

Syllabus for Theology IV (BST 604) Ecclesiology (the church), Eschatology (end times) Front Range Bible Institute (Fall 2011)

I. Course Description

Theology IV is the last of four courses in systematic theology (embracing four areas of systematic theology). This course will include a study of the last two of the ten major branches of theology: Ecclesiology and Eschatology.

The course will have classroom lectures that are primarily based upon the professor's notes and visual presentations, although the format will not be in a pure lecture form. Students are encouraged to participate by asking and answering questions and taking notes. Detailed notes will be provided, but the student is encouraged to make additions in the margins based upon classroom discussions that will expand and elaborate.

The course will include quizzes and exams from the materials studied as well as a class project. The class project will be aimed at taking the classroom learning and transferring it into a useable student tool for practical ministry purposes.

II. Course Objectives

- A. One objective of this class is to have students become familiar with the broad issues relating to orthodox Christian theology in the areas of Ecclesiology and Eschatology. To accomplish this, the professor will expose the students primarily to the orthodox views, but will also expose students to other views that have been held throughout the ages. This will especially deal with a focus on the following issues: (1) the nature of the church as a spiritual entity that is distinct from national Israel, (2) the relationships between the Old Covenant era and the present church age (continuity vs. discontinuity of the covenants), as well as the ages that will follow the present church age, (3) the promises of God for a national restoration of Israel, (4) the significance of, and differences between, different millennial views (i.e., Premillennialism, Amillennialism, Postmillennialism, Preterism), (5) the significance of, and differences between, different raptures views (i.e., Pre-tribulation, Post-tribulation, Mid-tribulation, Pre-wrath), and (6) the nature of Dispensational theology and why a Dispensational view of eschatology should be held as the most biblical of all eschatologies.
- B. A second objective of this class is that this theological learning process would achieve its true end by producing a greater love for God and a

greater desire for genuine worship. Jesus said that the Father seeks true worshippers who worship in spirit and truth. The goal of theology is more than acquisition of knowledge; it is to produce true worshippers of God.

- C. A third objective of this course is that students take the knowledge they acquire, and begin applying their growing knowledge in practical ministry. This will be accomplished by having a class project that is designed for some type of ministry application and by requiring that this class project be employed in some type of ministry setting.

III. Required Course Materials

A. Reading materials (all students):

i. All students:

1. Professor's notes on Theology IV (and the professor will supply you with a soft copy of all materials)
2. *Christian Theology* by Millard Erickson, Baker Books (219pp.)
3. *The Master's Plan for the Church* by John MacArthur (266pp.)
4. *Understanding End Times Prophecy* by Paul Benware (378pp.)
5. All class notes for the week are to be read before class begins

- ii. Master's level students: Read all appendices at the final section of the class notes (p. 151ff.).

B. All students: Your own computer or at least access to a computer

- i. Class presentations should be on Microsoft Word, although the hard copies of your project do not necessarily have to be done on this program. Using the same program may be helpful when it comes to questions about style and formatting.
- ii. It is recommended (though not required) that you see if you could employ Power Point in your teaching.
- iii. You do not need to have a laptop in class, but you may use one for note-taking if you prefer.

- C. Logos Libronix Bible Software Program (highly **recommended** as a personal study tool, but not required for the class. Group discount may be possible through FBI).

IV. Course Requirements

- A. Attend all classes (if a student must miss a class, he/she must obtain a DVD copy and watch the lecture)
- B. All students:
 - i. Read Millard Erickson's *Christian Theology* (pp. 1035-1253)
 - ii. Read Paul Benware's *Understanding End Times Prophecy*
 - iii. Read MacArthur's *The Master's Plan for the Church*
 - iv. Read all *Theology IV Class Notes* (read the coming section before class)
- C. All students: take notes as appropriate
- D. All students: take quizzes
- E. Complete your semester paper
 - i. Undergraduate level
 - 1. Write a 7-10 page minimum (you can go beyond this), three-part Semester Project.
 - 2. This paper will be submitted in three stages and the total page requirement minimum is 7-10, not 7-10 for each of the three parts:
 - a. Part I: Describe the nature of the church, the time of its origin, and the duration of the church's existence on earth. Make your explanations clear and concise. Support your statements with relevant Scripture passages.
 - b. Part II: Describe in concise terms what will take place after the rapture and during the tribulation period. Support your statements with relevant Scripture passages.
 - c. Part III: Describe God's plan for what will take place at the close of the tribulation period and thereafter. Support your statements with relevant Scripture passages.

3. At one place or another, your paper should try to include some concise references to the following issues:
 - a. Daniel's 70 week prophecy (Dan. 9:24-27)
 - b. The 1st coming of Christ (birth, life, rejection, death, resurrection)
 - c. Pentecost and the entrance of the church age
 - d. Key NT passages on the nature of the church, such as in (for example) Acts 2, Romans 16:25ff., and especially Ephesians 2-3.
 - e. The 2nd coming events of the rapture and end of the church age (e.g., in 1 Cor. 15; 1 Thess.; 2 Thess.)
 - f. The Tribulation Period
 - g. The visible aspects of the 2nd coming to cast out the wicked and establish the Millennium
 - h. The final resurrection, final judgment, and eternal state
 - i. You should look to write very concisely in this. Do not try to be exhaustive for this would become much too extensive for the purpose of this project.
 - j. Your paper should be written in proper writing style including proper footnote citations and a bibliography for your resources.

- ii. Master's level: All the same requirements above, except your paper should be 10-15 pages as a general goal.
- iii. Help will be given on style issues:

1. I am going to supply you with a sample paper as an appendix to this syllabus so that you have a sample on how to do this properly.
2. The two-fold purpose of this project is (1) to see your understanding of ecclesiological and eschatological issues and (2) to help you develop your ability to write in proper style.
3. I will help you in this process so avail yourself of my help by asking questions. Don't neglect something because you are not sure what to do. All of this is simply a process of learning style and technique.
4. In this paper, I want you to make citations from at least five different sources (with footnotes in proper style. Ask me if you have questions how to do this. It is not hard at all. The sample paper will show you how it should look). The five sources should include your three textbooks, Erickson, MacArthur, and Benware. I also want you to use the

church/institute library for at least two other references. You should also try to use Logos Libronix (if you own it) to make at least two citations since electronic citations are becoming increasingly more common. There is a feature in Libronix that can have citations set to the “Turabian” format. You should make that adjustment to your settings.

5. As the sample paper shows, your paper should include the following:
 - a. Introduction
 - b. Main body with points and sub-points as appropriate
 - c. Conclusion
 - d. Bibliography (see the bibliography in this syllabus for proper form and copy it and then modify it for making your own. It is already formatted and that will make it real easy for you).

- iv. The paper should be written with the idea of it being a single paper in a single Word document even though you will submit it in three parts.
 1. Part I is due on class 4, 9-29-11. Have it ready and turned in with a hard copy on that night.
 2. Part II is due on class 8, 10-27-11. Have it ready and turned in with a hard copy on that night.
 3. Part III is due on 11, 11-17-11. Have it ready and turned in with a hard copy on that night.

V. Course Grading Criteria

- A. 20% Threaded discussion participation
- B. 20% Ecclesiology Quiz
- C. 20% Eschatology Quiz
- D. 20% Scripture Memorization completed and handed in
- E. 20% Semester Paper

VI. Course Schedule

A. General schedule

	Date	Topic (subject to	Personal	Weekly Questions
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		<p>change based on progress)</p>	<p>Studies (reading should be completed by the beginning of the class week).</p> <p>Scripture that is assigned week 1 must be turned in by the next week.</p> <p>Have your name and the week of verses listed at top and simply make a statement that you have studied and memorized the assigned Scripture passages.</p> <p>Hand in a statement each week telling me you have memorized the verses with the following qualification: given the volume of work I have assigned, I am not demanding that you have each these verses memorized perfectly. In other words, do your best to consult these</p>	<p>1. The initial answer must address the professor's question directly. You must also interact with at least one other student. Both answers must be made that week on a weekly basis.</p> <p>See Section "B" below at the end of this schedule for additional details.</p>
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			verses, spend some time in memorizing and reviewing them, and get a good familiarity with them.	
1	9-8-11	Introduction, Ecclesiology	Begin memorizing Scripture: Matt. 16:16-20; 18:15-20; 28:16-20	
2	9-15-11	Ecclesiology	Turn in Scripture from past week Begin memorizing Scripture: John 14:1-3; Lk. 23:49-53; Acts 1:6-11	Q1: Give an exegetically (biblical) and theologically supported answer as to why or why not one should understand the church as being in the Old Testament. Was the church in the OT? If not, did the OT prophets “predict” or foresee the church?
3	9-22-11 (note: I will be out. No class on 9-22)	Ecclesiology	Turn in Scripture from past week Begin memorizing Scripture: Acts 2:1-12	Q2: Explain what you believe might be legitimate continuities between the church and OT saints, i.e., are there any kinds of truths (spiritual or otherwise) that are true for OT saints in a way similar to or the same as to the church?
4	9-29-11	Ecclesiology	Turn in Scripture from past week Begin memorizing Scripture: Acts 10:34-35; 11:15-18; 13:38-41; 15:8-14	Q. 3: Similar to last week, explain what you believe might be legitimate discontinuities between the church and OT saints, i.e., are there any kinds of truths (spiritual or otherwise) that are true for one group but not the other?
5	10-6-11	Ecclesiology	Turn in Scripture from	Q4: Why was it so difficult for early Christians to understand

			<p>past week</p> <p>Begin memorizing Scripture: 2 Cor. 6:14-18; 11:2; Eph. 1:18-23; Dan. 9:24-27</p>	<p>that the church is so universal and diverse?</p>
6	10-13-11	Eschatology: Premillennialism, a non-negotiable	<p>Turn in Scripture from past week</p> <p>Begin memorizing Scripture: Eph. 2:13-22; 3:1-10; 5:32; 1 Cor. 15:50-58</p>	<p>Q5: Explain with scriptural support when the Church had its beginning on earth, and when it will cease to have its presence on earth in non-glorified bodies. What role will the church have in the Millennium.</p>
7	10-20-11	Eschatology: Premillennialism, a non-negotiable.	<p>Turn in Scripture from past week</p> <p>Begin memorizing Scripture: Rom. 8:18-27; 1 Thess. 1:9-10; 4:13-18; 5:1-2, 9</p>	<p>Q6: Give exegetical (biblically supported) and theological support for why one should believe (or not believe) in a literal, future millennium (1000 year kingdom) here on this present earth.</p>
8	10-27-11	Eschatology: Restoration through Immanuel	<p>Turn in Scripture from past week</p> <p>Begin memorizing Scripture: 2 Cor. 4:16-18; 5:1-10; 2 Thess. 2:1-3</p>	<p>Q7: Tell which rapture position you hold to and give the reasons why you hold this view (reasons that must come from exegetical support, but may also include theological reasons).</p>
9	11-3-11	Eschatology: Seventy-Sevens to glory	<p>Turn in Scripture from past week</p> <p>Begin memorizing</p>	<p>Q8: Should the Book of Revelation be seen as sequential in the Seals, Trumpets and Bowls, or is it better to see the idea of “recapitulation” in which the</p>

			Scripture: Heb. 9:27-28; James 5:8; 1 Pet. 4:7; 2 Pet. 3:7-16; 1 John 3:1-3	Trumpets and Bowls are simply giving further explanation to the Seals?
10	11-10-11	Eschatology: Pretribulationism	Turn in Scripture from past week Begin memorizing Scripture: Rev. 1:1-3, 7-8, 17-19; ; 6:16-17; 7:15-16; 12:11; 19:7-8, 11-14	Q9: Describe what you see as the difference between the future judgment of the unsaved verses the saved (cf. e.g., Rev. 20:11-15; Rom. 14:17; 1 Cor. 3:10-15; 4:5; 2 Cor. 5:10).
11	11-17-11	Eschatology: Scanning the Apocalypse	Turn in Scripture from past week Begin memorizing Scripture: Rev. 20:1-2, 11-15; 21:1-7; 22:1-5	Q10: What parallel do you see between Genesis 1-3 and Revelation 21-22?

B. Weekly Questions:

- i. As noted in the weekly schedule above, there is a theological question for all students listed for each week.
- ii. Each student is required to (1) reply back to the professor and (2) to interact with at least one other student.
- iii. Each answer should be anywhere between 150-400 words and should be posted in the online threaded discussion. Replies and interactions with the students may be shorter.
- iv. When you interact with other students, your task is to thoughtfully and critically (although always tactfully, graciously and fairly) give a response to another student. Iron sharpens iron. I want to help each other sharpen your understanding in a number of very difficult issues.

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VII. Sample Paper

YOUNG EARTH CREATIONISM

by

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A SEMESTER RESEARCH PAPER

Submitted to Dr. Mike Stallard
in partial fulfillment of the requirements
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CHAPTER 1

INTRODUCTION: THE SIGNIFICANCE OF A YOUNG EARTH

One need not look far to see the raging debate between Darwinian evolutionism and biblical creationism. The debate rages at every level of society from the educational system, down through the public media, and all the way throughout every level of life. Unfortunately, many Christians feel intimidated by the claims of the evolutionists who present their case “with an aura of reliability” that is held to be beyond question.¹ Bible believing Christians often feel that they are not competent to engage in discussions about these issues since they lack the technical training to reason intelligibly with the evolutionists who claim the support of “scientific facts.” One of the facts Christians need to recognize in this whole issue is the fact that “scientific data are theory laden, not theory free.”² In other words, as Barbour notes, one should not make the naïve error of thinking that scientists are free from philosophical and metaphysical presuppositions when they approach the task. As Barbour points out, theoretical assumptions impact the work of the scientist at virtually every level of the process. Lest one question the reality of assertion (by one who admittedly is not an orthodox evangelical Christian), the reader is invited to consider several interesting (and even comical) quotes from some of the most eminent scientific minds. For example, Steven Hawking, commenting on the Big Bang and how he uses quantum mechanics to avoid a scientific model that looks like biblical, ex-nihilo creation, says the following: “I don’t demand that a theory correspond to

¹ Keith Swenson, “Radio-Dating in Rubble: The Lava Dome at Mount St. Helens Debunks Dating Methods,” <<http://www.answersingenesis.org/creation/v23/i3radiodating.asp>>, accessed on July 7, 2007, 1.

² Ian Barbour, *Religion and Science* (San Francisco: SCM, 1998), 93.

reality because I don't know what it [reality] is.”³ Hawking goes on to say, “I take the positivist viewpoint that a physical theory is just a mathematical model and that it is meaningless to ask whether it corresponds to reality.”⁴ What Hawking is saying is that he is content with a non-reality view of the universe if he can make his non-reality view fit into a mathematical model, a model that *must not* include a sovereign God who is both creator and judge, a model that utilizes concepts like “imaginary time” and “imaginary numbers”⁵ because for Hawking, to take the evidence as it is “smacks of divine intervention.”⁶ These scientists simply do not want to confess the God who is there.

Commenting on the fact that many in the scientific world are beginning to say that the Big Bang may be scientific support for the Bible, Robert Jastrow of NASA's Goddard Institute made the following comical remark about the atheistic scientist:

Now we see how the astronomical evidence leads to a biblical view of the origin of the world. The details differ, but the essential elements in the astronomical and biblical accounts of Genesis are the same: the chain of events leading to man commenced suddenly and sharply at a definite moment in time, in a flash of light and energy. . . . For the scientist who has lived by his faith in the power of reason, the story ends like a bad dream. He has scaled the mountains of ignorance; he is about to conquer the highest peak; as he pulls himself over the final rock, he is greeted by a band of theologians who have been sitting there for centuries.⁷

Though Jastrow himself is a scientist, he clearly recognizes the reality that many in the world of science are not letting objective evidence play an objective role.

