Rock Dating

Although there are many isotopes that can be dated, the "process" works by one of two ways:

1) The "Model Age" method. As you know, some isotopes of atoms naturally decay into other isotopes. The original isotope is called the "parent," and the products of the decay are called the "daughters." For example, potassium decays into argon. Strontium decays into rubidium. Uranium decays into lead, etc. Potassium, strontium, and uranium are the "parents," and argon, rubidium, and lead are the "daughters." It is important to recognize that not ALL potassium decays into argon. Only one particular isotope does. (Isotope = a particular version of the atom with an unusual number of neutrons.) These unusual isotope daughter products are assumed to NOT occur on their own. It is assumed that they ONLY come from their respective parent. The parents have extremely long half lives. In other words, they decay so slowly that we can't even measure their decay rate. So – we measure their "activity" which is related, and then mathematically calculate the decay rate. (That's an OK calculation if the equation has always been valid.) Assuming we know what the decay rate is – we can say that the test is, for the most part, extremely dependable. Since "radiometric decay" involves only the nucleus of the atom, it is totally unaffected by normal temperature fluctuations or chemical reactions. So – if we assume all daughter products came from the parents, and we think we know what the decay rate is, we count the number of daughter atoms and then calculate how long it took to produce that many daughters. It's straight forward math. The only thing threatening about the math is that the decay rate is logarithmic, not linear, so that scares people away. Nevertheless, whether one understands logarithms or not makes no matter. The math is simple. It is easy to calculate an "apparent age."

2) The "Isochron" method. I used the word "apparent age" in the previous paragraph because the assumption that no daughter products could have existed without the decay of a parent is too absurd for anyone to believe. The "model age" method is a good cheap test (it only requires that one test be run) but it's not very credible. The isochron method is not used as often as the model age method because it is much more expensive to run. The math for the isochron method is messy, but allow me to over simplify a bit. Suppose you count the parent and daughter atoms of ten different rock samples, all taken from the same rock. Naturally the concentration of parent and daughter products will vary, but the ratio of the two should be the same. The concentration would vary because rocks are not perfectly homogeneous. BUT – the decay process should have been consistent regardless of the concentration. So, the ten data points should fall on an exact straight line. The "slope" of this line tells us the "age" of the rock. The slope of the line is completely independent of the number of initial parent or daughter products, so it is much more "credible" than the model age method. The point being, though, this method eliminates the ridiculous notion that ALL daughter products came from parents.

Also, from an evolution perspective; some decays result in multiple daughter products. These multiple daughter products exist in the rocks in the exact proportions that indicate that they are indeed daughters of a particular parent, AND that particular parent may have a half life of millions of years. Consequently, regardless of the math and assumptions, this is, without question, the most credible evidence that evolutionists have of "old age." Based on some practical problems with the measurements, which I will discuss later, we can argue over whether a rock is a million or a billion years old; but no matter how you look at the slope of the line, it wreaks with capital O-L-D!!! Much

older than a few thousand years. Creation scientists cannot deny that this data exists.

Those are the two "methods." BUT – generally – when people refer to rock dating, they are referring to fossils. This is a bit more complex. Fossils are ALWAYS found in sedimentary rock. The extreme temperatures of molten igneous rocks would incinerate the creature, not fossilize it. Sedimentary rocks cannot be dated by any means. After all – they are "sedimentary." They are composed of "sediments;" grains of rocks from literally millions of sources. If you tried to date a sedimentary rock, you would arrive at as many dates as there are sedimentary grains within the sample. Each grain would have a different age. SO – fossils are normally dated by the "index fossils" in the strata. (That's circular logic!) In theory, if you had a sedimentary fossil sandwiched between two igneous rocks, you could date the two igneous rocks and conclude that the fossil age must be somewhere in between. That is certainly logical, but Mother Nature is not nearly so cooperative.

Now let's discuss the "interpretation."

As mentioned above, the isochron method requires "fitting" data points to a line. As you would expect, the data points NEVER fit exactly on a straight line. So a process called "curve fitting" is required. This process, when done by any one of several mathematical schemes, is called a "regression analysis." A regression analysis will give you a "two part" answer. The answer is not a single number. It is a number and a "tolerance." For example, the method will not establish a rock to be "123 million years old." The method would provide a number like "123 million years +/- 36 million years." The "plus or minus" part of the answer provides information pertaining to how well the data points fit the line. The closer the data points are to the line, the smaller this "tolerance" is.

