

CHAPTER 15

ON SCIENCE

A conflict is perceived to exist between science and the scriptures. While no conflict actually exists, a veritable war continues between Christians and practitioners in some fields of science. Battles are raging primarily in the areas of cosmology (theories of creation of the universe) and biology (theory of evolution). Real scientists are not at fault in this dispute. However, proponents of the cosmological and biological theories are. These people are learned in the scientific method. Yet they have abandoned what they've studied. They are considered pseudo-scientists by Christians.

To understand why there seems to be a problem, we must be clear about the positions taken by each side.

Christian Acceptance of Scriptures

First, Christians accept by faith, all the teachings of the Bible. One cannot find scientific proof in the scriptures that God exists and that He made the universe as described in the Bible. Such concepts must be accepted as true, solely on faith;

Heb. 11:1 (NIV)

Now faith is being sure of what we hope for and certain of what we do not see.

Christians are often criticized about taking the Bible too literally. Critics readily point out that the Old Testament accounts of the creation of man and the universe, are fables... and nothing more. Christians reply that the scriptures must be read with an attempt to ascertain the contextual meaning and intent of the God-inspired writers. Christians also like to demonstrate that the apostles, in their New Testament writings, firmly accepted as true, the ancient biblical account of the creation. These writers lived about two thousand years ago. The Old Testament books were ancient writings for them as well. Yet they believed that God created man and the universe;

II Tim. 3:16 (NIV)

All scripture is God-breathed and is useful for teaching, rebuking correcting and training in righteousness.

Heb. 11:3 (NIV)

By faith we understand that the universe was formed at God's command, so that what is seen was not made out of what was visible.

The apostles had authority and direction from God to write these things. Our acceptance of what they say in the New Testament, requires our acceptance of their beliefs of events described in the Old Testament. In Heb. 11:3, Paul makes clear that he believed the creation was a supernatural event.... not some event resulting from an assumed cosmic singularity.

Science Defined

In an operational sense, science is the cumulative knowledge of natural events and processes, obtained and categorized in a systematic way. It is knowledge obtained through research into natural phenomena. The fundamental ground rule of science is the Scientific Method. To properly be called a scientist the practitioner must apply the scientific method and demand that others apply it to their research as well. One thing that characterizes the scientific method is the concept of reproducibility. Results and conclusions made through research have to be reproducible in the labs of other scientists.

A scientist makes a hypothesis, and follows it up with experiment. If the results are consistent with the hypothesis, then the basis for a theory, and eventually, for a law, is established. Critical to the process though is the fact that any other scientist should be able to perform other or similar experiments and arrive at the same conclusions. If these conclusions cannot be likewise obtained, then there is a basis for establishing that the original hypothesis or the original experiments are defective in some way.

Why Is The Distinction Between Science And Christianity Important ?

Science is concerned with natural processes that can be observed, measured, and studied. The Bible deals with supernatural events. To the extent to which science remains within its own realm, there is no conflict with the scriptures.

The pseudo-scientists however, have established theories that speak on events that are not reproducible in the lab or anywhere else; they tend to ascribe natural processes to what Christians know are supernatural ones.

It falls to each individual to decide on what ideas, faith is to be placed. Each of us has a choice. We can choose to accept the supernatural God on faith; or we accept the declarations of man on faith.

Both the theory of evolution and the cosmological theories of the universe are pseudo-scientific. One can make observations *today* and develop models for the way the universe and living things appear to be evolving. Such experiments can even be reproduced. That makes them scientific. But these results can only be forward-looking. That is, they can only be predictive in nature, to be valid scientific theories. When one tries to apply current observations to the description of *past* events, then one can only believe on the basis of faith, that the conclusions are valid. Those pseudo-scientists in astronomy and biology therefore, are acting on faith alone. But they are placing their faith in the idea that their theories are correctly describing past events. For the Christian, the faith in past events is admitted, and is based solely on what the scriptures say of those events.

A 'Thought' Experiment

Why does the Christian care about the appropriateness of backward (in time) extrapolating current observations? The reason is that the two theories mentioned, are openly Godless theories. No supernatural creator is needed to 'jump-start' their operation.

Let's consider a very simple example of how pseudo-scientific theories can get one into trouble- even within the realm of fully natural processes. Physicists call what follows, a 'gedanken' (i.e., thought) experiment.

You come to a room that is fully insulated from the outside world, except for a small window. The room is so well-insulated that heat neither leaves nor enters through the walls of the room. The shade is drawn so as to not allow the bright sunlight in. You observe a table upon which, sits a very hot cup of coffee. Being a curious scientist, you begin to measure the temperature of the coffee. You also measure the temperature of the room. What you

observe after a lot of measurements is that the coffee's temperature is slowly decreasing (cooling off) and the room temperature is ever so slightly increasing. Eventually both the coffee and the room all arrive at the same temperature. You notify your co-workers. They go off and build similar rooms with coffee cups as you described. When they repeat your temperature measurements, they find agreement with your results. On the basis of your observations, you theorize;

"In an isolated system consisting of a hot body and a cool body, heat is never extracted from the cool body (the air) to increase the temperature of the hot body (the coffee & cup)."

