

Disclosure

of things evolutionists don't want you to know

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RADIOMETRIC DATING

Radiometric dating is not a reliable way to determine the age of a rock.

Perhaps the best defense of radiometric dating we have ever seen is *An Essay on Radiometric Dating* by Jonathon Woolf.¹ It is worth examining because Woolf does a much better than average job of presenting the evolutionists' arguments. If you want to know what evolutionists believe about radioactive dating, this is the essay to read.

He begins his essay by saying that evolutionists haven't done a very good job of explaining how radiometric dating works. We agree. We've been waiting for a simple and clear explanation like his because we don't want to be accused of attacking a poor straw man.

Radiometric dating methods are the strongest direct evidence that geologists have for the age of the Earth. All these methods point to Earth being very, very old -- several billions of years old. Young-Earth creationists -- that is, creationists who believe that Earth is no more than 10,000 years old -- are fond of attacking radiometric dating methods as being full of inaccuracies and riddled with sources of error. When I first became interested in the creation-evolution debate, in late 1994, I looked around for sources that clearly and simply explained what radiometric dating is and why young-Earth creationists are driven to discredit it. I found several good sources, but none that seemed both complete enough to stand alone

and simple enough for a non-geologist to understand them. Thus this essay, which is my attempt at producing such a source.²

DEFINITIONS

He begins with some definitions and explanations of terms. In particular, he clearly and correctly explains the differences between elements and isotopes (also called "nuclides") of those elements. He does an excellent job explaining the fundamental concepts of nuclear physics. Then he goes on to explain how measuring the ratios of isotopes (which he prefers to call "nuclides") can be used for radiometric dating.

Obviously, the major question here is "how much of the nuclide was originally present in our sample?" In some cases, we don't know. Such cases are useless for radiometric dating. We must know the original quantity of the parent nuclide in order to date our sample radiometrically. Fortunately, there are cases where we can do that.³

He is correct that we must know the original ratio of the isotopes, but he is wrong when he says there are cases when they think they know.

He says,

¹ <http://answersinscience.org/RadiometricDating-Woolf.htm>

² *ibid.*

³ *ibid.*

... there's a basic law of chemistry that says "Chemical processes like those that form minerals cannot distinguish between different nuclides of the same element." They simply can't do it. If an element has more than one nuclide present, and a mineral forms in a magma melt that includes that element, the element's different nuclides will appear in the mineral in precisely the same ratio that they occurred in the environment where and when the mineral was formed. This is the second axiom of radiometric dating.⁴

We absolutely agree. But we feel obliged to protect ourselves against critics who will nit-pick everything we write. Therefore, we must acknowledge that in this month's *Evolution in the News* column, *A Theory That's All Wet*, the evolutionists who claim water on Earth is older than the Sun say this:

H_2D^+ becomes enriched relative to H_3^+ because the deuterated isotopologue is energetically favored at low temperatures.

There is an energy barrier ΔE_1 to return to H_3^+ , i.e., $\text{H}_3^+ + \text{HD} \rightleftharpoons \text{H}_2\text{D}^+ + \text{H}_2 + \Delta E_1$, where $\Delta E_1 \approx 124 \text{ K}$, although the precise value depends on the nuclear spin of the reactants and products. The relatively modest value of ΔE_1 restricts deuterium enrichments in H_3^+ to the coldest gas, $T \lesssim 50 \text{ K}$. Thus, deuterium-enriched water formation requires the right mix of environmental conditions: cold gas, gas-phase oxygen, and ionization.⁵

In plain English, they are acknowledging that the number of protons, regardless of the number of neutrons, determines how atoms react chemically to form molecules—but the number of neutrons does make a very tiny difference in the amount of heat liberated by the reaction. So, for very light elements at temperatures close to absolute zero, chemical processes do actually differentiate very slightly between isotopes because of the barely measurable difference in heat involved in the reaction.

