

FIGURE 2.1

Because of the arrangements of the four pairs of electrons making up the outer electron shell of the O atom in the water molecule, the molecule is electrically polar and can form special bonds called hydrogen bonds, with other water molecules. These characteristics determine the chemical and physical diversity of water.

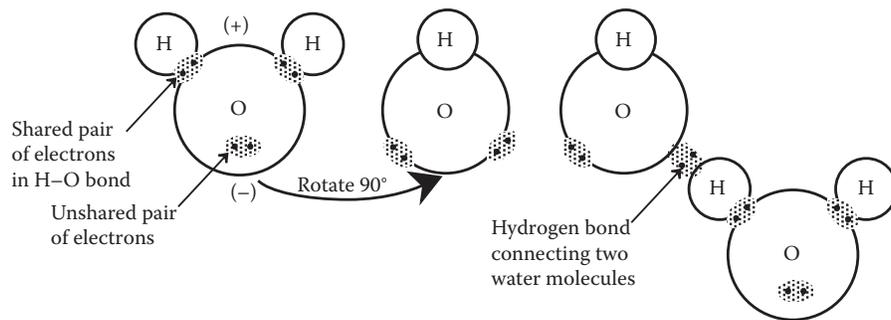


FIGURE 2.2

The hydrological cycle, quantities of water in trillions of liters per day.

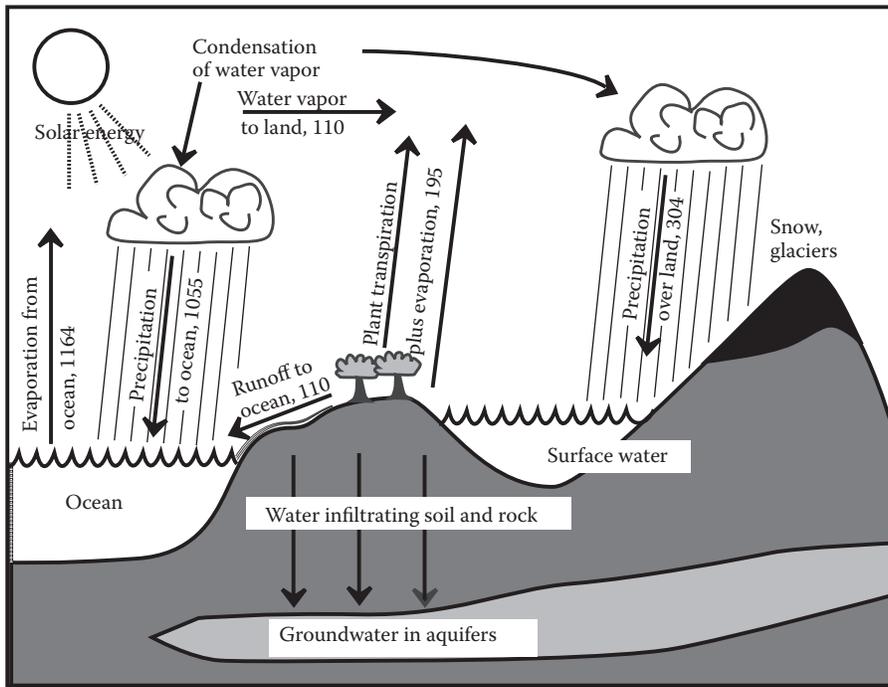


FIGURE 2.3

Illustration of a rain shadow. Vegetation is abundant on the rainy upslope side (right) and sparse in the rain shadow (left).