It sounds like a trivial statement. After all, who'd expect a warm cup of coffee in the kitchen to extract heat from the air, and become progressively hotter and hotter. There seems to be a 'one-wayness' about natural processes. Perhaps if you've studied some science, you'll recognize this 'one-wayness' to be a way of describing the second law of thermodynamics.

Now, if this is all your theory says, then you have indeed acted in a scientific manner. You've behaved as a true scientist.

But along comes a pseudo-scientist. He makes the same set of observations, and proposes this theory;

"Based upon the dropping temperature of the coffee over time, it's clear that at some time in the past, the coffee's temperature was infinitely high."

Why is this theory pseudo-scientific? Because no one can test it. It violates the scientific method. No one can go back in time to see how long that coffee has been cooling off. For one thing, the pseudo-scientist is disregarding how the cup of coffee got there in the first place. And when it was put there, no experiment could later be performed to verify that it started out at a higher temperature than the initial measurement of the observer.

Remember the window with the shade drawn? How does the pseudo-scientist know whether or not the coffee was initially placed in the room at 'room temperature'? Is the pseudo-scientist aware that the person who placed the coffee there, raised the shade on a sunny day. Did the pseudo-scientist see the energy from the sun (radiating through the window) was

focused onto the cup by a curvature defect in the window? That was how the cup got so hot. Does the pseudo-scientist know that the person who left the cup, also returned the window shade (blocking the sun) before leaving the room? It was after all these prior events that you came along and measured the coffee's temperature.

The pseudo-scientist made erroneous conclusions from the measured data. The coffee's temperature never was near infinity. Concerning the status of the room before you entered and started measurements, we have two choices. We can accept (on faith) the theory propounded by the pseudo-scientist... or we can accept (on faith) a statement from the person who initially placed the coffee in the room. Either way, it is our *faith in something* that drives us to a conclusion on what happened in the room before the initial temperature measurements were made.

This then, is why Christians make such an effort to show that the pseudo-scientific theories about evolution and creation are incorrect. No matter what experiments they perform, pseudo-scientists must ultimately draw upon a *faith* that the extrapolation of their data backward in time is a scientifically correct procedure. The Christians will always draw upon faith in the scriptural account of these events.

For the pseudo-scientist, modern observations of species (or the universe) evolving, are backwards extrapolated. That is, processes observed to be currently happening are assumed to always have been happening in the past. Such backwards extrapolation does not need a God. It ultimately 'proves' a Godless creation of man from a primeval concoctions of chemicals. It disregards,... even denies the existence of man's intangible soul.

For Christians, God created man (Adam) as a whole being- spirit included. No natural process can explain the existence of a man's soul. A 'freshly' created Adam could perhaps have appeared to be 20 or 30 years old, more or less. He was built with the ready appearance of age. The same thing can be said for the universe. Pseudo-scientists use measurements of the currently observed expansion rate of galaxies. They assume that these galaxies have always been expanding like this. They put 'faith' in the concept that these galaxies all exploded out from one place in a Godless big bang, several billion years ago. Christians put faith in the biblical account, that God spoke these things into existence. It's easy for a supernatural creator to give the universe the appearance of age- just as He did with Adam.

In its own way, pseudo-science is in itself, a religion. The faith of its practitioners is directed toward a god. Call it BECO (for Backward Extrapolation of Current Observations).

To see how strongly pseudo-scientific thought has influenced some highly intelligent and respected individuals, consider these quotes;

Reference-24:

"The first point to make about Darwin's theory is that it is no longer a theory but a fact. No serious scientist would deny the fact that evolution has occurred, just as he would not deny the fact that the earth goes around the sun."

"Darwinism removed the whole idea of God as the creator of organisms from the sphere of rational discussion. Darwin pointed out that no supernatural designer was needed; since natural selection could account for any known form of life, there was no room for a supernatural agency, in its evolution."

"There was no sudden moment during evolutionary history when 'spirit' was instilled into life, any more than there was a single moment when it was instilled into you. I think we can dismiss entirely all idea of a supernatural overriding mind being responsible for the evolutionary process."

Reference-25:

"The universe in fact is a botched job, but I suppose we shall have to make the best of it."

One of the botches is the existence of a singularity, that is, a moment when the density of the universe was infinite."

One Scriptural Argument Against Pseudo-science

Those quotes dictate that one cannot be both a Christian and an evolutionist at the same time.