This is where some "suggestive fraud" occurs. When you look at the geologic column, the dates in any textbook do not have "plus or minus" anything. Let's look at an example. Microsoft Encarta gives the following periods; "Jurassic 205M, Triassic 240M, and Permian 290M." These three digit numbers "suggest" confidence. The reality is, when you include the "tolerance" of the Jurassic and Permian measurements, the Triassic period would completely disappear. It would be completely engulfed! This is not just an over site. This is fraud. In the words of Robert Park, an evolutionist writing on the theory of evolution, "What may begin as honest error, however, has a way of evolving through almost imperceptible steps from self-delusion to fraud. The line between foolishness and fraud is thin. Because it is not always easy to tell when the line is crossed, I use the term voodoo science to cover them all..." The geologic column is a classic example of this "voodoo science."

Curve fitting - just a side comment: When fitting data to a curve, it is perfectly normal and acceptable to throw out data anomalous points that don't fit. That makes sense. Why include erroneous data? BUT – rock dating goes a little beyond the norm. Since there is significant scatter in the data, one question on the national lab's test request forms is, "From what geologic strata was this specimen obtained?" (In other words, "how old do you think this rock is?") This question, along with the routing out of "anomalies" has the effect of "fitting the result to one's own expectations."

But that's just a surface, cursory look. Let's look deeper. The math and the theory of radiometric dating appear to be sound. But "the proof is in the pudding." How does the data stack up against other known factors?

As long as one looks at individual rock dates, the method and data are extremely believable. On the other hand, when you start to compare data of multiple rocks, the method becomes unbelievable. For

example: a) A volcano on top of the Grand Canyon consistently dates older than the bedrock at the base of the canyon. This is true with almost EVERY type of dating method, whether it be "model" or "isochron" and regardless of which isotope is used. b) Some lava flows from the 1980 Mt St Helens eruption date to be 350,000 years old. c) Numerous lava flows laid down sequentially have contradictory dates. (Upper layers measure to be "older" than lower layers.) I could go on. These aren't isolated examples. They seem to be more the norm; "arbitrary dates." Initially, these "anomalies" were explained away by evolutionary scientists claiming that criticizing the tolerance of the measurement is not a valid way of explaining away obvious millions of years. Their point was a valid one. However, the methods of making these measurements have improved enormously. It has now been proven that the error factors of these "discordant" results (measurements that obviously contradict themselves) are not a result of instrumentation limitations. The discordant dates are real. They do, in fact, contradict themselves. These discordant dates should, if people were honest, completely invalidate the geologic column. But, as you know, the geologic column is still in most every high school geology book. However, once again, on behalf of the evolutionists, the discordant rock data ALL suggests millions of years, not thousands.

BUT – as noted before, a rock date for the sake of a rock date, is meaningless. (Who cares?!?!) It is only applicable when establishing the dates of fossils. Many fossils still have carbon present. (They are not fully fossilized.) Thus, they can also be dated by the same radiometric process; measuring the remaining C14. These "million year old" fossils are ALWAYS thousands of years old when dates are determined by measuring the C14. I always like to ask the question, "What do trilobites, dinosaurs, and mammals all have in common?" (According to the geologic column, Trilobites lived up until the Pennsylvanian period, appr 300M years ago. Dinosaurs lived up until the Cretaceous period, appr 70M years ago. And "the age of the mammals" in known as the Eocene period, appr 40M years ago.) The answer is (are you ready for this?), they ALL walked on the earth at the same time! The ICR RATE team procured extremely well protected samples of Pennsylvanian, Cretaceous, and Eocene coal that originated from multiple locations around the States. All of the samples were tested by extremely accurate AMS testing procedures at nationally recognized laboratories. (The AMS method is the radiometric universally accepted "method of choice" since it literally counts individual atoms!) The dates of all of these samples were the same; a few thousands of years ago, NOT millions. I can send you a copy of the tech paper describing these tests if you like.

So where do we go from here. We have one test method, radiometric dating, that reveals;

a) a discordant hundreds of millions of years, when dating the strontium, potassium, or uranium isotopes OR

b) a concordant thousands of years, when dating the C14.

Let's not jump to any conclusions yet.

