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RADIOISOTOPES

AND THE AGE OF THE EARTH

A YOUNG-EARTH
CREATIONIST
RESEARCH INITIATIVE

edited by:
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Prologue

John D. Morris, Ph.D.*

Contrary to the claims of some, creationists are not anti-science, nor are they afraid of scientific data. While no generalization can characterize all individuals who believe in Creation any more than one statement can describe all who believe in evolution, all knowledgeable, scientifically-minded creationists fully welcome new scientific data. Every scientist worthy of the name should always be willing to adjust his thinking as new data come in, continually striving for a more complete understanding of reality.

Remember, creationists and evolutionists have exactly the same data. Reality is the same for both. Perception of that reality and interpretation of that data can, however, be remarkably different for the two, depending on the individual's perspective, or assumptions, world-view or even bias.

Philosophers of science have rightly noted that bias plays an important role in designing of experiments, assigning the worth of an individual observation, and interpreting the meaning of results. They are correct in insisting that "there is no such thing as a value-free fact." Presuppositions or bias often play the definitive role in every decision-making process, especially when important questions are being considered. Philosophers have also rightly observed that scientists are some of the most bias-driven folks one can ever meet, most notably when it comes to the world-view issue of Creation/evolution.

Scientists who hold the Creation view quickly admit that they approach science with a bias, but all too often evolution advocates deny their bias, claiming an objectivity which does not and cannot exist. To be sure, most research scientists today hold to evolution and an extremely old earth, and use that perspective as the framework within which to interpret all data. Often these basic tenets dominate their thinking as an

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unexpressed backdrop—seldom acknowledged and never questioned. Other views are ignored, denied or ridiculed. Legislation and official guidelines often forbid alternative views, and peer pressure to conform can be intense. Creation thinking is the most prominent "banned" view, even though the majority of Americans agree with it, and a rapidly growing number of scientists embrace it.

Keep in mind that both Creation and evolution (specifically large-scale macroevolution) are views of history, neither occurring today, as far as we can observe. Obviously, the historical sciences are not in the same category as the empirical sciences like chemistry or physics or the applied sciences like engineering or medicine. Even the disciplines of geology and biology primarily concern themselves with the nature and operation of things in the observed present. Only the subsets of historical geology and evolutionary biology deal with theories of the unobserved past. Many creationist professionals occupy positions in these non-historical disciplines.

Since neither creationists nor evolutionists can go back in time and observe past events, neither can rightly claim their view of origins to be scientifically proven. Thus both are on equal scientific footing. Honesty demands modesty regarding such claims. The issue can only be addressed scientifically by comparing which of the competing views handles the data better, and which is better able to make predictions of new experimental and observational results. In that regard, I contend that the Creation/young-earth bias is superior to the evolution/old-earth bias.

Briefly, the Creation model of earth history based on Scripture includes the recent Creation of all things, at the conclusion of which all things were deemed to be "very good" (Genesis 1:31) from God's perspective. Creation came under God's curse due to Adam's rebellion (Genesis 3: 19–24), no longer as good as before. Soon the world was remolded by the global Flood in the days of Noah. We reside and do our scientific study in a once ideal world, created perfect by a wise and omnipotent God, but now cursed and flooded. To a creationist, these great world-wide events constitute true history, and must form the basis for any historical reconstruction. This is our "bias," and we claim it is a better bias than the old-earth bias, and we offer it as an alternative for your

consideration.

Furthermore, the majority bias of evolution and old earth has frequently led to destructive consequences in society and individual lives. By viewing God as unnecessary, or at best, long ago and far away, many have been led into degrading philosophies and hurtful practices. The Creation world-view, on the other hand, rightly applied, promotes a high view of human life, stewardship over Creation, and accountability for choices and actions, both to God and fellow man.

This book deals with the issue of radioisotope dating, thought by many to represent unassailable proof of millions and billions of years of earth history. However, most are unaware that it often yields contradictory, internally inconsistent results. Different methods often disagree with each other. Rocks of known, historical origins, frequently date to great age. What is wrong? Is there a better way to date rocks? Does the old-earth bias hinder good science? Does the Creation model handle the data better?

