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Review: Mike Riddle, *Dating Fossils and Rocks – Scientific Evidence and the Age of the Earth*, Answers in Genesis, 2004

Runtime (min): 61

Straight Forward and Powerful Presentation of Facts

The speaker covers three main areas: radiocarbon dating; radioisotope dating and scientific evidences for a 'young' earth.

After some elementary atomic physics, the theory of carbon dating is explained in simple terms and the viewer is educated about assumptions the public is unaware of, i.e., that C-14 environmental rates of production and decay are in equilibrium and the C-14/C-12 ratio has been constant throughout history.

The impact of solar radiation, earth's magnetic field, global catastrophism and nuclear activity on the veracity of the method is mentioned.

Similarly, faulty radioisotope dating assumptions are exposed: zero initial 'daughter' decay products; complete rock isolation from its surroundings over 'millions' of years and constant decay rates. Real-life cases of known ages are provided where the method totally fails. The dangers of experimental bias are also explained.

Mr. Riddle remains objective and scientific in his approach. While he praises the measurement precision of quantities, the folly of converting these into reliable ages is laid open as is the position of those basing their world-view on them.

A concise and engaging educational presentation.

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The theory behind ^{14}C dating is introduced simply and effectively:

-Basic physics of the atom: It consists of a nucleus containing protons (positive electronic charges) and in most cases neutrons[1] (no electrical

charge), and orbital shells of electrons (negative electronic charges). A stable atom has an equal number of protons and neutrons, an unstable one more or less.[2] The sum of the proton and neutron give the *atomic weight* number.

-Cosmic rays are bombarding the planet, those passing through the magnetic shield strike $^{14}N_7$ atoms converting them into $^{14}C_6$ atoms (one nitrogen proton 'decays' into a neutron). These are unstable or radioactive. This means over time they will beta 'decay' (back to $^{14}N_7$ atoms as one neutron 'decays' into a proton).

-Theoretically the number of $^{14}C_6$ atoms can be counted and based on the rate of decay the *duration* can then be calculated. At this point a major assumption is pointed out – how does the enquirer *know* how much $^{14}C_6$ there was to begin with? He cannot!

-After ten half lives measurement of $^{14}C_6$ is very difficult so this is becomes a terminus ad quem. Any mention of radiocarbon dating on non-living things (e.g. rocks) is pointed out as fallacious, also dating of coal [and diamonds] are then actually great evidence for a *young* earth, given prevailing uniformitarianism dogma has them at 100s of Ma.

-The principle of equilibrium is explained as the linchpin of radiocarbon dating: amount of $^{14}C_6$ being created equals the amount of $^{14}C_6$ decaying. It is further *assumed* the current ratio of $^{14}C_6$ to $^{12}C_6$ is stable[3], the $^{14}C_6$ having built up to the required level over a minimum period of ~30Ka to do so since the earth's atmosphere 'evolved'. Seeing this ratio is stable, after a living organism dies the ratio of the dead organism can be measured against the benchmark, the number of half-lives determined then multiplied by the 5730 year constant to give age since death.

Much detail is given about equilibrium, including history of the work done by pioneer Dr. Willard Libby, who noticed a 25% discrepancy (creation rate>decay rate) in his calculations versus the assumed benchmark. He put this down to experimental error, as an evolutionist the earth must have been here at least 30 Ka and so we must be in equilibrium!

The speaker debunks this assumption by looking at factors in the present affecting the ratio ($^{14}C_6/^{12}C_6$). [ratio and dating effects given the assumed equilibrium ratio is being used]:

-Stronger (weaker) cosmic rays (e.g. from the sun) will cause higher (lower) production of $^{14}C_6$ from $^{14}N_7$. [(INCREASE/YOUNGER) or (DECREASE/OLDER)]

[INCREASE/YOUNGER]

-Amount of $^{12}C_6$ in the atmosphere changing due to catastrophism (e.g. global flooding, industrial revolution). Pre-flood and stable isotope carbon levels would have been much higher than post-flood as the carboniferous material was turned into coal and oil and buried inside stratum. [DECREASE/OLDER]. Industrialisation then began to reverse this by burning off these reserves [INCREASE/YOUNGER].

-Nuclear fission explosions since WWII increased the production of $^{14}C_6$ due to neutrino emissions. [INCREASE/YOUNGER]

-Different bio-accumulation rates of $^{14}C_6$ in animals and plants. Many have a greater proclivity for stable isotopes and so the 'clock' will start at a lower rate than external equilibrium. [DECREASE/OLDER]

-Earth's weakening magnetic shield will cause increased production of $^{14}C_6$ from $^{14}N_7$.

