THE GENESIS CLASS

Issues of the Age of the Earth – Parts 1 & 2

Why is Age such an issue?

Incomprehensible ages make evolution seem possible.

- In "billions of years" anything can happen
- Impossible to test—possible to construct

The Bible clearly teaches a young earth created by an omnipotent God.

- Destroy the Bible's credibility, and it is easy to deny the Bible's Creator.
- When "Science" is the factor by which we "approve" or "filter"—man becomes judge.

"The secrets of evolution are death and time—the deaths of enormous numbers of lifeforms that were imperfectly adapted to the environment; and time for a long succession of small mutations that were by accident adaptive, time for the slow accumulation of patterns of favorable mutations." – Carl Sagan

Dating Processes

Trying to date an age by a process

- Must ASSUME knowledge
- Must know initial conditions
- Must know rate of change
- Must know stable environment

Formulas based on these assumptions

- All conditions must be KNOWN
- Any UNKNOWN factors preclude certainty
- Small variations produce huge differences

Radiometric Basics

How does one date an event in the past—when we don't know either how or when that event took place?

Radiometric dating ~ 100 years ago

- Very slow decay rates of some.
  - Uranium to Lead (U 238 → Pb 206)
  - Potassium to Argon (K → Ar)
  - Rubidium to Strontium (Rb → Sr)
  - Samarium to Neodymium (Sm → Nd)
- Many more have shorter rates.
  - Some are very fast (Polonium)

Radiometric Assumptions

- Decay rate (half-life) remains constant.
- Rock samples have been closed systems.
- No migration of parent or daughter products.

Radioactive decay used to "date" rocks.

- It is assumed that radioactive decay rates have always been constant at today's measured rates.
    - Measuring daughter products
    - Back calculating using the assumed constant decay rates
    - Long "ages" have been assigned to most rocks.

ICR Research on several Grand Canyon sites

Geologists usually only use one or two of these radioisotope methods on the same rock samples, because they assume all methods would ideally yield the same "age" for the same rock.

- ICR used ALL four radioisotope methods on all samples of the rock units studied.
- ICR used the superior isochron technique which involves analyzing five or more samples and/or minerals in a sample.

Bass Rapids diabase sill, Grand Canyon

- potassium-argon isochron "age" of 841.5 million years
- rubidium-strontium isochron "age" of 1,060 million years
- samarium-neodymium isochron "age" of 1,379 million years
- lead-lead isochron "age" of 1,250 million years

Cardenas Basalt lavas, Grand Canyon

- potassium-argon isochron "age" of 516 million years
- rubidium-strontium isochron "age" of 1,111 million years
- samarium-neodymium isochron "age" of 1,588 million years

Brahma amphibolites (metamorphosed basalts), Grand Canyon

- rubidium-strontium isochron "age" of 1,240 million years
- lead-lead isochron "age" of 1,883 million years
- samarium-neodymium isochron "age" of 1,655 million years

Elves Chasm Granodiorite, Grand Canyon

- rubidium-strontium isochron "age" of 1,512 million years
- lead-lead isochron "age" of 1,933 million years
- samarium-neodymium isochron "age" of 1,664 million years

The different ages measured in these rocks are a significant issue.

- The multiple radioisotope "ages" for each of these four Grand Canyon rock units are different (always disagree).
- BUT each of these rocks units represents a unique (once only) geologic event.
  - the formation of a sill
  - the volcanic eruption of lavas
  - the metamorphism of lavas
  - the crystallization of a granite
- When all four major radioisotope "clocks" are used to "date" the same samples from the same rock unit, they invariably yield different "ages."
- These different "ages" can be explained if these radioisotope "clocks" ticked at faster rates in the past—at rates faster than today's measured slow rates.
- Thus these different radioisotope "ages" for the same rocks are evidence of accelerated nuclear decay.

Carbon 14

C-14 is an isotope of the element carbon with eight neutrons in its nucleus instead of the usual six.

- C-14 is produced in the upper atmosphere by cosmic rays.
- About one out of every trillion carbon atoms in living things is C-14 (and radioactive).
- Since in living things today only about one carbon atom in a trillion (1 in 1012) is C-14, after 20 half lives the fraction of C-14 atoms is only about one in a billion billion (1 in 1018). (Current technology has a detection limit of about one C-14 atom per 1017 C-12 atoms.)
- A quantity of C-14 equal to the mass of the earth consists of only 3 x 1050 atoms. One can therefore say with a high level of confidence that no C-14 on earth today—not even a single atom—is more than one million years old!

Astonishing Discovery - C-14 is present in essentially all fossil organic material!

- Because of C-14's short half-life, finding C-14 in fossil material supposedly 1 million or 10 million or 100 million or 300 million years old is unthinkable!
- Over the past 20 years organic samples from every portion of the fossil record have yielded significant and repeatable levels of C-14 when tested by the highly sensitive accelerator mass spectrometer (AMS) method. The strong implication is that these samples are not millions of years old, but only thousands!

- This discovery was already well documented in the standard scientific peer-reviewed radiocarbon literature before the ICR project even began.

Uniformitarian age as a function of 14C/C ratio in percent modern carbon.

- The uniformitarian approach for interpreting the 14C data assumes a constant 14C production rate and a constant biospheric carbon inventory.
- It does not account for the possibility of a recent catastrophe that removed a large fraction of the carbon from the biosphere.
- Purple band shows range of values for published '14C dead' biological samples.

ICR Analysis of Ten Coal Samples

The ICR team selected ten samples from the U. S. Department of Energy Coal Sample Bank maintained at Penn State University. Our aim in the choice of samples was to obtain good representation geographically as well as with respect to depth in the geological record.

