

CREATION RESEARCH SOCIETY



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THE CREATION RESEARCH SOCIETY: FIFTY YEARS OF SERVICE

- *THE HUMAN HAND: PERFECTLY DESIGNED*
- *CREATION AND THE FATE OF THE UNIVERSE*
- *AR/AR CALIBRATION AGAINST NOVARUPTA*



Creation Research Society Quarterly

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Haec Credimus

For in six days the Lord made heaven and earth, the sea, and all that in them is, and rested on the seventh. —Exodus 20:11

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Kevin L. Anderson, Van Andel Creation Research
Center, 6801 N. Highway 89, Chino Valley, AZ 86323.

Send book reviews to the Book Review Editor:
Don B. DeYoung, 200 Seminary Dr.,
Winona Lake, IN 46590, dbdeyoung@grace.edu.

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The Creation Research Society: Fifty Years of Service, 1963–2013

Donald B. DeYoung and Kevin L. Anderson*



Abstract

The year 2013 marks five full decades of service by the Creation Research Society. The 50-year golden anniversary is an appropriate time to reflect on the progress of this unique ministry. This article is not a comprehensive history of the Society, which would fill a large volume. Instead, the structure, governance, and developments of the Society over the years are described, along with some personal anecdotes. It is clear that the Creation Research Society has touched many lives directly and been an encouragement to countless others over five decades. All personal comments are the views of the authors rather than those of the Society or governing board.



Figure 1 (left). Dr. Walter Lammerts, first president of the CRS Board of Directors. His initiation of correspondence with several other creationists progressed into two meetings that resulted in formation of the Society.

Figure 2 (right). Dr. Henry Morris, coauthor of *The Genesis Flood*, a member of the original CRS Board of Directors and an editor of the first issue of the *Creation Research Society Quarterly*.



* Donald B. DeYoung, Grace College

Kevin L. Anderson, Van Andel Creation Research Center, Chino Valley, AZ



Figure 3. The Van Andel Research Center. Initial construction of the 3,000-square-foot main building (a) and the facility in 2012 (b).



Figure 4. Dr. John and Gerry Meyer. Dr. Meyer was a member of the CRS Board of Directors and the first director of the Van Andel Creation Research Center.

Introduction

The Creation Research Society (CRS) is a professional membership society dedicated to promoting the Creation worldview through education, research,

and writing. Society tenants include a recent, supernatural creation, 24-hour days of biblical Creation, literal first parents of mankind named Adam and Eve, a year-long, global Noahic Flood as de-

scribed in Genesis chapters 6–8, and rejection of macro-level evolution and common descent.

The Society maintains no formal affiliation with any other scientific or reli-



Figure 5. Sample issues of the *Creation Research Society Quarterly* over its 49-year history, including the inaugural issue (far left) published in June 1964.

gious organization. At the same time, however, there is close cooperation with like-minded creationist organizations in conferences, publications, and research projects. The Society avoids political and legislative debate or lobbying activity and is in full compliance with regulations for a nonprofit organization.

History

Following years of informal correspondence, a team of ten scientists favoring biblical Creation held two meetings in 1963 (Rusch, 1982). At the second meeting, held at the home of John Grebe (Midland, MI), they began the initial organization of the Creation Research Society (Table 1 and Figure 1). This action resulted largely from concerns with trends away from a literal, biblical understanding of Creation by the American Scientific Affiliation, an organization of Christian scientists formed in 1941. It was decided there was a need for an organization that promoted the scientific evidence and consistency of the biblical account of Creation. This included evidence that Creation had occurred only a few thousand years ago

and that the earth had been covered by a worldwide flood. Formation of the Society and the initial board leadership is described by Henry Morris (Morris, 1984, pp. 171–203).

It is no coincidence that in 1961, two years previous to the formation of the Society, *The Genesis Flood: The Biblical Record and Its Scientific Implications* by John C. Whitcomb and Henry M. Morris was published (Figure 2). This was a time of active debate concerning biblical origins, an issue that continues undiminished today. The *Genesis Flood* book remains in print today accompanied by hundreds of more recent books and DVDs supporting biblical Creation.

Table 2 lists all 49 CRS board members who have served through 2012, both past and present, including their terms of service. The total list includes many leaders of the Creation movement across the decades. Retired board member George Howe holds the record for years of service at 41 years. Jean Lightner added a female perspective to the board starting in 2009.

A timeline of significant events in the history of the Creation Research Society can be found on pages 10–11.

Van Andel Creation Research Center

In the late 1970s, the Society began planning to build a center with the purpose of providing a facility for conducting research. Soon afterward, some land in north central Arizona was purchased for this purpose. A few years later, a gift from the Jay and Betty Van Andel Foundation provided sufficient funding for the purchase of additional land and construction of the Van Andel Creation Research Center (VACRC) (Figure 3). Later, a botanical greenhouse and a second building were constructed. This second building currently provides a warehouse for the Society's bookstore and storage of all past issues of the *Creation Research Society Quarterly*. A more detailed history of the facility has been given by John Meyer (Meyer, 1999), who also served as the first director of the center (Figure 4).

Society Structure

CRS membership as of June 2012 totals 1626 worldwide. Of these, 663 members hold postgraduate degrees in science or engineering. The Society has several categories for membership and *Quarterly* journal subscriptions. These include

Table 1. Members of the original Board of Directors of the Creation Research Society.

Name	Discipline	Professional Affiliation in 1963
Duane Gish, Ph.D.*	Biochemistry	Upjohn Chemical Co.
John Grebe, D.Sc.*	Nuclear Physics	Dow Chemical Co.
John Klotz, Ph.D.*	Genetics	Concordia College (Ft. Wayne)
Walter Lammerts, Ph.D.*	Genetics	Germain's
Karl Linsenmann, M.D.*	Physician	Physician in Midland, MI
Frank Marsh, Ph.D.*	Botany	Andrews University
John Moore, Ed.D.*	Science Education	Michigan State University
Henry Morris, Ph.D.	Engineering	Virginia Tech
Wilbert Rusch, Sr., M.S.*	Biology & Geology	Concordia College (Ann Arbor)
William Tinkle, Ph.D.	Zoology	Taylor University

*Those attending the organizing meeting of the Society.

voting, sustaining, student, senior, life, and subscriber categories. The categories are described in issues of the *CRS Quarterly* and on the Society website www.CreationResearch.org.

Communication channels with members include offices at the research

laboratory in Chino Valley, Arizona, the website www.CreationResearch.org, the Society's Facebook page, the CRSnet online discussion site, and several publications. The Society also organizes occasional Creation conferences. Recently the Society has begun holding two-day

scientific meetings. The first of these meetings was held in July 2009 at the University of South Carolina Lancaster (Lancaster, SC) (Figure 6). Also initiated during this conference was the Henry M. Morris Memorial Lectures series, with Dr. Morris's *Genesis Flood* coauthor,

Table 2. Past and present board members of the Creation Research Society.

Board Members	Years of Service	Years of Term
*Armitage, Mark H.	7	2006–
Armstrong, Harold L.	15	1969–1984
Aufdemberge, Theodore P.	19	1993–2011
Barnes, Thomas G.	20	1963–1983
Boylan, David	21	1977–1998
Burdick, Clifford	20	1963–1968, 1970–1986
Butler, Larry	6	1969–1975
*Chaffin, Eugene F.	25	1988–
Davidheiser, Bolton	2	1966–1968
Dean, Douglas	2	1966–1968
*DeYoung, Donald B.	27	1986–
*Faulkner, Danny	8	2005–
Frair, Wayne F.	31	1970–2001
Gentet, Robert E.	11	1992–2003
Gish, Duane T.	34	1963–1997
Goette, Robert L.	4	1995–1999
Grebe, John J.	11	1963–1974
Harris, R. Laird	2	1963–1965
*Hill, Robert	2	2011–
Howe, George F.	41	1966–2008
*Humphreys, D. Russell	21	1992–
Kaufmann, David A.	26	1984–2010
Klotz, John W.	29	1963–1992
Korthals, Richard	21	1966–1987
Lammerts, Walter E.	15	1963–1978
Lester, Lane P.	14	1976, 1993–2003, 2006–2009

Board Members	Years of Service	Years of Term
*Lightner, Jean	4	2009–
Linsenmann, Karl W.	11	1963–1974
*Locklair, Gary	15	1998–
Lumsden, Richard D.	2	1994–1996
Marsh, Frank L.	6	1963–1969
Meyer, John R.	15	1975–1990
Monsma, Edwin	1	1963
Moore, John N.	23	1963–1986
Morris, Henry M.	19	1963–1982
Mulfinger, George, Jr.	12	1975–1987
*Oard, Michael J.	14	1999–
*Reed, John K.	13	2000–
Rodabaugh, David J.	15	1988–1997, 2005–2009
Rusch, Wilbert H., Sr.	27	1963–1990
*Samec, Ronald G.	12	2001–
Slusher, Harold	22	1963–1985
Smith, E. Norbert	8	1979–1987
Tinkle, William	16	1963–1979
Warriner, David A.	2	1963–1965
Webb, Willis L.	2	1963–1965
Williams, Emmett L.	34	1969–2003
*Wolfrom, Glen W.	30	1983–
Zimmerman, Paul A.	19	1963–1969, 1980–1994

*Current board member



Figure 6. Attendees of the 2009 CRS Conference at the University of South Carolina Lancaster.

Dr. John Whitcomb, providing the inaugural lecture (Figure 7). Subsequent Memorial lectures have been delivered by Dr. Duane Gish and Dr. Gary Parker.

The flagship journal of the Society is the *Creation Research Society Quarterly* (CRSQ), published continually since 1964 (Figure 5). This journal features peer-reviewed, technical research articles. A number of significant Creation research articles have appeared in CRSQ, providing decades of foundational work for Creation science. The journal also contains reviews of books and videos, editorials, letters to the editor, and board minutes. Also, since 1996, the Society has provided a popular-level publication *Creation Matters*. This

publication contains a variety of articles, including news articles, commentary, and semi-technical material. Authorship in either of these publications is

not limited to Society members. Annual membership dues do not cover the total cost of publication. The balance comes from private gifts to the Society.



Figure 7. Dr. John Whitcomb, coauthor of *The Genesis Flood*, offered the inaugural Henry M. Morris Memorial Lecture at the CRS Conference at the University of South Carolina Lancaster (2009).



Figure 8a. CRS Board of Directors (circa 1995). Members shown (l-r) Glen Wolfrom, George Howe, John Meyer (Director, VACRC), Russell Humphreys, Richard Lumsden, Duane Gish, Eugene Chaffin, Don DeYoung, Emmett Williams, Robert Gentet, Wayne Friar, Lane Lester, Theodore Aufdemberge, David Kaufmann.



Figure 8b. CRS Board of Directors (2013). Members shown (l-r) Kevin Anderson (Director, VACRC), Diane Anderson (Administrative Assistant), Jean Lightner, Don DeYoung, Danny Faulkner, Mark Armitage, Mike Oard, Glen Wolfrom, Robert Hill, Ron Samec, Eugene Chaffin, Russell Humphreys, Gary Locklair.

Table 3. List of Creation Research Society Board Presidents and CRSQ Senior Editors.