The ICR RATE team insists that the decay rate has actually changed. On the surface, this sounds farfetched, but they have significant data to support this hypothesis. They tested for the presence of helium in zircon crystals. The number of daughter products of the uranium decay process can tell us how many helium atoms were produced. Helium easily diffuses through solid rock. However, when the helium in the zircon crystal is measured, it shows that it has only been diffusing for thousands of

years, not hundreds of millions. These are two extremely reliable tests of the exact same crystal and the exact same isotopes!

The OKLO nuclear reactor provides the "proof positive" that something has changed. The OKLO reactor is not man-made. It is a "natural reactor." The naturally occurring U235 was so concentrated that fission actually occurred naturally in the ground! This can easily be verified by the fact that the daughter products of fission are significantly different from the daughter products of natural decay. There is no question that fission occurred. What is so astounding is "where" this fission occurred. We expect it to occur when the concentration of U235 is high enough. BUT – at the OKLO reactor, fission occurred where the conditions were NOT conducive to fission. We can only draw two conclusions from this data. 1) Something about the decay process has changed over time, or 2) We absolutely MUST shut down all nuclear reactors because, for some reason that we don't understand, they could all go super critical at any time! Obviously "something about the decay process has changed over time" is the much more logical conclusion. This is undisputable data that something has changed. By the way, the phenomenon at the OKLO reactor was not presented by ICR. This phenomenon has been studied by thousands of head scratching scientists all around the world for many years.

As stated above, the notion that the decay rate has changed seems to be farfetched. But is it? When we say "decay rate" we are referring to a measurement of something with respect to "time." Right? Thus, for a "rate" to be constant, "time" itself must be a constant. Well – it's a proven fact that "time" is NOT a constant. We don't understand all of the factors that change time, but we do know for sure that velocity and gravity actually "change" time. A second is not always a second in duration! With respect to velocity, the "change in time" is fairly well understood by the famous "square root of one minus V squared over C squared," equation. (V is velocity and C is the speed of light in a vacuum.) The effects of gravity on "time" are not well understood at all, other than it can be proven that time is different under different gravitational fields. For example, an atomic clock in Greenwich, at sea level, and an identical one in Denver, at 5300 feet, run at different rates. So how does this affect radiometric dating here on earth where gravity is relatively constant? Well – the cosmic phenomenon called "red shift" no matter how you interpret it, indicates that the gravitational effects of the bodies around our solar system were, at one time, significantly different from what they are today! That's a whole different discussion. Point being, a "decay constant" cannot possibly be "constant" since "time" itself has not been constant. Dr. Russell Humphreys, Los Alamos National Labs, discusses this in great detail in his book, "Starlight and Time."

Lastly, let's look at this hundred million year method from a more practical perspective. I am a trained engineer with significant experience working with fundamental scientists. This question of hundred million year dates has a problem far more severe than anything mentioned so far. Fundamental physicists, with all due respect, get so hung up in the numbers and math that they can't see the forest for the trees at times. Let's talk about interpolation and extrapolation. As an engineer, if I have data ranging from 1 to 50 and I need a result at 42, IF I have enough data between 1 and 50 (so I know the shape of the curve,) I can "interpolate" between data points and arrive at a fairly confident result for 42. This is perfectly normal and we do it all the time. Similarly, if I need to know the result at 60, I can "extrapolate" to get a fairly confident result. This is also perfectly normal. However, as I extrapolate further and further away from my known data, my confidence diminishes. For example,

I may extrapolate to 70 or even 80 IF I have good confidence in my data between 1 and 50, but to continue to extrapolate to 100 or 200 requires much more than just data points. Extrapolating to 500 million would be completely absurd. That's a factor of 10 million different from my known data. YET – we have been studying radiometric decay for about 50 years and expect to extrapolate to 500 million and beyond! Let's come back to the "practical" for a minute. If I, as an engineer, extrapolated empirical data by a factor of 10, and people were killed when my building fell down, I'd go to jail! That doesn't fall into the category of an engineering math error, it's gross negligence. It falls into the category of making construction value judgments without ANY data to support that judgment. People literally go to jail for that kind of nonsense. YET – we extrapolate 50 years of radiometric observations out to 500 million and expect people to believe it. It may be true that we obtained enormous amounts of data within the last 50 years. But it's still all within the shallow 50 year time span. That's a classic example of missing the trees for the forest.

Well – I hope that answers your question. If this prompts other questions, or you'd like to see technical papers on any of the subjects above, just let me know.

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