

Thousands Not Billions

There are several major contradictions between the bible and conventional science. Some of them are so obvious that they are like an "elephant in the room". But, most people are unwilling to talk about them because, if they believe in God, they're afraid no one will have an explanation. If they don't believe in God, they likely think the bible carries no weight. I believe addressing these contradictions can be beneficial, both to the theist and the non-theist. A believer can have his faith strengthened if some of his doubts are resolved. And a non-believer may come to recognize that the bible is a reliable source of knowledge.

A few of the obvious contradictions between the bible and conventional science are: (1) The origin of everything, (2) The origin of the laws of nature, (3) The origin of the earth and the cosmos, (4) The origin of life, (5) The origin of people, (6) The origin of information in living cells, and (7) The age of everything. Both science and the bible have explanations for all these topics, but they directly conflict one another. The bible relies on God's supernatural power and wisdom for its explanations; conventional science relies on deep time, chance, and increasing complexity.

One of these issues is critical to the conflict between supernatural and naturalistic explanations--the element of age. Conventional science says, "Billions and billions of years are required." A literal reading of the bible says, "Thousands of years occurred since the beginning of everything." So, which is it? The difference between thousands of years and billions is a factor of a million. Surely, we ought to be able to develop an explanation for a disparity this large. Talk about an elephant in the room!

Dr. Robert Armstrong, a member of the institute for Creation Research (ICR) Board of Trustees, had been asking that ICR scientists research the question of "Deep Time" for several years. In the Spring of 1997 when he once again made this suggestion, I volunteered to organize a team of specialists to address the issue. The Lord had been prompting me for a few years to work on such a project.

I had a broad technical background in physical science, but not enough specialized expertise to conduct the actual research. And, I also believe God had been preparing me to administer such a project by arranging that I direct a multimillion dollar research program several years earlier, involving about thirty university, government, and private investigators for the U.S. Bureau of Reclamation. I was successful in developing an effective research team in that project and believed I could do it again at ICR. The Board approved the RATE Project (Radioisotopes and the Age of the Earth) and I was assigned as director.

The first task was to select the members of the research team. Fortunately, I knew most of the experts necessary for the work. We needed physicists, geologists, and geophysicists, plus a Hebrew scholar. Only two of the Team Leaders were from ICR.

I invited the following scientists to become members of the RATE Project (Listed by their specialty and original affiliation): Dr. Steven F. Austin, Geologist, ICR; Dr. John R. Baumgardner, Geophysicist, Los Alamos National Laboratories; Dr. Steven W. Boyd, Hebraist, The Masters College; Dr. Eugene F. Chaffin, Nuclear Physicist, Bluefield College; Dr. Donald B. DeYoung, Physicist, Grace College; Dr. D. Russell Humphreys, Nuclear Physicist, Sandia National Laboratory; Dr. Andrew A. Snelling, Geologist, Answers in Genesis; and Dr. Larry Vardiman, Atmospheric Scientist, ICR. We were all young-earth creationists and fully committed to the inerrancy of Scripture. There were also many others who worked with the project as advisors and lab and field assistants.

The RATE team met for the first time in the summer of 1997 and seven more times annually through 2005 to plan the research, report on progress, and motivate each other. Most of the research was done at the individual scientist's institutions and coordinated by email. This was the first large-scale, young-earth research team organized to solve a specific conflict between the bible and science. The RATE Project published three books, two videos, numerous technical articles, and presented research results at dozens of conferences and meetings. The members of RATE agreed that this team effort was one of the highlights of their careers.

The basic question the team confronted was how to reconcile old-earth and young-earth time frames. A resolution to this issue could assist in solving many

other questions, like evolution, light from distant stars, and earth's geologic column. Most of the effort addressed radioactive isotopes since radiometric dating is the primary method for estimating age.

The immediate dilemma was how to explain the quantity of radioactive decay products found in rocks, crystals, bones, trees, etc., if the earth is young. Most radioactive materials like uranium have half lives of millions or billions of years. A half-life is the time it takes for half of the radioactive material (Parent isotope) in a sample, to decay to a non-radioactive decay product (Daughter isotope). The decay rates, half-lives, amount of parent isotope, and amount of daughter isotope are all measured in specialized laboratories.

The challenge was to explain how millions or billions of years-worth of daughter isotopes were found in rocks, crystals, bones, trees, etc., if the earth is only thousands of years old. The measured decay rates of most radioisotopes is so slow that there should be little or no daughter radioisotopes in samples of these materials. It's understandable, at face value, why the conventional scientific community concludes that the earth is old.

At the beginning of the RATE Project we had no idea how we were going to solve this problem. We were all committed to the reliability of the Bible when it indicated the earth was young, but we didn't know initially how to resolve the conflict. And, we were committed to fully reporting the results of our research, whatever we found. This was no simple concern. If the evidence called for a conclusion that the earth was old, we intended to report whatever we found. Obviously, we hoped we would find evidence that the earth is young.