CRS Board President	Dates	Years of Service	
Walter E. Lammerts	1963–67	4	
Henry M. Morris	1967–73	6	
Thomas G. Barnes	1973–77	4	
George F. Howe	1977–83	6	
Wilbert H. Rusch	1983–87	4	
Wayne Frair	1987–93	6	
Emmett Williams	1993–99	6	
Don DeYoung	1999–	14	

CRSQ Senior Editor	Dates	Total Years	Volumes
Walter E. Lammerts	1964–68	5	1–5
George F. Howe	1969–73	5	6–10
Harold Armstrong	1974–83	10	11–20
Emmett L. Williams	1984–88	5	21–25
Don DeYoung	1989–93	5	26–30
Gene Chaffin	1994–98	5	31–35
Emmett L. Williams	1999–2003	4	36–39
Kevin Anderson	2003–	10	40–

Table 4. Fellows of the Creation Research Society

Name	Year of Award
John J. Grebe*	1975
Walter E. Lammerts*	1975
William J. Tinkle*	1975
Frank L. Marsh*	1976
Wilbert H. Rusch, Sr.*	1980
Thomas G. Barnes*	1980
Henry M. Morris*	1983
Richard G. Korthals*	1984
John W. Moore	1984
Wayne F. Frair	1988
John W. Klotz*	1988
George L. Mulfinger*	1988
George F. Howe	1989
Emmett L. Williams*	1990
Paul A. Zimmerman	1990
John R. Meyer	1992
Duane T. Gish*	1992
Glen W. Wolfrom	1994
Dick Lumsden*	1998
David Boylan	2000
Don DeYoung	2000
Ted Aufdemberge	2006
David Kaufmann	2009
Gene Chaffin	2012

* Deceased

**Figure 9 (above).** 1987 Board Meeting (l–r): David Kaufmann, Wayne Frair, Don DeYoung, Norbert Smith, Duane Gish, David Boylan, Richard Korthals.**Figure 10 (right).** Offline discussion at 1989 Board Meeting between Drs. Emmett Williams (left) and Wilbert Rusch.

Table 5. *Creation Research Society Quarterly* Dedications.

Name	Year	Issue (number)
William J. Tinkle	1967, 1982	4(1), 19(2)
Walter E. Lammerts	1970, 1996	7(1), 33(2)
John J. Grebe	1971, 1985	8(1), 21(4)
Thomas G. Barnes	1972	9(1)
Frank L. Marsh	1976	13(1)
Wilbert H. Rusch, Sr.	1981	18(1)
Henry M. Morris	1984	21(1)
Richard G. Korthals	1985	22(1)
Harold L. Armstrong	1985	22(2)
John N. Moore	1986	23(1)

Name	Year	Issue (number)
George F. Howe	1990	27(3)
Paul A. Zimmerman	1991	27(4)
Emmett L. Williams	1991, 2011	28(1), 48(2)
Duane T. Gish	1992	29(3)
Wayne F. Frair	1994	31(1)
David Boylan	1995	32(1)
John Klotz	1996	33(3)
Richard Lumsden	1998	34(4)
John Meyer	2001	38(1)
Glen & Becky Wolfrom	2002	39(1)

Creation Research Society TIMELINE

First issue of the inter-disciplinary *Creation Research Society Quarterly* published.

1964

The CRS produces a major biology text, *Biology: A Search for Order in Complexity*, edited by John Moore and Harold Slusher and published by Zondervan. The book brings national attention to the Society. The volume is still in print with a different publisher.

1971

1963

Formation of the Creation Research Society.

1968

Society membership reaches 1000.

1981

The CRS board votes to establish a research laboratory and purchases land in Arizona.

There is a standard procedure for Society members to apply for research grants. The amounts are not large but have encouraged many productive projects over the years. It is expected that such grants will result in research results published by the *CRSQ*.

In addition to receiving the *CRSQ* and *Creation Matters* publication, members receive other Society benefits. These include discounts on books and videos from the Society bookstore, discounts to Society conferences, and access to CRSnet (an Internet discussion group). Also, members receive a periodic newsletter, which contains general Society news and announcements.

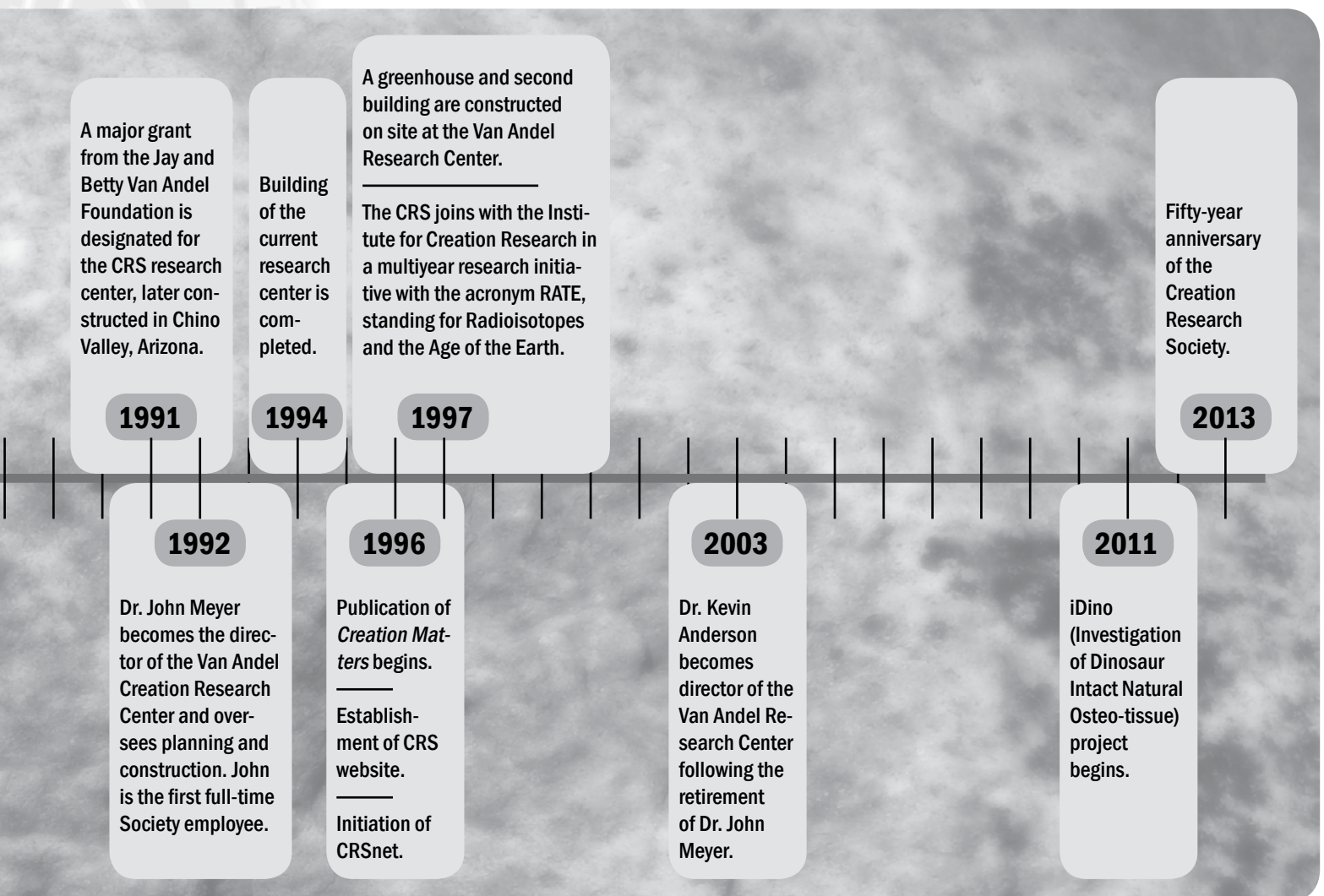
Board Structure

The CRS board follows Statement of Belief, Constitution, and Bylaw documents that guide the business of the Society. Board members are elected to three-year terms of service. There is no limit on length of board participation; however, a board member cannot be reelected on or after age 75.

The entire board meets annually for several days of business (Figure 8). For the first 30 years, 1963–1992, annual board meetings took place in Ann Arbor, Michigan, hosted by Concordia University. During these years several board members were associated with the school. Since 1993 the board meets

annually in various locations around the country. This provides opportunity to meet local CRS supporters and Creation groups, and give encouragement to area churches and creationist organizations. Several past meeting sites include Albert Lea, Minnesota (1999), Atlanta, Georgia (2000), Bozeman, Montana (2005), Los Angeles, California (2009), and Jacksonville, Florida (2011). Board meeting expenses are covered for board members; however, board service is on a volunteer basis without compensation.

To make meetings more efficient, the board has a detailed committee structure for conducting the board's business. The



committees meet separately and then bring reports and recommendations to the full board. Current board committees include: constitution, periodicals, executive, publications, finance, research, Internet, Van Andel Laboratory, and membership.

Board meetings are open to Society members who can receive prior approval to attend. The sessions are informal, friendly, and productive. Meeting agendas include budgeting, long-range planning, research reports, serious moments, and even some humor. For example, Wilbert Rusch, board president during 1983–1987, commented that Society headquarters was initially a single drawer in his office filing cabinet. Emmett Williams, president from 1993–1999, cautioned the board during meetings, “If anyone takes off on a rabbit trail, I will get out my rabbit gun.”

Along with official business, board meetings include recognition of years of service, the sharing of current events in Creation, and even an occasional group song. Table 3 lists all the board presidents and CRSQ senior editors. The senior editor position is an especially important and time-intensive duty, overseeing the peer-review process and production of each journal.

Member Recognition

Society members may be honored with Fellow status. This recognition is reserved for those who have made a special contribution of their time and talents to the Creation Research Society. Table 4 lists those who have been honored with Fellow status to date.

Also, over the years many individuals who serve the Society have been honored by having a particular CRSQ issue dedicated to them. A photo and an accompanying article in the dedicated issue highlight the person’s work. Table 5 lists all CRSQ dedications. Society Fellows and CRSQ dedications have been largely limited to board members, although this is not a requirement.

Conclusion

This article gives a brief overview of the Creation Research Society. For a description of specific research projects, one may page through issues of the CRSQ (nearly 200 issues). They total more than 3000 pages of material promoting biblical Creation.

From time to time, individuals have admonished CRS board members to promote the Society, offering suggestions such as national advertising, major fund drives, mergers with other groups, major national conferences,

and increasing professional staff. The current board appreciates all input and works diligently toward a growing and strengthening Society. As an autonomous organization, though, the Society’s focus is upon scientific investigation and publication. Also, even though planning and longer-range goals always include increased activity and membership, the CRS board is determined to maintain stability and fiscal strength (e.g., the Society has always remained debt free). In 1969, pioneer board member William Tinkle summarized the Society’s position in reply to some suggestions of major change: “We (the CRS) are just ourselves.” This simple formula has brought the Creation Research Society through its first 50 years. Prayerful, measured progress will carry the Society through the next 50 years.

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$^{40}\text{Ar}/^{39}\text{Ar}$ Calibration against Novarupta: No Good Reason to Believe in Millions of Years

David E. Shormann*

Abstract

June 6–8, 2012, marked the one hundredth anniversary of the Novarupta-Katmai eruption in southwest Alaska. It was one of the biggest eruptions in recorded history, and the largest since Krakatoa in 1883. A bulk sample from the top of the Novarupta lava dome, collected in July 2009, was age-dated in 2012 using the $^{40}\text{Ar}/^{39}\text{Ar}$ method. A key assumption in the method is that an igneous sample has no argon when it solidifies. Environmental conditions were ideal for setting this sample's "argon clock" to zero, and atmospheric contamination was accounted for. Yet the 100-year-old rhyolite from Novarupta still gave apparent ages as high as 5.50 ± 0.11 million years old. Bias is introduced to the Ar/Ar method because, prior to analysis, technicians request an age estimate for the sample. Because Scripture, not experimental evidence, is the ultimate authority for Creation researchers, the burden of proof lies with "deep time" historians to explain why anyone should believe radiometric methods determine actual sample ages. Radiometric methods are better suited for interpreting a rock's environmental history. In addition to discussing known environmental effects on argon solubility, the effect of event energy on accelerated nuclear decay is explored as a possible cause of the excess argon.