To summarise the radiocarbon method, the speaker points out new technology such as Accelerator Mass Spectrometry is incredibly accurate and good at measuring $^{14}C_6$ *in the present*. It is true to ~60 Ka *if the assumptions are valid.* The equilibrium ratio has been proven to be *variable*, meaning the number of elapsed half-lives cannot be known with any certainty, thus the method is *invalid*.

Radioisotope dating is then introduced and a clear comparison made between it and radiocarbon dating, i.e. parent-daughter product measurement across the various decay chains versus equilibrium ratio comparisons [i.e. the $^{14}C_6/^{14}N_7$ ratio is *not* relevant with the carbon method]. Popular examples are Uranium-->Lead[4], Potassium (K) to Argon (Ar) and Rubidium (Rb) to Strontium (Sr).

This technique only applies to igneous or metamorphic rock, due to the key *assumption* the 'clock' starts upon solidification. It is also *assumed* the

daughter product is zero. Since shale, sandstone and limestone (which make up most of the rocks on earth) are formed over time and in aqueous solution, this technique cannot be applied. Another major assumption is the whole system of the rock and its environment is *closed* with no parent or daughter products entering or leaving. Finally, 'decay' rates are held to be constant, yet it is mentioned these have already been changed artificially in the laboratory.

Just like carbon, the importance of these *hidden* assumptions is stressed so the viewer is equipped to deal with impressive and accurate mathematical calculations from evolutionists, which being based on sand give false interpretations.

The unreliability of radioisotope dating is proven by giving examples of historically *known* rock formations:

*Mt. Ngaurhoe rocks in New Zealand were formed from lava flows in 1949, 1954 and 1975 but dated 275 Ma using the K-Ar method.

*Mt Etna basalt in Italy was formed in 1972 yet dated 140-350 Ka.

*Mt. St. Helens rocks were created in the 1980 volcanic eruption but dated 2.8 Ma.

*Hualalai basalt in Hawaii was formed in 1801 but was dated 1.4-22 Ma using the K-Ar method.

*Sunset Crater in North Arizona, US formed 1065 but dated 200+ Ka using the K-Ar method.

*Grand Canyon: Twelve 'Pre-cambrian' rock samples from the Gardenãs Basalt were dated using K-Ar and Rb-Sr model, and isochron methods. Likewise, basalt rocks were dated from the *top* layer in the Uinkaret Plateau. The top layer was dated 330 Ma *older* than the bottom! Professional dating companies were used for these measurements and the scientists were careful enough *not* to give age expectations which would introduce *bias* into the results (this is exactly what evolutionists do!)

The negative critique is then capped off by positive evidence from the RATE group's work, particularly helium, the 'teflon' of atoms. Helium is a

by-product of radioactive decay, and will escape from rocks in a short time frame. While ignored by evolutionists, helium concentrations were measured by the creation scientists, in zirconium rocks ('zircons'). It was found ~58% [?] of the helium remained [from what basis?] but the obvious point is Ga-old rocks should have *zero* helium.

Contamination is not a possible explanation and since helium leakage is independent of radioactivity it provides a sound measure of time while contradicting radioisotope dating.

Finally, many standard scientific findings are given evidencing a young earth: lack of salt concentrations in the seas for a 4.5Ga old earth (based on the current p.a. net-inflow it should be much saltier); disequilibrium in the atmospheric $^{14}C_6/^{12}C_6$ ratio (if the terminus ad quem is 30 Ka to reach this ratio and we are still 25% off the earth can't be that old); population statistics; erosion of the continents; comet deterioration; decay of the earth's magnetic field; etc.

When faced with the above, common reasons given by evolutionists or lay-people to ignore the evidence include: pride/intellectualism; "most scientists believe it" (appeal to authority); "I like believing what I do and am happy with it" (plain denial!); textbooks have it [they deceptively omit the scientific deficiencies of these methods; it's not important (usually Christians); an *a priori* commitment to evolution.

-Earth's weakening magnetic shield will cause increased production of $^{14}C_6$ from $^{14}N_7$.

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[1] A hydrogen nucleus only consists of one proton, it doesn't have a neutron.
[2] Exceptions exist, e.g. $^{13}C_6$ is stable and used to calibrate the dating method
[3] It is currently ~1:10^{12}
[4] The decay chain is ^{238}U(Uranium)->^{234}Th(Thorium)->^{234}Pa (Protactinium)->^{234}U->^{230}Th->...->^{206}Pb