Woolf also recognizes this fact. Near the end of his essay he does say,

Note: It's true that some natural processes favor some isotopes over others. Water molecules containing oxygen-16 are lighter and therefore evaporate faster than water molecules with oxygen-18. However, as far as is known such fractionation occurs only with light

nuclides: oxygen, hydrogen, carbon. The atoms used in radiometric dating techniques are mainly heavy atoms, so we can still use the axiom that mineral-forming processes can't distinguish between different nuclides.⁶

But that's just nit-picking about some special cases. We agree with Woolf that, in general, it is the number of protons that determines how chemical bonds will be formed. The number of neutrons is irrelevant.

Furthermore, the ratio of isotopes in molten rocks does not change immediately when the rock hardens. The age of the rock formation is supposedly determined by how much the ratio of isotopes changes AFTER the rock hardens (which presumes that enough time has elapsed for radioactive decay to change that ratio).

So, we still have the original problem. How does anyone know what the original ratio of isotopes was when the rock hardened? It depends on the method.

CARBON 14 DATING

Here's what Woolf says about carbon 14 dating:

Radiocarbon dating depends on several assumptions. One is that the thing being dated is organic in origin. Radiocarbon dating does not work on anything inorganic, like rocks or fossils. Only things that once were alive and now are dead: bones, teeth, flesh, leaves, etc. The second assumption is that the organism in question got its carbon from the atmosphere. A third is that the thing has remained closed to C14 since the organism from which it was created died. The fourth one is that we know what the concentration of atmospheric C14 was when the organism lived and died.⁷

He is absolutely correct. How do we know that?

When Professor William Libby developed the C14 dating system in 1949, he assumed that the amount of C14 in the atmosphere was a constant. However, after a few years a number of scientists got suspicious of this assumption, because dates obtained by the C14 method weren't tallying with dates obtained by other means. A long series of studies of C14 content produced an equally long series of corrective factors that must be taken into account when using C14 dating.⁸

⁴ *ibid.*

⁵ Cleaves, *et al.*, *Science*, 26 September 2014, "The ancient heritage of water ice in the solar system", <http://www.sciencemag.org/content/345/6204/1590.full>

⁶ <http://answersinscience.org/RadiometricDating-Woolf.htm>

⁷ *ibid.*

⁸ *ibid.*

What he is saying (and what global warming believers generally ignore) is that the amount of carbon dioxide in the atmosphere has changed measurably (up and down) over the last 4,000 years of recorded history. The amount of carbon 14 in the atmosphere in the past has been calculated using the carbon dates of objects of known historical age (such as the coffin of a particular Egyptian pharaoh).

So, because it can be calibrated using historical dating, carbon 14 dating is accurate. But carbon 14 dating is irrelevant to evolutionists because it can only be calibrated for the last 4,000 years or so, and because carbon 14's half-life is so short that it is all gone after 50,000 years. Therefore, it can't be used to measure the age of dinosaur bones that are millions of years old.

(Of course, if the dinosaur bones are only a few thousand years old, carbon 14 dating could be used. Creationists claim to have found carbon 14 in dinosaur bones, and calculated young ages for the dinosaurs. But, since evolutionists *know* that dinosaurs died out millions of years ago, the carbon 14 must be the result of contamination.☺)

U238/U235/Th232 SERIES

Woolf gives a very complete and accurate explanation of how uranium decays, and then addresses the fundamental issue of how one knows how much of each isotope was in the rock when it formed. Remember, even if you know how fast the isotopes decay, and how much are left, you still have to know how much was there initially in order to calculate how long the process has been going on. Here's what he says:

We can find out the normal distribution of lead nuclides by looking at a lead ore that doesn't contain any uranium, but that formed under the same conditions and from the same source as our uranium-bearing sample. Then any excess of Pb206 must be the result of the decay of U238. When we know how much excess Pb206 there is, and we know the current quantity of U238, we can calculate how long the U238 in our sample has been decaying, and therefore how long ago the rock formed.⁹

Why does he think the ore "formed under the same conditions"? Clearly the conditions that formed rocks containing lead and uranium weren't the same conditions that formed rocks containing lead only. If the conditions were the same, they would have formed the same mixture of lead and uranium in the rock. Identical processes produce identical results. If the results aren't identical, the processes could not have been identical.

