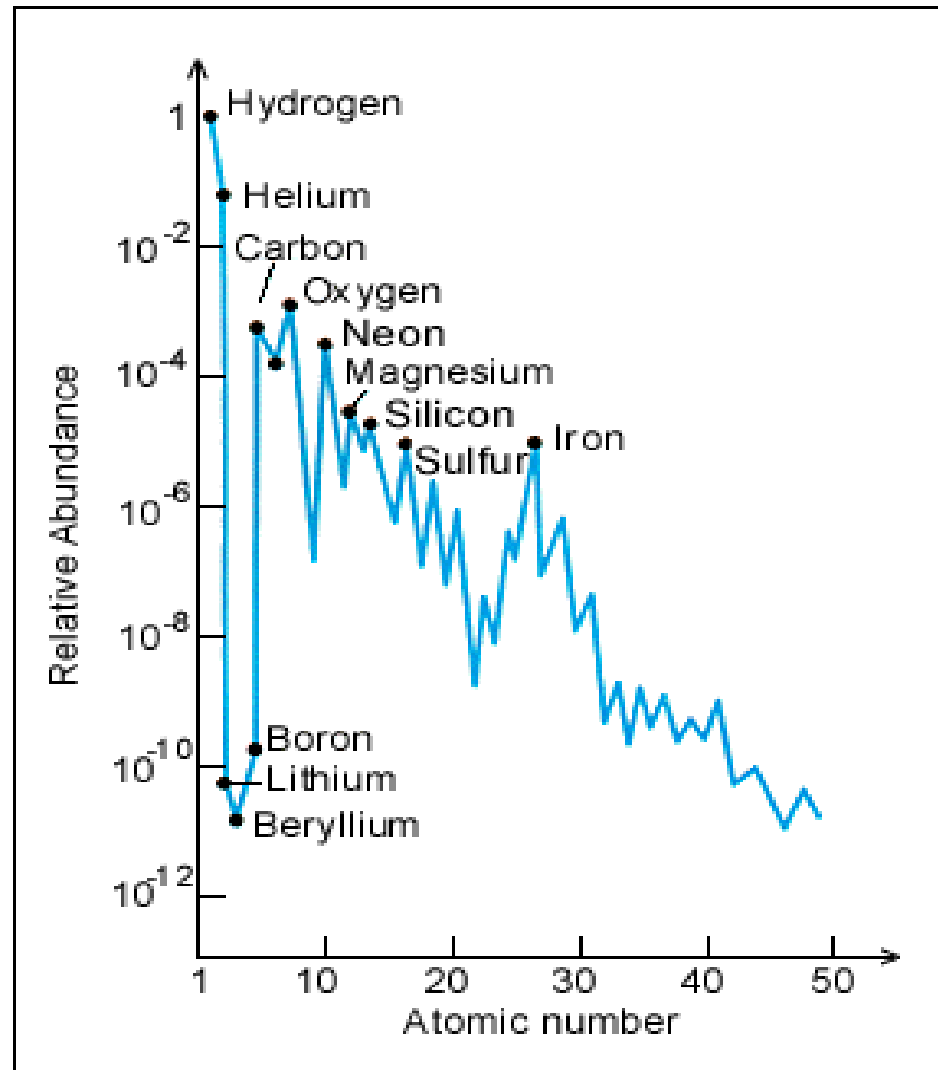


Cosmic Abundance of the elements



Primordial Nucleosynthesis