Introduction

Natural History Research vs. Scientific Research

Geology was built in the late eighteenth and early nineteenth centuries using a

framework that included a vast prehuman prehistory accessible only through scientific study of rocks and fossils (Reed and Williams, 2012). Geologic actualism, the interpretive framework for secular geologists, is the idea that present processes are the only options

for explaining past events. For actualists, physical continuity through history is a required part of explaining past events.

But things are different today. Many geologists acknowledge that past major catastrophic events have shaped the landscape we see today. Neocatastrophism gained footing with the work of G. Harlan Bretz. Although it took 40 years, geologists finally acknowledged that postglacial, catastrophic floods provided the best explanation for the Channeled Scablands of eastern Washington.

* David E. Shormann, PhD, drshormann@gmail.com, Magnolia, TX
Accepted for publication May 2, 2013

There was no way to continue invoking a “muddled view of uniformitarianism against Bretz’s hypothesis” (Burr et al., 2009). Up to that point, secular geologists had been dogmatic about interpreting the past through the lens of Lyell’s “gradualism,” where present-day features were shaped by millions of years of low-energy, continuous processes. Though still powerful, uniformitarianism is a doctrine facing many problems, to the extent that Reed (2010) suggested that even the term be retired in favor of the prior “actualism.”

Whitcomb and Morris (1960) sparked renewed interest in the Genesis Flood. Clearly, the rock record shows widespread evidence of discontinuity, which is a problem for secular uniformitarians, though not for Christians who acknowledge God’s work in Creation and the Flood (Reed and Williams, 2012). High-energy, short-term events played a primary role in shaping Earth’s crust (Reed et al., 1996; Reed, 2005).

Today, secular interpretations of earth history have more in common with the biblical view than many geologists know. Both adhere to a linear view of time, a Christian innovation (Greeks believed in cyclical time, and Hindus and other Eastern religions still do). Both acknowledge catastrophism. Where they differ is that a biblical view allows for continuity in the will of God alone. God’s chief and ultimate end in creating the world was the manifestation of His own glory in the happiness of mankind (Edwards, 2006). And Scripture is clear that God reveals His glory in both natural and supernatural ways. Therefore, the biblical view of nature acknowledges discontinuity of “natural laws” and the reality of miracles, while secular neocatastrophist and “actualistic creationism” views do not (Reed and Williams, 2012).

Most who study Earth’s past also fail to realize the vast differences between natural history research and scientific research. Simply put, natural history

research is about interpretation, while scientific research is about verification. Natural history research is a mixed question (Adler, 1965; Reed and Williams, 2012), one that requires the use of multiple tools, including scientific tools and historical documents like Scripture. The goal of natural history research is to come up with the best interpretation of past events, while humbly acknowledging that other interpretations are possible.

Scientific research is about repeatability, while natural history research is about interpreting an unrepeatable event. It also follows that “futurology” is not the same as scientific research either. Futurology is about using scientific methods to make futuristic claims that are almost impossible to verify. For example, daily weather predictions are easily verified, while long-term climate models are not.

No Room for “Millions of Years” Interpretations

Scripture does not provide a place for “millions of years.” What it does provide are genealogical records that result in thousands of years of history, not millions. Letting Scripture interpret Scripture, we look at the Creation days in Genesis 1, with their self-evident reference to normal, 24-hour days, and see confirmation of this in Exodus 20:11 and 31:17. When we read in Romans 1:20 that “since the creation of the world, His invisible attributes are clearly *seen*” (NKJV), it is again self-evident that those doing the “seeing” must be humans. Some Christians find places to add massive amounts of time to the biblical narrative, while at the same time forgetting that we are not supposed to add or take away from His Word (Proverbs 30:6; Revelation 22:18–19).

Novarupta-Katmai

While reasons exist to believe the earth and universe are billions of years old, the purpose here is to provide further

evidence that there are no *good* reasons. Geologists like to say, “Every rock has a story,” and this is true. Unfortunately, most of those stories we can only speculate about, because no human was there to record the events.

However, such is not the case for Novarupta volcano, one of the largest eruptions in recorded history (Figure 1), and 30 times larger than Mt. St. Helen’s 1980 blast (Shormann, 2010). Also referred to as “Novarupta-Katmai,” its one hundredth anniversary was in 2012. It erupted violently June 6–8, 1912, depositing up to 700 feet of ash and tephra in places (Shormann, 2010). It was so massive that if it occurred at New York City, it would have engulfed all of Manhattan Island and an equal area besides (Griggs, 1922). We also know that after June 8, 1912, there was one more dome-forming event at Novarupta; a dacite dome was blasted out and replaced by the current rhyolitic dome (Hildreth and Fierstein, 2012). The exact date of this dome-forming event is unknown, but seismic recordings suggest it happened in the months following the June 6–8 blast (Hildreth and Fierstein, 2012). The first photograph of the dome was taken by Robert Griggs in 1917, and while releasing far less steam and other gases, the shape of the dome is basically the same today (Figure 2).

Whether you believe in thousands of years or something vastly greater, one thing all natural history researchers are trying to do is match an idea with reality. For Creation researchers, the “idea” is that Scripture reveals a pattern of Creation/Flood/Ice Age/Present. We look for evidence in nature where this idea matches what we see. And we find it everywhere, including at Novarupta (Figure 3). Readers who favor secular models start with the notion that long-term, low-energy events are the dominant shapers of earth’s crustal features. But is this pattern really that evident in nature? Also, since high-energy events are now so infrequent, we know very

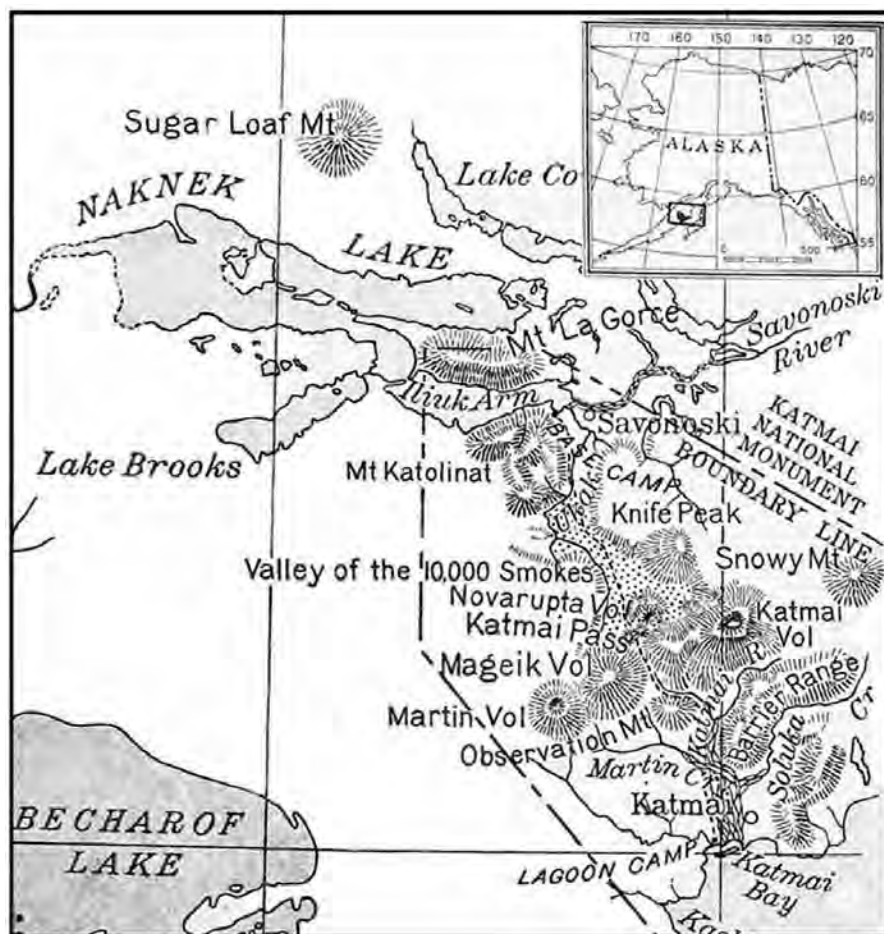


Figure 1. Map of The Valley of 10,000 Smokes, modified from Griggs (1922).

little about physical processes that might be associated with high-energy events, such as accelerated nuclear decay (DeYoung, 2005; Vardiman et. al., 2005).

Radiometric Dating and “Excess Argon”

Currently, radiometric dating is the dominant method used as evidence supporting secular models of earth history. In a nutshell, radiometric dating involves measuring the ratio of a radioactive isotope to its decay product. The older a rock, the more decay product it should contain. A more thorough understanding of radiometric dating fundamentals is found in DeYoung (2005).

This paper focuses on the $^{40}\text{Ar}/^{39}\text{Ar}$ method, and its predecessor, K/Ar. McDougal and Harrison (1999) give a thorough review of the method and its assumptions from a “deep time” perspective. The Ar/Ar method is believed to be more accurate, though when researchers dated samples less than 2,000 years old, the result were in error by over 70% (Overman, 2010). ^{40}Ar is the decay product of radioactive ^{40}K (^{40}K also decays into ^{40}Ca). ^{39}Ar is produced by placing



Figure 2. Novarupta then (left, from Griggs, 1922, p. 280) and July 2009 (right).

