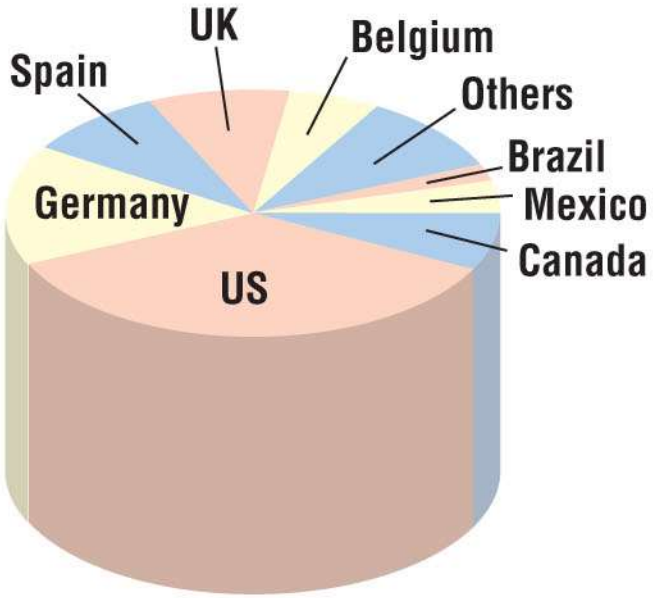
Figure 9-3 ***The Human Mosaic, Tenth Edition***

Motor Vehicle Parts Plants

- American owned parts plants are clustered near the final assembly plants in the Rust Belt.
- Foreign-owned plants tend to be located further south, where labor unions are weaker, wages, taxes and regulations are lower.

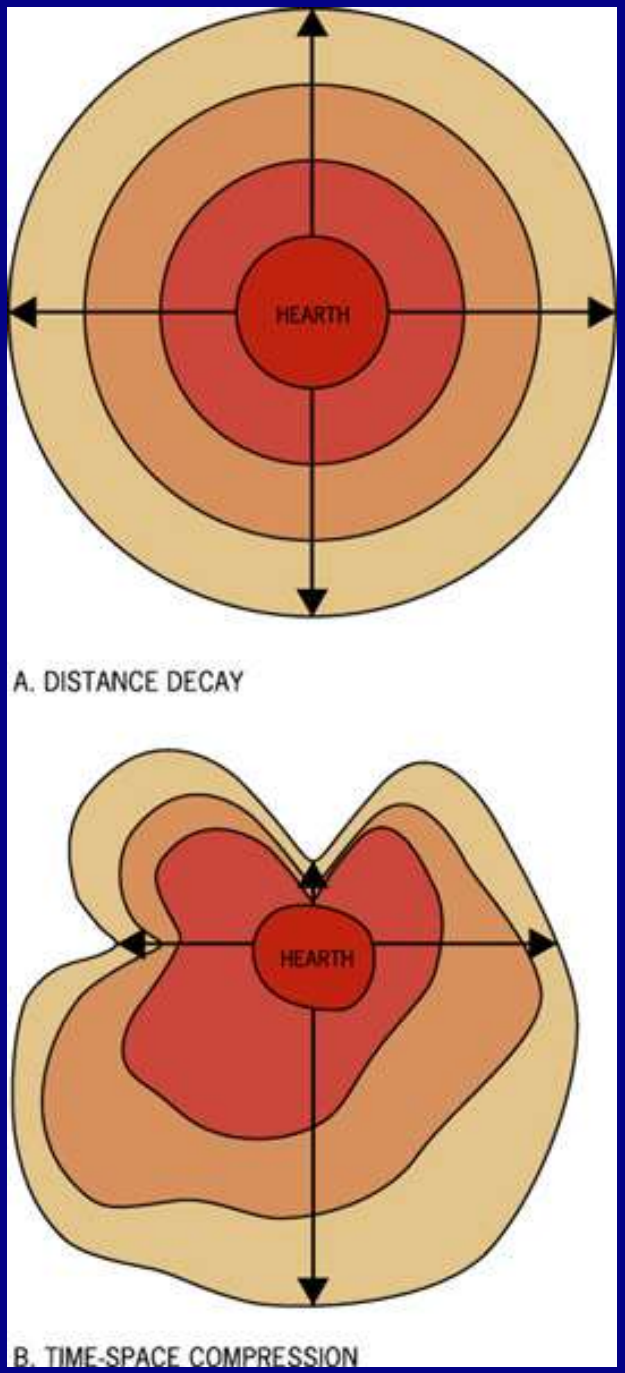


General Motors
Total production
5,472,919 cars



Ford
Total production
3,625,447 cars

Figure 9-5 ***The Human Mosaic, Tenth Edition***



Time-Space Compression

Through improvements in transportation and communications technologies, many places in the world are more connected than ever before.

Time-Space Compression

- **Just-in-time delivery**

rather than keeping a large inventory of components or products, companies keep just what they need for short-term production and new parts are shipped quickly when needed.

Global division of labor

corporations can draw from labor around the globe for different components of production.

New Influences on the Geography of Manufacturing

- **Transportation**-intermodal connections where air, rail, truck, ship and barge connect-eases flow of goods-e.g. container shipping
- **Regional and global trade agreements-** WTO, Benelux, European Union, NAFTA, MERCOSUR, SAFTA, CARICOM, ANDEAN AFTA, COMESA, etc. goal to ease flow of goods by eliminating trade tariffs or quotas
- **Energy-**coal was replaced by natural gas & oil after WW II-transported by pipeline or tanker

What does Amazon’s same day delivery and prime represent?