We wore the burden of this possibility heavily. We realized how devastating a conclusion that the earth is old would be to a literal interpretation of the Bible. We were concerned we could embarrass ourselves and the church at large. Some of our colleagues and associates who had attempted to solve this problem by themselves, had bankrupted their faith when they couldn't crack it. We desperately needed outside help!

One of the distinctives of the RATE Project was that we depended heavily on the Lord to provide not only the funds to conduct the field and laboratory work (Over \$2 million) and the availability of commercial labs (Due to bias against

creationists), but, also creative ideas for developing research ideas and interpreting the results.

We began each annual meeting with bible study and prayer. David, of David and Goliath fame, was our example for facing overwhelming odds and depending on the Lord to supply our needs. His statement when facing Goliath was our challenge quote.

"That all the earth may know that there is a God in Israel." 1 Samuel 17: 46d.

And God provided abundantly--our team worked incredibly well together, ideas flowed freely, funds were available just when needed, specialty labs were available, volunteers assisted, and we found incredible answers to the question about the Age of the earth. Praise God!!

Let me briefly share the RATE Project three evidences we found for a young earth. The first is for the helium diffusion studies on zircons, conducted by Russell Humphreys. Zircons are tiny crystals of zirconium silicate that form when molten material solidifies to granite. These crystals contain uranium that decays radioactively to form lead and helium. The relative amount of uranium and lead in the crystals is used to calculate how old the crystals are and, consequently, how long since the granite formed.

But, the amount of helium remaining in the crystal can also be used independently to estimate its age. Helium diffuses out of a zircon at a measurable rate that is highly dependent upon temperature. RATE found that the amount of lead in zircon crystals gives an estimated age about 100 thousand times older than that calculated by the helium content. And, if the zircons are as old as the lead content suggests, they should not contain any helium at all, because of diffusion out of the crystal. The mere presence of helium indicates the crystals must be young. The helium diffusion research completed by the RATE group estimated the age of the earth to be 6,000 plus or minus 2,000 years.

In addition, the fact that two related nuclear decay processes in a single crystal result in two different estimated ages differing by a factor of 100,000, suggests that nuclear decay rates were different in the past, a term coined as

"accelerated decay" by the RATE group. This finding informed the rest of the RATE Project.

For example, the second major effort, conducted by Andrew Snelling, investigated radiohalos in granite. The radiohalos also provided evidence for a young earth and supported the concept of accelerated decay. Radiohalos are rings of dislocated molecules in biotite surrounding a zircon.

Granite contains flecks of a black material called biotite, a type of layered mica, scattered within the more prevalent matrix of white, gray, red, or pink quartz. Within the biotite are embedded zircons that, in turn, contain radioactive parent isotopes like uranium and strontium. The uranium and strontium emit alpha particles that damage the molecular structure of the surrounding biotite and leave distinctive patterns. The number and diameter of the rings provide a fingerprint of the type of radioisotope which is emitting the alpha particles.

Our analysis of radiohalos in granite showed that a large amount of nuclear decay has occurred in the past, but it happened more quickly than it does today. Once again, this provided evidence for accelerated decay and a young earth. An interesting auxiliary finding was that the granite also cooled more rapidly in the past, leading to an intriguing notion that more complex processes were going on in the past than conventional science has assumed. One of the basic assumptions in physics and geology is that, "The present is the key to the past." This means that rates and processes have always been the same. But, RATE has shown this assumption is not valid.

Finally, the third piece of evidence for a young earth, conducted by John Baumgardner, was to identify measurable quantities of C-14, a relatively short-lived radioisotope of carbon, in coal and diamonds. Coal is thought to be about 100 million years old and diamonds more than a billion years. Since C-14 has a half-life of less than 6 thousand years, the finding of measurable quantities of C-14 in coal, reported in the conventional literature and replicated by RATE, indicated that coal is much younger than previously thought.

But, critics of this conclusion said that coal could have been contaminated by water trickling through the overlying soil, so the RATE Project also tested diamonds for the presence of C-14. This was the first time a search for C-14 in

diamonds had ever been attempted. Diamonds are the hardest known substance and contamination is believed to be highly unlikely. C-14 was found in diamonds, indicating they couldn't be billions of years old.

The conclusion from these three lines of evidence is that the earth is young, on the order of thousands of years, not billions. So, the fear that the bible and science disagree has been dispelled. And, other concerns which have shed doubt on the reliability of the bible have been resolved. For example, evolution was thought to have occurred over deep time. But, if there is no deep time, then evolution is not possible.

Reconciling ages in the bible and science doesn't explain the origin of things, but it certainly puts a damper on believing time is a magic wand that can permit life to evolve into complex forms. I believe the bible contains more truth than many would give it credit. Maybe it should be relied upon to explain origins.

The eight-year long RATE Project ended in 2005 after publishing the final two books and a video. If you wish to read the popular version of the results in book or video form, they may be purchased on Amazon with the title, "Thousands Not Billions".