⁹ *ibid.*

He goes on to say that rocks can be dated by three different radioactive decay methods.

Chemists can apply similar techniques to all three, resulting in three different dates for the same rock sample. (Uranium and thorium have similar chemical behavior, so all three of these nuclides frequently occur in the same ores.) If all three dates agree within the margin of error, the date can be accepted as confirmed beyond a reasonable doubt.¹⁰

But, what if the three dates don't agree (as they often don't)?

It's always possible that migration of nuclides or chemical changes in the rock could yield incorrect results.¹¹

The truth is that if the ratios agree, it is just a coincidence. Ratios of uranium decay byproducts in rocks tell you nothing about their age.

He admits,

To have a radiometric dating method that is unquestionably accurate, we need a radioactive nuclide for which we can get absolutely reliable measurements of the original quantity and the current quantity. Is there any such nuclide to be found in nature? The answer is yes. Which brings us to the third method of radiometric dating . . .¹² [potassium-argon dating]

POTASSIUM-ARGON DATING

Seriously? He thinks one can get "absolutely reliable measurements of the original quantity" of argon in potassium-argon dating? Potassium-argon dating is the method that has been known to provide unreliable measurements for the longest time! But let's not get ahead of ourselves.

He doesn't do a very good job of explaining how the method is supposed to work, so we could not find a pithy quote in his essay. Basically, the idea behind this method is that when a volcano erupts, any argon (which is a gas) that was in the lava will escape before the lava hardens and traps the argon inside. Therefore, all the argon in the lava had to have come from the decay of potassium. Knowing how fast potassium decays into argon, one can tell how long it has been since the eruption.

The "excess argon" problem has been known for decades. Potassium-argon dates of historically observed lava flows are off by millions of years because all the argon does not escape while the lava is still liquid.

¹⁰ *ibid.*

¹¹ *ibid.*

¹² *ibid.*

He does admit,

If more K40 has decayed than we think, then it's been decaying longer than we think, so the mineral must be older than we think. In other words, a mineral that has lost argon will be older than the result we get says it is. In the other direction, if excess argon has gotten into the mineral, it will be younger than the result we get says it is.¹³

Potassium-argon dates are often younger or older than evolutionists think they should be, so the results are often ignored. But this was the method he said was "absolutely reliable!"

EXCESS ARGON

The "excess argon" problem has been documented in the peer-reviewed scientific literature for at least 46 years. Here is the abstract of the oldest article we could find on the subject.

Abstract. Submarine pillow basalts from Kilauea Volcano contain excess radiogenic argon-40 and give anomalously high potassium-argon ages. ... The data indicate that the amount of excess radiogenic argon-40 is a direct function of both hydrostatic pressure and rate of cooling, and that many submarine basalts are not suitable for potassium-argon dating.¹⁴

They know the potassium-argon dating of the Kilauea eruption is off by many millions of years because they know when it happened from historical records.

In 1968, potassium-argon dating was still relatively new, so the article explains how the method is supposed to work. In it they use the chemical symbol for potassium, which is K. In their words, for the potassium-argon dating technique to work,

At some time before solidification, lava flows must lose the radiogenic Ar^{40} that is continually generated by the decay of K^{40} , otherwise the K-Ar clock will not be reset to zero at the time of solidification. This loss of radiogenic Ar^{40} may take place (i) either partly or entirely during the melting leading to magma generation; (ii) while the liquid is rising to the surface or is stored in temporary reservoirs; or (iii) during eruption, as the pressure is released.