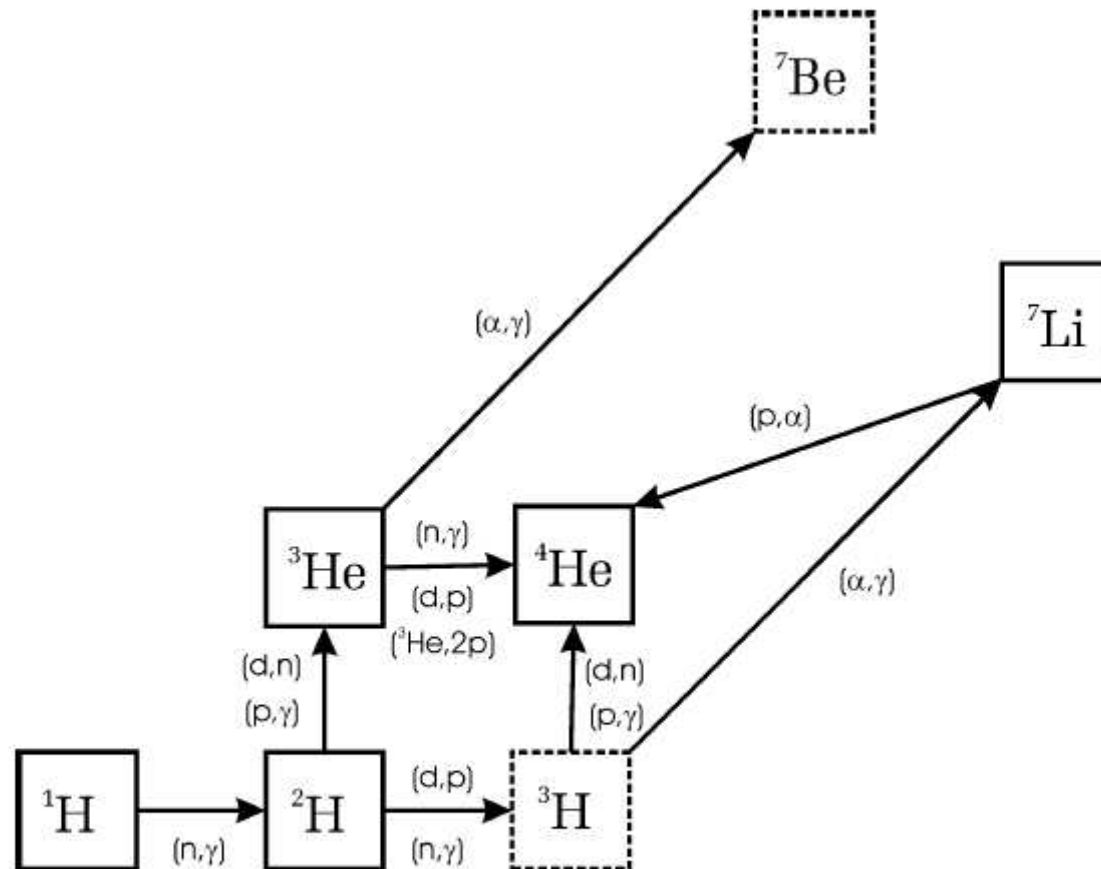
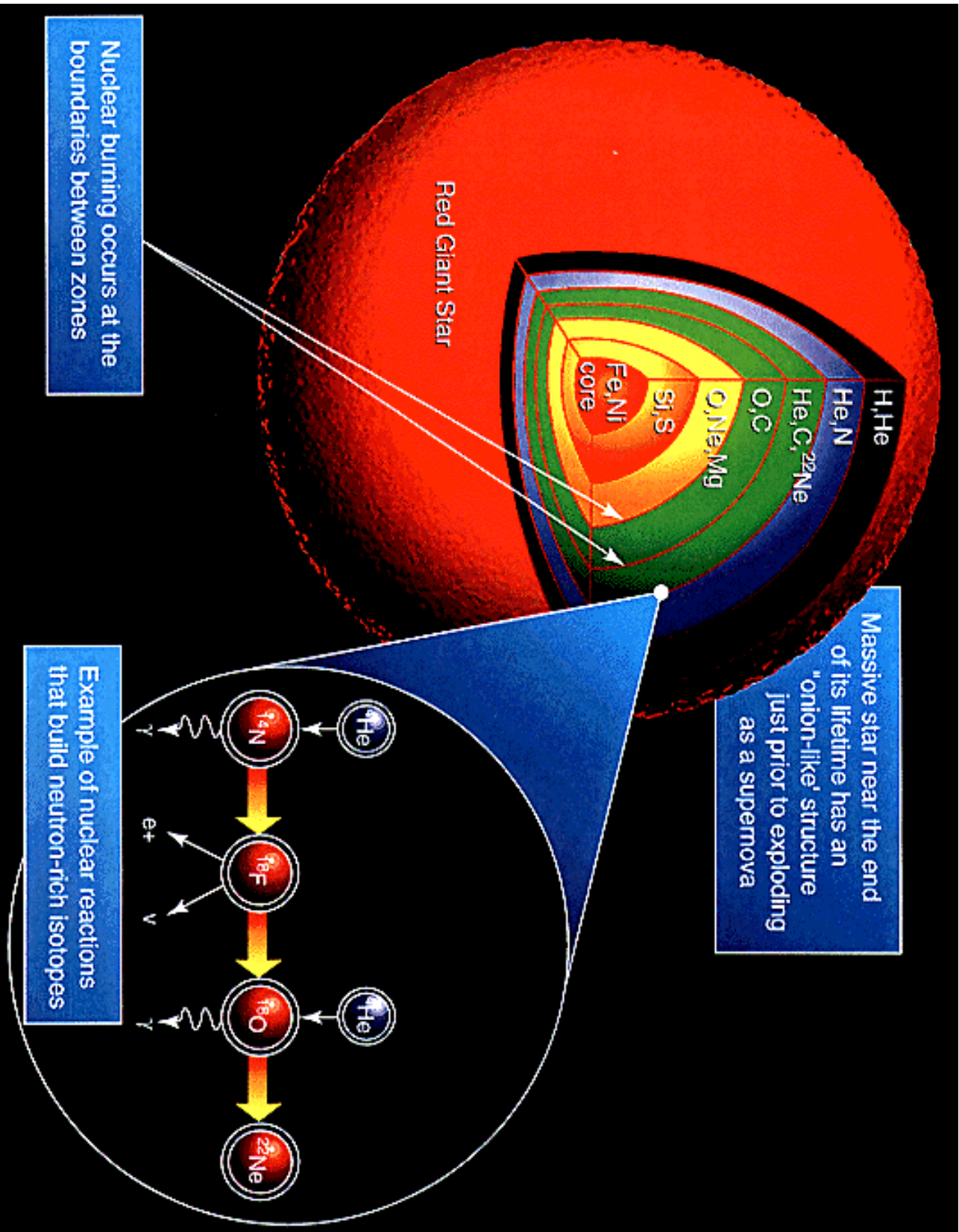


