



**FIGURE 4.10**

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Meteor crater near Flagstaff, Arizona, is the result of a large meteorite impact in prehistoric times. (Courtesy U.S. Geological Survey.)

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of the heavier materials moving down and the lighter materials moving up generated enormous heat as the materials slid past each other. The quantities of hydrous (watery) compounds which the Earth contained are thought to have lowered the melting point of rocks and also to have lubricated this process. The heaviest materials such as iron settled at the Earth's core. The descent of the iron core may have been a catastrophic event which generated enormous heat.

***Cosmic Bombardment.*** The third heat source which may have functioned as the triggering agent for the great melting of the Earth was cosmic bombardment. It is thought that giant meteors generated substantial heat as they struck the Earth with tremendous force. This probably occurred before the Earth's protective atmosphere existed to cushion the blows from these huge meteors. As these objects from space struck the Earth at speeds approaching 100,000 miles per hour, they would have punched into the crust, vaporized, and exploded. Their energy of motion would have been converted almost instantaneously into enormous heat.