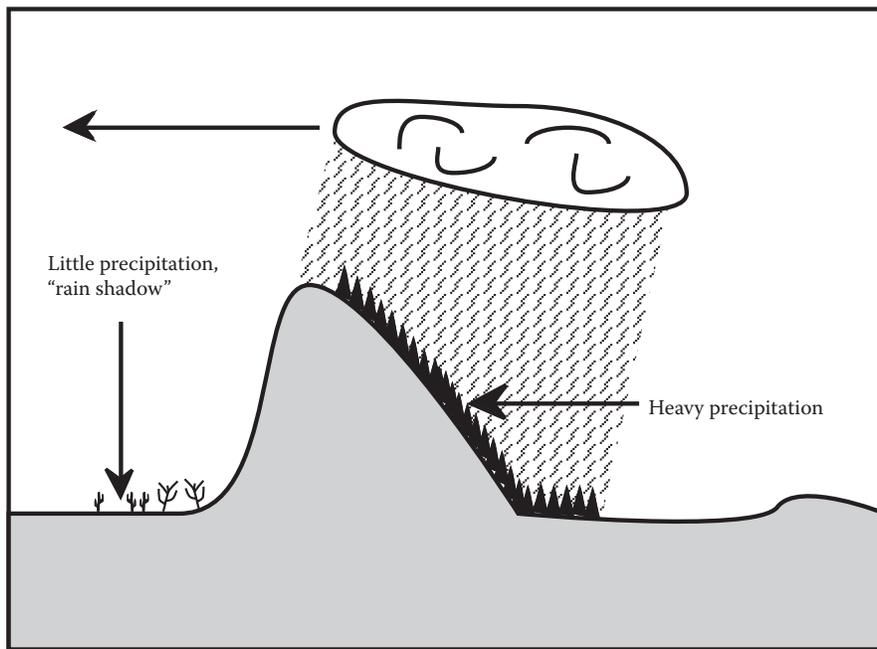


FIGURE 2.4

Stratification of a lake.

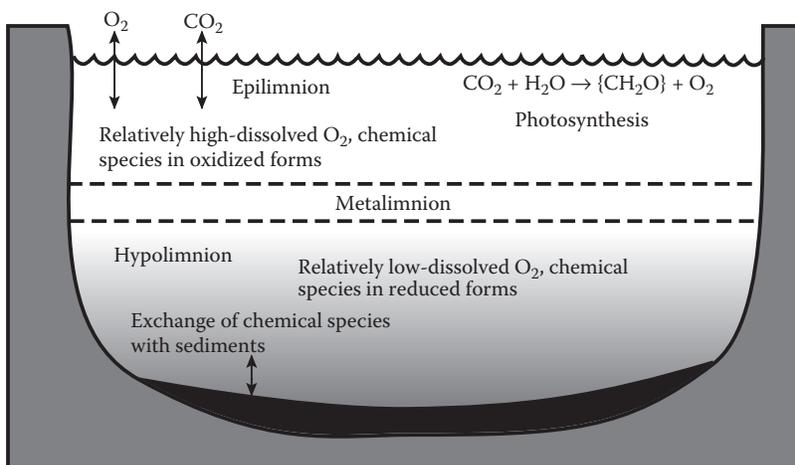


FIGURE 2.5
Groundwater in an aquifer.