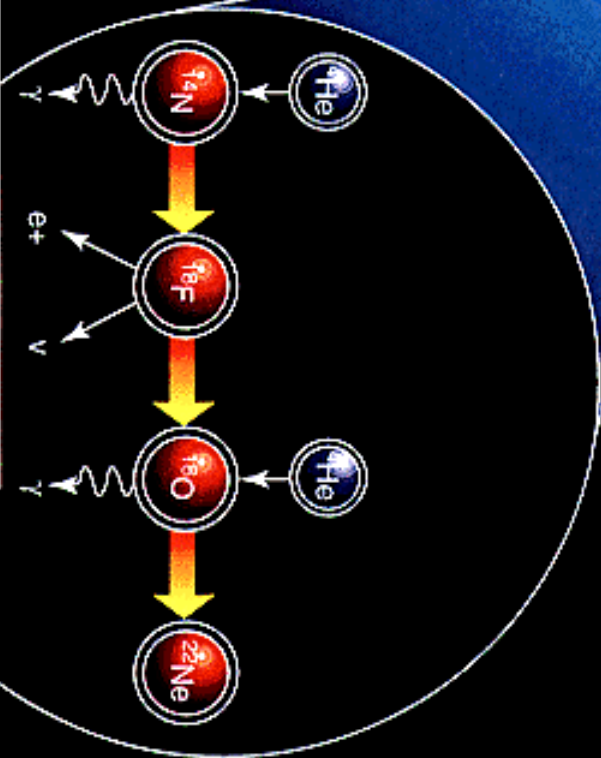
FIGURE 3. The reaction network of standard big bang nucleosynthesis. Unstable nuclides are marked by dashed boxes. After all reactions have ceased, the unstable ${}^7\text{Be}$ decays to ${}^7\text{Li}$ and ${}^3\text{H}$ decays to ${}^3\text{He}$.