Evolution is described as a slow, unending, continual process. The evolution process requires that over eons, some living things die and the ones more fit for survival, indeed do so. Scripturally though, death exists as a result of the doings of man;

I Cor. 15:21-22 (NIV)

For since death came through a man, the resurrection of the dead comes also through a man. For as in Adam all die, so in Christ all will be made alive.

By evolution theory, all sorts of creatures would have come into existence; and others would have died off long before man ever appeared on the scene.

By this scripture though, death started with man.

Thayer gives us the definition of 'death' as it is specifically used in these two verses (Reference-12; #2288);

"The death of the body, i.e., that separation (whether natural or violent) of the soul from the body by which life on earth is ended ... with the implied idea of future misery in the state beyond"

Rightly so, Thayer identifies both 'deaths' in this passage. The physical death of the body is mentioned in the first of these verses, and 'die' in the second verse is the spiritual death he defines.

These scriptures tell us this; if there was no fall of man in the Garden of Eden, then ultimately there would never have been a need for a savior of man, on the cross. The ancient scriptures (dismissed as fables by pseudo-scientists) therefore give a real account of creation events. They lead to the necessity for, and arrival of a historically real Jesus Christ, and to the events of the New Testament.

One Scientific Argument Against Pseudo-science

Pseudo-science's backward extrapolation methods lead to the conclusion that the earth's age is in the billions of years. By the scriptures, the earth is only about six thousand years old.

One of the tools heavily relied upon is the determination of the age of things like rocks, by radioactive dating techniques. These methods invariably yield an age for the earth, in the billions of years. Typical of the comments on this subject by pseudo-scientists, is this quote;

Reference-26:

"Of course there are uncertainties about the ages of individual specimens, up to 10 or even 20 percent! But no uncertainty could allow an error of roughly 3000 million years! If you see an aged man with a white beard, deep wrinkles, and a bald head, you may not know whether he is seventy- or ninety- years old, but there is no question of his being a three-day old infant. But even that would only be an error of a factor of ten thousand; the creationists, who would have the earth created only six thousand years ago, want an error of a factor of a million!....."

It's in the realm of nuclear physics that the ages of things (e.g., rocks) are determined. One wonders just where the pseudo-science pops up, in the world of nuclear physics. The vast majority of theories and researches in the nuclear science area represent good science. Nuclear physics is loaded with many beautiful descriptions and predictions about nature. Among other things, truly valid theories have led to construction of energy-producing nuclear power plants, x-ray diagnosis and therapy, and MRI diagnostic tools.

In applying radioactivity methods to dating rocks though, pseudo-science does get involved. In order to see how, let's look (in a very oversimplified way) at one way to determine the age of a rock.

The rock may contain a trace amount of uranium-235 (call it, 'U'). This isotope of uranium is alpha-active. That is, it seems to spontaneously emit an alpha particle from the nucleus of one of its atoms. In a given rock sample, it is considered that this emanation process is random..... no one can tell which nucleus will be next. But measurements show that the nuclear alpha particle decay rate is constant in time. The nucleus remaining after the

alpha particle blasts out of the uranium nucleus, we'll say, is a lead nucleus (call it 'Pb').

Alpha particle radioactivity is measured to occur at a very slow rate for this uranium isotope. A measure of the rock's age can be made if one does an analysis to determine the amount of (U) and (Pb) in a sample of the rock. All of the (Pb) in the rock is assumed to have been formed by the alpha decay of the uranium. The analyst then puts the measured masses for (U) and (Pb) into a formula like this one (remember, this is oversimplified);

$$T = \left\{ \frac{1}{\lambda} \right\} \text{LOG}_e \left[1 + \frac{(\text{Pb})}{\text{U}} \right] \quad \text{(EQ-1)}$$

Where,

T = the age of the rock (yr.)

λ = the 'decay constant' (1/yr.)

U = the mass of uranium in the rock (gm.)

Pb= the mass of lead in the rock (gm.)

For alpha decay of (U) into (Pb) the decay constant is a measurable quantity. A typical value is,

$$\lambda = 1.6 \times 10^{-10} \text{ (1/yr.)}$$

To get an idea of how EQ-1 works, consider this example: the measured masses of (Pb) and (U) are .001 gm. And .002 gm., respectively. The age of that rock sample is then computed to be;

$$T = \left(\frac{1}{.00000000016} \right) \times \text{LOG}_e \left[1 + \frac{.001}{.002} \right]$$

$$T = (6250000000) \times \text{LOG}_e [1.5]$$

$$T = (6250000000) \times (0.405)$$

T = 2.5 Billion years.