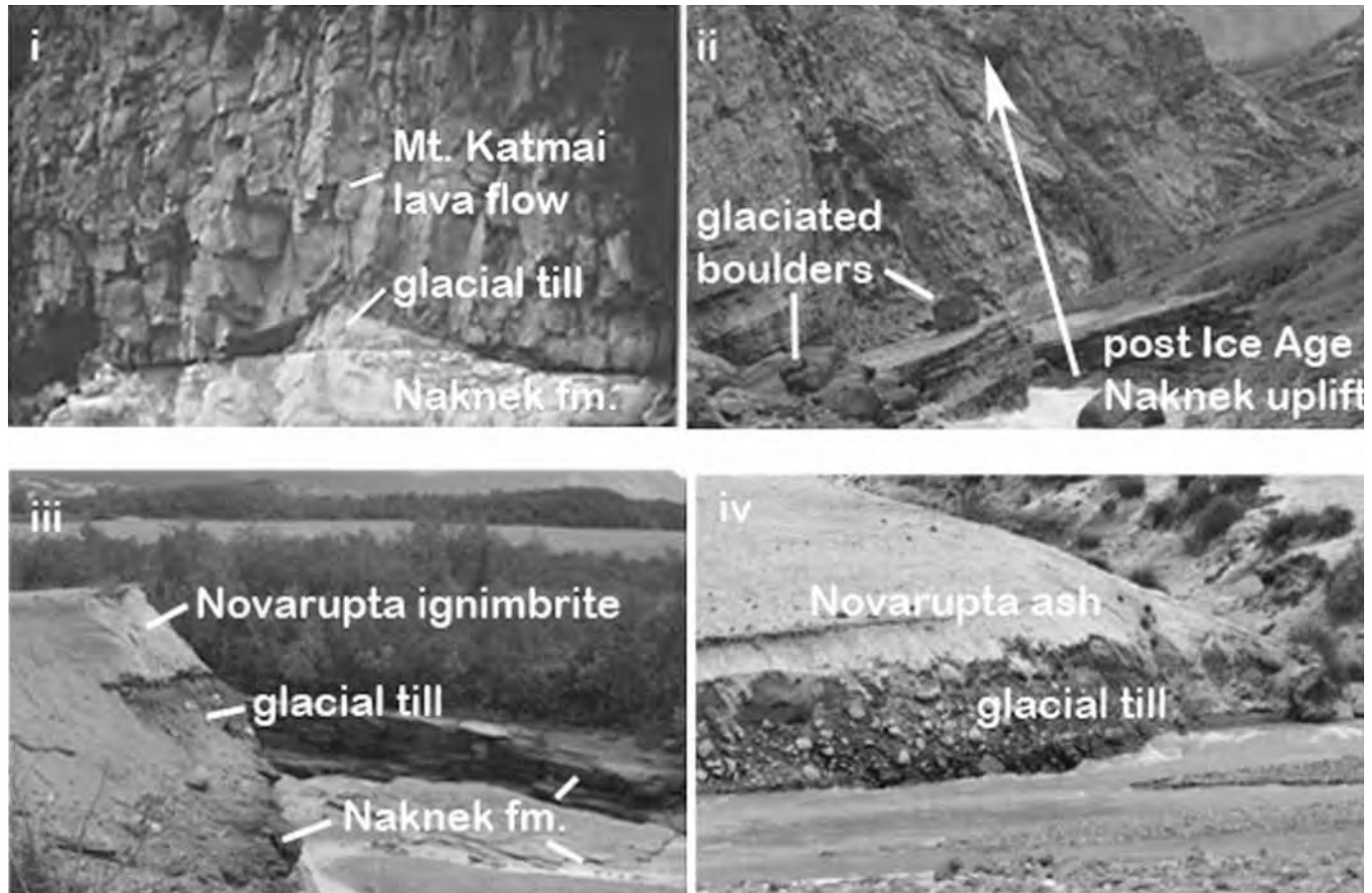


Figure 3. Evidence of the Creation/Flood/Ice Age/Stasis pattern is everywhere in the Novarupta-Katmai region. The water-deposited and sedimentary Naknek formation was probably a Flood deposit, followed by Ice Age glacial action, with volcanic mountain forming during and after glacial retreat. Photo i from Katmai Canyon by Griggs (p. 125). Photo ii (2011) shows post-Ice Age uplift of Naknek formation between Mount Katmai and Noisy Mountain, with glacially smoothed boulders still resting on uplifted blocks. Photo iii shows Flood/Ice Age/Stasis pattern along upper Ukak River. Photo iv (2011) shows Ice Age/Stasis pattern in extreme upper Katmai Valley.

the sample in a nuclear reactor and bombarding it with fast neutrons, converting ^{39}K to ^{39}Ar . This allows for two gases to be measured in a mass spectrometer, reducing the chances of measurement errors (Snelling, 2009). Assuming the ratio of $^{40}\text{K}/^{39}\text{K}$ is a constant, the ^{39}Ar is therefore an estimate of the original parent amount of ^{40}K . Or:

$$^{40}\text{Ar}/^{39}\text{Ar} = ^{40}\text{Ar}/^{40}\text{K} \quad (1)$$

Radiometric dates from samples of unknown age cannot be verified.

Problems with the Potassium-Argon (K/Ar) method were noted early in its application, particularly the problem of “excess” argon contained in samples (Aldrich and Nier, 1948). Some samples had so much excess argon that they gave apparent ages of 9 Ga (billion years ago); almost twice Earth’s secularly assumed age (Harrison and McDougal, 1981). Woodmorappe (1999) showed how the “excess argon” label is invoked as a way to discount once-accepted Ar-Ar dates. Since the secular Earth age is actually not verifiable, is it also possible that most,

if not all K/Ar and Ar/Ar samples contain excess argon? Results from a study of over 500 articles suggest there is excess (Overman, 2013).

Dates obtained from rocks of known age provide the best samples for demonstrating the method’s unreliability. Overman (2010) showed that Ar/Ar measurements made by Renne et al (1997) on Mt. Vesuvius were 72% older than the known eruption date. Austin (1996) sampled the recently cooled dacite lava dome formed atop Mt. St. Helens on October 26, 1980 and found it con-

tained up to 2.8 million years' worth of excess argon. Similarly, Snelling (1998) sampled the June 30, 1954 andesite lava flows from Mt. Ngauruhoe, New Zealand, which measured up to 3.5 million years' worth of excess argon. Other examples are cited in Snelling (2009, pp. 804–806), who also summarizes many Ar/Ar method pitfalls. In addition, John Woodmorappe tabulated hundreds of examples where K/Ar and other radiometric ages differed from expected ages (Woodmorappe, 1979).

Researchers offer many possibilities for this extra argon, the most common being that it was “inherited” from surrounding rocks. One of the supposed benefits of the K/Ar and Ar/Ar methods is that the hotter a rock is heated, the greater the amount of gas that will diffuse out of it. Molten rock, therefore, should release all of its argon, so that when the rock crystallizes, it will be set to “zero” (Dalrymple and Lanphere, 1969). However, several years before Dalrymple and Lanphere made their claims (which Dalrymple repeated in 1991), researchers had discovered that under high temperatures and high argon pressure tests, common crustal rocks absorbed up to 5 billion years of excess argon (Karpinskaya et al., 1961)!

For magmas and lavas, the effect of pressure on gas solubility is understood with Henry's law, which describes the solubility of a gas as directly proportional to the partial pressure of that gas in surrounding fluids. Applying Henry's law, K/Ar dating method pioneer Garnis Curtis (Dalrymple was one of his graduate students) stated, “Magmas formed at depths of 50 to 100 km are under sufficient confining pressure to keep significant quantities of old radiogenic argon in solution, argon that has been formed from ^{40}K decay deep within the earth” (Curtis, 1966). Also, Funkhouser et al. (1966) suggested that phenocrysts formed at depth would have higher Ar values than those formed at shallower depths.

It is clear that a rock can gain or lose argon, depending on its environmental conditions. Therefore, samples from volcanic eruptions of known age that give extremely old dates are assumed either to have inherited argon from surrounding rocks or to be remnants of older rocks, broken off and blasted out without the chance to completely degas.

Unfortunately, follow-up questions are usually left unanswered. What is the source of argon in the surrounding rocks? And if they lost some of their radiogenic argon, would they not yield an anomalously young age? If argon is so mobile, would it not be better to use K/Ar and Ar/Ar ratios as tools to study a rock's environmental history, as Kirsten suggested back in 1966 (see p. 7)?

Methods of K/Ar Measurements

Previous Measurements

Novarupta is no stranger to radiometric age-calibration experiments. Dalrymple and Lanphere (1969) mention that a boulder-sized granitic xenolith collected by Curtis (1966) from the welded tuff of Novarupta gave an age of 4 million years, when Curtis said it is supposed to be 150 million years old. They concluded that it did not get hot enough to lose all of its argon. But they also said, “Apparently, volcanic rocks cool much too quickly, leaving insufficient time for complete degassing to occur” (Dalrymple and Lanphere, 1969, p. 143). But if volcanic rocks cool quickly, that also means magma along the edges of a conduit could cool and form granite, and be just a few years (or days?) old at the time of an eruption. After all, rapid granite formation is possible (Snelling, 2008).

Dalrymple and Lanphere (1969) also noted that a Sierra Nevada basalt flow, which being hotter should have experienced more degassing, contained a granitic xenolith from a 90 Ma pluton with a K/Ar age of 2 Ma. They con-

cluded this meant it retained 2.2% of its argon. Then, at Katmai, the welded tuff xenolith (cooler, so less degassing) retained 4/150 (2.7%) of its argon. Dalrymple and Lanphere (1969, p. 143) stated, “Xenoliths in welded tuffs can be expected to retain even more of their radiogenic argon, because welded tuffs are erupted at temperatures several hundred degrees lower than basalt.” But 0.5% more is hardly “more” and avoids the question of why there was so much excess argon.

Adding further confusion, expert Wes Hildreth (personal communication, Nov. 9, 2011) claimed the granite underlying Novarupta was not 150 Ma but “Miocene,” meaning a secular age around 5–20 Ma. If correct, the Novarupta xenoliths therefore retained 4/15 (27%) of their original argon, and a Miocene age for the granite makes Dalrymple and Lanphere's conclusion more reasonable. But another alternative is that the measurements are more relevant to the environmental history of the granite, which includes temperature, pressure, chemistry, and rate of cooling. It is also curious how the granite beneath Novarupta-Katmai “lost” up to 145 million years in age between 1966 and 2011.

The big assumption here is that the granitic xenoliths formed millions of years ago but retained some radiogenic argon despite heating and degassing. But there is no way to know for sure if this is what happened. Only the K/Ar method has been used to date the Novarupta granite. Multiple methods should be used and should match. The most reliable method for age-dating the xenoliths is an eyewitness account, and this seems to be ignored. And, finally, if this granite boulder really did lose argon from heating, there is no reason to believe it should have lost it uniformly. Could not some of the argon, especially in the core of the boulder, remain trapped? Why would the entire boulder be homogeneous? The fact that it is homogeneous (Curtis, 1966) suggests

to me that the granite cooled rapidly at a fairly constant T and high pressure, trapping argon from the environment, or possibly from within.

Beside the granitic xenoliths, Curtis (1966) also tested the K/Ar method on Novarupta-Katmai rhyolite pumice, which gave an age less than 10,000 years. Curtis (1966, p. 154) said, “We found the contents of ^{40}Ar to be less than would give an age of 10,000 years, or within the experimental limits of detection.” So it sounds as though they found radiogenic argon, just not that much.

It is interesting to note that pumice forms so rapidly that it solidifies at normal atmospheric pressures while flying through the air. Therefore, it is an ideal candidate for having its “argon clock” set to zero. One alternative hypothesis to that of Curtis (1966) and Dalrymple and Lanphere (1969) is that the Novarupta granite, an intrusive rock (formed underneath earth’s crust), solidified at a high pressure, which meant more Argon

was dissolved in the magma it solidified from, giving it an old radiometric age of 4 million years. The Novarupta pumice, though, which is an extrusive rock (formed above earth’s crust), formed at normal atmospheric pressures, which is why it had so little radiogenic argon.

New K/Ar Measurements

So what would a Novarupta sample that was neither pumice nor granite reveal if age-dated? A rock from its rhyolite dome would not degas as much as pumice but more than rapidly formed granite from depth. Rhyolite is the extrusive form of granite and forms at or near earth’s surface.

A fist-sized sample was collected from the top of the Novarupta lava dome on July 28, 2009 (Figure 4). Hildreth and Fierstein (2012) describe the current Novarupta dome as 95% rhyolite (76–77% SiO_2) streaked with 5% andesite and dacite. A major assumption of both the K/Ar and Ar/Ar methods is

that the ^{40}Ar generated from the decay of ^{40}K escapes continually until the rock solidifies and cools (Dalrymple and Lanphere, 1969). Therefore, the rhyolite at the top of the dome (841 m above sea level) should have lost its excess argon before cooling, unless it cooled too quickly to release it. Also, since it was not surrounded by rocks with higher argon concentrations, it would not be possible to inherit argon from anything else. The sample also showed evidence of hydrothermal alteration, at least on the outside surface, providing more evidence that it was heated to high temperatures after solidifying, giving it further opportunity to reset its radiogenic argon to zero. Hildreth and Fierstein (2012) noted that the magma temperatures for the rhyolite dome probably exceeded 830°C , much higher than typical melting temperatures for rhyolite ($650\text{--}800^\circ\text{C}$). Several decades ago, Bowen (1956) showed that high silica rocks have lower melting points than more mafic rocks.



Figure 4. Left: July 28, 2009, author photo from top of Novarupta lava dome, looking west. Dark-colored mountains in background are the Buttriss Range. Ash-covered Baked Mountain is on the right. Part of Falling Mountain is visible in the left foreground, with Mount Cerebus directly behind it. Right: Novarupta rhyolite sample prior to sending off for analysis (Photo by Larry Bledsoe).

Thus, during a massive eruption, like Novarupta, rhyolites would be in the liquid phase the longest and therefore have the greatest chance to release any excess argon.