Nuclear burning occurs at the boundaries between zones

Massive star near the end of its lifetime has an "onion-like" structure just prior to exploding as a supernova

Example of nuclear reactions that build neutron-rich isotopes



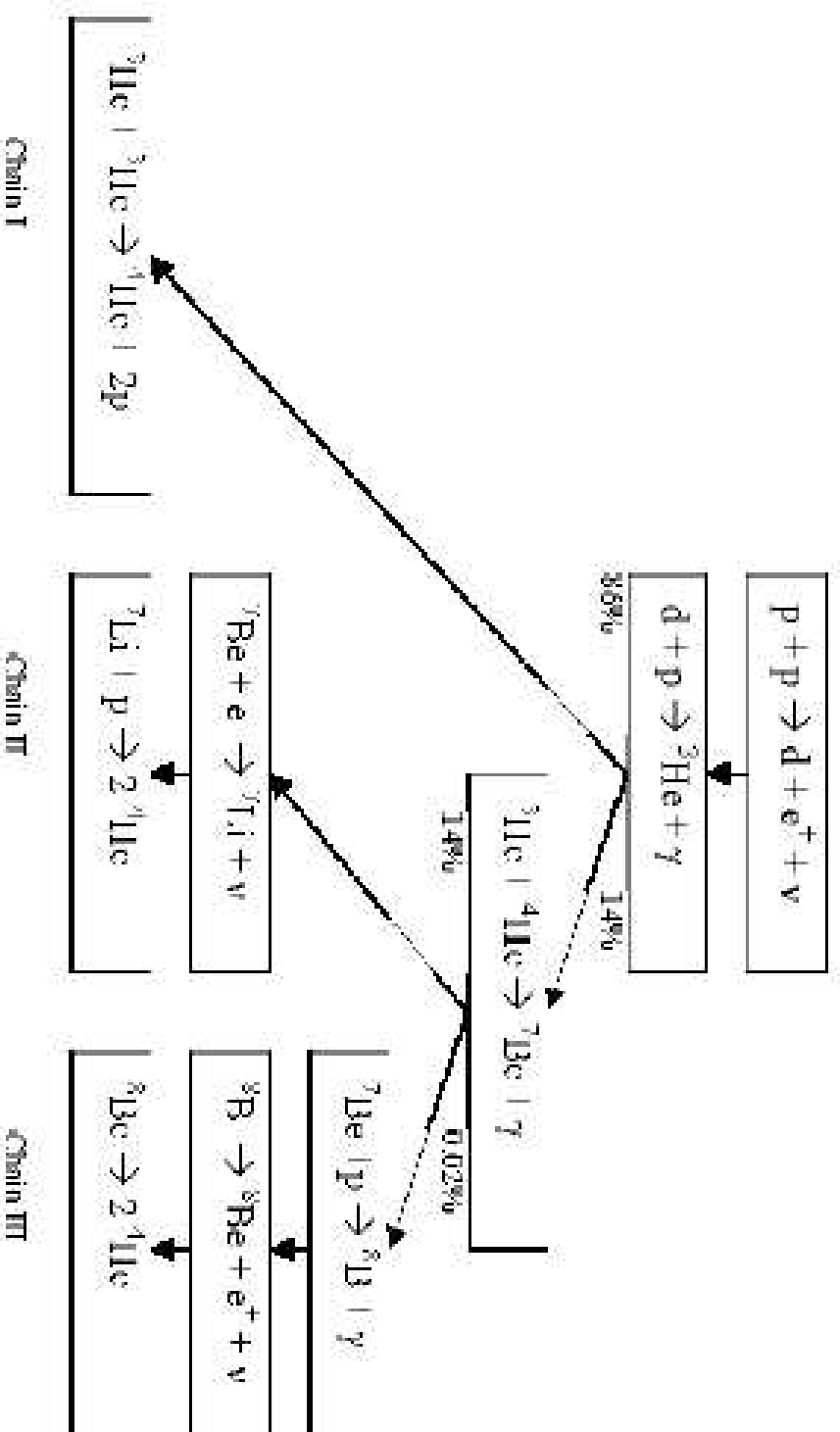


FIGURE 9. The proton-proton chain.



The heaviest elements are produced in supernova explosions of massive stars that are at least eight times the size of our Sun. The Crab Nebula, pictured above, was produced by a supernova explosion witnessed by Chinese astronomers in 1054 A.D. Now just over 10 light years in diameter, it is still expanding at about 1,100 miles/sec.

Web Reference

http://www.nasa.gov/content/image/content_1000001100.html