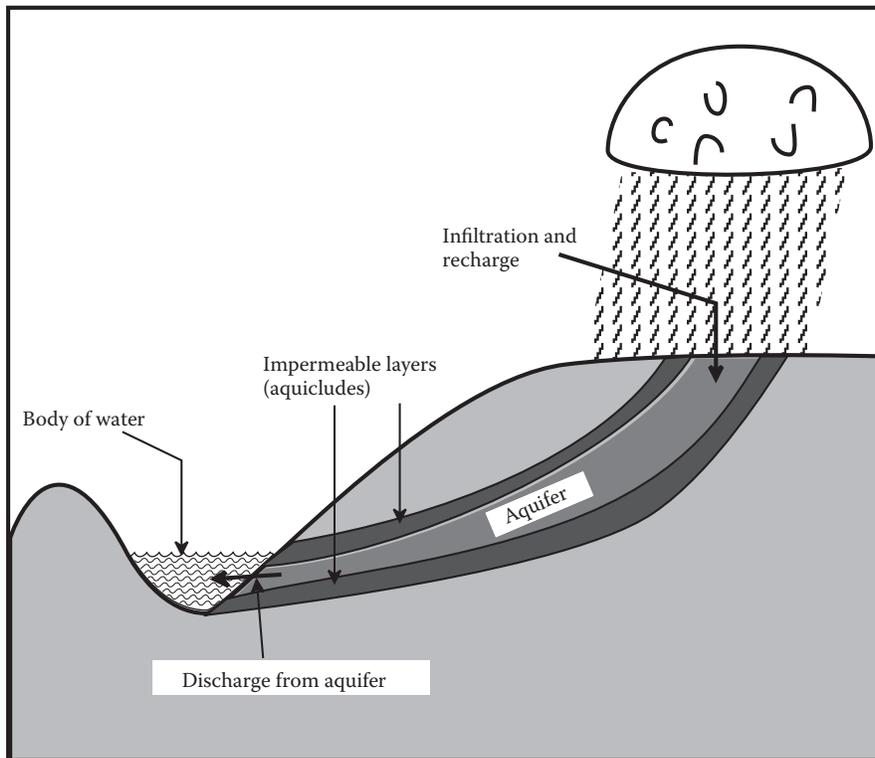


FIGURE 2.6

The Ogallala aquifer of the High Plains states of the United States is a vast source of high-quality water remaining from the last Ice Age. Unfortunately, much of this resource is being squandered to irrigate relatively low-value crops that require large amounts of water, and the water table in the aquifer is dropping dramatically. The black areas in the illustration above show areas of particularly severe water depletion.

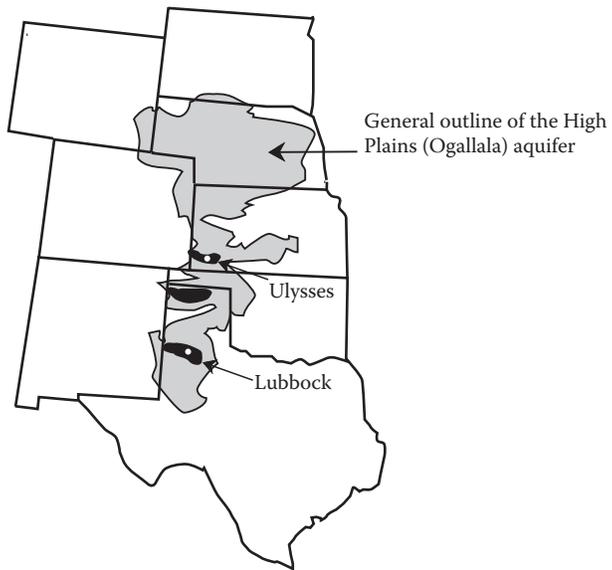


FIGURE 2.7

Trends in water use in the United States. (Data from U.S. Geological Survey, Water use in the United States, <http://water.usgs.gov/watuse/>.)