The ten samples included:

- three Eocene
- three Cretaceous
- four Pennsylvanian coals

All I coal samples displayed significant levels of C-14.

- Coal samples spanned a large fraction of the fossil record
- No difference in the C-14 levels from the youngest to the oldest samples
- Suggests that plants the comprising these separate coal deposits
- All grew on earth at the same time
- All were buried at the same time

What does C-14 we find in fossils say about the date of the Flood?

The presence of so many more plants and animals together on earth before the Flood means there was much, much more C-12 in the biosphere in the pre-Flood world. This additional C-12 diluted the available C-14 by at least a factor of 100 compared with today. Taking this into account, the levels of C-14, we now detect in the fossils implies an actual date for the Flood of about 5000 years ago.

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C-14 Detected in Diamonds!

ICR's RATE study measured C-14 at levels well above the AMS detection threshold in each of several African diamonds.

- Most diamonds are believed to have formed very early in the history of our earth
- 1-3 billion years ago according to the uniformitarian time scale
- At depths of greater than 100 miles below the surface.

What about longer time scales of a million years or more?

- A quantity of C-14 equal to the mass of the earth consists of only 3 x 1050 atoms.
- One can therefore say with a high level of confidence that no C-14 on earth today…not even a single atom is more than one million years old!

What is the source of the C-14 we find in diamonds?

- One possibility is that the C-14 is primordial.
  - Surviving from the original creation of the earth.
  - This would imply directly that the physical earth itself is only thousands, not billions, of years old.
- Another possibility:
  - Accelerated nuclear decay during the Flood generated high levels of neutrons in crustal rocks
  - These neutrons in turn converted some N-14 within the diamonds into C-14.
  - This must have occurred only within the last few thousand years in order for the C-14 still to be present.

Summary of C-14 Study

- Carbon-14 half-life is 5730 years.
  - It is undetectable after 100,000 years.
  - Significant levels of carbon-14 confirmed to be in coal throughout record
  - Coal is considered by uniformitarians to be millions of years old.
- C-14 is found in diamonds.
  - Diamonds are found deep inside the earth
  - Are considered to be almost as old as the earth itself—billions of years, according to uniformitarian thinking.
- Therefore:
  - Uniformitarian reconstruction of earth history with its time scale of millions and billions of years is now subject to serious challenge.
  - C-14 in coal represents powerful support for a global Flood roughly 5000 years ago.
  - C-14 in diamonds provides evidence for accelerated decay during the Flood, and supports other independent ICR findings.

Radiohalos

- Tiny balls of discoloration found mostly in granites.
- Produced by alpha particles
  - (2 protons, 2 neutrons) from radioactive decay.
- Formed during rock cooling period.

Different elements react differently

- Polonium halos – very quick.
  - Po214 – 164 μs
- Uranium halos – very slow.
  - U238 – 100 million years

ICR Research Issues

- ICR analyzed granites intruded into Phanerozoic sedimentary rocks.
  - Remember: only igneous rocks can be dated by radio isotope methods
  - The Precambrian layer is considered to be the "oldest" rock
- Comparable numbers of U238 and Po210 halos in same biotite grains.
  - Polonium halos.
    - Po210 has half-life of 138 days.
- Uranium halos.
  - U238 has a half-life of 100 million years
- Formation in same biotite flake sheet of U238 and Po210 halos…
  - Would indicate rapid cooling
  - More rapid nuclear decay during cooling process.
  - Halo series indicate hot fluid transport.
  - Regional heat formed rocks indicate large-scale catastrophic action.
  - Available evidence supports the Biblical Flood record.

Helium Diffusion in Zircons

- Zircons come from granitic rocks.
  - Uranium decay makes helium and lead.
  - Much helium is still in the zircons.
    - Earlier testy by Dr. Robert Gentry confirmed He presence
  - Helium diffuses out of the zircons.
    - Helium is lightweight, fast-moving, and "slippery"
    - The hotter the crystal the faster the "leak:
- ICR predicted leak rates for two models.
  - ICR published the predictions in the year 2000.
    - Model 1: a 6,000 year old earth
    - Model 2: a 1.5 billion old earth

- ICR started measuring diffusion rates in 2001.
    - The data fit the 6,000-year prediction.
    - Two zircon "clocks" disagree by x 250,000
- Helium diffusion experiments give nuclear evidence for a young world.
- "1.5 billion years" of nuclear decay occurred between 4,000 and 8,000 years ago.

Summary and Value of Research Findings

Carbon 14 is Intrinsic in all fossil eras

- No C14 should remain after 250K.
- 1000-fold inconsistency.
- Uniformitarian ages incorrect.
    - 5730 year half-life precludes eons.
    - .5 billion year age not supported.
    - Evidence supports Flood model.
- C14 in diamonds!
    - No possibility of intrusion of C-14
    - Must be included at time of formation
    - Maximum age consistent with Biblical model

Radiohalos

- Po halos require rapid cooling.
    - Most formed within days.
    - Appear in regional plutons.
- U and Th with Po halos.
    - Suggest 100 million age incorrect.
    - Supports accelerated decay rates.
- Heat from decay contribute to catastrophe of Flood.
    - Time for cooling very short!

Helium Diffusion

- Zircons in very "old" granite.
    - Uniformitarian age 1.5 billion years.
    - Diffusion rates carefully studied.
- Creation model supported.
    - Acceleration of billion year rate.
    - Data supports 6,000 year Earth.
- Helium diffusion clearly opposes the long-age interpretations of nuclear data.

Summary

1. Carbon-14 ("young") is found in all eras.
2. Radiohalos (both "quick" and "slow") are present in all Precambrian strata.
3. Helium diffusion demands "fast" process for "old" rock.