It has always been easy to critique radioisotope dating, for it simply does not work very well. Based on the knowledge that certain atoms (for example, ^{238}U) are unstable, and decay into other atoms (^{206}Pb) over time, the amounts of parent and daughter isotopes are measured, as is the rate of decay. Thus, at least in theory, the age of the rock can be calculated as the length of time necessary for decay of the parent into the amount of daughter present. But this straightforward concept has proven unreliable. Creationists have rightly pointed out that the method is based on three unprovable and questionable assumptions which may be the root cause of this failure.

Assumptions of Radioisotope Dating

1. That the rate of decay has been constant throughout time.
2. That the isotope abundances in the specimen dated have not been altered during its history by addition or removal of either parent or daughter.
3. That when the rock first formed it contained a known amount of daughter material.

Up to now, creationist critiques of radioisotope dating methods have focused on assumption numbers two and three, and rightly so. Numerous examples of contamination can be cited and mechanisms are well known. Examination of historically dated lava flows has revealed that unexpectedly high levels of daughter products are frequently present. But now, due to recent discoveries, several hints have surfaced calling assumption number one into question as well. We may be witnessing the demise of a failed theory. Creationists desire to replace it with something better.

At the invitation of the Institute for Creation Research (ICR), several scientists (all faculty or adjunct faculty at ICR) have banded together to investigate this issue. Sponsored jointly by ICR and the Creation Research Society (CRS), the group has chosen the acronym RATE, (for **R**adioisotopes and the **A**ge of **T**he **E**arth). Each scientist is a true professional in his field, with research and publications in radioisotope dating. In addition, each scientist is a mature, Bible-believing Christian, committed to young-earth Creation. Each is strongly sensitive to scientific observation, willing to modify specific views, as demanded by the data.

There were differing positions around the table at the first meeting, but the scientists recognized that they were together marching into uncharted territory, learning as they marched, gleaning wisdom from each other. The one inviolate perspective was that Scripture, rightly interpreted, will always agree with science (not necessarily all the claims of scientists). Being intensely interested, but only somewhat knowledgeable in this field, I was allowed to attend the meetings, and was asked to summarize the flavor of the meetings in this prologue.

Right from the start each scientist declared his complete faith in Scripture. While secular scientists bristle at the notion of melding science with the scriptural world-view, they do much the same thing with their naturalistic, materialistic world-view. The RATE scientists insisted on starting with Scripture and building their understanding of science on that foundation.

They discussed God's creative activity during Creation week, and noted how often various processes were used. Verbs like "moved," "divided,"

"gathered," "made," and "formed" imply that creative processes were not always instantaneous, but that some took at least a finite amount of time to be accomplished. During Creation week, these processes were not strictly the same as analogous processes today. For instance, gravity must have been in operation, but when the waters of Day 2 drained off the rising continents on Day 3, they were able to move faster and farther than waters can be moved today. Modern natural laws, operating at rates we recognize today were evidently not fully instituted until Creation was completed on Day 6, and God rested from His creative acts, but even these laws were altered at the time of the Curse on all of Creation (Genesis 3:19–24, Romans 8:20–22). But then what happened during the Flood? It is as if we cannot clearly see all the way back to Creation. Several curtains have been drawn between then and now. We must try to understand Creation as best we can, responding to all the evidence we have, including both scriptural and scientific data, but the scientists around that table fully understand that the task calls for their very best work. We must study the results of past processes, some of which are not occurring at all now, and others which were operating at rates, scales and intensities far different from similar processes today, and infer unobserved, past events.

The four meetings over these past three years have not been a conference, although papers and research results were presented. This is a working group, a research consortium. They are occupied with clarifying issues, thinking together, and blazing new trails toward the goal of replacing a wrong idea with one that works better.

Each meeting opens and closes with prayer, asking the Creator Himself for wisdom in "thinking outside the box." Each one desires to "think God's thoughts after Him," and to give Him glory for His mighty acts. The Bible tells us that "iron sharpens iron," and we've seen that happen over and over again. The synergy of a room full of brilliant minds is something to behold. To them, even when the problems seem daunting, there must be an answer, and this answer must come within the framework of Biblical history.