³ Steven Hawking, *Nature of Space and Time*, 121, quoted in Paul Copan and William Lane Craig, *Creation Out Of Nothing* (Grand Rapids: Baker, 20004), 237.

⁴ Ibid.

⁵ Ibid., 236.

⁶ Stephen Hawking, *A Brief History of Time* (New York: Bantam, 1988), quoted in Copan, *Creation Out Of Nothing*, 9.

⁷ Robert Jastrow, *God and the Astronomers* (New York: W. W. Norton, 1978), 14-15, quoted in Copan, *Creation Out Of Nothing*, 17.

Sadly, this failure to let facts speak eventually leads the unbelieving scientist to utter futility and senselessness since he/she is constantly believing a worldview that is against reality. As one final illustration of this folly, one can consider the words of astrophysicist Edward Tryon as he seeks to explain the origin of the universe. In answering why our universe came into existence, Tryon simply says, “Our universe is simply one of those things that happen from time to time.”⁸ All is not what it might seem to be in the world of science. Christians need to understand that the world of (atheistic) science does *not* have the answers to explain the ultimate realities of this universe.

Purpose of the Study

The purpose of this study is to address the topic of evolution in a general sense, but specifically to address the age of the earth and whether or not an “old earth” position is tenable in view of all the available data. This is one of the crucial issues of the debate due to the fact that an old earth position is essential to an evolutionary position. By the end of the 20th century, it had become common to hold that the earth was some 4.5 billion years old. These incredibly long ages are seen as an essential part of evolutionism due to the fact that no one has ever witnessed macro evolution in process (neither in present observation nor in the fossil record for that matter). The evolutionist’s attempt to circumvent this problem is to posit the idea that the process from non life to simple life to complex life must have taken millions and millions of years.

On the other hand, the creationist who holds to a literal reading of the Bible will say that the Bible teaches an age of the earth that is slightly over 6,000 years. This idea

⁸ Edward Tryon, “Is the Universe a Vacuum Fluctuation?” *Nature* 246 (14 Dec. 1973): 396, quoted in Copan, *Creation Out Of Nothing*, 19.

seems preposterous to the evolutionist and in their eyes is driven by nothing but blind religious zeal—a zeal that is unscientific and irrational in light of what they feel is hard facts and irrefutable evidence to the contrary. Many Christians are afraid to even breach the subject due to the intimidation factor.

Because the young earth position is absolutely inconsistent with evolutionism, this paper will examine whether or not a young earth view is defensible from a biblical and/or scientific perspective, and whether or not a person should be seen as anti-scientific for holding to a young earth position.

Methods of the Study

The first source of data is that which is primary in the eyes of this writer—the Holy Bible. This writer grants the presence of his own presupposition that the Bible is the inspired word of God, and as such it was given by God without error. The writer also assumes that supernatural explanations of some data need not be seen as incompatible with honest and true science.

At the outset, it is certainly not wrong to point out that the overwhelming presupposition of the evolutionist (old earth position) is that there can be no supernatural explanations of any of the data. Most commonly the evolutionist will hold to a position of uniformitarianism with its credo that “the present is the key to the past.” In other words, present processes are the only basis for explaining the past and catastrophism is not a viable answer for explaining the data.

This study will also interact with a range of extra-biblical sources for information, including scholarly books and journals that focus on the topic, whether from a creationist or evolutionist perspective. The author believes that it is legitimate for the biblical

theologian to engage in extra-biblical research as a means of integrating extra biblical truth so as to apply systematic theology to all of life. Howe notes that all believers “of whatever training or background, are obligated to strive for coherence and correlation in the study of truth.”⁹ In other words, the biblical theologian should not fear to apply his theology to all of life to understand God’s creation better and to test the findings of his exegetically driven theology with true observations from the created world.

Limitations of the Study

The topic is immense in scope and the amount of materials one could consult is huge. For this reason, this paper will remain focused on a specific purpose and deal with research materials that relate to this narrow purpose. In particular, the paper will focus on whether or not a young earth position is supportable from a biblical and scientific perspective. The paper will make brief mention of several extra biblical lines of argumentation that may be used in support of a young earth view, but the bulk of the paper will focus on issues involving radioisotope dating since this is often said to be the strongest scientific argument in favor of an old earth position.

The order of priority, then, will start in chapter two to first examine the biblical data for a young earth position. This will be followed in chapter three with a brief consideration of some of the general scientific issues that relate to a young earth position. Chapter four will develop the topic of radioisotope dating and how these findings do or do not support a young earth view. Chapter five will summarize the findings and suggest a reasonable position in light of the data.

⁹ Frederick Howe, “Part 1: The Age of the Earth: An Appraisal of Some Current Evangelical Positions” *BSac* 142:565 (Jan. 1985): 24.

CHAPTER 2

THE BIBLICAL DATA FOR A YOUNG EARTH

The priority data source for examining a young earth position will be the Holy Bible, particularly the Old Testament statements concerning creation. This chapter will first examine the feasibility of a six-day creation viewpoint and whether not the text may legitimately be read to suggest an old earth position. This will be followed by a discussion of the genealogies of Genesis chapters five and eleven and whether or not one may legitimately rely on these genealogies for a young earth view. Finally, this chapter will briefly discuss the significance of the theological issues raised by an evolutionary (old earth) position.

The Case for a Six-Day Creation

This section will consider whether or not the traditional six-day creation view should still be held as the best interpretation of Genesis. In a very real sense, if Genesis actually does teach a six-day creation a little over 6,000 years ago as the church has largely believed historically, then this should solve the question for those who claim to follow the Bible. As MacArthur has put it, “If you reject the creation account in Genesis, you have no basis for believing the Bible at all. If you doubt or explain away the Bible’s account of the six days of creation, where do you put the reigns on your skepticism?”¹⁰ MacArthur is absolutely right. If the Bible says what it says, then one should be honest and take it at face value. On the other hand, if someone is absolutely committed to an old earth position, that person is better off saying, “I simply do not believe the Bible,” rather

¹⁰ John MacArthur, *The Battle for the Beginning* (Nashville: Thomas Nelson, 2001), 44.

than trying to force the Bible to say something that it does not say! This section will consider four lines of evidence that argues for a six-day creation.

A Natural Reading Argues for a Six-Day Creation

The first point to consider is the fact that a natural reading of Genesis clearly describes a six-day creation—and one, for that matter, that was “ex-nihilo.”¹¹ Unless one already has the presupposition of an old earth position (generally with some kind of evolutionary idea behind it), there simply is no way one can find the idea in Genesis that creation was not in six days. The text is self evident on this point. DeYoung says that “this is surely the plain, direct intention of the text,”¹² and MacArthur puts it even more bluntly when he says, “We can either believe what Genesis says, or not.”¹³

Literary Genre Argues for a Six-Day Creation

Those who argue for an old earth model do so because they feel that the Bible needs to be brought into harmony with the present views of non-creationist historical geology (whether these people are arguing for atheistic evolution, theistic evolution progressive creationism, or a day-age view).¹⁴ One of the approaches has been to argue that Genesis was actually written as poetic genre, and as such, it need not (or, should not) be taken in a literal sense. Certainly, some portions of the Bible should be classified as Hebrew poetic literature, and admittedly, the Bible does employ figurative language in

¹¹ The reader is directed to two fine works that give ample biblical, philosophical, and scientific support for a six-day, ex-nihilo creation: (1) Paul Copan and William Lane Craig, *Creation Out of Nothing* (Grand Rapids: Baker, 2004); (2) John F. Ashton, ed., *In Six Days* (Green Forest: Master Books, 2000).

¹² Don DeYoung, *Thousands Not Billions* (Green Forest: Master Books, 2005), 169.

¹³ MacArthur, *The Battle for the Beginning*, 42.

¹⁴ John C. Whitcomb, “The Science of Historical Geology,” *WTJ* 36:1 (Fall 1973): 65.

various places. The objective evidence shows, though, that Genesis should not be considered as Hebrew poetic literature. The text should not be understood figuratively.

The RATE project had Genesis 1:1-2:3 analyzed by biblical and literary experts and presented a series of reasons why the literary genre of Genesis should be considered as narrative and, as such, handled literally: (1) Narratives “are defined as telling a factual story with three general elements.”¹⁵ First, they give the time, place and circumstances of an unfolding story. Genesis does just that. Second, the narrative will include a description of the main characters. Genesis does just that. Third, there is a sequence of events that comprise a plot. Genesis also includes this element.¹⁶ Hebrew poetry, on the other hand, will (1) often have passages organized and labeled as verse (cf. Num. 23; Judg. 5; 2 Sam. 22; Ps. 119, etc.), (2) carry its own distinct style with certain kinds of parallel structures of words and thoughts, all of which produce symmetry, balance and brevity, and (3) engage the reader’s emotions and five senses.¹⁷ Genesis 1:1-2:3 simply does not fall into this pattern.

Furthermore, the RATE project performed a statistical analysis with *Bible Works* software on the entire Old Testament, with a final focus on the verbs and verb forms of Genesis 1:1-2:3. This detailed statistical analysis showed that the verb forms that one finds within Genesis 1:1-2:3, “indicate a flow of events during a specific time sequence.”¹⁸ In contrast, however, other forms of the Hebrew verb that are more common in the poetic texts, in contexts where less literalism may sometimes be more

¹⁵ DeYoung, *Thousands Not Billions*, 159.

¹⁶ Ibid.

¹⁷ Ibid.

¹⁸ Ibid., 162.

appropriate, are not a factor in Genesis 1:1-2:3.¹⁹ The statistical analysis of Genesis 1:1-2:3 classified the passage “as narrative with a probability of 0.9999.”²⁰ In other words, statistically there is no support whatsoever for the notion that Genesis 1:1-2:3 should be understood as Hebrew poetic literature, and as such interpreted figuratively. These RATE findings have helped provide empirical evidence for the traditional understanding that Genesis 1:1-2:3 should be taken at face value.

The Usage of “Day” Argues for a Six-Day Creation

Some scholars have made the argument that the term “day” (Heb. *Yom*) should not be taken literally in Genesis 1. They suggest that the term is better interpreted in a non-literal sense of some indefinite time period. Once again, the motivation does not come from exegesis, but from the desire to make Genesis harmonize with naturalistic, old earth views. Whitcomb and many others have provided significant contextual reason why the only possible interpretation is a literal, 24 hour day.

First, Whitcomb states that “the use of the numerical adjective with the word ‘day’ in Genesis 1 limits it to a normal day.”²¹ A survey with *Bible Works* software using “day” with a numerical adjective (e.g., “first” through “seventh” as used in Genesis 1-2) showed that these combinations occurred 189 times throughout the Old and New Testaments. Of the 189 passages, one might seek a non-literal meaning of day in only two passages. First, in Philippians 1:5 Paul speaks about the fellowship of the Philippians in the gospel “from the first day until now” (NKJV). Someone might make

¹⁹ Ibid.

²⁰ Ibid., 167-168.

²¹ Whitcomb, “The Science of Historical Geology,” 66.

the argument that “first day” might not be taken literally here, but on the other hand there actually is very good reason for taking this literally. The only other passage that could possibly be understood non-literally is Hosea 6:2 in which Hosea says, “After two days He will revive us; On the third day He will raise us up, That we may live in His sight” (NKJV). Interpretively, this passage as a whole does seem to have a non-literal sense. Nevertheless, despite the general poetic element, the concept of “third day” still has a concrete meaning behind the expression. In other words, one should not take “third day” to mean that God will wait for a long, long time to restore Israel when Israel at long last comes to repentance. Clearly, the repeated use of the numerical adjective in Genesis 1 gives a very strong reason for taking “day” in a plain and normal sense as meaning one 24 hour period.

Whitcomb also points out that Moses used the expression “there was evening and there was morning” when describing each day.²² Whitcomb wrongly appeals to Daniel 8:14, 26 as a parallel kind of cross reference for understanding the Genesis text.²³ Nevertheless, his general point is well taken. Moses has qualified the expression in such a way that it unmistakably is to be taken as a literal, 24 hour day.

Wider Context Argues for a Six-Day Creation

Within the writings of Moses, one can find very strong support for a six-day view of creation just as Genesis describes. This support comes from the Decalogue in Exodus

²² Ibid., 67.

²³ The Hebrew text of Daniel uses plural terms (“evenings” and “mornings”) and is making a reference to the daily sacrifices (one in the evening and one in the morning) that were forcibly stopped by Antiochus Epiphanes IV from late 168 B. C. until Kislev 25, 165 B. C. when the temple was restored during the Maccabean revolt. Whitcomb’s cross reference is not legitimate.

20 wherein God is mandating Sabbath legislation for the nation (esp. v. 11). The NASB reads as follows: “For in six days the LORD made the heavens and the earth, the sea and all that is in them, and rested on the seventh day; therefore the LORD blessed the Sabbath day and made it holy.” This verse makes it clear that Israel’s literal six-day work week was to be based upon the literal six days of creation.

In summary, there is every reason to take the word day at face value and absolutely no contextual support for taking it to mean anything else.

The Case for Genealogies that Produce a Young Earth

This section will present the traditional biblical position for a young earth chronology based on biblical genealogies and consider whether the objections against this position have merit.

The Young Earth Genealogy Case Presented

The traditional biblical view is that God created the entire universe ex-nihilo in six literal days some six thousand years ago. This view is based on the genealogies of Genesis chapters five, ten and eleven. Morris comments:

The genealogical lists in Genesis 5 give the age of each man in line from Adam to Abraham at the birth of the son who is next in line. When these are added, they give a total of 1656 years from Adam to the Flood. A similar list for the postdiluvian patriarchs in Genesis 11 gives 368 years from the Flood until Abraham migrated into Canaan. . . . There is general agreement that Abraham’s migration occurred no earlier than 2000 B. C. Therefore, the date of the creation, as obtained by simple addition of the figures given in the Bible, was about 2024 years prior to Abraham’s journey from Haran to Canaan, or around 4000 B. C. The date of the Flood on this basis was around 2350 B. C.²⁴

²⁴ Henry M. Morris, *Scientific Creationism* (San Diego: Creation-Life, 1974), 248-250.

Based on this genealogical scheme as outlined here, the creation of the universe was roughly about 4,000 B. C., or about 6,000 years ago. Whitcomb (in the Whitcomb and Morris book *The Genesis Flood*) presents 2,167 B. C. as a possible date for Abraham's birth which would mean that the flood would have taken place around 2,459 B. C. rather than 2,350 B. C. as Morris has it above.²⁵ This adjustment would add about 109 years to the former figures and produce a date for creation of roughly 4,100 B. C.

The Young Earth Genealogy Case Challenged

The only real textual objection to the chronologies given above is the fact that the name Cainan, which does appear in the genealogy of Luke 3:36 as coming after Arpachshad and before Shelah, is not given in the Genesis text of 10:24 or 11:12-14. Some have raised objections because of this, saying that the genealogies should not be understood to be giving a strict chronology.²⁶

The Young Earth Genealogy Case Defended

There are several important points that need to be made at this point in support of a 6,000+ year position through a literal reading of the genealogies. First, one must remember that there clearly are times in the Bible when "begot" may be skipping a generation to look at a descendant who is not necessarily an immediate child. Thus, the absence of Arpachshad is not, in itself, extremely unusual. Second, one should also remember that there are times when a name will be excluded due to something unusual such as the untimely early death of a father. In these situations, the grandchild may be

²⁵ John Whitcomb and Henry Morris, *The Genesis Flood* (Grand Rapids: Baker, 1961), 478.