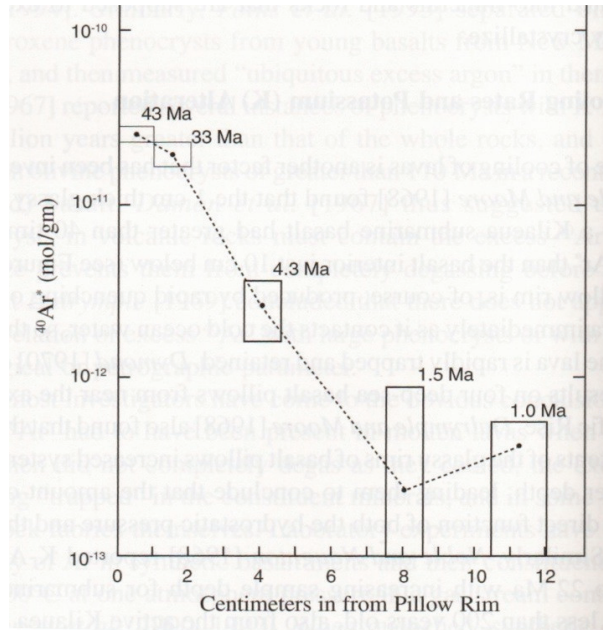
¹³ <http://answersinscience.org/RadiometricDating-Woolf.htm>

¹⁴ Dalrymple & Moore, *Science*, 13 September, 1968, "Argon-40: excess in submarine pillow basalts from Kilauea Volcano, Hawaii", pages 1132-1135, <http://www.sciencemag.org/content/161/3846/1132.full.pdf?sid=2208718f-3992-4a8a-b2a5-295a32c0d239>

The time of degassing is uncertain, but the existence [*sic*] of vesicles and lava fountains suggests that some gas is lost during and shortly after eruption.¹⁵

For the potassium-argon method to work, ALL of the argon gas would have to be lost during and shortly after the eruption, so that all the argon gas trapped in the lava must have been generated by the decay of potassium after the lava cooled. But not all of the argon gas is lost. Some remains. How much?

They took samples of lava from the Kilauea eruption and plotted the data.



Depending upon where they took their samples, they measured amounts of argon gas equivalent to as little as 1 million years of decay up to as much as 43 million years of potassium decay (in lava that is only a few hundred years old).

The graph shows 10^{-12} moles of argon per gram represents 1.5 million years of decay. How much is 10^{-12} moles?

Unfortunately, they mixed measurement units when they expressed the ratio in moles per gram. So, we have to convert moles (the number of atoms) to grams (the mass of atoms) for the mixed ratio to make sense. One mole of argon 40 gas weighs 40 grams. 10^{-12} is scientific notation for 1/1000000000000 (that is, 1 divided by 1 followed by 12 zeros). So, 10^{-12} moles per gram is 40/1000000000000 grams per gram (40×10^{-12} grams/gram).

That's hard to visualize, so let's think about an equivalent ratio of white and black sand in a

¹⁵ *ibid.*

cement truck.



This cement truck holds 10 cubic yards of sand. That's close to 10 cubic meters, which is 10^7 cubic centimeters, which is 2 million teaspoons. Pretend those 2 million teaspoons of white sand are radioactive and turn to black sand at the same rate as potassium decays to argon. After 1.5 million years there would be just 80 millionths of one teaspoon in the truck. Or, if you prefer to look at it another way, if you had 12,500 cement trucks (a convoy more than 35 miles long) full of our mythical radioactive white sand, after 1.5 million years the total amount of black sand in all those trucks combined would add up to one teaspoon. Just a tiny bit of argon gas trapped in lava will yield an apparent age that is millions of years too old.

Let's make three things clear.

1) The "excess argon" in lava samples is not contamination. It did not work its way into the rock from some external source. It is not experimental error. It's argon that really was in the lava from the time when the eruption occurred, and didn't escape. The amount just exceeds how much they incorrectly think should be there.

2) All the samples in Dalrymple's & Moore's report were taken from the same lava flow in a particular eruption. In other words, "the same process" created all these samples. Despite that, the amount of argon was different in every sample, ranging from the equivalent of 1 million to 43 million years of potassium decay. That's not surprising. Granite is speckled because the minerals were not evenly mixed when the granite was created. Some parts of the rock have more dark minerals, and some parts have more light colored minerals. One should not expect argon (or potassium, or uranium, or lead, or any other mineral) to be perfectly homogeneously distributed through rocks created by a single process at a specific time.