The photograph Griggs took in 1917 of the Novarupta dome (Figure 2) also provides evidence of high temperatures at the surface several years after the eruption. Everything about the Novarupta sample (Figure 4) is favorable for having its “argon clock” set to zero upon solidifying.

Following collection, the sample remained at room temperature in a sealed plastic bag until shipped for analysis in May 2012 to the New Mexico Geochronology Research Laboratory (NMGRL). Interaction with NMGRL was conducted by Larry Bledsoe, owner of Chemical Sampling Services.

Prior to sample analysis, NMGRL asked us to estimate the sample’s age. Although concerned this might introduce bias, we agreed and gave an estimate of 30–50 Ma, which is the secular age for the Naknek formation underlying the Novarupta-Katmai region. One way an age estimate leads to bias is in the Ar/Ar step-heating procedure. The NMGRL website specifically states “the heating schedule varies depending on what type of material is being analyzed and *how much information we are trying to obtain*” (NMGRL, 2013a, emphasis added). Since an older age, i.e. “more information,” was estimated for this sample, it was heated longer and hotter than if we had estimated a younger age (see Discussion). The choice of fluence monitor is based on the age estimate given. For the Novarupta sample, NMGRL used the Fish Canyon Sanidine (assigned “age” = 28.02 Ma; Renne et al., 1998) as the standard.

The bulk sample (SAES 51012) was initially prepared by crushing, sieving, and then washing away clay-sized material. The mineral separate and fluence monitors were loaded into aluminum discs and irradiated for 40 hours at

the USGS TRIGA reactor in Denver, Colorado. Nuclear irradiation with fast neutrons converts non-radiogenic K-39 to Ar-39. The groundmass concentrate was analyzed as a bulk sample with the incremental heating age spectrum method using a defocused CO₂ laser. Although temperatures were not specified, the 10 heating steps ranged from a power setting of 19 W to 50 W. More detailed methods are available on the New Mexico Geochronology Research Laboratory website (NMGRL, 2013b) and in NMGRL (2013c).

Results

Although below detection limit levels of radiogenic Argon (labeled as Ar*) were expected based on normal Ar* assumptions (Dalrymple and Lanphere, 1969, pp. 50–51), sample SAES51012 contained 3.6% radiogenic argon (Figure 5). Individual heating steps gave apparent ages as high as 5.5 Ma.

Two of the steps (C and D) gave negative ages, which NMGRL attributed to analytical problems. Steps C and D contained gas (possibly hydrocarbons) that was difficult for their extraction line to clean up (NMGRL, 2013c). This is a reasonable assumption regarding the analytical error, especially since Griggs (1922) confirmed the presence of hydrocarbons at the Novarupta dome.

By summing the product of each step’s apparent age and the %³⁹Ar released, an “integrated age” can be estimated. Excluding steps C and D gives an integrated age estimate of about 2.36 ± 0.05 Ma.

Discussion

The integrated “age” estimate of 2.36 Ma falls between Curtis’s (1966) pumice sample (<10,000 years) and granitic xenolith (4 Ma). Excess argon is what one would expect if the argon concentration in a sample were really more a function of environmental conditions when the

rock solidified. It is not what one would expect if the Ar/Ar method were a reliable age-dating tool. If the Ar/Ar method were reliable, then sample SAES51012 would have below-detection-limit levels of Ar*.

An important part of the Ar/Ar method is the “step-heating” process, where temperature is increased in a stepwise manner in a vacuum, and all the argon released in each step is pumped off before the temperature is raised for the next step. The step heating can reveal important information for a sample’s environmental history, such as whether or not it appears that subsequent reheating events added or removed argon from the rock. Lower temperature steps often have less radiogenic argon, and higher temperature steps have more. The Novarupta rhyolite sample followed this trend (Figure 5, top). The trend is attributed to low-temperature anomalies causing argon to diffuse away from the outer edges of crystals.

As Dalrymple (1991) stated, high temperatures encourage argon release. What this also means is that during step heating, the amount of heat, and the duration a rock is heated, can greatly influence the amount of argon released. As previously mentioned, NMGRL admits “the heating schedule varies depending on what type of material is being analyzed and *how much information we are trying to obtain*” (NMGRL, 2013a, emphasis added). But that also means sample “ages” can be adjusted to match predicted “ages,” simply by heating the samples for certain durations using certain temperatures, while excluding data that do not fit the estimate.

Apparently, this happened when Renne et al. (1997) attempted to use the Ar/Ar method to date a sample from the AD 79 eruption of Mt. Vesuvius. They presented their Ar/Ar isochron age of 1,925 ± 94 years as an example of the method’s accuracy. But to get the isochron age of 1,925 years ago, they ignored the first two steps in the step-

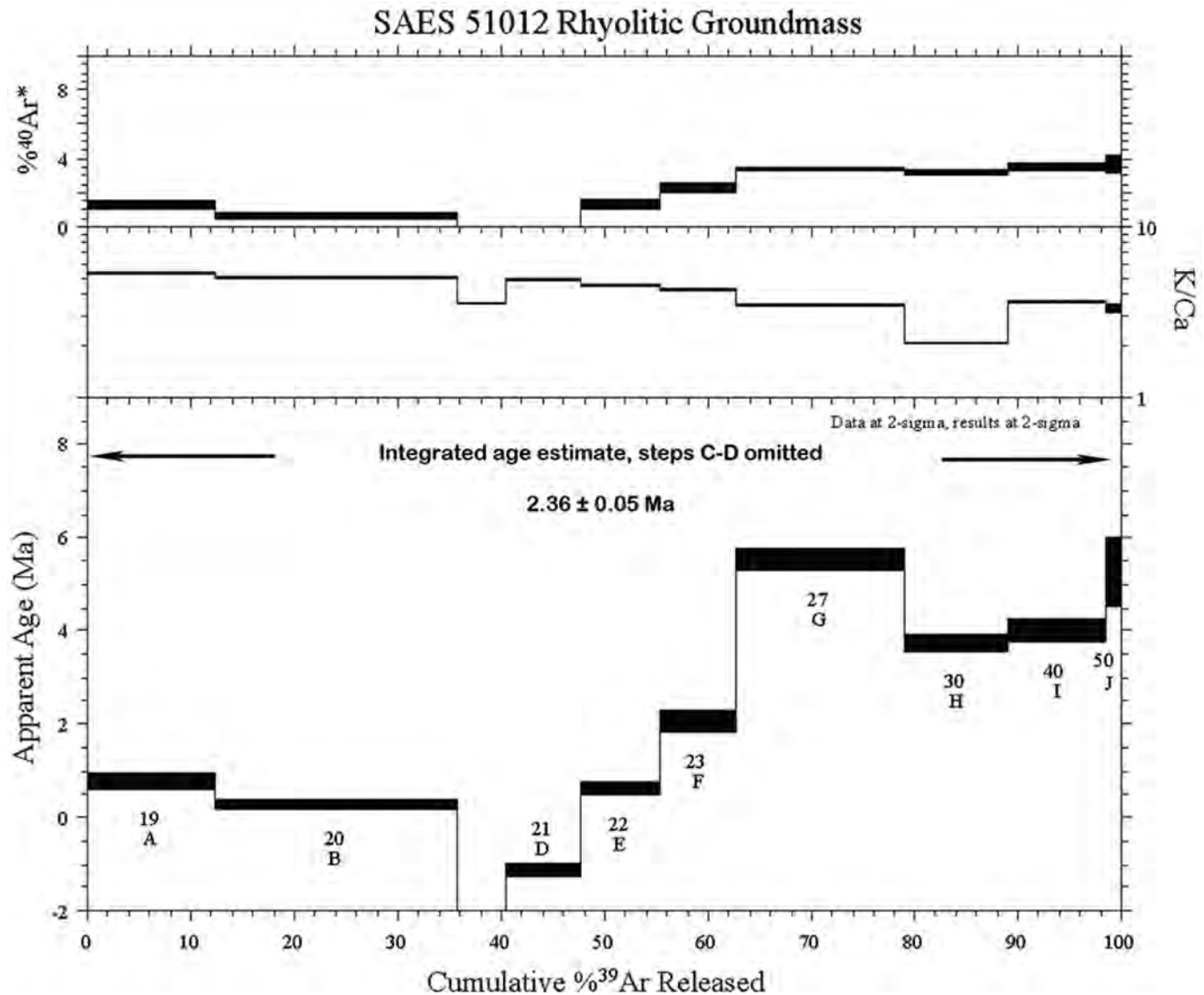


Figure 5. Step heating results for % radiogenic argon (Ar^*) released (top), K/Ca ratio (middle) and apparent ages in millions of years (Ma) (bottom). Black bars at top of each step represent 2-sigma errors.

heating process, one of which gave an apparent age of 521 Ka. But this step contained less than 1% of the total ^{39}Ar released. More important, the heating steps were from 1–20 W, which is cooler than the 19–50 W settings used to heat the Novarupta sample. Both studies used a CO_2 laser to heat the samples. For Novarupta, over 50% of the ^{39}Ar released was from temperatures greater than 20

W (Steps E–J were between 21 and 50 W). These steps also gave the highest apparent ages (Figure 5).

In addition, Overman (2010) showed that the Renne et al. (1997) total gas date of 3,300 years was actually a better fit to the mathematical model used to calculate the date, which meant their results gave an Ar/Ar age 72% older than expected. The question remains: What

would the Mt. Vesuvius data reveal if heated over 20 W? Or what if the heating range stayed the same but the duration of each step was increased? Either way, it is likely that more argon would be released, giving an even older date.

If there ever was a rock sample to so closely approach the Ar/Ar assumption of zero initial argon, the sample from the top of the current Novarupta dome

should be it. So why did it have up to 5.5 Ma worth of excess Ar?

Possible Explanations for the Excess Argon

1. The sample absorbed excess argon from surrounding rocks. The current Novarupta lava dome was the third (second at Novarupta's vent) and last dome to form in the Novarupta-Katmai eruption (Hildreth and Fierstein, 2012, Fig. 60). Evidence exists that the rhyolite lava for the dome was formed in a shallow reservoir (Shormann, 2013). As discussed previously, solubility, as well as diffusion of argon into a rock, is known to increase with increasing temperature and pressure (the deeper it is, the higher the Ar concentration); but if the rhyolite was formed in a shallow chamber, then it had a better opportunity to release any excess argon. Furthermore, since the rhyolite dome was the last dome to form, it pushed up through newly solidified and deposited material from the June 6–8, 1912 eruption. Deposits are 700 feet thick surrounding Novarupta's vent (Shormann, 2010). If Dalrymple and Lanphere's (1969) assumption of zero initial argon is true, it does not seem that the newly formed surrounding rocks would have much argon to transfer to the rhyolite magma before it solidified.

2. The rhyolite magma solidified at depth, where argon concentrations might be higher. Recall that Curtis (1966) attributed the 4-million-year-old "age" of a granitic boulder blasted out of Novarupta to the possibility that the granite was attached to the sidewall of Novarupta's vent and became dislodged and ejected outwards. Curtis assumed the granite was not heated sufficiently during the eruption to release all of its argon. But granite can form rapidly (Snelling, 2008). And if granite can form rapidly, this also leads to the possibility that the extrusive rhyolite dome solidified rapidly at a shallower depth than Curtis's intrusive granite, which is why the rhyolite appears to have less excess

argon. However, it is unknown how deep the current Novarupta dome was when it formed. Evidence surrounding the dome suggests that it rose in the months after the eruption. Above it was a rapidly cooled dacite dome, which was blasted out from the gas pressure that built up underneath (Hildreth and Fierstein, 2012). The gas pressure was provided by open-system degassing of the rhyolite, as well as steam buildup from groundwater (Hildreth and Fierstein, 2012). The large amount of open-system degassing that occurred most likely included argon gas from the rhyolite, making the shallow rhyolite a superb candidate for having its "argon clock" set to zero. Also, sample SAES51012 was collected from the top of Novarupta's dome (Figure 4), where any effect from Henry's law would be the least.

