

## THE BIBLE AND SCIENCE BY WILLIAM T. PELLETIER, PH.D [WOODSIDE NEWS COLUMNIST]

### Age of the Earth 5— Radiometric Dating

Could scientists be wrong about the age of the earth? Is it really 4.6 billion years old?

Science has been wrong about many things. Past scientists confidently drained blood from people to cure illness. Doctors applied this theory to George Washington 200 years ago and bled him to death. They were dead wrong.

Is it conceivable that today's scientists are dead wrong about the age of the earth? Yes – because worldview determines interpretation of evidence, and the presumption of great age is essential for evolutionism.

#### SCIENTIFIC CLOCKS

How is the age of the earth estimated scientifically?

A simple example of a **process clock** is a *burning candle*. How could you determine how long a candle had burned? What assumptions and measurements are required?

You would want to know the original height and weight of the candle (parent component) and the initial amount of melted wax (daughter component) in the candle holder. Had wax been added or removed? What was the rate of burning? Was the burn rate constant or variable? Upon finding a burning candle, these factors would be impossible to determine without eyewitness testimony. You could only guess, and your time determination would only be as good as your guesses.

A **scientific clock** works like this candle. It's a natural process that proceeds steadily through time which from an initial state (parent components) produces cumulative and measurable effects (daughter components). To estimate the length of time a process has been running scientists

1. Measure present magnitudes of parent and daughter components.
2. Measure/estimate the rate of change of the components.
3. Guess or assume the original magnitudes of the components.
4. Calculate the time required for the process to change the parent components to the present magnitudes of the daughter components – based on assumed initial conditions and an assumed process rate.

Hundreds of different processes have been



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used to estimate earth's age. Only the radioactive decay processes give multi-billion-year ages.

#### RADIOACTIVE DECAY CLOCKS

Radiometric dating estimates rock ages based on the decay of radioactive elements (parent components) into stable elements (daughter components). The most frequently cited long-age radioactive decay clocks are Uranium-Lead, Potassium-Argon, and Rubidium-Strontium, but there are over 40 such methods.

These methods are used for *igneous* rocks (like granite, basalt) formed when hot molten material cools and solidifies. They aren't used on *sedimentary* rocks (like limestone, shale, sandstone) formed from water-deposited particles.

to avoid assumptions about initial daughter concentrations by using ratios. However, it involves other assumptions and gives invalid values if the assumptions are wrong.

#### RADIOMETRIC DATING FALLACIES

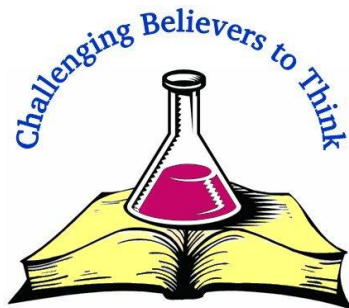
Why are the ages given by radioactive decay clocks suspect?

Radioactive clocks depend on certain crucial assumptions. First, it's usually assumed that all daughter elements were produced by decay from parent elements. Second, the half-life is assumed to be constant throughout the entire multi-billion year process. The half-life is used to determine how long ago the process must have started in order to produce the present amount of daughter element. Third, scientists assume the system was isolated from external influence throughout this time, so that neither parent nor daughter elements entered

Contamination is a significant problem for radioactive decay systems. Radioactive parent elements uranium, potassium, and rubidium are all easily leached by groundwater. The daughter element argon gas easily enters or leaves a potassium mineral system. Radon gas, an intermediate element in the uranium-lead decay chain, easily moves in or out of the uranium system.

Another source of error in radiometric dating is the correct value for radioactive half-lives. Evolutionist scientist Frederick Jueneman said, "The age of our globe is presently thought to be some 4.5 billion years, based on radio decay rates of uranium and thorium. Such 'confirmation' may be short-lived."

Evolutionist Jueneman admitted, "There has been in recent years the horrible realization that radio decay rates are not as constant as previously



Preparing Thinkers to Believe

## If radiometric dating methods are wrong for rocks of known age, why trust them for rocks of unknown age?

The clock starts when the rock has solidified. It's thought that while molten, the extreme heat would cause gaseous daughter elements like argon and low melting-point elements like lead to escape. Once cool it's assumed that no more daughter element can escape, so any found is deemed the result of radioactive decay of the parent in the igneous rock.