Questions have been asked, and projects proposed which would never have been investigated by old-earth advocates. And preliminary results are beginning to come in which suggest they're on the right track. Could

it be that the noticeable weaknesses of standard thinking linger because mainstream scientists are stuck on the wrong track?

From the meetings have come position papers, statements of current knowledge, documentation of the failure of standard theory, estimates of the amount of past decay and hints of accelerated decay rates. They appear in the first portion of this book. Detailed research proposals appear in the appendix. Some projects are not intuitively obvious but are crucial in this stage of the investigation. Others will follow and even more are needed. Of course, other qualified researchers and access to research labs are needed as well. One research project has even been granted to a Hebrew language scholar to make sure the RATE group stays on course.

The RATE committee has come a long way, but now the work begins in earnest. This research, however, is expensive and time-consuming, and you may consider this document an invitation to help fund it with designated, tax-deductible gifts. Designated gifts should come through ICR as facilitator, but all will be applied directly to RATE. Of course, the investigators must also be upheld with prayer for wisdom, protection, and success.

Here's my prediction. As God's Word is honored and the specially trained scientists continue to do their work in submission to the Biblical world-view, answers will begin to come which will thrill Christians and change science. It may take a few more years, but standard, old-earth thinking based on radioisotope decay will begin to crumble. Time is running out on the theory of evolution. To God be the glory!

Acknowledgments

The members of the RATE group thank the Institute for Creation Research (ICR) and the Creation Research Society (CRS) for publishing this book. We recognize that statements the RATE group makes or conclusions it reaches may not necessarily represent the positions or viewpoints of ICR or CRS. We also thank Laurel Hemmings, for the excellent word processing she did on this book.

We thank the technical reviewers who read the early manuscripts and made comments to the authors. Most reviewers are young-earth creationists, but several do not agree with some of the positions or conclusions reached by the authors. However, all were gracious in offering their comments to make this book the best technical resource possible. The following scientists helped in the review process: Dr. Gerald Aardsma, Lodi, Illinois; Mr. Mark Armitage, Azusa Pacific University, Azusa, California; Dr. David R. Boylan, Dean of the College of Engineering (retired), Iowa State University, Ames, Iowa, currently Professor of Science, Faith Bible College and Theological Seminary, Ankeny, Iowa; Dr. Ben Clausen, Geoscience Research Institute, Loma Linda, California; Dr. Paul Giem, Loma Linda University, Loma Linda, California; Dr. Larry Helmick, Cedarville College, Cedarville, Ohio; Dr. J. C. Keister, 3M Corporation, Minneapolis, Minnesota; Dr. Ron Mathis, Ramona, California; Dr. Theodore Rybka, Reno, Nevada; Dr. Ker Thomson, Oklahoma Baptist University (retired), Dayton, Tennessee; Dr. Erich A. Von Fange, Dean of Concordia Lutheran College (retired), Ann Arbor, Michigan; Dr. Keith Wanser, California State University at Fullerton, Fullerton, California; Dr. Clyde Webster, Geoscience Research Institute, Loma Linda, California; Dr. Kurt P. Wise, Bryan College, Dayton, Tennessee; and Dr. Paul A. Zimmerman, former President of Concordia College, Seward, Nebraska, Concordia University, River Forest, Illinois, and Concordia College, Ann Arbor, Michigan.

Finally, the RATE group thanks the many donors who have contributed to the research efforts on which we are about to embark. This book was

published using some of those funds. Over the next five years we hope to answer some of the questions which have been raised in this book. At a minimum, we hope to advance our understanding about the age of the earth and possibly resolve the apparent dilemma regarding radioisotopes. We request your continued prayers on our behalf.

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Chapter 1

Introduction

Larry Vardiman, Ph.D.*

Abstract. One of the most significant challenges to young-earth creationism is the perception that radioisotope dating methods have established that the earth and universe are billions of years old. A group of young-earth researchers called RATE (**R**adioisotopes and the **A**ge of **T**he **E**arth) have banded together to investigate the basis of these claims and offer an alternative young-earth explanation. It is believed by the RATE group that processes other than radioactive decay over long periods of time may better explain the presence of secondary decay products. This introduction discusses the deliberations of the four meetings held by this group of scientists to date and their projected plans for research on this problem. It further outlines some of the details for the research projects, time lines, and costs and summarizes the contents of the remainder of this report.