One thing Christian writers criticize about this kind of evaluation, is the determination of the mass ratio of (Pb) to (U) in EQ-1. Christians say that you cannot know it accurately. You don't know how much (Pb) originally in the rock, did not come from alpha-decay of (U)....remember the coffee cup experiment. While Christians make a proper challenge, the consequences for the age of the rock are insignificant. The pseudo-scientist is indeed, making an assumption, based only on faith, that the (Pb) all came from the (U). The analyst can make no scientific experiment to determine just how the (Pb) got into the rock. But let's assume that a massive error did occur in finding the relative masses of (Pb) and (U). Consistent with Reference-25, the resulting age of the rock would still be in the *billions* of years (not thousands, as Christians require). Actually that point is correct. We can test it. Instead of the mass of (Pb) in the rock being 0.001 gm., let's assume there was a 100% error in the mass determination for (Pb). We'd then obtain a new age for the rock;

$$T = \left(\frac{1}{.00000000016} \right) \times \text{LOG}_e \left[1 + \frac{.002}{.002} \right]$$

$$T = (6250000000) \times \text{LOG}_e[2]$$

$$T = (6250000000) \times (0.693)$$

T = 4.3 Billion years.

So, making that large error in the mass of (Pb) in the rock, has changed the rock's age by almost 2 billion years. But notice that the rock's age is still in the billions (not thousands) of years.

The real problem with pseudo-science lies in the numerical value of the decay constant. That's the parameter causing the rock's age to be in the billions of years. If the decay constant is a very small number (like that for

our uranium isotope) then the rate at which alpha particles emanate from the nucleus is extremely slow. Modern measurements of the decay rates for radioactive isotopes are reliable. The real scientist says that no matter how often the decay constant is measured, the same result is obtained. But the pseudo-scientists go beyond that. They say that whatever the value for the decay constant, it is an immutable constant... never having changed over all the years since the beginning (whenever that was). Embracing such an idea is the same as placing their faith in that god, BECO.

We have only known about radioactivity since 1896. In that year, H. Becquerel, a French scientist, discovered radioactivity by accident. Let's say that we were able to measure our decay constant every year since 1896, and we always got the same result. We'd still have no basis for demanding that the decay constant has always been the same for all times before the very first measurement (again, remember the coffee cup experiment).

This matter is important because if the decay constant has varied over time, then the formulae like EQ-1 would perhaps generate ages consistent with thousands, rather than billions of years. In fact, the very *form* of EQ-1 would change if the decay constant turned out to be a decay 'variable'..... a time-dependent quantity. This is the Christians' best argument in the dating of rocks by radioactivity methods.

Is there any scientific justification for a time dependent decay 'constant'? Can we find any possible factors that could cause this parameter to vary? While the rate of emission of alpha particles is observed constant, we don't know which atom is 'going to blow' next. The constancy and the randomness of the radioactive decay process are connected.

But some scientists think that this decay process is not so spontaneous and random. One proposal uses the fact that the sun is a source of elementary particles called neutrinos. These particles have two interesting characteristics; they are extremely numerous, and they seldom interact with any other particles of matter. As their large numbers are blasted out from the sun, they pass through the earth such that we hardly know they've been here. An intense beam of neutrinos can get through about nine light-years of solid lead before the intensity is reduced by half. That thickness is about the distance to Sirius, the brightest, and one of the nearest stars in the sky (after the sun).

But occasionally... now and then, a neutrino will interact with matter in the earth. Some will eventually interact with the large uranium nucleus and transfer enough energy to cause an alpha particle decay. That would make the observed rate of alpha emissions a deterministic, rather than random

process. There could be any number of theories for how the neutrino density varied in times past. They could involve variations in neutrino emissions from the sun, or even variations due to supernova explosions in distant stars. Who knows ?

Actually, there are currently measurable processes that support the concept of time-dependent decay 'constants.' That evidence is well discussed by F. Jueneman;

Reference -27:

"... we have relied far too heavily and for too long on the dictum of Uniformity; 'Everything is as it was.'

... these colored, microscopic rings [pleochroic halos, or radiohalos] are found in many minerals, and are caused by the disintegration of radioactive elements with the emission of alpha particles (helium nuclei). Early studies indicated that the size of the rings was an index of the age of the mineral, but later work showed that varying sized halos around uranium atoms seemed to indicate equally varying decay rates throughout earth's history. However, this thought was suppressed because as everyone knew decay rates are inviolably constant- and radiohalos were henceforth used as added proof of the extreme age of the earth.

Then during the 1960's Robert Gentry at ORNL began an exhaustive study of this pleochromism and concluded that radiohalos do not support the concept of a constant decay rate.

... Furthermore, the ratio of the radiogenic decay products, Pb-206 and Pb-207, were found to range from the maximum which would be empirically and theoretically expected to three times as much, giving an apparently extraordinary young age for the mineral- something like thousands of years, instead of millions or billions."

It isn't my purpose here, to prove that rock ages are enormously shorter than the pseudo-scientists conclude. The information presented here is only

to show that plausibly, other possibilities exist for the decay 'constants'....
and that could easily lead to an earth age consistent with the biblical record.