3. Magma chemistry affects argon retention. Austin's work on Mt. St. Helen's dacite dome suggests different magma types vary in their ability to release excess argon before solidifying (Austin, 1996). He found that more mafic minerals like orthopyroxene retain the most argon, followed by hornblende, and finally, plagioclase. Minerals more common in basalts like orthopyroxene also have the highest melting temperatures, so they would be expected to crystallize deeper in the magma chamber, where argon concentrations are expected to be higher (Curtis, 1966; Austin, 1996). The NMGRl report for the Novarupta sample supports this idea, mentioning that basalts giving similar secular ages to the Novarupta rhyolite normally have almost 3 times more Ar* than the Novarupta rhyolite (NMGRl, 2013c). The correlation between magma chemistry and argon retention supports the idea that K/Ar and Ar/Ar values are better suited as tools to study environmental histories of magmas (Snelling, 2005; Snelling, 1998; Austin and Snelling, 1998).

4. Atmospheric contamination. The model used to estimate % radiogenic

argon accounts for atmospheric argon, assuming the ratio of ^{40}Ar to ^{36}Ar in the atmosphere is a constant value of 295.5 (NMGRl, 2013b). Since the sample was collected from the surface, any heating events after the dome formed should have helped equilibrate the rock with atmospheric levels of ^{40}Ar . Also, the dome rests approximately 831 m above sea level, where atmospheric pressures are lower, allowing even more gas to escape than at sea level.

5. Accelerated decay caused the excess argon. A primary assumption of radiometric methods is that the isotope's decay rate remains constant (Dalrymple and Lanphere, 1969; McDougal and Harrison, 1999). Everything about the Novarupta sample suggests it should have had near-zero radiogenic argon in 1912 or even later. So where did its extra 3.6% radiogenic argon come from? The RATE project provided multiple lines of evidence for accelerated nuclear decay during the Creation, the Fall, and the Flood (Vardiman et al., 2005; DeYoung, 2005). However, Froede and Akridge (2012) note that the RATE evidence alone is insufficient and suggest accelerated decay should be considered only as an "interesting hypothesis." Indeed, having multiple working hypotheses (eliminative induction) is the best approach for conducting natural history research (Reed and Klevberg, 2011).

In working toward making accelerated nuclear decay a viable hypothesis, Froede and Akridge (2012) suggest directing efforts toward a radiometric-age date "conversion factor." A functional conversion factor might lend support to the accelerated decay hypothesis, providing a simple tool to convert secular time-scales to biblical ones. However, this idea assumes that radiometric methods are actually capable of estimating the timing of past events.

What if radiometric decay rates are not constant and radioisotopes are really more of a "signature" describing conditions at the time of rock formation? In

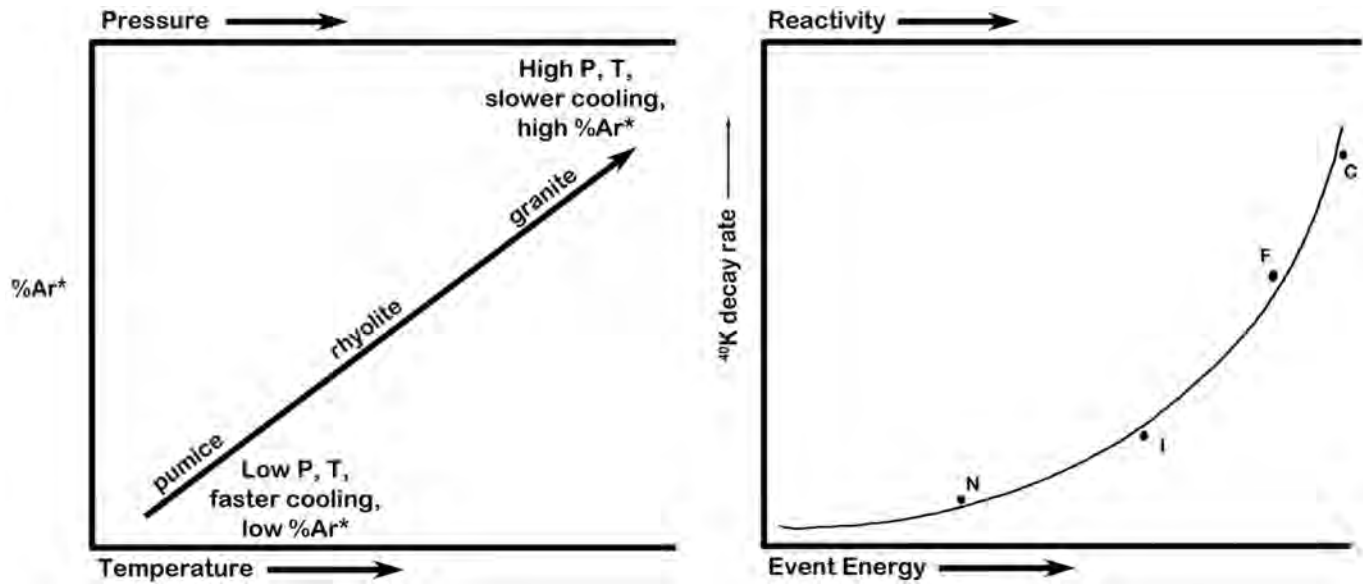


Figure 6. Left: Possible scenario for the excess argon found in igneous rocks. Faster-cooling extrusive rocks like pumice will have little time to generate excess argon by accelerated decay, while slower-cooling intrusive rocks like granite have more time spent in environmental conditions favorable for both accelerated nuclear decay and inheritance of extraneous argon. Right: Hypothetical continuum for ⁴⁰K decay rate as a function of event energy. Data points show possible locations of Novarupta (N), Ice Age supervolcanoes (I), Flood (F), and Creation (C).

mathematical terms, what if $dN/dt \neq -kN$? What if this relationship is too simplistic and rates are actually a function of multiple environmental conditions like event energy, temperature, pressure, and magma chemistry, as hypothesized in Figure 6? Evidence supporting the assumption of constant decay rates exists (Dalrymple and Lanphere, 1969), but research also shows rates are not always constant. For example, studies show that environmental conditions affect electron capture, the same process by which ⁴⁰K converts to ⁴⁰Ar (McDougall and Harrison, 1999; Walker, 2000). Is it possible that radioisotopes are more helpful as “envirometers” than as “chronometers?”

The Novarupta rhyolite seemed like an excellent sample for having its “argon clock” set to zero, but this zero setting was not detected. If the excess argon did not come from extraneous sources, then what if it came from within by ac-

celerated ⁴⁰K decay (Figure 6)? Pumice expands greatly and cools rapidly, so fast that the expanding gas bubbles “freeze” in midair, giving pumice its high porosity. Rapid cooling and expansion would leave less time for accelerated decay to have an effect, resulting in Curtis’s 1966 pumice samples having the lowest Ar* levels recorded at Novarupta. Surface- and near-surface-cooled materials like rhyolite follow, and finally intrusive rocks like granite (Curtis, 1966) that cool the slowest. If accelerated decay is not just an anomaly of events like Creation, the Flood, and Ice Age supervolcanoes (Austin, 1998) and environmental conditions do affect it, then slow-cooling samples would have higher Ar*, and fast-cooling samples would have less.

Summary

In the twenty-first century, high-energy, short-term events like Creation and the

Flood are nonexistent. We do not have a way to replicate these events. We can only speculate about physical processes that occurred during these events that do not seem to occur today. However, catastrophic events like Novarupta provide a glimpse into this mysterious world, revealing clues of physical processes that may be associated only with high-energy events.

Results presented here provide no good reasons to believe the 2012 Novarupta rhyolite dome sample shows anything but a problem with excess argon in samples. This is not a new problem, as Curtis (1966) found the same problem with Novarupta pumice and granite samples, and his samples were almost 50 years younger than the sample used here. In addition, bias is introduced to the method because technicians request an age estimate prior to analysis. Technicians use the estimate to adjust the duration and temperature

settings for the step-heating process, to choose a fluence monitor, etc.

It does seem, though, that Ar/Ar ratios and the step-heating method are useful aids for interpreting the environmental history of igneous rocks, while revealing evidence for accelerated nuclear decay and/or argon solubility being affected by temperature, pressure, and magma chemistry. In any case, all age-calibration studies from Novarupta reveal a major flaw in the assumption of zero initial argon. Because this assumption is flawed, the method is flawed and therefore should be rejected as a tool for estimating sample age.

All natural historians, regardless of their interpretive framework for natural history, should be highly skeptical of radiometric dating techniques. Because Scripture, not experimental evidence, is the ultimate authority for Creation researchers, the burden of proof lies with adherents of “deep time” to explain why reasonable people should accept the results of radiometric dating as fact (Woodmorappe, 1999). The author hopes this study will encourage all readers to put less faith in the idea of “deep time” and more faith in Scripture as a true and reasonable historical account.

Acknowledgments

The author would like to thank Larry Bledsoe, owner of Chemical Sampling Services, for providing liaison work between myself and NMGR. Special thanks to Dr. Russ Humphreys for providing wise counsel. Most of all, may glory be to God, whose purposes are perfectly continuous, but who at times suspends His natural laws so that we may know Him more fully and glorify Him.

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The Human Hand: Perfectly Designed

Jerry Bergman*

Abstract

Various theories of the evolution of the human hand are analyzed, revealing much speculation, but little evidence, for the evolutionary origin of this complex and highly designed system. The hand would require the simultaneous evolution of large set of intricate and matched structures, including bones, muscles, blood vessels, ligaments, tendons, skin, and nerves. In addition, the brain must have evolved systems enabling the coordinated function of the hand as an integrated unit. The result is an anatomical system that is one of the most critical parts of what makes us human. In comparison to the primate hand, there are several significant differences that indicate the uniqueness of the human hand. Also, the enormous versatility of the hand, such as ability to do tasks requiring fine motor coordination as well as brute strength, are discussed.

Introduction

The hand is one of the most complex and critical parts of the human body. Zimmer (2012, p. 98) wrote that our hands are “where the mind meets the world” and that humans use their hands to make

fires and sew quilts, to steer airplanes, to write, dig, remove tumors, [and] pull a rabbit out of a hat. The human brain, with its open-ended creativity, may be the thing that makes our species unique. But without hands, all the grand ideas we concoct would come to nothing.

Hands also make tools, perform surgeries, express gestures, make music,

produce artistic creations, and play the piano (Wagner, 1988). After studying the hand for 30 years, medical doctor John Napier concluded that, aesthetically, the hand is “one of the most beautiful parts of the human body” (Napier, 1980, p. 18). Hands are also the “chief origin of the fifth sense called touch” and “our main source of contact with the physical environment” (Napier, 1980, p. 22). Writing the introduction for *Beasley’s Surgery of the Hand*, Professor Victor Meyer observed that the human

hand can justly be called the most important extension of the intellect [adding that it is clearly] far more than just a tool with prehensile ca-

pacities, as it is complemented with a rich collection of sensory receptors. The hand and the nervous system, especially the hand and brain, form a unique functional entity. Each person’s individual personality is reflected, to a greater or lesser degree, in the way they use their hands, which are permanently in the public eye ... Also, the hands disclose a person’s emotional composure (Beasley, 2003, p. viii).

It has been widely acknowledged that the “history of all societies reflects recognition of the special importance and appreciation of the exceptional capabilities of the human hand” (Beasley, 2003, p. 1).