²⁶ *Ibid.*, 476.

placed in relation to the grandfather (or other ancestor). Third, the genealogies of Genesis give a generation by generation time chronology that embraces the entire genealogical chain. If one assumes the inclusion of Cainan into the genealogical chain, the overall time frame does not change. Fourth, there is very little grounds for making this one gap a reason for expecting that other (non-attested) gaps are part of that genealogy. This kind of reasoning would be pure conjecture. Fifth, even if one were to grant the possibility of a gap, there is certainly no contextual basis for trying to lengthen the genealogy to such an extent that it could fit an evolutionary model. In other words, the Genesis text cannot be made to harmonize with an old earth position.

The explanation above is logically consistent and true to known data, and this writer commends it as a proper way of handling the issue. For whatever reason, perhaps an early death that resulted in Selah being raised by Arpachshad, Cainan was not included in the Genesis genealogy. Even if one does include Cainan, though, the 130 years that are connected to him would not alter the total chronology of the genealogical chain. As Morris has put it, the genealogies are acceptable as they are in traditional understanding and the revision that needs to take place is on the side of the Old Earth position.²⁷

For the sake of elaboration, some additional evidence will be presented for those who question the issue. First, it is *possible* (though certainly not necessary) that a corruption to the Masoretic Text created the discrepancy, especially in view of the fact that the Septuagintal and Samaritan texts both include Cainan and disagree against the

²⁷ Morris, *Scientific Creationism*, 248-250.

Masoretic Text (although they do not even fully agree with each other).²⁸ However, even if one opted to adopt either of these other readings, the differences in the Samaritan text would add an additional 301 years and the Septuagint would add an additional 1466 years to the Masoretic Text.²⁹ Even if either of these other readings were adopted, neither of them would provide any sort of support for an old earth position. The fact is that there are 20 names in the patriarchal list from Adam to Abraham with a total time of approximately 2,000 years. An evolutionary view of this (granting that an evolutionist would give any credence to Scripture at all) would demand that these 20 generations be stretched out to embrace some 1,000,000 years, adding about 50,000 years of gap between every name in the line. This idea would be totally out of line with the contextual data and normal rules of interpretation.³⁰ In terms of taking the genealogies in a literal sense, the fact that the genealogies of Genesis 5 and 11 are repeated in 1 Chronicles 1:1-4, 2-27 and Luke 3:34-38 with no hint that Luke or the writer of the Chronicles considered these genealogies unhistorical or unreliable should caution modern interpreters about assuming that the Genesis genealogies are not reliable or to be taken literally.³¹

A few final comments on this topic are in order with reference to the reading Cainan. Some have suggested the possibility that the name Cainan (which appears in

²⁸ Ibid., 248; there are few scholars if any who would commend the LXX and Samaritan Pentateuch as primary sources of authority for textual criticism. Although the LXX (translated ca. 250 B. C. although probably not by 72 Jewish scribes as sometimes asserted) is seen as reasonably reliable in the Pentateuch, it appears that the translators of other portions were not as careful or skillful. As far as the Samaritan Pentateuch (SP) is concerned (produced ca. 100 B. C.), the SP differs from the Masoretic text in about 6,000 places. In about 2,000 of these cases, it agrees with the LXX against the MT. Textual critics of all theological backgrounds recognize the challenges in relying on these sources.

²⁹ Ibid.

³⁰ Ibid., 249.

³¹ Ibid., 250.

most Greek manuscripts of Luke and the LXX of Genesis 11) may not have been in the original inspired autograph of Luke. The textual evidence from the New Testament for this is very weak.³² It is interesting though that some LXX manuscripts do not contain Cainan and also that Josephus, who generally used the LXX, did not include the name Cainan in his description of creation, the flood, and the dispersion of the nations:

(144) Arphaxad named the Arphaxadites, who are now called Chaldeans. Aram had the Aramites, which the Greeks call Syrians; as Laod founded the Laudites, which are now called Lydians. (145) Of the four sons of Aram, Uz founded Trachonitis and Damascus; this country lies between Palestine and Celesyria. Ul founded Armenia; and Gather the Bactrians; and Mesa the Mesaneans; it is now called Charax Spasini, (146) Sala was the son of Arphaxad; and his son was Heber, from whom they originally called the Jews Hebrews.³³

A textual analysis of how the variant arose is beyond the scope of this paper (assuming it is in fact a variant), but the reader needs to be aware that there are some mild textual questions. Regardless, in view of all the evidence, there certainly is little basis for calling the young earth position into question.

The Theological Case Against Evolution

The final line of biblical evidence in support of a young earth position is an indirect argument for a young earth view based on theological reasoning. The intent of this section is to show that a true biblical theology is fully inconsistent with any theology that includes any form of human or animal death before Adam's sin. This, of course, would exclude atheistic evolution, theistic evolution, a day-age view, and progressive

³² Jonathan Safarti, "How do You Explain the Difference Between Luke 3:36 and Genesis 11:12?" in *Get Answers*, <<http://www.answersingenesis.org/docs/3748.asp>>, accessed on July 25, 2007, 1. One should consult this article for a defense of the position with all its particulars.

³³ Flavius Josephus, Flavius, *The Works of Josephus: Complete and Unabridged* (Peabody: Hendrickson, 1996), S. Ant 1.142-147, cited in electronic form with Logos Libronix.

creationism (all of which try to harmonize the Bible with an old earth position and death before Adam). Two brief lines of reasoning will be presented to support this position.

Genesis Shows that Curse and Death Came by Adam's Sin

From the text of Genesis there is every reason to believe that there was no death before Adam's sin. For one, God called his completed creation "very good" (1:31), a description that is not consistent with the presence of death. Second, God's warning to Adam and Eve was that disobedience would bring death (2:17; 3:3). Clearly, death would be the consequence of sin.³⁴ Third, God declared that Adam's act brought curse upon the creation (3:17). Fourth, chapter four shows that murder followed soon after Adam's act of transgression, a vile form of death that contextually links as a consequence to Adam's sin. Fifth, the long list of death in chapter five ("and he died") makes it clear that death is king over mankind. Sixth, the great flood (6-9) makes it clear that man's sin is the cause of corruption, death, and God's wrath. Biblical theology is incompatible with any form of evolution—all of which demands an old earth position and death in the created realm before Adam's sin.

Romans Shows that Curse and Death Came by Adam's Sin

In the Book of Romans the Apostle Paul makes an explicit connection that shows that Adam's act of rebellion is the cause of all curse and death. In Romans 5:12 Paul

³⁴ John Sailhamer notes that in the remainder of the Old Testament the expression from 2:17 "you shall surely die" (Heb. **מוֹת תָּמוּת**) carries the idea "that one has come under the verdict of the death penalty (cf. 20:7; Ex. 31:14; Lev. 24:16). It is a pronouncement of a judge on one who has been condemned to die" ("Genesis" in *The Expositor's Bible Commentary*, ed., Frank E. Gaebelin [Grand Rapids: Zondervan, 1990], 1:48, n. 17). Sailhamer's comments draw connection between Adam's act of rebellion and expulsion from the garden, but one cannot ignore the direct evidence that physical death was a clear result of Adam's sin, including, as Sailhamer notes, that Adam's exclusion from the Tree of Life would mean certain death.

writes, “Therefore, just as through one man sin entered into the world, and death through sin, and so death spread to all men, because all sinned.” This statement shows an explicit causal connection that Adam’s sin brought death. Despite those who try to evade the theological implications of what this says, Leon Morris states it plainly when he says, “It is sin that brought death.”³⁵ In verse 14 Paul once again says that “death reigned from Adam.” Death began with Adam. In verses 15-16 Paul says that many died due to the transgression of the one (Adam) and also that judgment came about due to the transgression of the one. Verse 17 makes clear that death came to reign because of the transgression of the one. The causal connection is explicit and clear: it was Adam’s act of rebellion that brought curse and death to all creation. This cannot be made to fit into any theological system that includes death before Adam.

To elaborate on the significance of this point, one needs to reckon with the fact that redemption through the work of Christ is possible only because of the possibility of a union with Christ through faith in His work on the cross (cf. Rom. 5:6, 8, 10, 14-21). The Bible shows that solidarity with Christ (through faith) is the result of personal salvation. Paul’s presentation shows that this new solidarity is absolutely essential because the old solidarity in Adam (cf. 5:14) is the result of curse and consists of corruption and death to all humanity. To destroy the biblical view of man’s solidarity in Adam is to also destroy the concept of redemption through the cross of Christ and salvation through a new solidarity in Him.

³⁵ Leon Morris, *The Epistle to the Romans* (Grand Rapids: Eerdmans, 1988), 229-230. Morris comments on the fact that despite some commentators try to define the death threats of Genesis as meaning some kind of spiritual death, he says that “no one would understand from the language used that the writers of Genesis and Romans were referring to anything other than death in the ordinary physical sense.” Morris is absolutely correct.

Summary

This chapter is shown that the Bible presents a young earth cosmogony and that there are no valid reasons from Scripture for questioning this position. The Bible teaches that God created the universe in six literal days. The Bible also teaches that God created this universe a little over 6,000 years ago—perhaps 6,000-6,200 years ago. This position rests on very sound exegetical evidence from both testaments. As one final comment regarding the precise moment of creation, one should be cautious about fixing precise moments since the Bible has not supplied such data.

CHAPTER 3

GENERAL EVIDENCE CONSISTENT WITH YOUNG EARTH

As chapter two has shown, there is good, biblical warrant for holding to a young earth position with an estimated age of the earth being slightly over 6,000 years. This chronology is consistent with a normal, literal reading of Genesis. The evidence clearly shows that the Genesis creation account should be understood as historical narrative and that there is little reason for understanding it in a non-literal, figurative sense. A natural interpretation of Genesis, then, produces a six-day creation account with this event taking place slightly over 6,000 years ago, a finding that also has the support of the rest of the canon of Scripture. The result is that an exegetically driven systematic theology strongly suggests the young earth position.

This chapter will build on these findings by examining data outside the Bible to see if the biblical findings are consistent with the factual data and evidence from the world that surrounds us.³⁶ This chapter will briefly examine evidence from several extra biblical sources to see whether these scientific findings might legitimately integrate into the theology that has been presented thus far. Space limitations force this chapter to remain very concise in the presentation of the data.

³⁶ In terms of theological method, this step of integration with extra biblical data is being presented as a fourth of five steps in establishing a comprehensive systematic theology. The first of these steps lies at the exegetical level to establish a biblical theology. The second step consists of linking texts and biblical theology from throughout the entire canon. The third step consists of systematizing this theology from within the Scripture. The fourth consists of testing this theology with extra biblical data with the possibility that such data may be integrated into the systematic theology that came from the text. The fifth and final phase is to allow this comprehensive theology to be applied to life in every aspect.

A Geological and Fossil Record that is Consistent with a Young Earth

Charles Darwin gave chapter 10 of his *Origin of the Species* the title “On the Imperfection of the Geological Record.” How interesting that the standing geological record (objective data) should be called imperfect. The reason Darwin used this kind of expression is due to the fact that the geological record (and with it, the fossil record) does not fit the theory of evolution as Darwin posited. As Darwin put it, it is “a very obvious difficulty” that life as we see it today does exist in “specific forms” and that they are “not being blended together by innumerable transitional links.”³⁷ In other words, says, Darwin, the observable data simply does not match the model. Darwin again goes on to show the lack of integrity in his own model when he says

Why then is not every geological formation and every stratum full of such intermediate links? Geology assuredly does not reveal any such finely-graduated organic chain; and this, perhaps, is the most obvious and serious objection which can be urged against the theory.³⁸

Later in chapter 10, Darwin points out that the geological record often shows cases where the same species will be found “in the upper and lower parts of the same formation,”³⁹ and how “species belonging to several of the main divisions of the animal kingdom suddenly appear in the lowest known fossiliferous rocks,” a problem which Darwin says is “much more serious” than those mentioned earlier.⁴⁰ As Darwin puts it, “Here we

³⁷ Charles Darwin, *The Origin of the Species* (Amherst: Prometheus, 1991), 251.

³⁸ Ibid.

³⁹ Ibid., 262.

⁴⁰ Ibid., 272.

encounter a formidable objection,” questions for which Darwin says, “I can give no satisfactory answer.”⁴¹

Darwin is, indeed, correct by admitting that his theory does not match the geological and fossil evidence, although 150 years of advance in disciplines such as DNA studies are now showing that an “imperfect” geological record is the least of evolution’s problems. The simple point to observe is that the fossil record does not match the evolutionary model which is built on uniformitarianism and an old earth model.

The Christian explanation for the fossil record comes primarily from the explicit declaration in Scripture that says that God caused a global flood to completely inundate the earth and bring an end to all life, save those that had refuge on the Ark (Gen. 6-9). The Biblicist should not hesitate to point out that the objective, extra biblical evidence is very supportive of this position. Historical evidence strongly supports this position.

As a matter of fact, it is absolutely fascinating to see the way that recent catastrophic events have demonstrated before the eyes of man the way that catastrophism is, in fact, the proper explanation for many phenomena that have often been dogmatically explained according to uniformitarianism and an old earth viewpoint.

Humphreys comments on several of these, saying, “There are lots of [geological] formations that point to very rapid formation, such as polystrate fossils, trees that go through several fossil strata at once. Or the evidence in the fossil strata themselves that they have been laid down very quickly.”⁴² To clarify the issue, an example of a “polystrate” fossil is one in which geologists find petrified trees extending throughout

⁴¹ Ibid.

⁴² Russell Humphreys, interviewed by Doug Sharp, “An Interview with Dr. D. Russell Humphreys,” <<http://www.rae.org/raerhtrn.html>>, Jan. 20, 2002, accessed on July 1, 2007, 2.

several layers of geologic strata. The old earth, uniformitarian view is that this is evidence for a very long build up of earth layers around the trees, thus causing these trees to extend through multiple strata.⁴³ The immediate response should be to recognize that no one has ever observed this take place. Secondly, it simply does not match the data to say that a tree that is only hundreds of years old (or even thousands) would be extended through strata that are supposed to be tens of millions of years old.

A much better solution is that this phenomenon is not the result of millions of years of uniformitarianism, but rather is the result of catastrophic events such as earth quakes, volcanoes, floods, and mud slides. The reader is urged to see how this phenomenon took place some 20 years ago when Mt. St. Helens exploded. This volcanic explosion had a volcanic energy equal to about 33,000 Hiroshima size bombs, a blast which blew a massive chunk out of this mountain (note: this blast is probably small compared to other catastrophic events of early earth history).⁴⁴ It also generated huge floods and mud slides that carved out massive canyons out of solid rock in a matter of hours and days.⁴⁵

⁴³ John Morris, "The Polystrate Trees and Coal Seams of Joggins Fossil Cliff," *Impact*, <<http://www.icr.org/article/445/>>, accessed on July 7, 2007, 1. Interestingly, this was the major selling point that Charles Lyell used to promote his innovative concept of uniformitarianism. John Morris notes that Lyell published his book *Principles of Geology* in 1830 and in his book he proposed that slow and gradual processes, operating on a local scale much as are seen today, had sculptured the earth's surface over vast eons of time. He denied the role of major geologic events, most especially the global flood of Noah's day, insisting that "the present is the key to the past."