1. The Age Issue

The conventional scientific view expressed today is that the earth is about 4.6 billion years old and the universe between 10 and 20 billion years old. These estimates are based primarily on the abundances of parent and daughter radioisotopes and the implications of stellar and cosmological models. Yet, a literal interpretation of Scripture and much scientific evidence indicates that the Creation of the earth, the solar system, and the universe occurred a few thousand years ago.

One of the principal driving forces which has traditionally driven estimates of an old age for the earth is the necessity for long periods of time for evolution. Even before radioactivity was discovered in the 1890s,

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estimates of the age of the earth were growing longer and longer as the complex nature of life became more evident. It has never been demonstrated that the evolution of life from inorganic chemicals has occurred or that life has evolved from simple life forms to the complex ones we see today. Evidence for the evolution of life is fragmentary or missing at best, and illogical and improbable at worst. However, even if life could somehow have evolved, it would take much longer than billions of years for the process to occur.

Some Christians have questioned the young-earth interpretation and some have now abandoned the clear statements of Scripture about the age of the earth. They believe that the evidence for an old earth is so compelling that they must accommodate some form of long ages and even evolution with the Bible. Two traditional methods of accommodation have been to hypothesize either a long period of time between Genesis 1:1 and 1:2 (the Gap Theory) or that the days of Creation were long periods of time (the Day-Age Theory). A popular form of accommodation today is called Progressive Creationism in which God supernaturally guided the process attributed to evolution by intervening in the process at critical steps along the way. All of these attempts to harmonize science and the Bible have serious flaws, however.

No matter which form of accommodation is used, the effect is to degrade the reliability and authority of Scripture. Even the statements of Christ are viewed by many as not coming from the triune God but containing error because of Christ's limited knowledge of science. Carl Sagan (now deceased) once asked me, "How can you seriously believe the pronouncements of a band of ignorant shepherds who lived several thousand years before the discoveries of the 20th century?" I responded that because God inspired the very words of Scripture, many of the statements in the Bible reveal information which not even the writers may have understood. Because of prevalent attitudes such as those of Carl Sagan, I believe it is time that the age of the earth be addressed more thoroughly and the specific question of radioactive decay be explained in a young-earth timeframe. Only then will some Christians be able to accept statements from Scripture about the age of the earth and miraculous events such as Creation, the Flood, and the Incarnation.

Young-earth creationists are not convinced that long periods of time have occurred since the origin of the earth and the universe. In defending a young-earth position, they typically point to questionable assumptions in dating schemes. For example, in radioisotope dating, when a parent isotope decays into a daughter isotope, the concentration of the daughter isotope in existence at the initial time will affect the estimate of time since the process started. Creationists sometimes question the conventional assumption that the amount of daughter product is small at the initial time. Isochron dating attempts to correct for this, but the technique itself apparently has problems. Also frequently questioned by creationists are the assumptions that the quantities of the parent and daughter isotopes were not affected by other non-radioactive processes and that the rate of decay from parent to daughter was constant during the period of the decay process. Attempts are made by most researchers to justify each of these three assumptions, but ultimately no one can be certain if the conditions were met, particularly over long periods of time.

For many years, creationists have been satisfied to criticize age estimates based on radioisotope methods because of this unjustified dependence upon these assumptions. However, it has now become evident that even when the weaknesses of these assumptions are pointed out, many people are still convinced of the legitimacy of the estimated long periods of time. Even Christians who wish to believe in a literal, recent creation seem to be overwhelmed by the argument that the earth and universe are old. It is clear that the age issue must be readdressed and an attempt made to discover an explanation for the abundances of radioactive elements within a young-earth timeframe.

It appears that much larger quantities of nuclear decay have occurred in most nuclear processes than would be expected for a few thousand years of radioactivity at the currently observed rates. If this large amount of nuclear decay occurred, when did it occur and what caused it? Is it scientifically feasible for the rates of decay of radioisotopes to be accelerated? What are the implications of accelerated rates of decay on radioactive materials? Where did all the heat go? What about life on the earth during the accelerated decay?

It is hypothesized by the RATE group (**R**adioisotopes and the **A**ge of