Contents

List of Tables

List of Figures

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,

* *Administrative Vice President and Astrogeophysics Department Chairman, Institute for Creation Research, Santee, California*

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.

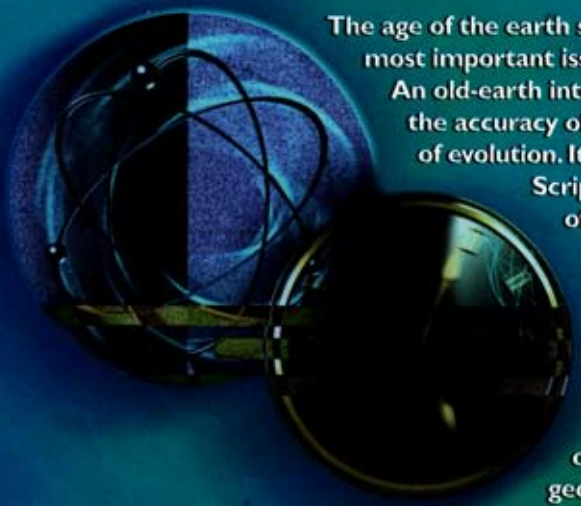
No matter which form of accommodation is used, the effect is to degrade the reliability and authority of Scripture. Even the statements of Christ are viewed by many as not coming from the triune God but containing error because of Christ's limited knowledge of science. Carl Sagan (now deceased) once 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



The age of the earth stands out as one of the most important issues among Christians today! An old-earth interpretation clouds our view on the accuracy of Scripture. It supports the theory of evolution. It affects our perception of God. If Scripture can't be trusted on the age of the earth, how can it be trusted on others?

But, have we been mislead about the reliability of radioactive dating methods? The **RATE** group believes we have. The **RATE** group, consisting of six young-earth creationist geologists, geochemists, and physicists, is cooperating to research the issue of *Radioisotopes and the Age of the Earth*. They have dared to ask the tough questions and are searching for an alternative explanation for the billions of years found in rocks. They are asking questions like:

- Why don't dating methods agree — what is the source of the discordance?
- What about the lead found in rocks — did it all come from uranium?
- Where did all the decay-produced helium go — did it escape to the atmosphere or is it still trapped in the rocks?
- Can accelerated decay explain the abundance of daughter products?
- Do nuclear decay rates change — is it theoretically possible?
- Can inheritance and mixing from primordial reservoirs of argon, helium, and other end products during Creation and the Flood explain the apparent old ages?
- What about nature's tiny mystery, the halos of polonium and uranium? How did they form and when? What about fission tracks?
- Can halos and fission tracks tell us something about the history of radioactive decay on the earth?

These and many other questions are addressed in this book. The **RATE** scientists are working to solve the radioisotope riddle. This book "sets the stage" for their five-year research initiative on *Radioisotopes and the Age of the Earth*. A second book is scheduled for the end of the research phase in 2005 to report on their findings.

ICR
INSTITUTE FOR CREATION RESEARCH

CRS
CREATION RESEARCH SOCIETY

ISBN 0-932766-62-5
9 790932 766624