

Figure 26-1 Nucleosynthesis in the Big Bang. The top axis gives the age of the Universe; the bottom gives temperature; the vertical axis is abundance in terms of the fraction of total mass. (Adapted from a diagram by R.V. Wagoner)

Notes:
 $h = \frac{H_0}{100} = 0.71$
 $\Omega_{b,0} h^2$
 is graphed
 on x-axis

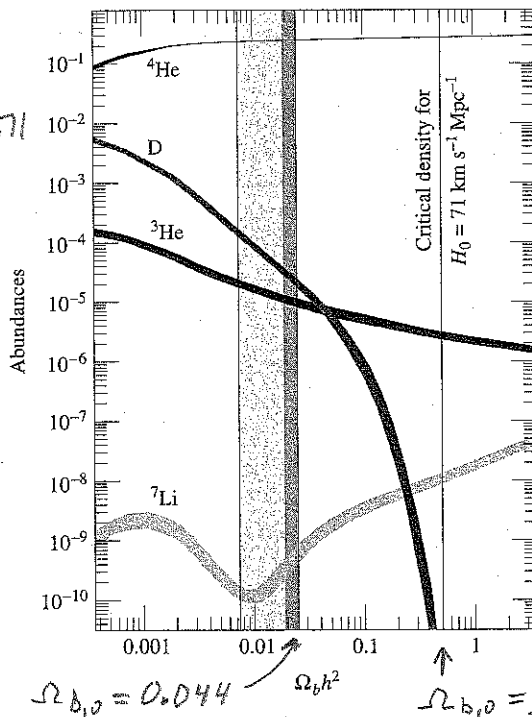


FIGURE 29.14 The calculated mass abundances of helium-4, deuterium, helium-3, and lithium-7 as a function of the present density of baryonic matter in the universe. The wide bar delineates the consistency interval, the range of values of $\Omega_{b,0} h^2$ that agree with the observed abundances. The narrow dark stripe at the right edge of the consistency interval corresponds to the abundances of primeval deuterium measured using the Lyman- α forest of absorption lines in high- z molecular clouds observed in front of quasars. The WMAP value of $\Omega_{b,0} h^2 = 0.0224$ runs down the center of the dark stripe, and the WMAP value of the critical density ($\Omega_{b,0} h^2 = 1 h^2 = 0.504$) is shown at the right. Note that the agreement between the theoretical and observed abundances spans nine orders of magnitude. (Figure adapted from Schramm and Turner, *Rev. Mod. Phys.*, 70, 303, 1998.)