⁴⁴ The reader may consult two brief articles on catastrophism: (1) William Hoesch, "Do Tsunamis Come in Super Size," *Impact*, <<http://www.icr.org/article/901/>>, accessed on July 7, 2007, 1-4; (2) Steven Austin and William Hoesch, "Do Volcanoes Come in Super Sizes?" *Impact*, <<http://www.icr.org/article/2830/>>, accessed on July 7, 2007, 1-4.

⁴⁵ The reader is directed to several articles which describe these observable events in detail: Ken Ham, "Mount St. Helens—Evidence for Genesis," <<http://www.answersingenesis.org/docs2/4305news5-17-2000.asp>>, accessed on July 7, 2007, 1-3; (2) Ken Ham, "X-Nilo Files 1(3), December 1998: A Deep Canyon in One Day," <<http://www.answersingenesis.org/home/area/tools/xnv1n3.asp>>, accessed on July 7, 2007, 1-4; (3) Steven Austin, "Mt. St. Helens and Catastrophism," <<http://www.icr.org/articles/print/261/>>, accessed on July 7, 2007, 1-4; (4) Lloyd and Doris Anderson, "Mt. St. Helens Visitor Resource Pack,"

This catastrophe also caused a polystrate phenomenon to take place before the eyes of a watching world when over 1 million trees were sent into Spirit Lake. The trees floated until, being water logged, they began to sink to the bottom, with the wider and heavier root bases sinking to the bottom, leaving the trees in an upright position.⁴⁶ Sediment deposits continued to build up around these submerged trees so that trees that sank later were being “planted” upon successive layers of accumulating deposits. Over time, these trees will soak up sediments and become petrified, and one day will be mirror images of the petrified forests of Yellowstone that have been described as being 50 million years old.⁴⁷ Traditionally and historically, the old earth, uniformitarian evolutionist points to phenomenon like this and says, “You see, here is proof that the earth is millions and billions of years old.” Observable, scientific evidence proves that such is not the case.⁴⁸

The brief point to take note of is simply this: the reader needs to know that there is nothing outside the Bible that should compel anyone to think that extra biblical data demands an old earth position. The objective data is amply accounted for by catastrophic events such as volcanoes, earthquakes, and a global flood.

<http://www.creationism.org/sthelens/MSH1b_7wonders.htm>, accessed on July 7, 2007, 1-5. These articles chronicle some of the massive transformations that took place due to one massive natural catastrophe, the kind of geologic data that is consistently held out as proof of an old earth and uniformitarianism. The observable, scientific evidence has proved that such data is better explained by catastrophism.

⁴⁶ Steven Austin, “Mt. St. Helens and Catastrophism,” 3.

⁴⁷ Ibid.

⁴⁸ Austin also points out in this article (as do the Andersons as cited above) that these massive floods caused tremendous layers of bark and other vegetation to form floating mats on the surface of these flood waters. These floating vegetation mats eventually sank and began to settle on the bottom of these waters. Austin’s Ph. D. dissertation (which was written a short time before the Mt. St. Helens events) addressed this phenomenon and showed how this phenomenon is a preferable explanation for the formation of coal seams, 4.

Laws of Physics that are Consistent with a Young Earth

The first two laws of thermodynamics are as follows: (1) there is no creation or destruction of energy; all energy remains constant, and (2) all items within our universe (which is in itself a closed system) are going from a state of complexity to a state of chaos; order is turning to disorder and organized information is going into a state of random disorder. This second law of thermodynamics is commonly called “The Law of Entropy.” As Morris put it, “the real tendency in the natural world, as expressed by the Second Law of Thermodynamics, is from order and organization to disorder.”⁴⁹

This brief comment is to simply remind the reader that the laws of physics show that everything in the universe is, in effect, falling apart. Not only does entropy show the impossibility of evolution taking place through time, chance, mutation and natural selection, but entropy also shows the impossibility of an eternal universe and the extreme improbability of an old earth and an old universe such as is commonly held (ca. 14 billion years). Extra biblical, scientific evidence can clearly be harmonized with the biblical position of a young earth.

Other Data that is Consistent with a Young Earth

Various other kinds of extra biblical, scientific data can be shown as consistent with a young earth position. Detailed discussions are all beyond the scope of this paper, but several of these interesting facts that have been compiled by Humphreys will be

⁴⁹ Henry Morris, “Thermodynamics and the Origin of Life (part 1),” *Impact*, <<http://www.icr.org/article/139/>>, accessed on July 7, 2007, 2.

mentioned here for the sake of the reader who has interest in further study:⁵⁰ (1) comets disintegrate too quickly for them to still be out there if the universe were billions of years old, (2) based on present rates of erosion (and the rate at which mud and silt are entering the ocean) and present depth of such deposits on the ocean floor, the earth cannot be 4.5 billion years old. The amount of sediment that is entering the ocean does match an age of the earth of some 6,000 years, (3) with over 450 million tons of sodium going into the ocean each year, the ocean should have about 75 times the amount of sodium that it presently has if the earth were in fact some 4.5 billion years old, (4) the known decay of the earth's magnetic field shows that the age of the earth cannot be over 10,000 years,⁵¹ (5) if present rates of radioactive decay (along with the helium it would produce) have been taking place for 4.5 billion years, such decay would call for about 2,000 times more helium in the atmosphere than actually exists, (6) virtually all of the earliest historical evidence for mankind dates to the mid to early part of the third millennium B. C. This post flood, objective evidence simply does not point to an old earth nor to an evolution process for man that stretches back hundreds of thousands of years.

Summary

The purpose of this brief chapter has not been to exhaustively instruct the reader on a wide range of scientific data. The fact is that each item discussed in this chapter is broad enough and technical enough to take up volumes of research to do them justice. In

⁵⁰ Russell Humphreys, "Evidence for a Young World," <<http://www.rae.org/yworld.html>>, Oct. 19, 1999, accessed on July 1, 2007, 1.

⁵¹ Dr. Erich von Fange, "Time Upside Down," <<http://www.rae.org/ch04tud.html>>, June 5, 1999, accessed on July 1, 2007, 4. Von Fange has noted that based upon the well-known, rapid decay of the earth's magnetic field "the world could not exist with the powerful magnetic field projected beyond 20,000 years."

view of the objective of presenting and defending the validity of a young earth position though (based on both biblical and extra biblical data), the author has taken this space to show the reader that there is, in fact, a significant amount of scientific data that is consistent with a young earth position. The objective evidence from the geological record does not match a uniformitarian model of the old earth position, but it does match very well with catastrophism and the biblical account of a global flood. Evidence from the laws of physics (Conservationism and Entropy) strongly argues against both evolution and its companion an old earth view. Finally, one can look at a wide range of scientific data (only a sampling of which has been presented here) and see that an old earth position simply cannot be reconciled with the objective evidence. The fact is that a person must believe *against* the evidence in order to hold to an old earth, evolutionary position. To go against observable evidence is not true science. In reality it is religion. A young earth creationism view is both biblical and consistent with extra biblical, scientific evidence.

CHAPTER 4
RADIOISOTOPE DATING AND A YOUNG EARTH

Those who take on old earth position often appeal to various forms of radioisotope dating (RID) as certain, scientific proof that the earth must be billions of year old and that Darwinian evolution, with its millions of years, must be the explanation for life on earth. The fact of the matter is that scientific developments in a variety of areas are making the case for evolution and a young earth less and less defensible. As Morris puts it, “The evolutionist paradigm (or worldview, if preferred) is steadily disintegrating. Not only is it biblically indefensible for Christians, but also its scientific foundations have been almost fatally eroded.”⁵²

The ad-hominem attacks from those defending an old earth, evolutionist philosophy give hints of the fear that their ideology is being challenged. Commenting on the ICR RATE project, *Skeptic* magazine speaks of creation science as being “one of the great oxymorons of our age” because of the fact that creation scientists are exposing and explaining the huge problems that arise from issues like excess argon.⁵³ How interesting that an objective appraisal of a well-known problem (excess argon) is ridiculed and despised merely because the analysis is not being driven by a naturalistic, atheistic worldview! Those who have looked to RID as proof for an old earth do not want these methods to be challenged and discredited, for much is at stake. Baumgardner comments on how important RID is to the old earth evolutionist:

⁵² Henry Morris, quoted in the Foreword by John Woodmorappe, *The Mythology of Modern Dating Methods* (El Cajon: Institute for Creation Research, 1999), v.

⁵³ Editor, “Creationists ‘Five Year Plan’ to ‘Remove’ Radioisotope Dating,” *Skeptic* 7:3 (1999), 14.

With the discovery of radioactivity about a hundred years ago, evolutionists deeply committed to the uniformitarian outlook believed they finally had proof of the immense antiquity of the earth. In particular, they discovered the very slow nuclear decay rates of elements like Uranium while observing considerable amounts of the daughter products from such decay. They interpreted these discoveries as vindicating both uniformitarianism and evolution, which led to the domination of these beliefs in academic circles around the world throughout the twentieth century.⁵⁴

In other words, RID dating is a major source of confidence for the old earth evolutionists, and they will generally fight very hard to defend it against criticisms.

This chapter will give a laymen's explanation of the history and process of RID so that the reader might understand why this scientific process is held in such high regard. This chapter will also present a survey of some of the various problems of RID that one seldom hears about, and how these problems raise serious questions about the findings and reliability of RID. As noted, the problems of RID are often minimized because of the fact that these methods are, in the words of some, the "sacred cow" of an old earth view.⁵⁵ Morris notes that "the argument from the decay of radioactive isotopes still remains the main 'proof' of the great ages of geology. Creationists, therefore, need to show . . . that this argument proves no such thing."⁵⁶

The history of RID goes back to the early days of the 20th century when men like New Zealand physicist Ernest Rutherford and chemist William Hillebrand began

⁵⁴ John Baumgardner, "Carbon Dating Undercuts Evolution's Long Ages," *Impact*, <<http://www.icr.org/article/11/>>, accessed on July 7, 2007, 1.

⁵⁵ Dennis Lindsay, *The Dismantling of Evolutionism's Sacred Cow: Radiometric Dating* (Dallas: Christ for the Nations, 1994).

⁵⁶ Henry Morris, quoted in the Foreword by John Woodmorappe, *The Mythology of Modern Dating Methods*, v.

realizing that radioactive decay was a possible means for determining the age of rocks.⁵⁷

Certainly others, like Henri Becquerel, Frederick Soddy, Wilhelm Roentgen, J. J.

Thomson, Pierre and Marie Sklodowska, were also greatly involved in this pioneering work, with each making significant contributions to the growing field of study.⁵⁸

Hillebrand, as an example, was one who observed that uranium would put off certain gasses (which was later realized to be helium) and that these processes were potential ways of dating. Rutherford announced his scientific findings at the 1904 World Fair in St. Louis by announcing that his scientific findings from helium measurements were showing the age of certain rocks to be 40 million years.⁵⁹ In Rutherford's view, the great beauty of this technique was reliability of radioactivity as a timekeeper.⁶⁰

Interestingly, within one year this "reliable date" had now increased from 40 million years to 500 million years and by the middle of 1905 Rutherford realized that measurements from the helium method were severely flawed due to the fact that helium disperses and seeps away over time.⁶¹ It was Bertram Boltwood, a chemist, mining engineer, who made the observation that he always found lead when looking at uranium samples. Boltwood was the first to hypothesize that lead was the final product at the end of the uranium decay process.⁶² Rutherford began experimenting along these lines and realized that uranium did decay into lead, but also that it was a very long process.

⁵⁷ Martin Gorst, *Measuring Eternity: The Search for the Beginning of Time* (New York: Broadway Books, 2001), 196-208.

⁵⁸ DeYoung, *Thousands Not Billions*, 22.

⁵⁹ Gorst, *Measuring Eternity: The Search for the Beginning of Time*, 200.

⁶⁰ *Ibid.*, 201.

⁶¹ *Ibid.*

⁶² *Ibid.*, 203.

Rutherford drew the conclusion that a significant presence of lead in uranium bearing minerals meant that it had “obviously accumulated over a considerable time.”⁶³ Their reliable scientific methods were now producing ages for various rocks up to 92 million years, 570 million years, and even up to 2.2 billion years, ages that were finding the approval of evolutionist geologists with whom Rutherford consulted.⁶⁴

In 1907 Rutherford and Irish geologists John Joly began research on the dating value of radioactively produced halos that appear in zircon crystals. These men had begun to observe that alpha particles from the uranium in zircon crystals produce a halo shaped coloration in the zircon. Unfortunately, this “unusual method” of dating the earth would, in the end, also show itself to be “one of the least successful.”⁶⁵ Joly, himself, “stubbornly refused to accept that dates based on radioactive decay were accurate. He argued that radioactive decay had proceeded faster in the past than at present,” a position that he was not alone in taking.⁶⁶

Despite the severe limitations (due to assumptions) of radioactive dating, fascination with the technique continued to grow due in large part to the work of a young physicist named Arthur Holmes at Imperial College in London. Holmes continued to refine the method until, by 1921, it became the preferred dating method.⁶⁷ In his 1927 book *The Age of the Earth*, Holmes would go on to make the claim that the firm findings

⁶³ Ibid., 204.

⁶⁴ Ibid.

⁶⁵ Ibid., 205-206.

⁶⁶ Ibid., 206.

⁶⁷ Ibid., 207.

of science were now able to show that the age of the earth “is between 1,600 and 3,000 million years.”⁶⁸ Thus began the process of RID.

By 2007, the popular age of the earth among old earth evolutionists has now evolved to be somewhere in the range of 4.56 billion years.⁶⁹ In view of the way that scientists declare each successive interpretation of the data to be scientifically valid, and yet the interpretations are always changing, one must ask how it is that such dogmatism is justifiable. Lindsay shows that some scientists thought the age of the earth was 25 million years in 1850, 1.6 billion years in 1935, 2 billion years in 1960, and 4.6 billion years in 1975.⁷⁰ Just how reliable are the findings of RID? This is a big question. Before looking at the problems and limitations of RID, a brief explanation of the process is in order.

As alluded to earlier, RID (also commonly called Radiometric Dating) is a way of determining ages on sample material based upon the radioactive decay process that, in fact, is observable in radioactive elements. The basic idea is as follows. Certain elements on earth are by nature radioactive. These radioactive elements can be found in one location on the table of elements, and hence they carry the name “isotope,” which in Greek, has the idea of “same place.”⁷¹ Scientists have observed that these radioactive elements go through a process of decay and eventually turn into another element. In RID, the original radioactive element is called the parent element and the end product into which it decays is called the daughter element. The length of time that it takes for

⁶⁸ Ibid., 207-208.

⁶⁹ DeYoung, *Thousand Not Billions*, 13.

⁷⁰ Lindsay, *The Dismantling of Evolutionism's Sacred Cow: Radiometric Dating*, 7.

⁷¹ DeYoung, “*Thousands Not Billions*,” 22.

half of the parent element to turn into decay product is called the half life. This half life process of decay continues until virtually all of the parent isotope has decayed into daughter product. The method states that by measuring the ratio of parent element to daughter element (D divided by P) one can multiply this times the half life and determine the age of a given sample.