Sir Charles Bell wrote a 260-page book titled *The Hand: Its Mechanism and Vital Endowments as Evidence of Design* that went through at least eight editions, the last published in 1876. In

* Jerry Bergman, Biology Department; Northwest State College; Archbold, Ohio, jbergman@northweststate.edu

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this book he wrote that the hand belongs exclusively to humans and its importance is so critical that it has converted “the being who is the weakest in natural defenses, to the ruler over animate and inanimate nature” (Bell and Shaw, 1865, p. 12).

The human hand has several unique anatomical features not found in any other living creature. Humans have comparatively shorter palms and fingers, but a longer and stronger thumb than the apes. Human fingers can be individually controlled to a greater degree than is true for all other animals, even those primates that are anatomically similar to humans. This unique design give the “human hand unparalleled dexterity” (Wayman, 2013, p. 16). In addition, Zimmer (2012, p. 98) wrote that the reason

we can use our hands for so many things is their extraordinary anatomy. Underneath the skin, hands are an exquisite integration of tissues. The thumb alone is controlled by nine separate muscles. Some are anchored to bones within the hand, while others snake their way to the arm. The wrist is a floating cluster of bones and ligaments threaded with blood vessels and nerves. The nerves send branches into each fingertip. The hand can generate fine forces or huge ones. A watchmaker can use his hands to set springs in place under a microscope. A pitcher can use the same anatomy to throw a ball at a hundred miles an hour.

The human hand’s extraordinary dexterity cannot be explained solely by its anatomical design. A major reason for the hand’s unique abilities is the complex brain and the neural machinery that control it.

Primates have direct connections between certain cortical motor neurons and spinal motor neurons, enabling the cerebral cortex to achieve fine control over the hand muscle motor neurons (Flanagan and Johansson, 2002). Be-

cause control of the unique human hand is a result of our central nervous system, the hand is a direct tool of our brain. Its design enables both fine and gross dexterity, which allows for incredible creativity, including hand gestures that effectively express our personalities (Putz and Tuppek, 1999).

Hand Anatomy

Touch

The body’s most sensitive areas on the skin include the lips and fingertips. Of all our senses, touch is the most difficult to do without. Hundreds of nerve endings exist in

every square inch of skin, your body functions like an antenna, receiving a constant stream of information ranging from the firmness of the chair you’re sitting on to the heat of the sun through the window. Touch is the first sense we develop in utero, and it is critical to survival ... touch helps to protect us from harm. Some nerves are specialized to feel texture and pressure, others to detect temperature or register pain (Kahn, 2012, p. 8).

The hand is also designed to absorb a fair amount of abuse due to its thick skin cover consisting of horny callosities (caluses) plus a layer of tough fibrous tissue called the *palmer aponeurosis* beneath the skin, both at the wrist and in the palm of the hand (Napier, 1980, p. 22).

Skeletal Structure

Figure 1 shows the skeletal anatomy of the hand. The human hand and wrist consist of 27 bones: 14 finger bones, the 5 metacarpal bones (i.e., the bones of the palm or “hand proper”), a distal row of bones (trapezium, trapezoid, capitate, and hamate) that articulates with the other four short bones of the wrist organized into a proximal row (scaphoid, lunate, triquetral, and pisiform), which articulates with the forearm skeleton.

The arm’s ulna and radius allow supination and pronation (rotation about the axis of the forearm).

Muscles and Associated Structures

The muscles acting on the hand include the extrinsic and intrinsic muscle groups. The intrinsic muscle groups include the thenar (thumb) and hypothenar (little finger) muscles, the interossei muscles (four dorsally and three volarly), and the lumbrical muscles arising from the deep flexor that insert on the dorsal extensor hood mechanism.

The extensors of the fingers are extrinsic muscles and are a group comprised of six named extensor muscles. The primary function of the extensor muscle is to straighten out the digits. The flexors cause the actual bending of the fingers, and two long flexor muscles connect to the phalanges of the fingers by tendons. The deep flexor attaches to the distal phalanx, and the superficial flexor attaches to the middle phalanx. The thumb has one long flexor (extrinsic) and a short flexor in the thenar muscle (intrinsic) group. These muscles move the thumb in opposition to the four fingers, making grasping small items, such as pencils, possible (Beasley, 2003).

The tendons unite with the interosseous and lumbrical muscles to form the extensor hood mechanism. The thumb is unique because it has two specially designed extensors that extend into the forearm. The index finger also has an extra extensor to enable actions such as pointing. For this reason, no other finger can point as effectively as the index finger.

Anatomic Variability

Anatomic variability of the hand allows one person to excel at playing the piano and another to excel at brain surgery (Carson, 1990). Data used in the published literature produces an unavoidable source of error because clear differences in human hands exist due to interpersonal variations of the structures

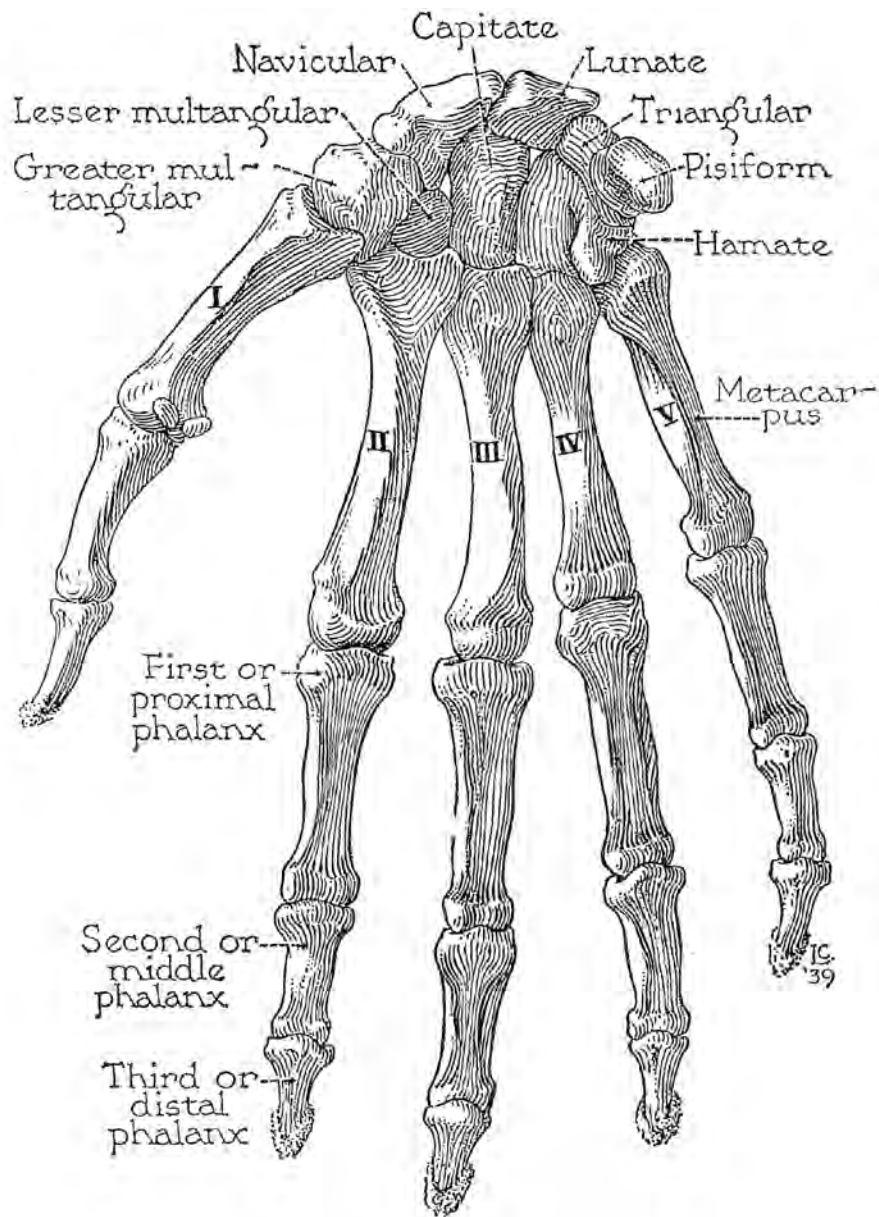


Figure 1. The bone structure of the human hand.

that make up the hand. This fact enables some of us to be superb at knitting and others to be skilled at woodworking (Schmidt and Lanz, 2004, p. 1). Another concern is explaining handedness.

Approximately 66% of humans are right-handed, 4% are left-handed, and 30% are to varying degrees ambidextrous. Studies of families have

demonstrated that genetic influences are responsible for handedness. The relationships between handedness and asymmetries in the brain have been the subject of ongoing discussion. Dominance of one hand influences the size and structure of the hemispheres, just as the brain in turn determines the hand's capability

in terms of structure and functional differentiation (Schmidt and Lanz, 2004, p. 2).

Clear sexual differences also exist in hand ability. For example, every feature in men's hands is, on the average, larger than in women's hands, and the

same is true of digit span. However, women are generally capable of larger active ranges of motion, such as flexion of the metacarpophalangeal joint of the thumb, radial or ulnar deviation, and circular hand motions (Schmidt and Lanz, 2004, p. 2).

Finger Wrinkling

Fingers and toes normally wrinkle when soaked in water for around five minutes. This response was commonly attributed to local osmotic reactions. Ironically, almost a century ago, surgeons first noted that wrinkling does not occur when the sympathetic nerve to the finger has been severed (Changizi, et al., 2011, p. 286). Evidence now exists that rather than being an accidental side effect of water exposure, wet-induced wrinkling is a result of design to enhance finger grip power in wet conditions (Changizi, et al., 2011).

An analogy can be found in that smooth tires provide the best grip in dry conditions and treaded tires the best grip in wet road conditions. The finger-wrinkle morphology displays the properties of drainage networks, enabling more efficient drainage of water from the gripped surface. The result is non-wrinkled fingers provide the best grip in dry conditions and wrinkled fingers the best grip in wet conditions (Changizi, et al., 2011, p. 287). The postulated mechanism is neutrally mediated digit pulp vasoconstriction, indicating clear evidence of design.

Wet-induced finger wrinkles not only has the signature morphology of a drainage system, but the five-minute time required for the wrinkles to appear also is appropriate for natural wet conditions. The reason is that it is soon



Figure 2. An artist's schematic view of the evolution of the human hand from a fish fin. Note that a complete lack of fossil evidence exists for this theory. Drawing reproduced with permission of Dr. Reinhard Putz, MD

enough to be helpful in dew or rainy conditions but not so fast that short contact with water, such as drinking from a wet glass, will trigger it (Changizi, et al., 2011, p. 290).

The Arm

A critical part of the hand is the arm. The arm and hand function together as a unit and the arm is no less well designed than the hand. This is illustrated by attempts to duplicate its function. One writer noted that, to create a brain-controlled device that could achieve the feats of a human arm was one thing,

but to pack that device into the size and weight of a native human arm was quite another. [Scientist] Ling calls the human arm the most advanced biological tool in nature ... picture all the things a human arm is required to do during the course of an ordinary day. It is strong enough to hoist a bowling ball, yet dexterous enough to pluck up a feather. It can play a piano, type on a keyboard, weed a garden, swim, shake hands, lift groceries, and in the case of a soldier, field-strip an M16 rifle. It's impervious to water and to extremes in temperature ranging from below zero degrees Fahrenheit to more than one hundred degrees, and can operate ... as long ... as its owner is awake and active (Belfiore, 2009, p. 13).

He added that nothing created by the most advanced science and engineering could come anywhere close to matching this performance ... think of the robots at Disneyland. You go down and look at their robots and say, "Man, look what they've got: hands that are moving and arms that are moving...." But what you don't see is what's behind the curtain. ... It's this monstrous machine (Belfiore, 2009, p. 13).