The decay rate is measured in terms of *half-life*. That's the length of time it takes for half of the parent element to decompose into the daughter element.

A more technically complicated method called *isochron dating* purports

or exited the system.

The reliability of radiometric dates hinges on the validity of these three assumptions. Are these assumptions reasonable? No, their validity is highly questionable.

How can you be sure no daughter element was present originally? How could you determine initial concentrations of process components?

How can you be sure test samples have not been contaminated? How could the system remain isolated from contamination for "billions of years"? Isolation is highly unlikely, for geologists assert that significant tectonic activity occurred throughout the

"geological ages"—volcanoes, breaking up and colliding continents, magma extrusions, crust upheavals and down-heavals, sea floor subductions, mountain building, plus innumerable local catastrophes.

How can you be sure that the experimentally determined value of the half-life is accurate? Has it remained constant throughout "billions of years"? How do you know that the half-life itself has not increased, so that radioactive materials now take longer to decay than formerly? Did God's curse on earth after Adam's sin affect the laws of physics? (Genesis 3:17)

No one can answer these questions with any degree of certainty.

thought, nor are they immune to environmental influences. And this could mean that the atomic clocks are reset during some global disaster, and events which brought the Mesozoic to a close may not be 65 million years ago, but rather, within the age and memory of man." (*Industrial Research and Development*, June 1982, p.21)

Why do radiometric ages have such gigantically mind-boggling errors? It is because the assumptions underlying the calculations are fundamentally in error.

#### INVALID DATES

Radiometric dating is demonstrably unreliable. Dating by different radiometric methods frequently gives widely varying results. If the methods were accurate, the results should be consistent, but they are not. (See the book *Science, Scripture, and the Young Earth* where Dr. Henry Morris quotes numerous published admissions by professional geologists in scientific research journals concerning the unreliability of radioactive dating methods and the frequent contradictory results that are obtained.)

Moreover, rocks of historically known ages give wildly inaccurate values when dated radiometrically. Scientists watched the lava dome at Washington's Mount St. Helens form in 1986. Yet when samples from the lava were dated using the potassium-argon method, the ages ranged from 0.5 to 2.8 million years. These dates are absurd.

Uranium-lead tests on lunar rock samples gave dates from 4.6 to 8.2 billion years, a variance of 78%. Potassium-argon tests gave an age of **SCIENCE** continued on page 23



When creationists have birthdays.

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**SCIENCE** *continued from page 22*

2.3 billion years. These are huge discrepancies.

Basalt at the bottom of the Grand Canyon was dated as 1.07 billion years old by rubidium-strontium isochron dating. Lava flows on the north rim of the canyon were dated as 1.34 billion years old by the same method, a difference of 26%. Even more significantly, the layers at the bottom of the canyon which must be older were dated as younger than the lava at the top which overflowed into the canyon **after** the canyon's formation.

Volcanic lava rocks from Hawaii gave potassium-argon dates ranging from 160 million to 3 billion years. The lava rocks had been formed by a volcanic eruption in 1801. Geologists explained the reason for the invalid results as the incorporation of environmental argon in the lava at the time of the eruption. This likely happens for all igneous rocks—thereby invalidating these methods.

If radiometric methods are wrong for rocks of known age, why trust them for rocks of unknown age?

Evolutionist William Stansfield, professor of biology at California Polytechnic State University, wrote, "It is obvious that radiometric techniques may not be the absolute dating methods that they are claimed to be. Age estimates on a given geological stratum by different radiometric methods are often quite different (sometimes by hundreds of millions of years). There is no absolutely reliable long-term radiological clock."

#### **THEREFORE...**

Radiometric values for the age of the earth are completely meaningless. The calculations are based on invalid assumptions that cannot be verified and which have proved to be false in many cases. Evolutionists themselves admit difficulties: the initial concentrations of the process components are unknown, the radioactive half-life may not have been constant throughout the entire process, and there is no assurance that the system was isolated from external influence.

Furthermore, for rocks of known age, the widespread inconsistency and obvious errors in radiometric dates megaphone the worthlessness of radioactive clocks for measuring earth's age.

Christians who accept the Biblical testimony of a 6000-year-old earth need not be concerned about the "assured results" of radioactive dating methods. The foundation of these methods is badly flawed.

Scripture, however, provides a firm and certain foundation. Even 21st-century man can rely on the Word of the Creator.

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