How Carbon Dating Works

There are two basic forms of carbon: one that occurs naturally, called carbon-12 (12C), and one that forms from processes acting on nitrogen in the atmosphere, called carbon-14 (14C). Both of these combine with oxygen to form carbon dioxide (CO2), which we breathe out and plants “breathe” in. When a cow eats grass, its body absorbs the carbon (both 12C and 14C) in the plant.

When the cow dies, it stops taking in carbon (for obvious reasons). The amount of 12C in the cow’s body stays the same after death, but the amount of 14C changes because it returns to nitrogen.

“By the word of the LORD the heavens were made, and all the host of them by the breath of His mouth” (Psalm 33:6).
The problem is

There are many things that affect how much $^{14}\text{C}$ an animal (or a person or plant) has in it when it dies. This changes how long ago the animal appears to have died. For instance, plants don’t take in as much $^{14}\text{C}$ as scientists expect. So, after they die, there is less $^{14}\text{C}$ in the plants to change back to nitrogen. This makes the plant appear to have died many more years ago than it actually did (for example, the plant might appear to be, say, 3,000 years old, rather than 2,000).

Also, the amounts of $^{14}\text{C}$ and $^{12}\text{C}$ in the atmosphere haven’t been constant throughout history (for instance, Noah’s Flood lowered the total amount of available carbon by burying lots of animals and plants, while the atmosphere continued to produce $^{14}\text{C}$). So something that lived (and died) when the proportion of $^{14}\text{C}$ was less than normal would appear to have died more years ago than it actually did (for example, it might give an age of 3,000 years before the present, rather than its true age of 2,000 years).

Even many archaeologists don’t think “carbon dating” is completely accurate all the time. When these (and other) problems are taken into account, a scientist can interpret the result of the carbon dating within a biblical time frame, but even so, these results can not be used to prove the age of once-living things.

As time goes on, the amount of $^{14}\text{C}$ continues to decrease until nothing is left, which is supposedly about 50,000 years later.

$^{14}\text{C}$ in bone at the time of death.

The amount of $^{14}\text{C}$ becomes less with time.

Many years later.

When a paleontologist (a scientist who studies bones) finds a bone (or a piece of wood), she can measure the amount of $^{14}\text{C}$ and $^{12}\text{C}$ it contains. Based on how much $^{14}\text{C}$ is left, she can supposedly calculate when the animal (or plant) died.

Sounds like a good idea, doesn’t it? But there’s a problem (see below).