they are called *aquifers*. Some aquifers remain fairly constant in the quantity of groundwater they contain. They are replenished each year by seasonal rainfall. Others, particularly in the more arid western United States, are being slowly depleted as their water is used for irrigation. Geologists estimate that some of these underground supplies are the result of millions of years of rainfall seeping through the ground to accumulate in these underground reservoirs.

One of the tragic side effects of draining these underground reservoirs is subsidence. As the water is pumped out, the reservoir slowly collapses because water no longer occupies the spaces or pores between the rocks. This effect is especially noticeable in cities that deplete their underground supplies for domestic and industrial use. The city of Venice, Italy, is the best-known example where subsidence has lowered the ground level to the point that high tides inundate streets and historic landmarks.

Water is a substance that is familiar to us in its three basic forms: a liquid, a solid and a gas (see figure 4.5). Water comes in its gaseous form from a boiling tea kettle. We see it as condensed vapor in clouds that float in the sky. In its solid form we see it as snow and ice.

Water has some unusual physical and chemical properties that make it different from most substances. Most compounds shrink in size and become denser when they congeal from a liquid to a solid state. Not so water. Water expands when it freezes. It occupies more space and becomes less dense (lighter). It is for this reason that ice cubes float to the top of a glass of water. It is for this reason that

FIGURE 4.4.

A view of the rising Earth just above the lunar horizon. Earth is 240,000 miles away. (Courtesy NASA.)

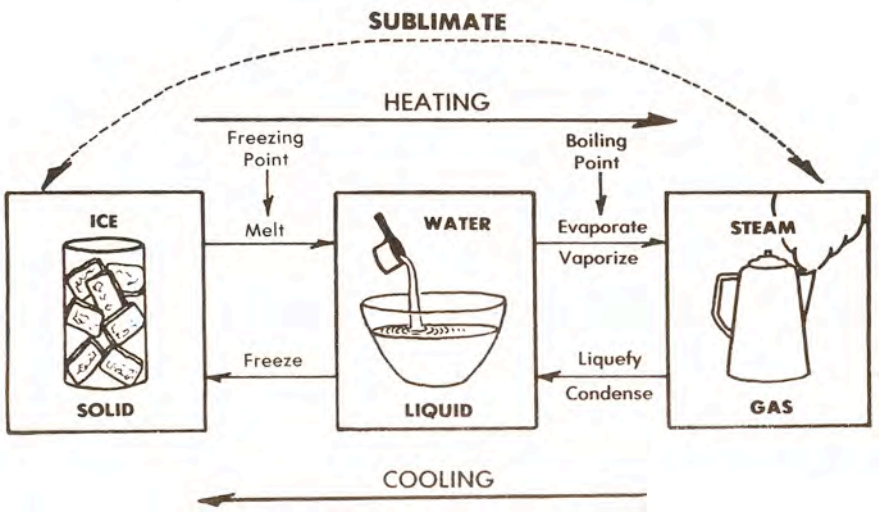

FIGURE 4.5.

The three basic forms or states of matter as exemplified by water: solid (ice), liquid (water), gas (water vapor or steam).