Several kinds of materials have been used for this dating process. One of these, for example, measures how long it takes uranium-235 (^{235}U) to decay into lead-207 (^{207}Pb). ^{235}U has a half life of 704 million years and emits alpha particles in its decay process. At least nine different elements are used for RID, with some of the most common being ^{238}U to ^{206}Pb (with a half life of 4.47 billion years and alpha particle emission), potassium-40 (^{40}K) to argon-40 (^{40}Ar) with potassium having a half life of 1.25 billion years, and carbon-14 dating (^{14}C) with ^{14}C having a half life of 5,730 years.⁷²

Excepting ^{14}C , the materials that can be dated with these techniques come from igneous rocks (i.e., rocks that have been formed by some type of extreme heat such as takes place in magma and volcanic lava). ^{14}C dating cannot be used for dating those kinds of rocks. However ^{14}C (and only ^{14}C) can be used for dating organic materials (e.g., plants, coal, oil, or any kind of plant or animal that was once alive).⁷³

To summarize, here are the basics of the method. RID can produce an estimated age for rocks and minerals (or organic items with ^{14}C) given that one know the following general assumptions: (1) when the item was formed, there was no initial daughter element present in the sample (e.g., no initial argon), (2) since the item was formed, none

⁷² DeYoung, "Thousands Not Billions," 40.

⁷³ Doug Sharp, "Assumptions of Radiometric Dating," <<http://www.rae.org/radiodat.html>>, March 17, 2003, accessed on July 1, 2007, 1.

of the parent element has dissipated away through leaching (e.g., no leaching of the parent potassium or uranium), (3) the rate of decay has been constant since the item was formed (i.e., nothing has happened throughout history that may have increased or decreased the rate of decay), and (4) in short, no outside influences have caused any increase or decrease in either the parent or daughter element since it was formed and nothing has ever affected the half life of any of these radioactive elements.⁷⁴

The remaining portion of this chapter will consider the impact of these assumptions on RID. In fact, one will see that a number of potential problems play a big influence on the validity of RID. The first problem to be addressed is the problem of circularity.

Problems with Circularity

The problem of circularity in RID is as follows: many of the dates that get assigned to geological data get assigned due to evolutionary presuppositions, but the evolutionary presuppositions are in turn supported by dates that are given to geologic data. In other words, evolutionists assign a certain date to a fossil based on the evolutionary model, and then the surrounding rocks are then assigned dates based upon the supposed ages of the fossil.⁷⁵ If RID dating is applied to these surrounding rocks, dates are often chosen that will fit the pre-assigned dates from the evolutionary model.

⁷⁴ Sean Pittman, "Radiometric Dating Methods," <<http://naturalselection.Ocatch.com/Files/radiometricdating.html>>, July 2004, accessed on July 1, 2007, 4.

⁷⁵ Felix Gradstein and James G. Ogg make note of this practice in "Geologic Time Scale 2004 – Why, how, and where next!" *Lethaia*, 37:2 (June 2004): 178. The authors speak about the efforts to refine the existing geologic time scale and how part of this process involves "selecting radiometric ages based upon their stratigraphic control."

Those dates that are used in assisting RID often have little solid archeological or historical data to support them.

Pittman points out how early studies would often use “the order of sedimentary rocks and structures” to date geological time periods and events in a relative way by using “key” diagnostic fossils to compare different areas of the geologic column.⁷⁶ To this day, it is still not uncommon for dates to be selected based upon the desired date that fits the presupposition. Discordant ages that do not match desired outcome are often discarded, ignored, or explained away. Mauger states that “In general, dates in the ‘correct ball park’ are assumed to be correct and are published, but those in disagreement with other data are seldom published nor are the discrepancies fully explained.”⁷⁷

Ervan Garrison, a professor of geology and anthropology at the University of Georgia in Athens, notes that “the very nature of archeological materials—fragmentary, incomplete, and in many cases, wholly unknown to modern eyes—makes their study and interpretation difficult and prone to error.”⁷⁸ When available, written, historical records are the most reliable source of data for the past since such evidence “is able to address questions of great details and can focus on individuals, exact time, locations, and events.”⁷⁹ In the absence of such data, though, proof is very tenuous when it is not driven by hard data. Garrison goes on to add that “the reason for this state of affairs is patently simple. The further back in time one goes, the fewer remains of materials and

⁷⁶ Pittman, “Radiometric Dating Methods,” 2.

⁷⁷ R. L. Mauger, “Dissenters Ejected,” *Contributions to Geology* (15:1): 17, quoted in Sean Pittman, “Radiometric Dating Methods,” 40.

⁷⁸ Ervan G. Garrison, “Physics and Archeology,” *Physics Today* 54:10 (October 2001): 32.

⁷⁹ Yun Kuen Lee “Differential Resolution in History and Archeology,” *Journal of East Asian Archeology* 4:1-4 (2002): 375.

the less likely that they will survive natural forces. Indeed, one of the major problems . . . is the paucity of evidence.”⁸⁰ Commenting on “Java Man,” Garrison notes how Eugene Dubois (whose claim in 1891 was the “discovery” of Java Man) made the Java Man claims based on the assumption that his the claim that his findings were extremely ancient, but this was based on their (arbitrary) stratigraphic context and Dubois’ “strong prejudicial desire” to demonstrate a non-European origin for humanity.⁸¹ In other words, dating was driven by circularity from philosophical presuppositions.

Commenting on the “Eve hypothesis” (i.e., that all modern humanity can be traced back to an African ancestor who has been called Eve), Garrison cautions the reader that methods like Thermoluminescence and other Gap-Spanning dating techniques, though seen by some as crucial to dating methods, are “somewhat questionable” in terms of objective reliability. For those driven by an evolutionary presupposition, though, a 200,000 year date for “Eve” is acceptable.⁸² The principle that one must observe, though, is that evolutionary presuppositions are often a causal force in circular reasoning when it comes to establishing and assigning dates. Circular reasoning is, however, among the least of the problems that face RID.

Problems with Dating Assumptions

A very significant problem with RID is the problem that arises from the built in assumptions of the dating process. Because of the particular characteristics of ¹⁴C dating,

⁸⁰ Garrison, “Physics and Archeology,” 32.

⁸¹ Ibid.

⁸² Ibid., 34.

the next section will focus on problems particular to that method and the present section will concern itself with methods like potassium to argon and uranium to lead.

It is very interesting that although the assumptions built into RID are well known and the problems are acknowledged by all, the impact of these assumptions are frequently minimized or ignored in the dating process. Plaisted points out how the geologist or other tester can (1) “choose which minerals to date,” (2) “choose how they are dated,” (3) “explain away dates that do not agree,” and (4) refuse to publish those dates which do not match the desired outcome.⁸³ Clearly, these kinds of arbitrary criteria are problems. In particular, this section will focus on three major issues that all know impact dating methods.

The Problem of Initial Daughter Elements

A major issue is the question of whether or not the item being tested ever had any initial daughter elements at the time it was formed. Everyone knows that this is an assumption, but many ignore the immense significance of the problem. Before considering technical details, the reader simply needs to consider the following line of logic. With reference to the ^{238}U to ^{206}Pb method, this method assumes that no lead was present in the sample from the time of its origin. This assumption is tantamount to the claim that there was no lead in that sample (or, for that matter, on this earth) from the time of its origin. Certainly no one can support that claim, and to make that assumption is completely arbitrarily, for it is not driven by any sort of scientific data. Shall one be willing to say that there was no lead on this earth when God created it? Or, if it pleases

⁸³ Dr. Plaisted, “Reply Number 4 to Dr. Heke,” <<http://www.cs.unc.edu/-plaisted/ce/henke4.html>>, December 20, 1999, accessed on July 1, 2007, 4.

the naturalist, shall one be willing to say that there was no lead on this earth when the earth or any of its rocks came into existence?

To run with that assumption is a leap of faith—a blind faith driven by metaphysical presuppositions! Whitcomb and Morris comment on this problem, saying

A more important reason for the errors in the earlier published ages was the neglect of the factor of original lead in the mineral. Obviously, if some of the lead in the sample was non-radiogenic, then the computed age would be too large by an indefinite amount.⁸⁴

This observation is simple enough, but regularly ignored.

Likewise, with reference to ^{40}K to ^{40}Ar , the assumption of the old earth scientist is that none of the samples they test have any initial (“excess”) argon. As the evidence shows, not only is it preposterous to make this kind of assumption, but it also is patently dishonest in light of proven observations. To remind the reader of the significance of this issue, one must remember that a method of like ^{40}K to ^{40}Ar (which accounts for about 85% of all the igneous rock dating), can only be accurate if there is no initial argon in the sample. One must recall that the scientist is going to determine the age of the sample by a ratio of ^{40}Ar divided by ^{40}K , multiplied times the half life rate of decay. Theoretically, if the rock were brand new, there would be no ^{40}Ar (i.e., no “radiogenic” argon) and so it would produce a zero ratio when divided by ^{40}K , thus giving an age of zero when multiplied by the half life rate of decay.

What if, however, that sample actually contained significant amounts of ^{40}Ar from the moment it came into existence? The scientist would have absolutely no way of knowing that this argon was “excess argon” and not “radiogenic argon” that came from radioactive decay of ^{40}K . The scientist would examine the ratios, and due to the

⁸⁴ Whitcomb, *The Genesis Flood*, 335.

significant presence of argon, he would establish a very old date for that sample based upon what the charts say the age of the rock is, all of which is based upon the presence of argon. The significance of this problem cannot be overstated. Pittman points out that despite the huge, known problems, that geologists like Dalrymple are willing to say that “The K-Ar method is the only decay scheme that can be used with little or no concern for the initial presence of the daughter isotope.”⁸⁵ The fact of the matter is that this kind of statement is intellectually dishonest, coming from someone who knows this is not true.

One final comment should be made on this issue. The reader needs to realize what minute quantities are being dealt with in these issues, and how it is that minor variations of quantity produce huge impacts on dates. Pittman has shown that based upon known present day quantities of potassium and argon, a rock of one billion years (if such ages actually existed), would have an argon presence of .0000125% in relation to the total makeup of the rock.⁸⁶ Pittman’s point is that the quantities are so minute and so precise in these dating methods that just one tiny amount of contamination will produce huge variations in estimated dates.

The Problem of Mixing and Leaching of the Parent Elements

This problem deals with the way that outside contaminants get into the rock sample and corrupt the evidence by “mixing.” The problem is well known and its significance should never be ignored, although it often is.

Whitcomb and Morris point out the seriousness of the problems concerning uranium leakage, noting that “significant uranium leakage” is known to take place due to

⁸⁵ Pittman, “Radiometric Dating Methods,” 6.

⁸⁶ Ibid., 16-17.

the fact that the uranium in igneous rocks “is readily soluble in weak acids.”⁸⁷ Whitcomb and Morris provide documentation that shows that 90% of the total radioactive elements of some granites could be removed by leaching and that as much as 40% of the uranium in most fresh appearing igneous rocks is “readily leachable.”⁸⁸ In other words, these methods are highly suspect due to the huge assumptions that have no way of being firmly established. Macdougall comments on this problem, noting how easily “groundwater percolation can leach away a proportion of the uranium present in the rock crystals.”⁸⁹

Another good example of mixing and leaching is the known fact that potassium can easily leach away if a rock is exposed to water. L. A. Rancitelli has shown that “as much as 80 percent of the potassium in a small sample of an iron meteorite can be removed by distilled water in 4.5 hours.”⁹⁰ Fossen has pointed out that potassium “mostly resides in the groundmass, the portion of the sample generally susceptible to alteration.”⁹¹ In other words, it is very easy for outside water and chemical influences to bring contamination to potassium samples and cause potassium or uranium to leach away.

⁸⁷ Whitcomb, *The Genesis Flood*, 336.

⁸⁸ *Ibid.*

⁸⁹ J. D. Macdougall, “Shifty Uranium,” *Scientific American* (235:6): 118, quoted in Sean Pittman, “Radiometric Dating Methods,” 37.

⁹⁰ L. A. Rancitelli and D. E. Fisher, “Potassium-Argon Ages of Iron Meteorites,” *Planetary Abstracts*, 48th Annual Meeting of the American Geophysical Union (1967): 167, quoted in Sean Pittman, “Radiometric Dating Methods,” 42.

⁹¹ Haakon Fossen, et al., “On the Age and Tectonic Significance of Permian-Triassic Dikes in the Bergen-Sunnhordland Region, Southwestern Norway,” *Norwegian Journal of Geology* 79:3 (Sep. 7, 1999): 175.

In summary, it is interesting how such researchers can know about the widespread problems from excess argon and the leaching of potassium and yet still make the claim, as Fossen did in the same article, that the “K-Ar data are reliable.”⁹²

The Problem of a Constant Half Life

A third and very significant assumption in all RID is the assumption that the half life rate of decay of the various radioactive elements has been constant over time. Although this problem may have received less attention than other assumptions in the past, it may in fact be a very significant problem for accurate dating. Furthermore, historical variations in the half life may help to explain other phenomena that heretofore have not been explainable. Humphreys made note of this in a 2001 interview, saying

What I’ve always felt is we weren’t reckoning with the major part of the problem. That is, there’s a very large amount of evidence, all kinds of different evidence in the earth and on the earth today, that a very large amount of radioactive decay has occurred. Yet we have other geoscience evidence that indicates that the earth hasn’t been here that long. So if you have a whole lot of nuclear decay occurring how can you have all that happening in a short time?⁹³

What Humphreys is doing here is pointing out that there is evidence for a large amount of decay in the past, but there is also evidence that it did not take place over the long ages as the old earth position calls for. Furthermore, notes Humphreys, the amount of helium in the atmosphere suggests that large amounts of helium have not already escaped from the minerals, since the atmosphere contains about 1/2000 of the helium that would be there for three billion years worth of decay.⁹⁴ In other words, there is evidence for large

⁹² Ibid., 177.

⁹³ Humphreys, interviewed by Doug Sharp, “An Interview with Dr. D. Russell Humphreys,” 2.

⁹⁴ Ibid., 4.

amounts of past decay, but there is also evidence that it took place only thousands of years ago and not billions of years ago.

This concept is what prompted Don DeYoung to title his recent book *Thousands . . . Not Billions*. This book gives a summary of the ICR RATE project (Radioisotopes and the Age of the Earth), a project dedicated to examining the process and validity of RID. The RATE team consisted of seven scientists, including two geologists, three physicists, a geophysicist, and a meteorologist. The RATE project came to eight major conclusions which will be summarized here.⁹⁵ Some of the points will be discussed in more detail in following sections.

First, they showed that the widespread presence of ^{14}C throughout the earth is very inconsistent with an old earth position. Second, they showed that the widespread presence of helium in zircon crystals is very inconsistent with an old earth position. Third, they found evidence from radiohalos that suggests large amounts of past nuclear decay. These halos are found in abundance in granite formations that can easily be tied to rock formations from the Genesis flood, suggesting that a large amount of nuclear decay took place at the time of the flood. Fourth, in their own dating, they found the same kinds of radical discordance (including with isochrons) that one finds elsewhere, all of which shows a high degree of unreliability. Fifth, they confirmed the long-known problems with all dating assumptions. Sixth, they found strong evidence for periods of rapid decay over short periods in the past. As they have put it, “The concept of accelerated decay arises many times in the RATE work. It is the logical inference of placing millions or billions of years’ worth of nuclear decay, at present rates, into a short

⁹⁵ DeYoung, *Thousands Not Billions*, 175-179.

time frame.”⁹⁶ Seventh, they discovered a strong tendency toward older dates from isotopes that (1) are heavier, and (2) that give off alpha particles versus beta particles. Eighth, they confirmed that a literal reading of the Genesis creation account is fully defensible from an exegetical perspective.

It seems, though, that out of all of these findings, the one that they felt was most significant is the one which says that half life decay rates have not been constant in the past. Clearly there is evidence from several perspectives that shows large amounts of nuclear decay. The problem is that there is also considerable evidence that this decay did not take place over long periods of time. One or more periods of accelerated decay is a feasible way to explain all the evidence much more consistently than saying that the earth is three billion years old or by saying that such large amounts of decay did not take place. This section will suggest several potential causes for accelerated decay rates that appear to have taken place at two distinct periods in the earth’s history.

