re 4.37 The Crab

Neutron Stars

If the star began with a mass of about 10 solar masses, its core will shrink to about 20 km in diameter. In such stars, the pressure is so great that electrons combine with protons to become neutrons, and the star eventually becomes a **neutron star**. The first neutron star to be discovered is in the centre of the Crab Nebula (Figure 4.37). Astronomers have discovered that it is spinning about 30 times per second. As it spins, it sends out pulses of radiation. This neutron star was among the first discoveries of a type of neutron star called a pulsar, which send out pulses of radiation, much like an extremely fast-sweeping searchlight.