3) The lava flow in question was known to be so young that there wasn't time for a measurable amount of potassium to decay into argon. Therefore, all the argon measured was designated as "excess argon." The report explained a number of creative ways to explain away the measured amounts. In college

chemistry labs this technique is called, "fudging the data." It isn't really cheating, because the students know what their measurements should have been, so whatever correction factors have to be made to the data to get the right answer are legitimate. ☺ Evolutionists "know" how old the rocks must be, so they know how much "excess argon" can be discounted from their measurements to get the "right" answer. They fudge the data by subtracting an estimated amount of excess argon. If they don't subtract enough, they get an age that is too old. If they subtract too much, they get an age that is too young.

Potassium-argon dating is unreliable because it is based on wild guesses of how much of the argon came from decay of potassium, and how much was in the rock to begin with.

RUBIDIUM-STRONTIUM DATING

Woolf begins the next section of his paper by saying,

Yet a fourth method, rubidium-strontium dating, is even better than potassium-argon dating for old rocks.¹⁶

Yes, it is even better than the "absolutely reliable method" that doesn't always work. ☺ He says,

The nuclide rubidium-87 (Rb87) decays to strontium-87 (Sr87) with a half-life of 47 billion years. Strontium occurs naturally as a mixture of several nuclides. If three minerals form at the same time in different regions of a magma chamber, they will have identical ratios of the different strontium nuclides. (Remember, chemical processes can't differentiate between nuclides). The total amount of strontium might be different in the different minerals, but the ratios will be the same. Now, suppose that one mineral has a lot of Rb87, another has very little, and the third has an in-between amount. That means that when the minerals crystallize there is a fixed ratio of Rb87:Sr87. As time goes on, atoms of Rb87 decay to Sr-87, resulting in a change in the Rb87:Sr87 ratio, and also in a change in the ratio of Sr87 to other nuclides of strontium. The decrease in the Rb87:Sr87 ratio is exactly matched by the gain of Sr87 in the strontium-nuclide ratio. It has to be -- the two sides of the equation must balance.¹⁷

He's confused. At first he says there are "identical ratios of the different strontium nuclides" (that is the Sr87:Sr86 ratio), which he confuses

¹⁶ *ibid.*

¹⁷ *ibid.*

with “a fixed ratio of Rb87: Sr87.”

Rubidium-strontium dating has basically the same problem as uranium-lead dating and potassium-argon dating. There are different amounts of the various strontium and rubidium isotopes in different parts of the rock.

For what we (modestly) believe is a much better explanation of how isochron dating is supposed to work (and why it doesn't really work), please see our *Timeless Isochron* essay.¹⁸ An isochron plot, despite its name, does not tell anything about time. It merely shows that whatever process produces more rubidium-87 in a rock also produces more strontium-87 in that rock (and more potassium, too).

INCONSISTENCIES

In the second-to-last paragraph of his essay, Woolf says,

Further, radiometric dates can be checked by other dating techniques. When they are, the dates almost always agree within the range of expected error. In cases where the dates don't agree, it's always been found that some natural factor was present which selectively affected one or the other dating method being used.¹⁹

In other words, radiometric dates always agree with other dating methods—except when they don't. ☺ When they don't agree with evolutionary expectations, evolutionists have always been able to come up with an excuse for why the results don't agree. But, if they agree, the results are accepted without question. (Evolutionists are like a boss I once had, who only thought I was right when I said what he wanted to hear. ☺)

Rubidium-strontium dating doesn't always agree with other dating methods. Some of the world's best scientists computed the age of the Apollo 11 moon rocks 116 times using methods other than rubidium-strontium isochron dating. Of those 116 dates, only 10 of them fall in the isochron range of 4.3 to 4.56 billion years, and 106 don't. The non-isochron dates range from 40 million years to 8.2 billion years.²⁰ These rocks were carefully analyzed by top scientists making every effort to avoid contamination or other errors, and only 10% of the other methods agreed with the rubidium-strontium isochron dating—but rubidium-strontium isochron dating was assumed to be correct because it gave the “right” answer.