The first period when there seems to have been an occasion of accelerated nuclear decay is during days one and two of the creation process. The RATE team believes there is good reason for seeing high nuclear decay rates during the first two days of creation.⁹⁷ In fact, the team believes that there could have been even “millions of years’ worth of nuclear decay, at present rates, taking place very quickly, perhaps in just days.”⁹⁸ One of the reasons the team believes this is because of the presence of radiohalos, halo shaped burn marks in zircon crystals that have come from high amounts of nuclear decay.⁹⁹

⁹⁶ Ibid., 178.

⁹⁷ Ibid.

⁹⁸ Ibid., 60.

⁹⁹ Ibid., 83.

Snelling notes that “a large number of alpha particles (ca. 500 million) are required to form visible radiohalos, and that this number of alpha particles equals about 100 million years worth of decay based upon present decay rates.¹⁰⁰ Because other evidence strongly argues against this much actual age, a period of accelerated decay provides a very reasonable explanation of the data.

With reference to the first two days of creation (before the presence of organic life that could have been harmed by huge doses of radioactive decay),¹⁰¹ it is entirely plausible that high amounts of decay took place at that time when the “basement rock” of the earth was formed by God at the time of creation. Such would explain why it is that such lower strata rocks (known as the Precambrian era rocks) do indeed “appear to imply an ancient age.”¹⁰² These deep strata Precambrian rocks are largely without fossils. The young earth explanation for this is that they probably represent “the original crust of the earth” as created by God, and as such would not have had the mixing with fossils that higher strata would have experienced from the flood.¹⁰³ Clearly, says, DeYoung, “the evidences for vast amounts of decay include the abundance of nuclear decay products, high concentrations of helium atoms residing in zircon crystals, radiohalos, and fission tracks.”¹⁰⁴ However, other factors—especially the high traces of helium—strongly argue against this decay having taken place any more than ten thousands years ago. The data calls for a period of high decay in the past, but not according to an old earth position.

¹⁰⁰ Ibid., 83-84.

¹⁰¹ Ibid., 150.

¹⁰² Ibid., 137.

¹⁰³ Ibid., 150.

¹⁰⁴ Ibid., 178.

What, then, might have been the cause of such accelerated decay during that time? Several possibilities exist. First, an increase in decay at that time could have been due to a lack of atmosphere to shield the earth from cosmic radiation. If the atmosphere as it now exists was not fully in place at that early point of creation, the lack of atmosphere certainly would have allowed much higher amounts of cosmic radiation to come into the atmosphere. This factor would cause an increase in rates of decay. Those higher rates of decay would especially be most noticeable in those rocks that are usually lowest in the strata, and as such were least affected by the flood.

In terms of the mechanics on how this increase in decay (a shortening of the half life) could have taken place, one should think about the fact that a nucleus consists of many protons and neutrons and that this is all “held tightly together by the nuclear force.”¹⁰⁵ One of two things can happen to increase nuclear decay and decrease the half life: one, the amount of nuclear force inside the nucleus has to increase or two, the nuclear force that holds the nucleus together (the “Coulomb barrier”)¹⁰⁶ has to experience some kind of weakening. The RATE team did theoretical experiments and found that this whole process is very sensitive to changes in these factors. For example, the team found that “a ten percent decrease in well depth (the Coulomb barrier) would cause a decrease in half life of 100 million times.¹⁰⁷ They also found that a ten percent increase in the energy of the alpha particle decreased the half life by 100,000 times.¹⁰⁸ The key point to take note of is that any significant changes in cosmic radiation could have

¹⁰⁵ Ibid., 144.

¹⁰⁶ Ibid., 145.

¹⁰⁷ Ibid., 146.

¹⁰⁸ Ibid.

unleashed “a lethal spray of radiation” on those first two days, exactly what one would expect based on what one sees in the Precambrian evidence.¹⁰⁹

Second, higher rates of decay could have been due to radical fluctuations in the earth’s magnetic field, another factor that is believed to affect nuclear decay rates. As noted elsewhere, there is widespread agreement that the earth’s magnetic force is growing weaker all the time. There is also evidence that significant changes in the earth’s magnetic field may have taken place at least once in the past.¹¹⁰ Radical fluctuations in the earth’s magnetic field may very well have been responsible for a radical increase in nuclear decay at the time of the earth’s creation and formation.

Third, accelerated rates of decay could have been due to a much higher speed of light at the time of creation. Lindsay writes

A key factor in all RMD (Radiometric Dating) is that their associated rates of decay are based on the belief in a consistent speed of light throughout the history of the universe. Physicists know that the rate of decay for radioactive elements is directly related to the speed of light. The faster the speed of light, the more rapid the decay of radioactive elements.¹¹¹

Many scientists have come to question the absolute speed of light and some believe that a decrease in its speed has, in fact, been measured. If the speed of light were significantly higher in the past this would provide answers to several questions. First, it could help explain accelerated nuclear decay at the time of creation. Second, it could help explain how God brought light to the earth very quickly when these stars one sees today appear to be so far away that light could not have made it to earth within six thousand years.

¹⁰⁹ Ibid., 150.

¹¹⁰ Humphreys, interviewed by Doug Sharp, “An Interview with Russell Humphreys,” 5.

¹¹¹ Lindsay, *The Dismantling of Evolutionism’s Sacred Cow: Radiometric Dating*, 63.

To summarize the present point, one cannot say for certain what might have caused an increase in nuclear decay in comparison to what it now is. As has been shown, though, there is evidence that any of the above factors could have caused accelerated decay.

The RATE team believes that the geological evidence also suggests that a second period of accelerated decay took place during the past. The second period during which there seems to have been accelerated rates of decay is at the time of the Genesis flood. The RATE team believes that there is good evidence for believing that nuclear decay rates increased significantly at one or more points during the Genesis flood. This accelerated decay might have taken place during the early to mid portion of the flood, and also during the closing portion of the flood. The team believes that sedimentary layers laid down by the flood support the idea that this period of radioactive increase took place. As DeYoung puts it, “there is abundant evidence for a significant episode of accelerated decay during the Genesis flood event.”¹¹² The same kinds of factors discussed above as potential causes of accelerated decay also apply to possible increases during the time of the flood and need not be repeated at this point.

One should also recall that the Bible does seem to suggest there was a vapor canopy that surrounded the earth until the time of the great flood (cf. Gen. 1:6-7; 7:11). This vapor canopy might have also shielded the earth from the higher levels of cosmic radiation. Removal of the canopy could have brought on a significant increase in cosmic radiation that would have also caused an increase in nuclear decay. Whitcomb says that

¹¹² DeYoung, *Thousand Not Billions*, 151. DeYoung points to “clear evidence of nuclear decay with resulting daughter products, radiohalos, and fission tracks” within the sedimentary Paleozoic and Mesozoic rocks (all of which contain fossils from the flood) as some of the strong evidence that accelerated decay took place during the flood and at the time of its decline.

it does seem highly probable that such an environment, which must have reached the earth's surface to at least some degree both during the first day of creation and during the Deluge period and possibly at other times as well, would have had a marked effect on such radioactive elements in particular.¹¹³

Whitcomb also says that “the addition of large amounts of external energy into the atomic nucleus would have supplied the needed energy for alpha particles or other groups to overcome the energy barrier normally retaining most of them within the nucleus.”¹¹⁴

Assuming the flood conditions allowed an increase in radiation to the earth for a limited time, it would appear that the drying up of the waters and the stabilization of the earth brought a decrease to that period of increased radioactive activity.

It is also distinctly possible that the increase in radiation upon Noah and his family introduced a certain level of genetic mutation that began to impact the life span of all creatures. In Genesis 10 one can see that every generation from Noah onward begins to experience a decrease in lifespan. The reason for this could have been due to immediate exposure to higher levels of radiation during the flood, thus causing some immediate genetic mutations. The ongoing absence of the vapor canopy would also be a factor in allowing higher levels of cosmic radiation into the earth. One cannot be certain about these phenomena, but such explanations would be consistent with both biblical and scientific data.

One final point should be briefly discussed before advancing to the next topic. One factor to consider is the fact that a very high rated of nuclear decay would put out a tremendous amount of nuclear energy and with it a tremendous amount of heat (as high

¹¹³ Whitcomb, *The Genesis Flood*, 352.

¹¹⁴ Ibid.

as 22,000 degrees Celsius).¹¹⁵ If these huge amounts of decay took place in a very short time (e.g., on day one of creation), it would have been possible for the heat to actually melt the elements themselves. The RATE team has suggested that a huge cooling factor at the time of creation could have served as a massive offset against the intense heat of that initial blast of nuclear activity. This “cosmological cooling” could have taken place due to “a rapid expansion of space” in a very short period of time.¹¹⁶ In other words, a huge period of sudden expansion of the universe would “result in cooling on a universal scale” of such a nature that it could actually offset the intense heat from the nuclear decay.¹¹⁷ Barbour notes that some believe that if the universe continues to expand forever it will continue to “cool forever” (assuming the process continued on as is) and that this continual cooling would eventually lead to “the freezing death.”¹¹⁸ This idea of an expanding universe is being hailed by many as one of the clues that helps to explain how the Big Bang might have taken place and how this expansion might account for the so-called “red shifts” of light that scientists began observing early in the 20th century.¹¹⁹

Whether or not the Big Bang actually happened the way that some hypothesize, it would not be inconsistent with the Bible to hold that God did, in fact, cause a sudden expansion of the universe at the time of creation. Such an expansion could also account for (1) the present (slowed down) expansion of the universe, (2) the “red shifts” that have

¹¹⁵ DeYoung, *Thousands Not Billions*, 152.

¹¹⁶ *Ibid.*, 152.

¹¹⁷ *Ibid.*

¹¹⁸ Ian Barbour, *Religion and Science*, 219.

¹¹⁹ *Ibid.*, 195. It was Willem de Sitter who, in 1917, posited the idea that an expanding universe could be combined with Einstein’s theory of General Relativity. In 1929, it was Edwin Hubble who observed the “red shifts” of light that suggest that light is traveling away from the observer, thus giving evidence for an expanding universe.

been observed by astronomers, (3) the cooling of the universe that could have offset the high nuclear decay at the time of creation, and (4) also (as one possible explanation) the way that light from what are now distant stars reached the earth on day one without having to have traveled for millions and millions of years to reach the earth.

Lest one quickly dismiss the concept (which in itself is scientifically supportable), one should remember that there is evidence from both the Bible and from science that expansion is taking place in our universe. A number of times the Bible speaks about God “stretching out” the universe (Job 9:8; 26:7; Ps. 104:2; Is. 40:22; 42:5; 44:24; 45:12; 51:13; Jer. 10:12; 51:15; Zech. 12:1). It also describes the universe as being the “expanse” which God has made (Gen. 1:6, 7, 8, 14, 15, 17, 20; Ps. 19:1; 150:1; Dan. 12:3). The latter term gives the idea of something having been beaten out to the point of being thin and spread out as the NAC commentary notes:

The Hebrew term *rāqîaʿ* (“expanse”) may be used for something that is beaten out or spread out like a covering (e.g., Job 37:18; Ezek 1:22–26; 10:1). The stars are depicted as the brightness of the *rāqîaʿ* (Dan 12:3). The atmosphere then is depicted as a canopy or dome spread out over the earth.¹²⁰

The usage of this term seems to imply the idea that God caused the universe to be spread out to become thin as it were.

The former term, though, seems to make an explicit statement that God caused the universe to stretch out when He brought it into existence. This is the most natural understanding of the text. One should immediately be reminded of the fact that present day science has recognized that the universe is in a state of constant expansion. As Barbour puts it, “What has been clear since Hubble’s red shift measurements is that space

¹²⁰ K. A. Mathews, *Genesis 1-11:26. The New American Commentary*, Vol. 1A (Nashville: Broadman & Holman, 1995), cited in electronic form with Logos Libronix.

itself is everywhere expanding. The present motion indicates the expansion of all parts of the universe.”¹²¹

No one was there to see exactly what did take place, but the objective evidence does call for two conclusions: (1) accelerated decay did seem to have taken place during the past, and (2) this decay does not seem to be the result of millions or billions of years, but rather, as noted earlier, seems to have taken place at the time of creation and at the time of the flood. This point will be dealt with in more detail in the following sections.

The key point to observe is this: one should be very cautious about assuming a constant half life in the decay of radioactive elements. There is very good evidence to support the claim that this rate has not been constant at every point in history and that certain catastrophic periods in the past may have caused an accelerated decay that gives the appearance of long ages, but actually does not represent long ages. How exactly all these events of the past took place no one can tell with certainty, for no one was there to see it take place. However, the young earth creationist can appeal to both the Bible and to objective scientific evidence as data sources that are consistent with a young earth view.

Problems from Helium Traces

One of the major reasons why one should doubt and challenge the idea of an old earth is because of the evidence from helium traces within zircon crystals. This section will address the fact there are very significant traces of helium in zircon crystals throughout the earth and that it is very hard to reconcile the presence of these large helium traces with an old earth.

¹²¹ Barbour, *Religion and Science*, 179.

Helium is a by-product of the radioactive decay process in uranium and other radioactive elements.¹²² After this helium gets formed, it then gets trapped for a time within the minerals. A large quantity of helium would indeed suggest that a large quantity of radioactive decay took place. However, due to the nature of helium (a “slippery” gas which escapes easily, especially when subjected to higher temperatures), these large amounts of helium traces should not be present if the earth were in fact billions of years old. Most of the helium would have escaped from the zircons and the helium traces would be very minor.

Humphreys points to a borehole in New Mexico that went down 2.6 miles and was believed to be extracting rocks that were some 1.5 billion years old. Humphreys notes that all who participated were shocked at the large amounts of helium in the zircons they extracted.¹²³ As a matter of fact, Humphreys performed calculations on these zircons that suggested an actual age of roughly 6,000 years, and that the diffusion rate of helium would have to be 100,000 times slower than it actually is to fit an evolutionary, old earth model.¹²⁴ The most crucial point that must be observed is that the amount of helium retention one sees in zircon crystals strongly argues in favor of a young earth position.

This issue is related, in part, to the former section that dealt with half lives and rates of decay in the sense that there is in many places evidence for large quantities of

¹²² Humphreys, interviewed by Doug Sharp, “An Interview with Russell Humphreys,” 5; Humphreys notes elsewhere that uranium-238 goes through a 14 step decay process to become lead-206. In this 14 step process, eight alpha particles get released, alpha particles which combine with nearby electrons to form helium (Russell Humphreys, “Helium Retention in Zircon Crystals,” in *Thousands Not Billions*, 68).

¹²³ *Ibid.*, 68.

¹²⁴ *Ibid.*, 75-76.

past decay (which on an old earth, uniformitarian view means that the decay took place over millions or billions of years). However, an old earth position does not reconcile with the widespread presence of helium in these mineral samples due to the fact that helium quickly escapes from the rocks and goes into the upper atmosphere. Humphreys points out that the helium should have diffused out of the crystals within thousands of years and that there is no way of matching such large traces to the old earth view of millions or billions of years. Humphreys makes mention of the work of Robert Gentry at Oak Ridge who showed that “up to 58% of the helium that should have been emitted over 1.5 billion years was still in the zircon crystals.”¹²⁵

In summary, the high amounts of helium retention in zircon crystals suggests a two-fold understanding: (1) high amounts of nuclear decay has, in fact, taken place throughout the history of the earth, but (2) this high amount of decay appears to have taken place at an accelerated rate in recent ages and not over millions or billions of years as commonly asserted.

