

Cosmological Enigmas

Mark Kigder

This is one of the best presented and clearly written books on cosmology for the masses. It presents the universe as a wondrous entity to be marveled at. Wondrous things can be appreciated without having a full understanding of their nature. Man, likely, does not have a full understanding of anything. What man wants to avoid is misunderstanding or confusion.

In the section “The Formation of the Elements” Kigder states that in the Big Bang initially all the mass was in the form of quarks that came together to form the hadrons and all the energy was in the form of photons. Where did the electrons come from? It can be taken by the reader that the quarks formed initially into neutrons and they decayed into protons and electrons. In general the Big Bang itself is a problem for the reader that writers of science for the masses do not explain well.

From what is written in books of science for the masses, there was not a Big Bang but a Big Expansion. All matter initially in the form of quarks and all energy in the form of photons move apart because space expanded. It would seem that the original point, or nearly point, universe would have been a Black Hole that nothing could have escaped from. It could only have been stretched apart. Apparently, those who hike the mountain tops of the science world understand how General Relativity explains all this, or so the masses are lead to believe. There are many questions that the uninitiated reading these books have that the writers of the books do not envision. This is not a comment about “Cosmological Enigmas” where Kigder explained his subject very well, but science for the masses in general. (Penrose’s book “The Road to Reality” has not been read here yet, so there still is hope.)

One example question that would be of interest to the interested masses is: if the expansion of the universe were subtracted out of the motions of the galaxies, what would the motions of the galaxies be? Would the motion be random? In what way does the expansion of the universe add to the kinetic energy of the mass of the universe using Earth as a

reference point? Those on the mountain tops of the science world should have an internet site where simple questions of this sort could be hashed out and answered.