¹⁸ *Disclosure*, May 2008, “Timeless Isochrons”, <http://www.scienceagainstevolution.info/v12i8f.htm>

¹⁹ <http://answersinscience.org/RadiometricDating-Woolf.htm>

²⁰ *Disclosure*, June 2008, “The Age of the Moon”, <http://www.scienceagainstevolution.info/v12i9f.htm>

Radiometric dating methods are neither accurate nor consistent because (except for C14) ratios of isotopes have absolutely nothing to do with the age of the rock containing them. Carbon 14 dates are accurate (for the past 4,000 years) because legitimate correction factors have been determined by calculating the ratio of carbon isotopes in the atmosphere in the past. These ratios were computed by calibrating carbon 14 dates using known historical dates.

Every other radiometric dating method depends upon knowing the initial ratio of isotopes. There is no way of knowing what the initial ratio was. The calculated age depends entirely upon the guess of what the initial ratio was. The guess is largely influenced by evolutionary bias.

Evolution in the News

A THEORY THAT IS ALL WET

Is the water on Earth really older than the Sun?

Last month, an article in *Time* magazine claimed,

Up to about half of the water on our planet is older than the sun, according to a paper²¹ published on Thursday in the journal *Science*.²²

We can just imagine creationists saying smugly, “Of course it is! Water was made on Day 2 of creation week; the Sun was created on Day 4!” ☺

WHO CARES HOW OLD WATER IS?

Evolution requires the spontaneous origin of life (which presumably requires water) and a very long time for species to transform themselves into other species. This paper in *Science*, reported by *Time* magazine, is just one of many examples of how “science” is perverted to try to prove that there must be water on other planets; and furthermore that the Earth, and other planets, are old enough for evolution to occur.

We aren't going to tell you anything you don't already know. You know that water is H₂O—two

²¹ Cleaves, *et al.*, *Science*, 26 September 2014, “The ancient heritage of water ice in the solar system”, <http://www.sciencemag.org/content/345/6204/1590.full>

²² Elizabeth Barber, *Time*, 26 September, 2014, “A Lot of Earth's Water Is Actually Older Than the Sun”, <http://time.com/3431564/earth-water-older-than-sun-university-of-exeter-tim-harries/?xid=newsletter-brief>

hydrogen atoms and one oxygen atom. You also know that carbon dioxide is CO₂—one carbon atom and two oxygen atoms. You know that when a plant absorbs water through its roots, and carbon dioxide through its leaves, it breaks the water and carbon dioxide molecules apart so that it can use the hydrogen and carbon to build sugars, fats, and other organic compounds generally referred to as “hydrocarbons” because they are big molecules made up of hydrogen and carbon atoms.

What may not have occurred to you (and must not have occurred to the scientists who published the article, and the scientists who reviewed it) is that when this happens, the water molecule is destroyed. Countless water molecules are being destroyed every second by all the vegetation on Earth.

Fear not! Animals eat the vegetation, and digest the fats and sugars. They inhale oxygen, which is combined with the hydrogen and carbon in the fats and sugars to produce water and carbon dioxide, which the blood carries to the lungs, where it is exhaled. So, all the animals on Earth are constantly exhaling new water molecules. On a cold day, when you can see your breath, you can actually see the brand new water molecules your body created just a few seconds earlier. These water molecules are much younger than the Sun.

When a forest fire burns trees, the fire breaks down the hydrocarbons in the trees by combining them with oxygen. This produces carbon dioxide, carbon monoxide, soot (that is, carbon), and steam (that is, water). Even the rotting vegetation is constantly producing new water molecules as the plant matter breaks down.

With all those water molecules constantly being broken apart and reconstructed, it is hard to believe that very many, if any, of the water molecules on Earth have escaped the liquid equivalent of death and resurrection. Fresh water really is fresh—it isn't older than the Sun.

THE BENEFIT OF THE DOUBT

Since we are so kind and charitable, let's assume that *Time* magazine really meant to say, “Up to about half of the *hydrogen atoms* on our planet are older than the sun.” That doesn't make sense, either. According to the Big Bang Theory, nothing existed until time, space, and hydrogen atoms suddenly sprang into existence for no apparent reason. Those hydrogen atoms supposedly clumped together to form stars, some of which exploded, creating heavier elements which formed planets, including the Earth. If the Big Bang is true, ALL (not “up to about half”) of the hydrogen atoms in the universe are older than

the Sun.