Problems from Isochrons

An isochron (“equal time”) is “a graph of data which attempts to address three dating issues. The first issue concerns whether any daughter atoms were present in the rock when it first crystallized from magma.”¹²⁶ Second, it tries to answer the question whether or not the sample has remained a closed system during its history.¹²⁷ Third, an isochron graph seeks “the most likely computed age for a rock body, based upon a

¹²⁵ Humphreys, interviewed by Doug Sharp, “An Interview with Russell Humphreys,” 3.

¹²⁶ DeYoung, *Thousands Not Billions*, 36.

¹²⁷ *Ibid.*

statistical averaging of several radioisotope measurements.”¹²⁸ To put this in other terms, isochron graphs are attempts to avoid the dilemma that it is absolutely impossible to know the initial ratio of parent to daughter elements.¹²⁹ Many have looked to isochrons as the salvation of what is otherwise a logically flawed system due to unknown assumptions. Frommelt states:

The isochron dating method is a reliable radioactive dating method used to find the age of the rocks. It is based on the measurement of the abundance of a radioactive parent isotope as well as the corresponding daughter isotope as a ratio to a reference isotope that is a non-radiogenic isotope of the daughter element.¹³⁰

Rather than relying directly upon the relationship of one parent element and one daughter element, the isochron method attempts to look at ratios and relationships involving other isotopes that are related to the entire decay process. Although some claim that isochrons have solved the assumptions problems, in fact they have not, for the entire isochron chart is still directly impacted by all the same assumptions that have already been noted.

Trying to circumvent the problem by not relying on a single parent to daughter ratio does not eliminate the assumption problems of parent elements, daughter elements, or mixing or leaching. The latter sections that deal with dating discordance and erroneous dates will demonstrate how isochrons fail to eliminate the assumptions problems of RID.

Problems Particular to ¹⁴C Dating

¹⁴C dating, though it is a form of RID, is being addressed in a separate section due to the fact that its process and characteristics are different from the previously discussed

¹²⁸ Ibid.

¹²⁹ Pittman, “Radiometric Dating Methods,” 20-21.

¹³⁰ Barry Frommelt, “Radioactive Dating of Rocks: How Reliable Is It?” *Teaching Science-the Journal of the Australian Science Teachers Association* 52:3 (Spring 2006): 32.

methods.¹³¹ Also, as noted earlier, unlike other forms of RID, ^{14}C can only be used for dating materials that were at one time alive (e.g., human remains, animal remains, plant remains, etc.). Furthermore, ^{14}C cannot be used on igneous rocks, something to which the other methods are restricted. Before discussing four major limitations of ^{14}C dating, a brief explanation of the entire process is in order.

^{14}C comes into existence by the following process. First, cosmic rays bombard the atmosphere from outer space. These rays strike gas molecules in the earth's upper atmosphere and produce free, unattached neutrons. Some of these neutrons combine with nitrogen-14 to become ^{14}C .¹³² Once the ^{14}C atoms have formed, they drift downward to earth, but as they drift down they combine with oxygen to become carbon dioxide molecules (CO_2). Living organisms (mainly plants) absorb the CO_2 which contains both ^{14}C as well as ^{12}C . The present ratio of ^{12}C to ^{14}C is about 1 trillion to one. That is, there is about 1 trillion times as much ^{12}C as there is ^{14}C in our world. As long as a living organism is alive, it is constantly bringing in to itself this CO_2 with its mixture of ^{12}C and ^{14}C . As soon as the living organism dies, however, it ceases to ingest all forms of carbon, so the ratio of $^{14}\text{C}/^{12}\text{C}$ gets fixed at the moment of death according to the atmospheric ratio at the time of death. The ^{12}C remains as part of that dead organism, but the ^{14}C immediately begins to decay back to Nitrogen-14 (with the emission of a beta particle).¹³³ The date of the sample is then found by comparing the ratio of ^{14}C to ^{12}C in the sample to the ratio in the atmosphere at the time when the organism died (and herein lies the one of

¹³¹ ^{14}C dating was discovered by Willard Libby in the 40s. For this work he received the Nobel Peace Prize in 1960 (DeYoung, *Thousands Not Billions*, 46).

¹³² Ibid.

¹³³ Ibid., 46-47.

the major problems).¹³⁴ The problem, as Sewell notes, is that no one can know “what that ratio was many thousands of years ago.”¹³⁵

As a final introductory note to the entire process, one should be aware that at 5,730 years, the half life of ^{14}C is radically shorter than the radioactive elements used in the other RID methods. This means that every 5,730 years, half of the ^{14}C will decay. This very short half life produces a situation where, for all practical terms, the quantities of ^{14}C will be so low by the time it has gone through roughly 10 half lives that there will be virtually no remaining ^{14}C after 50,000 years.¹³⁶

One of the recent innovations that can help identify these extremely minute traces of ^{14}C is something called an “Accelerated Mass Spectrometer” (AMS). The AMS radically increases the ability to identify traces of ^{14}C . Baumgardner comments on the significance of this technology:

A key technical advance, which occurred about 25 years ago, involved the ability to measure the ratio of ^{14}C atoms to ^{12}C atoms with extreme precision in very small samples of carbon, using an ion beam accelerator and a mass spectrometer. Prior to the advent of this accelerator mass spectrometer (AMS) method, the $^{14}\text{C}/^{12}\text{C}$ ratio was measured by counting the number of ^{14}C decays. This earlier method was subject to considerable "noise" from cosmic rays. The AMS method improved the sensitivity of the raw measurement of the $^{14}\text{C}/^{12}\text{C}$ ratio from approximately 1% of the modern value to about 0.001%, extending the theoretical range of sensitivity from about 40,000 years to about 90,000 years. The expectation was that this improvement in precision would make it possible to use this technique to date dramatically older fossil material.¹³⁷

¹³⁴ Curt Sewell, “Creation Bits No. 23: Carbon-14 and the Age of the Earth,” <<http://www.rae.org/bits23.htm>>, Nov. 8, 1999, accessed on July 1, 2007, 2.

¹³⁵ Ibid.

¹³⁶ Editor, “Radiocarbon Dating” *New York State Conservationist* 60:4 (Feb. 2006): 6.

¹³⁷ Baumgardner, “Carbon Dating Undercuts Evolution’s Long Ages,” 1-2.

The important point to take note of is that ^{14}C represents a very minute ratio of total carbon and that its small proportions make it very difficult to detect. On top of this, the very short half life (5,730 years) means that its decay rate is very high. Therefore, it becomes very hard (basically impossible) to detect ^{14}C after 50,000 years or more. Given this very brief explanation of the basics of ^{14}C , it will now be crucial for the reader to also understand some of the severe limitations of ^{14}C dating and why ^{14}C , despite some definite strengths and valuable uses, also has some very crippling limitations, as well.

^{14}C Equilibrium

Just as other forms of RID have major assumptions, so too does ^{14}C dating. The first major assumption revolves around the so-called problem of equilibrium. The fact of the matter is that as of the end of the 20th century, the Specific Production Rate (SPR) of ^{14}C was about 18.8 atoms per gram of total carbon per minute, but the Specific Decay Rate (SDR) was about 16.1. In other words, present day observations show that the earth is not in a state of ^{14}C equilibrium. The ratio of ^{14}C is increasing every year. Lee notes that these fluctuations can create significant challenges to the accuracy of the method.¹³⁸

Thus, in view of the unknowns, it is virtually impossible to know whether or not the assumptions one is making about the past ^{14}C ratios are valid or not. Based on the fact that there is a known lack of equilibrium today, this certainly suggests that one cannot be safe in assuming a constant rate. There are a variety of factors that may have caused ^{14}C quantities to be different in the past, a few of which will be listed.

First, there is every good reason to believe that before Noah's flood the earth contained very high quantities of vegetation due to the so called greenhouse effect that

¹³⁸ Lee, "Differential Resolution in History and Archeology," 379-380.

seems to have existed. This huge amount of vegetation would have diluted the $^{14}\text{C}/^{12}\text{C}$ ratios in comparison to present times. For this cause, there is reason to believe that ^{14}C ratios were much lower during pre flood times. These lower ^{14}C quantities would be a cause for exaggerated ages for items that lived before the flood.¹³⁹

Secondly, ^{14}C seems to be especially sensitive to changes in the amount of cosmic radiation that enters the atmosphere. Whitcomb and Morris point out that there probably would have been a very large increase in cosmic radiation—and hence a large increase in ^{14}C production and ^{14}C ratios—after the flood due to the removal of the vapor canopy.¹⁴⁰ These changes would make it hard to know what kinds of ratios existed before that major, cataclysmic event.

Third, ^{14}C quantities seem to have been impacted by the industrial revolution with the large scale burning of fossil fuels.¹⁴¹ It is difficult to gauge just how much impact the industrial age has had upon these ratios.

Fourth, ^{14}C quantities seem to have taken a spike back in the 40s and 50s when the world began to practice above ground nuclear testing. Higher present amounts of ^{14}C today in comparison with centuries or millennia gone by would cause the appearance of an older age when dating items from the past.

Fifth, ^{14}C production and ^{14}C ratios seem to be affected by the earth's magnetic field. Levi has noted that the variation in ^{14}C quantities in past ages “is most likely attributable to changes in the cosmogonic production rate of ^{14}C caused by variations in

¹³⁹ DeYoung, *Thousands Not Billions*, 59.

¹⁴⁰ Whitcomb, *The Genesis Flood*, 375.

¹⁴¹ K. Hughen, “ ^{14}C Activity and Global Carbon Cycle Changes Over the Past 50,000 Years,” *Science* 303:5655 (1/9/2004): 5.

the intensity of the earth's geomagnetic field."¹⁴² The impact of earth's magnetic field upon ¹⁴C appears to be one of the biggest factors of all.

One of the ways to try and circumvent these kinds of problems is to try and calibrate the ¹⁴C assumptions according to tree rings and the amount of ¹⁴C in the tree rings. This practice is called "dendrochronology."¹⁴³ One should be aware, though, that ¹⁴C testing against Bristlecone Pine tree rings have shown ¹⁴C errors of anywhere from a few centuries up to 1,000 years.¹⁴⁴ The technique is not full proof, for it, too, depends upon a proper knowledge of past ¹⁴C ratios.

As far as pre-flood times are concerned, DeYoung believes that a stronger geomagnetic field before the flood would deflect cosmic rays and thus diminish the amount of ¹⁴C production before the flood. Given the assumption of lower ¹⁴C ratios back then in comparison to today, this fact would cause pre-flood samples to appear to be considerably older than they really are.¹⁴⁵ DeYoung believes that the evidence calls for roughly a ten-fold adjustment when dating pre-flood items.¹⁴⁶

¹⁴C Dating Errors

¹⁴C has demonstrated its unreliability through some of the outrageous dates it has produced. This is not to say that ¹⁴C cannot produce some very good dates at times. One

¹⁴² Barbara Goss Levi, "Uranium-Thorium Dating Sets the Clock Back on Carbon-14 Ages," *Physics Today* 43:9 (Sep. 90): 20.

¹⁴³ *Ibid.*

¹⁴⁴ Von Fange, "Time Upside Down," 1.

¹⁴⁵ DeYoung, *Thousands Not Billions*, 59.

¹⁴⁶ *Ibid.*, 59. The net effect would be to interpret a 50,000 year date to actually be about 5,000 years. Given the sensitivity of these processes, DeYoung may be correct, but this author is not sure what kind of control one should apply in making such assumptions.

interesting date that matched very well was a series of dates on Hezekiah's Tunnel.¹⁴⁷ In this study, Frumkin reported that the ¹⁴C dates came in very accurate to the well-known biblical chronology. ¹⁴C can be reasonably accurate.

However, such is not always the case. Among the glaring dating errors would be the fact that ¹⁴C dating produced an age of 24,000 years on scalp tissue from a Fairbanks Creek Musk Ox, while also producing at the same time an age of 17,000 years on its hair.¹⁴⁸ ¹⁴C has shown itself to be notoriously weak for dating any form of marine creatures due to the fact that "oceans have the lower levels of carbon 14 compared to the atmosphere."¹⁴⁹ One problem that can arise is in situations where large quantities of ¹²C get produced (as from thermal vents) and cause an imbalance in the ratios and give the appearance of great age.¹⁵⁰ The point to observe is that ¹⁴C, like other RID methods, does have severe limitations.

¹⁴C Presence in Fossil Fuels

One of the places where these ¹⁴C traces has been especially problematic for the old earth camp is in the way that ¹⁴C traces keep appearing in various kinds of fossil fuel deposits such as coal and oil reserves. The reason for this is due to the fact that most naturalist geologists consider things like coal and oil to be of necessity millions of years

¹⁴⁷ Amos Frumkin, et al., "Radiometric Dating of the Siloam Tunnel, Jerusalem," *Nature* 425:6954 (9/11/2003): 169.

¹⁴⁸ Sean Pittman, "Carbon 14," <<http://naturalselection.0catch.com/Files/carbon14.html>>, June 2004, accessed on July 1, 2007, 29.

¹⁴⁹ Ibid.

¹⁵⁰ Ibid., 30.

old according to their evolutionary driven paradigm.¹⁵¹ What has been absolutely shocking to these old earth scientists is that they are finding significant quantities of ¹⁴C in these oil and coal reserves. Based on the decay patterns of ¹⁴C, there should be virtually no ¹⁴C remaining at all after some 50,000 years. Once again, the data does not fit an old earth position, but it does fit a young earth position.¹⁵²

General Widespread ¹⁴C Presence

As already alluded to in brief, one of biggest ¹⁴C factors (if not the biggest) that argues against an old earth position is the fact that they are now finding widespread traces of ¹⁴C all throughout the earth. The minute ratios of ¹⁴C and its short half life should produce a situation (assuming an old earth position) in which there would be virtually no traceable ¹⁴C whatsoever after some 50,000 years or so (even with the assistance of AMS technology). The big shock to the science world came when they began finding widespread quantities of ¹⁴C in all types of fossils and other items that they wanted to be dated as very ancient. The fact of the matter is that ¹⁴C dating has begun to expose the folly of the old-age presuppositions. Baumgardner provides an excellent description of how AMS technology has impacted the discipline:

The big surprise, however, was that no fossil material could be found anywhere that had as little as 0.001% of the modern value! Since most of the scientists involved assumed the standard geological time scale was correct, the obvious explanation for the ¹⁴C they were detecting in their samples was contamination from some source of modern carbon with its high level of ¹⁴C. Therefore they

¹⁵¹ Ibid.

¹⁵² Pittman, "Carbon 14," 30. Pittman notes that a piece of wood that was found in "Upper Permian" rock that was supposedly 250 million years old still contained significant amounts of ¹⁴C and that a piece of wood that was supposedly "Middle Triassic" (230 million years) dated with ¹⁴C at 33,720 years. Although ¹⁴C may have certain limitations and imprecisions, it has been demonstrating in many cases that the old earth model simply does not match the data; oil from the Gulf of Mexico dated with ¹⁴C in the thousands of years and petroleum deposits from New Zealand dated to 4,000-5,000 B.C. (Ibid., 36).

mounted a major campaign to discover and eliminate the sources of such contamination. *Although they identified and corrected a few relatively minor sources of ^{14}C contamination, there still remained a significant level of ^{14}C —typically about 100 times the ultimate sensitivity of the instrument—in samples that should have been utterly " ^{14}C -dead," including many from the deeper levels of the fossil-bearing part of the geological record. . . . Routinely finding $^{14}\text{C}/^{12}\text{C}$ ratios on the order of 0.1-0.5% of the modern value—a hundred times or more above the AMS detection threshold—in samples supposedly tens to hundreds of millions of years old is therefore a huge anomaly for the uniformitarian framework (emphasis by present author).*¹⁵³

What Baumgardner is pointing out is that these widespread traces of ^{14}C are entirely inconsistent with an old earth position. However the data is, in fact, consistent with a young earth view. In itself, this is an absolutely huge piece of evidence against the old earth position. However, the old earth camp, rather than accepting the evidence for what it is, continues to show a determined opposition to the idea that their old earth paradigm is wrong.

