“What Is Carbon-14 Dating?”

What exactly is carbon 14 testing and what are its limitations? I will be explaining this to 7th graders.

Carbon 14 dating essentially tests how long something has been dead. In the atmosphere solar radiation transforms a predictable number of nitrogen atoms into radioactive carbon (carbon 14). Carbon 14 then becomes incorporated into carbon dioxide which is taken up by plants and used to produce sugars by photosynthesis. The carbon then moves up the food chain from herbivores to carnivores. Normal carbon is carbon 12. Therefore there is a constant ratio of carbon 12 to carbon 14 in the atmosphere and consequently in living things. There is a far greater abundance of carbon 12 than carbon 14 and the radiation is a very low level and is not hazardous in and of itself. When a creature or plant dies, the inflow of carbon 14 stops and decay begins. After 5,568 years half of the carbon 14 has reverted back to nitrogen. This is referred to as the half-life. Therefore, after every 5,000+ years, there is half-again the amount of carbon 14. Usually after 10 half-lives there is not sufficient carbon 14 left to measure. The limit of carbon 14 then is about 50,000 – 60,000 years.

This dating method is based on some crucial assumptions that are difficult to verify. First, it assumes that the rate of transformation of nitrogen to carbon 14 in the atmosphere is constant through time. It turns out that this has not been the case and scientists have found greater/lesser abundances of carbon 14 in times past yielding dates that are to young or too old respectively. Second, it assumes that there is no other source of carbon 14 in living things which has not been investigated very thoroughly.

Another complication has been recent reports that indicate that supposedly ancient sediments are producing trace amounts carbon 14 where there should be none at all. By ancient I mean

sediments that are traditionally dated as being millions of years old. (see www.icr.org/research and click on the article “Measurable C14 in Fossilized Organic Materials.” Either the c14 dating method is worthless or these sediments are nowhere near as old as suspected.

Hope this helps.

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