WHY DOES IT MATTER?

Here's why *Time* magazine says it is important to believe that water is older than the sun.

So, if water can survive a star's birthing process, and if other solar systems in the universe formed much like ours did, that means that water might be a common ingredient in the making of other planets far from our own.

“By identifying the ancient heritage of Earth's water, we can see that the way in which our solar system was formed will not be unique, and that exoplanets will form in environments with abundant water,” said Tim Harries, a professor at the University of Exeter's Physics and Astronomy Department, in England, and an author of the paper, in a statement.

“Consequently,” he said, “it raises the possibility that some exoplanets could house the right conditions, and water resources, for life to evolve.”²³

(Just an aside to all our critics who say the origin of life is not part of the theory of evolution, please read that last sentence again.)

Supposing “water can survive a star's birthing process,” and supposing “other solar systems in the universe formed much like ours did,” and supposing “water might be a common ingredient in the making of other planets,” that's an awful lot of supposition—not science! How do they know?

We quoted their really obtuse explanation in this month's feature article,²⁴ so we won't repeat it again. Here's how *Time* simply explained it.

To find out if the water from that dust cloud made it to Earth, researchers measured the ratio of deuterium, or heavy hydrogen to hydrogen. The findings show that heavy hydrogen levels on Earth are higher than they would have been in the protoplanetary disk. That means that some of our water must predate the sun, when heavy hydrogen was in abundance.²⁵

How do they know how much heavy hydrogen was in the protoplanetary disk? How do they even know there was a protoplanetary disk? They don't know. They just believe a story that somebody made up to explain how everything came to be. It's not science—it's speculation.

²³ *ibid.*

²⁴ *Disclosure*, October 2014, “Radiometric Dating”, <http://www.scienceagainstevolution.info/v19i1f.htm>

²⁵ Elizabeth Barber, *Time*, 26 September, 2014, “A Lot of Earth's Water Is Actually Older Than the Sun”, <http://time.com/3431564/earth-water-older-than-sun-university-of-exeter-tim-harries/?xid=newsletter-brief>

EVOLUTION VS. GOD

<http://creation.com/evolution-vs-god>

A powerful new resource from Ray Comfort

If you perform a search on the Internet for information about creation and evolution, you will likely find many links to a DVD with the title *Evolution vs. God*, Shaking the Foundations of Faith. This month's website review looks at a site that provides a review of this DVD. From the site you can find not only a link to the Evolution vs. God Trailer, but also a link to the complete film made available with YouTube videos.

Before reading the review of the DVD, you should probably watch the trailer or the complete film to gain some understanding of the topics under discussion.

The review begins with the following statement: "In the broader culture, it is assumed that evolution is fact, and creation is a religious belief. But when Ray Comfort takes to the streets with his iconic camera and microphone in his new DVD *Evolution vs. God*, he shows that for both typical students and college professors, their stance on origins and the age of the world is actually a matter of faith."

Some of the dialog between Comfort and a Student is then presented. The issue of atheism and evolution is mentioned.

The review then points out that "Comfort repeatedly receives answers from students reflecting that they believed there was overwhelming, obvious evidence for evolution, it's a 'fact', it's 'logical'." When the students were asked about observable proof of evolution, they became uncomfortable very quickly.

Not only does Comfort question students about their beliefs about evolution, he also interviews many professors. The reviewer points out that "Comfort easily shows how students and professors alike overestimate the 'undeniable' evidence for evolution and the lack thereof for intelligent design."

In the DVD, Comfort "repeatedly challenges the interviewees to produce evidence for one 'kind' of creature changing into a different 'kind'." The reviewer discusses this topic in detail and presents some of the problems that arise when creationists use this topic as their main point of contention with evolutionists.

Space does not permit to comment on all of the topics covered in the DVD and the review. Readers' comments can be found at the end of the review. The comments give insight into how other people have reacted to viewing this interesting and thought-provoking DVD.



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