^{14}C Presence in Diamonds

The RATE project performed ^{14}C testing on diamonds, something that to their knowledge is the first time it has been performed. The RATE team believes that diamonds are a very good item for ^{14}C dating not only because of the fact that they are of an organic origin (thus datable with ^{14}C), but also because their extreme hardness helps prevent contamination.¹⁵⁴ The fact that significant measurements of ^{14}C were identified in these diamond samples gives strong support for the position that these diamonds are only thousands, and billions of years old, a “major conflict with the long-age time

¹⁵³ Baumgardner, “Carbon Dating Undercuts Evolution’s Long Ages,” 1-2.

¹⁵⁴ DeYoung, *Thousands Not Billions*, 56.

scales.”¹⁵⁵ The RATE team believes that proper compensation for (1) a much larger pre-flood biomass, and (2) a much stronger pre-flood geomagnetic force easily permits one to assign a date to these diamonds of roughly 5,000 years.¹⁵⁶

Perhaps the RATE team is correct in the dates they have suggested. One fact is very clear in any case, though: there is very substantial, objective, scientific evidence outside the Bible that is consistent with the biblical, young earth position. This has been the main point of this study. Two final points regarding the dating errors of RID in general will follow before all the findings are summed up.

Problems from Dating Discordance

Discordance is the term used to describe the ubiquitous problem of widely disparate ages from RID. Discordant ages are the universal norm and their significance cannot be ignored. Discordance comes from different dating methods used on the same identical sample, and it also comes from dating with the same method on different samples within the same region and strata. The question that demands an answer is this: “How can one reasonably rely on a method that is so erratic and unpredictable?”

As a first of many potential examples, one case of radical discordance from ¹⁴C dating can be seen in dating done on ice samples from Antarctica. These ice samples were dated by one group at 325,000 years, but later dated to be about 100,000 years, a 300% variation!¹⁵⁷

¹⁵⁵ Ibid.

¹⁵⁶ Ibid., 59.

¹⁵⁷ Editor, “How Old Are You Really?” *Poptronics* 2:3 (March 2001): 1.

Engels states that “It is now well known that K-Ar ages obtained from different minerals in a single rock may be strikingly discordant.”¹⁵⁸ The question that must be answered is how it is that such unreliable methods can continue to be held out as reliable sources of scientific research!

The truth of the matter is that RID is not at all a reliable method. The immense assumptions of the methods—assumptions that are known to produce huge errors—render the method fully unreliable. Stansfield puts it this way

It is obvious that radiometric dating technique [sic] may not be the absolute dating methods that they are claimed to be. Age estimates on a given geological stratum by different radiometric methods are often quite different (sometimes by hundreds of millions of years). There is no absolutely reliable long-term radiological clock. The uncertainties inherent in radiometric dating are disturbing to geologists and evolutionists.¹⁵⁹

Snelling has compiled data that shows how some have produced horribly discordant dates from Grand Canyon samples. Potassium-Argon dating on one set of samples produced ages that ranged from 405 million to over 2.5 billion.¹⁶⁰ Other samples, all from the same basalt flow, in the Clear Creek area of the canyon produced discordant ages (⁴⁰K to ⁴⁰Ar) that ranged from 1 billion to almost 2.6 billion years with other samples going from 1.2 billion to 2.5 billion years.¹⁶¹ Isochron plotting was of no help, either, since it produced a range that went anywhere from 1.2 billion to 1.88 billion

¹⁵⁸ Joan C. Engels, “Different Ages From One Rock,” *Journal of Geology* (79): 609, quoted in Pittman, “Radiometric Dating Methods,” 39.

¹⁵⁹ W. D. Stansfield, Professor of Biological Science, Cal Poly, “The Science of Evolution” (1977): 84, quoted in Pittman, “Radiometric Dating Methods,” 41.

¹⁶⁰ Andrew Snelling, “Radioisotope Dating of Grand Canyon Rocks: Another Devastating Failure for Long-Age Geology,” *Impact*, <<http://www.icr.org/article/42/>>, accessed on July 7, 2007, 2.

¹⁶¹ *Ibid.*

years.¹⁶² Snelling notes that some might like to dismiss these discordant results as being an “isolated aberration,” but the fact is that this is yet one more illustration of “the repeated failure of all the radioisotope dating methods.”¹⁶³

Yet another example is found in the way that trees that were buried by the eruption of Mount Rangotito in New Zealand were dated with ¹⁴C at 225 years, and yet the overlying volcanic material produced a potassium-argon age of 465,000.¹⁶⁴ Examples could be multiplied endlessly, but the point to be observed is this: discordance clearly shows RID to be a method that is fraught with insurmountable difficulties.

Problems from Grossly Erroneous Dates

The reality of the matter is that RID has produced many dates that are known to be horribly wrong. This section will provide a list of several examples that give blatant, irrefutable evidence of just how unreliable RID can be.

Erroneous Dates in the Grand Canyon

The first example of erroneous dates is in dating done at the Grand Canyon. Tests were performed using a rubidium-strontium isochron method on lava samples from the Cardenas Basalt and the western Grand Canyon lava flows of the Grand Canyon. The deeply buried Cardenas Basalt is believed to be among the oldest strata of the Grand Canyon, being assigned to the Precambrian era and given by some an age of more than one billion years. Interestingly, tests that were done on lava flows from much higher strata on the north rim were actually found to be *older* than those samples came from the

¹⁶² Ibid.

¹⁶³ Ibid.

¹⁶⁴ Harold Coffin, *Origin by Design*, 400, quoted by Pittman, “Radiometric Dating Methods,” 43.

bottom strata of the Cardenas Basalt, findings that were confirmed from three independent laboratories.¹⁶⁵ Austin points out that these findings not only challenge RID as a whole, but they also challenge the validity of isochron methods that were employed in this dating example and shown to be unreliable.¹⁶⁶

Erroneous Dates from Samples of Known Young Age

Dating was performed on basalt samples from Hualalai, Hawaii. These volcanic samples were known to have come from lava flows in 1800-1801. ⁴⁰K to ⁴⁰Ar dating on these samples produced an age of 1.4 to 1.6 million years.¹⁶⁷ In other words, the dating method was off by a factor of about eight thousand times. Similar findings come from datings done on Hawaiian, Kilauea Iki basalt when lava flows dated by ⁴⁰K to ⁴⁰Ar produced an age of 8.5 half million years, and yet the lava sample was produced in 1959.¹⁶⁸

Another notable example of dating error comes from dating on lava samples from Mt. Ngauruhoe in New Zealand (the volcano that is portrayed as “Mt. Doom” in the Lord of the Rings movie). This volcano erupted on June 30, 1954 and produced an andesite lava flow that has now been dated with the potassium-argon method. These datings have yielded ages of up to 3.5 million years.¹⁶⁹

¹⁶⁵ Steven Austin, “Excessively Old ‘Ages’ for Grand Canyon Lava Flows,” *Impact*, <<http://www.icr.org/article/353/>>, accessed on July 7, 2007, 1.

¹⁶⁶ *Ibid.*, 3.

¹⁶⁷ Andrew Snelling, “‘Excess Argon’: The ‘Achilles Heel’ of Potassium-Argon and Argon-Argon ‘Dating’ of Volcanic Rocks,” *Impact*, <<http://www.icr.org/article/436/>>, accessed on July 7, 2007, 1.

¹⁶⁸ *Ibid.*

¹⁶⁹ *Ibid.*, 2.

One final example of huge dating error comes from dating done on lava samples from the Mt. St. Helens volcano eruptions of 1980-1986. In 1992-1993, geologist Steven Austin took samples from these lava flows to four different independent laboratories for dating (with “blind” dating assumptions since he did not supply the labs with any expected dates nor did he tell them the origin of the samples). The lab results produced ages between 340,000 to 2.8 million years.¹⁷⁰ The fact of the matter is that these samples were between seven to thirteen years old. This is an error factor of up to 40 million percent!

These particular cases demonstrate the massive error (and, in fact, dishonesty) by those who ignore the problem of excess (initial non-radiogenic) argon when using the ^{40}K to ^{40}Ar dating method (and other RID methods for that matter). The reality that should be recognized and admitted is that magma flows do contain significant amounts of initial argon from their origin at the earth’s mantle, and that one should never assume that lava eruptions are free from initial argon.¹⁷¹ These same kinds of immensely erroneous dates have taken place from samples at Mt. Etna, Sicily, Mt. Lassen, California, Sunset Crater, Arizona, Akka Water Fall, Hawaii, Mt. Stromboli, Italy, Glass Mountains, California, Auckland, New Zealand, Benue, Nigeria, Antarctica, and elsewhere.

Snelling has pointed out that many recent studies are confirming that excess argon is not an isolated problem, but one that is universal. Some studies are showing that

¹⁷⁰ Ibid.

¹⁷¹ Ibid.

excess argon in the upper mantle may be anywhere from two to ten times higher than previous estimates and some 150 times more than the atmospheric content.¹⁷²

These findings are also confirmed by testing performed on diamonds (which are formed in the mantle but carried to the upper crust surface by explosive volcanism). Potassium-argon testing by Zashu on Zaire diamonds obtained an age of six billion years, an age that is even older (twice as old) than the earth itself based on their own old earth models.¹⁷³

This evidence clearly shows that excess ⁴⁰Ar is widespread in volcanic rocks and that it is frequently inherited from the earth's mantle. As Austin puts it, these kinds of ages are, of course, "preposterous."¹⁷⁴ What is the basic error? It is the error of assuming that there is no initial argon from when the rock was formed, although, as Austin notes, "as a matter of practice, no radiogenic argon is supposed to have existed" when rocks are formed.¹⁷⁵

These are but a few of the proven observations that should cause a huge concern about the legitimacy of RID. These proven (and well known) cases of serious dating error should seriously challenge old earth scientists about their "scientific" conclusions, conclusions that are in reality usually governed by their metaphysical presuppositions.

¹⁷² Ibid.

¹⁷³ Ibid.

¹⁷⁴ Steven Austin, "Excess Argon Within Mineral Concentrations From the New Dacite Lava Dome at Mount St. Helens Volcano," <<http://www.answersingenesis.org/tj/v10/i3/argon.asp>>, accessed on July 7, 2007, 1.

¹⁷⁵ Ibid., 8.

Summary

By objective, the bulk of this paper, whose objective is to examine the biblical and scientific validity of young earth creationism, has focused on this chapter and the discussion about the validity of RID. Many believe that RID has been the strongest argument against a young earth position. This chapter presented seven particular kinds of problems associated with the assumptions, weaknesses and flaws of RID. A summary of these findings include some of these crucial observations: First, although the impact is usually somewhat veiled, there is, in fact, a problem with circular reasoning in the way that such dates are assessed, selected and discarded. Second, All forms of RID require certain kinds of assumptions such as parent and daughter elements and rates of decay. The problems associated with these assumptions are known to all. There is no question that these assumptions plague the methods and there is no question about the fact that there is absolutely no way of fully avoiding the problems. Third, this chapter has shown that certain lines of evidence, such as widespread helium traces and ^{14}C traces, provide a very strong argument against the old earth position. As it stands, the geological record with its widespread presence of helium and ^{14}C can, however, be reconciled with a young earth model and periods of accelerated nuclear decay in the past. This author believes that this model best explains the objective evidence. Fourth, this chapter has discussed the fact that isochron models, although helpful to some extent in overcoming the assumption problems, cannot eliminate the problems caused by all of the unknowns. Fifth, this chapter has shown the interesting fact that even though ^{14}C at times strikes blows against old earth evolutionary ideas, the method itself is also beset by its own assumption problems. Due to historical variations in ^{14}C ratios, there is very good reason

to believe that many ^{14}C dates are significantly exaggerated. Sixth, this chapter has presented a sampling of how bad the problem of dating discord is. None of these methods agree with one another, and it is not unusual for the amount of discordance to be huge. The methods, even by old earth standards and assumptions, are extremely unreliable. Seventh and finally, the many examples grossly erroneous RID dates (in cases where the actual dates are known) provide irrefutable proof that RID is fraught with insurmountable problems due to dating assumptions. RID does not prove or support an old earth position, but it can be shown to be consistent with a young earth position.

What kind of conclusions should one draw from this hard data, objective scientific evidence? At the very least one should be extremely cautious and distrustful about the dating claims of RID. The method has too many unknown assumptions built into it to be reliable and its blatant failures provide proof that it simply is not reliable.

CHAPTER 5

CONCLUSION

This paper has dealt with a topic that is both very complicated and also very controversial. Not only is the old earth/young earth question a huge point of contention between creationists and naturalists/evolutionists, but it is also a big point of contention between many Christians as well. There are a considerable number of Christians who feel that the interpretation of the Bible should be made to conform with the certain findings of science. This author believes that there is a methodological error in the direction of this reasoning. A proper theological method must begin first with a proper exegesis of the text of Scripture so that one might form a theology that is truly Scripture driven. This is the basis for theology. Then, and only then, should one proceed to the task of testing one's theology against relevant, extra biblical data (e.g., scientific observations) for comprehensiveness and congruity.

One must also certainly bear in mind that the scientist (of whatever stripe) is nothing more than a mere man who is fraught with all the limitations of finite man. Just because the scientist has said it is so, does mean that it is so. This paper has shown the reader that all science is, to one extent or another, theory driven. Theory free science is largely a myth. The reader must understand that metaphysical and philosophical presuppositions regularly influence the processes and interpretations of science. This does not mean that such presuppositions always produce wrong interpretations of the data, but one should not be blind to the reality that such presuppositions do regularly influence the process.

This chapter has presented the reader with considerable data from both the Bible and science to show that a young earth, creationist position is both biblical and consistent with scientific data. Although there certainly are unanswered questions (in both camps), this paper has shown that there is no significant data that disproves a young earth position or makes it untenable. On the other hand, this paper has shown that an evolutionary (old earth) position is absolutely irreconcilable with the Bible. The plain interpretation of the text does not support an old earth position. For this reason, the author suggests that one should not claim to believe the Bible and also claim belief in any form of evolution (which demands an old earth position), for a plain reading of the Bible cannot not support evolution of any form (or the old earth view that goes with it).

Furthermore, this paper has demonstrated that there is considerable scientific evidence in favor of the young earth position. Some of this evidence, in fact, strongly argues against the old earth view. This study has sought to give the reader an opportunity to see that a young earth position is viable and does have considerable scientific evidence to support it.

In conclusion, this author commends the view that God created the entire universe entirely out of nothing (ex-nihilo) in six literal days, and that this act of creation took place between 6,000-6,200 years ago, and that it was the sin of Adam that introduced curse and death into the creation. The author commends this position because it is the exegetically driven from the text of Scripture. The author has also shown that this position is consistent with the objective data of scientific observations, and as such it is a view that Christians should fully embrace without hesitation.

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