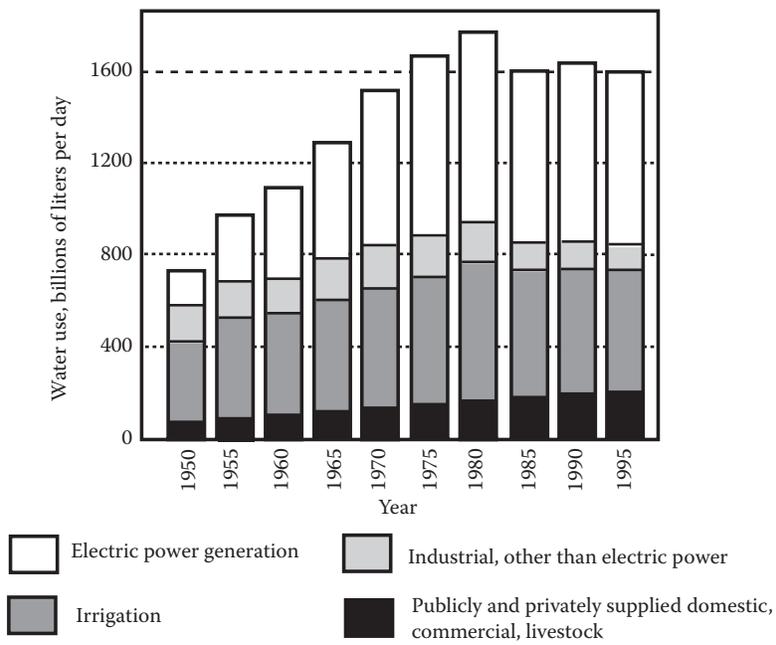


FIGURE 2.8

Distribution of precipitation in the continental United States, showing average annual rainfall in centimeters.

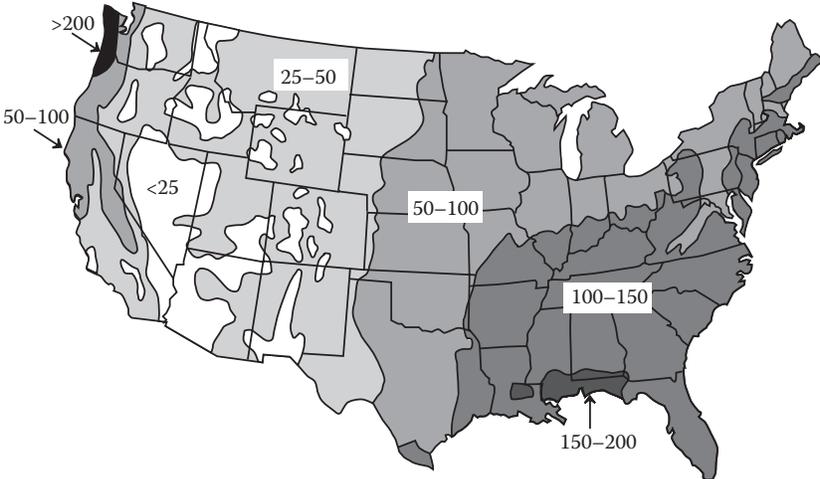


FIGURE 2.9

Global temperature trend since 1880. Earlier values are less certain because of the lack of sophisticated means of measuring temperature. More recent values are very accurate because of the use of satellite-based technologies for measuring temperature.

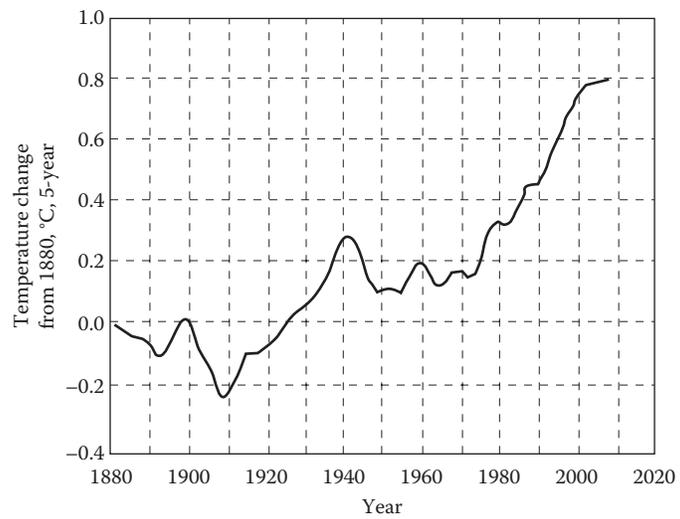


FIGURE 2.10

Increases in atmospheric CO₂ levels in recent years. The inset illustrates seasonal variations tied to photosynthetic uptake of atmospheric carbon dioxide during plant growth seasons in the Northern Hemisphere.