Evolutionary Origin

In trying to determine how hands evolved, "researchers over the past 150 years have dug up fossils on every continent" to compare the anatomy of "hands" in a wide variety of animals (Zimmer, 2012, p. 102). They have even studied the genes that construct them and their accessory structures, such as the brain, to locate evidence of evolution. It was determined a century ago that humans have two hands and two feet whereas higher primates have four hands and most chordates have only four feet, a difference Agassiz termed "very striking" (Agassiz, 1900, p. 7). This is only

one example of the chasm between humans and all other life-forms, including chimps.

The current theory of hand evolution purports that human

hands began to evolve at least 380 million years ago from fins—not the flat, ridged fins of a goldfish but the muscular, stout fins of extinct relatives of today's lungfish. Inside these lobe fins were a few chunky bones corresponding to the bones in our arms. Over time the descendants of these animals also evolved smaller bones that correspond to our wrists and fingers. The digits later emerged and became separate, allowing the animals to grip underwater vegetation as they clambered through it (Zimmer, 2012, p. 102).

As shown in Figure 2, the basic hand structure is postulated by evolutionists to have originated from the pectoral fin of fish (Putz and Tuppek, 1999). Evolutionists also postulate that the precursors of the bones and intrinsic muscles of the hand are present in the anterior fin of primitive fishes.

Since the human hand has fewer structures than a fish fin, evolutionists theorize that the 20 to 30 digits in fish were reduced to just ten in humans (Putz and Tuppek, 1999, p. 357). A major problem is that the fossil record does not indicate the origin of these structures but instead requires a postulated loss and rearrangement:

Early hands were more exotic than any hand today. Some species had seven fingers. Others had eight. But by the time vertebrates were walking around on dry land 340 million years ago, the hand had been scaled back to only five fingers. It has never recaptured the original exuberance of fingers—for reasons scientists don't yet know (Zimmer, 2012, p. 102).

Therefore, evolutionists postulate that instead of evolving new structures, a reduction process occurred in hand evolution since hands first began to

evolve from fish fins. The theory also postulates that hand muscles evolved from fish dorsal and palmar compact plates. The differentiation process followed the development of the fingers. The development of the individual hand is controlled by a group of homeobox genes that is comparable in many different species (Putz and Tuppek, 1999, p. 357).

The prehensile hands and feet of primates are postulated to have evolved from the mobile hands of semiarboreal tree shrews (genus *Tupaia*) that lived about 100 million years ago. This development has been accompanied by major changes in the brain and the relocation of the eyes to the front of the face, allowing for the muscle control and stereoscopic vision required for controlled grasping. This grasping, also known as *power grip*, is supplemented by the so-called *precision grip* between the thumb and the distal finger pads made possible by the opposable thumbs.

Supposedly, when hominidae (great apes including humans) acquired an erect bipedal posture, this evolution is assumed to have freed the hands from locomotion and paved the way for the precision and range of motion in modern human hands (Schmidt and Lanz, 2004, p. 105). No detail is provided of how all this evolutionary development could have occurred. Thus, it is actually nothing more than a “just-so” story.

Tocheri et al. (2008, p. 558) concluded only that “current fossil evidence does ... provide some interesting clues” about human hand evolution. They note that the fossil record does not document human hand evolution, noting “there is no question that additional fossil and comparative evidence is needed to more fully reconstruct the evolutionary history of the hominin hand” (Tocheri et al., 2008, p. 558). Their tentative summary on the current theory states that the “presence of some derived characteristics in earlier hominins suggest that the evolution of the hominin hand, from the

origin of the hominin clade to the present, has probably proceeded in a mosaic fashion” (Tocheri et al., 2008, p. 558). Use of the term “mosaic” is merely an attempt to explain the fact that the fossil record does not support their theory of hand evolution.

Hand-Brain Unit

The unique anatomical features of the human hand include a long, opposable thumb and fingers that can be controlled individually by the brain to a higher degree than that existing in any other animal.

Another major problem for Darwinism is the fact that the evolution of the human hand requires major changes, not only in the hand itself, but also in the nervous system and the brain. Also necessary is a change in the relocation of the eyes to the front of the face, which allows the fine muscle coordination and stereoscopic vision required for controlled grasping and other hand functions. The enormous complexity of brain control of the hand is illustrated by the fact that hand

movements are controlled by many distinct regions of the brain. Component movements are subject to immediate cortical control, whereas subcortical areas (basal ganglia) regulate the patterns of activity of entire groups of muscles. The motor functions of the hand are represented in the motor cortex (Brodmann’s area 4), supplementary motor cortex, and premotor cortex (area 6). Neurons of area 4, which receive afferent fibers from the cerebellum [are also important] (Schmidt and Lanz, 2004, p. 2).

The hands of other primates are anatomically similar to humans. For this reason the higher level of human hand dexterity cannot be explained solely by anatomical factors. The brain is the main source of differentiated tactile sensations—and a precise working organ enabling humans to make hand

gestures—an expression of our personality often called talking with our hands (Putz and Tuppek, 1999, p. 357). The brain control of the human opposable thumb design makes possible both the grasping or power grip and the precision grip between the thumb and the distal finger pads.

Primate to Human

Analyses of the features unique to the modern human hand have shown that they were designed to deal, not only with the requirements associated with the effective use of tools, but also with the ability to achieve tasks far beyond this. For example, as noted, the hand is an expression of the brain, a direct tool of our consciousness, and our gestures are direct, outward expressions of our personality (Putz and Tuppek, 1999, p. 357). It is a main source of differentiated tactile sensations as well as a precise working organ.

Evolutionists hypothesize that around three million years ago early hominidae (ancestor of both the great apes and humans) evolved an erect, bipedal posture that freed the hands from the locomotion requirement and paved the way for the evolution of the precision and range of motion existing today in human hands (Schmidt and Lanz, 2004, p. 105). Unfortunately, the hand’s supposed evolution does not follow a continuous pattern, a fact particularly evident when considering the development of the thumb design (Putz and Tuppek, 1999, p. 357).

The putative primitive features in the human hand include pentadactyly (having five fingers), the hairless skin of the palm and fingers, and the *os centrale*, a structure that exists in human embryos, prosimians, and apes but not modern adult hands. Evolutionists claim that the human hand proportions are slightly plesiomorphic, meaning they represent a primitive state of evolution relative to another organism, and thus are shared by many extant primate species.

Other anatomists note that the elongated thumbs and short human hands more closely resemble the hand proportions of Miocene apes than those of extant primates (Almécija, 2009). From this fact some evolutionists have concluded that humans could not have evolved from knuckle-walking apes (Kivella and Schmitt, 2009). Rather, they reason that chimpanzees and gorillas must have independently acquired their elongated metacarpals as part of the adaptation required to achieve their mode of locomotion (Lovejoy et al., 2009). Nonetheless, Zimmer (2012, p. 102) claims that there exists

a great diversity of hands in living species, from dolphin flippers to eagle wings to the hanging hooks of sloths. By studying these living hands, scientists are beginning to understand the molecular changes that led to such dramatic variations—and to understand that despite the outward differences, all hands start out in much the same way. There is a network of many genes that builds a hand, and all hands are built by variations on that same network. Some sculpt the wrist; others lengthen the fingers. It takes only subtle shifts in these genes to make fingers longer, to make some of them disappear, to turn nails into claws.

Several primitive hand features speculated to be present in the postulated chimpanzee-human last common ancestor, but absent in modern humans, are believed by evolutionists to exist in the hands of *Australopithecus*, *Paranthropus*, and *Homo floresiensis*. This suggests to evolutionists that the changes in modern humans and Neanderthals did not evolve until after the appearance of the earliest Acheulian stone tools and that these changes are associated with tool-related tasks beyond those observed in other hominines (Tocheri et al., 2008). The *Ardipithecus ramidus* thumbs are like those on humans, but the palms of other extant higher primates are elon-

gated to the extent that it is assumed some of the thumb's original function was lost in arboreal primates such as spider monkeys.

Functional analyses of the features unique to the human hand have shown that their features are consistent with the requirements associated with the effective use of Paleolithic stone tools, clear evidence that so-called Paleolithic people were modern humans (Marzke, 2012). Zimmer (2012, p. 98) again noted that the human

hand is so remarkable that the great Scottish surgeon Sir Charles Bell wrote an entire book in 1833 praising it, *The Hand: Its Mechanism and Vital Endowments, as Evincing Design*. At the time, the notion that life evolved was beginning to circulate, but Bell thought a close look at the human hand would dispel such silly talk. "It presents the last and best proof of that principle of adaptation, which evinces design in the creation," he wrote.

In an attempt to refute creationist reasoning, Zimmer's main argument is that the design theory does not explain why other species have hands too.

No one would doubt that the five fingers at the end of an orangutan's arm are anything else. In other cases we have to look closer. A bat's wings may look like sheets of skin. But underneath, a bat has the same five fingers as an orangutan or a human, as well as a wrist connected to the same cluster of wrist bones connected to the same long bones of the arm. When Charles Darwin wrote *Origin of Species*, he singled out this odd coincidence. "What can be more curious," he asked, "than that the hand of a man, formed for grasping, that of a mole for digging, the leg of the horse, the paddle of the porpoise, and the wing of the bat, should all be constructed on the same pattern?" For Darwin, there was a straightforward answer: We are cousins to bats

and to all other animals with hands, and we all inherited our hands from a common ancestor (Zimmer, 2012, pp. 98, 102).

A more straightforward explanation is that the pentadactyl skeletal design is versatile and an efficient design not only for hands but also for flippers, bat wings, and penguin paddles. There is no logical reason to believe a creator would limit an efficient design to a single creation. Instead of assuming these designs are inferior and claiming they support evolution, critics should postulate an improved skeletal design for flippers, bat wings, and penguin paddles, and then document that their new design is superior.

Additional Challenges

The latest theory for the evolution of the unique human hand design is that such design allows clenching the fingers in manner so as to create an effective bludgeon to use as a punishing weapon (Morgan and Carrier, 2013). This supposedly allows humans to be more fit for survival than other primates (Wayman, 2013). The researchers note that the human hand configuration allows for the formation of a fist that, as any boxer knows, can produce a powerful blow with little damage to the hand. Knight (2013, p. i) found that

modern chimpanzees have long palms and fingers with a short thumb, while the human palm and fingers are much shorter and the thumb longer and stronger.... This squat arrangement allows us to clench our hand into a fist when we fold the thumb across the fingertips; however, chimp fingers form an open doughnut shape when curled.... The tightly packed human fist provide[s] internal support—buttressing—to the digits to protect them from damage during combat.

The study found that the presence of the buttressing thumb doubled the delivered force by transmitting it to the

wrist through the metacarpals (palm bones) of the thumb and the index finger (Knight, 2013). This theory appears to be a desperate attempt to explain the design of the hand in view of the failure of all other attempts to explain it by evolution.

Design of the human hand is regarded as a major reason for human superiority compared to all other animals, yet its design is found nowhere else in the animal kingdom. In view of its superiority, why has no other animal evolved a similar design? Some primates have a design that is similar, so it would appear that evolutionary selection would have favored any movement toward this design. Yet, this evolutionary development has not happened, and the fossil record reveals no evidence of any movement toward the human hand.

Summary

A major problem for evolution is that the human hand is irreducibly complex, requiring a number of anatomical and neurological features/systems simultaneously. This includes the concurrent evolution of a complex assembly of bones, muscles, tendons, blood vessels, skin, and ligaments. In addition, this includes the evolution of required hardware and software (namely the brain and nervous system) in order to function. Unless, and until, all of the basic parts are in place, it will not function. This is true not only of hands but also of fins and paddles found in other life-forms. Furthermore, as Schmidt and Lanz (2004, p. 1) summarized,

the human hand is far more than merely a grasping mechanism. It is a highly developed, extremely adaptable tool ... a highly sensitive organ of touch. For blind persons, it can partially compensate for loss of eyesight. Its capacity for gestures makes it an important element in

interpersonal communication. In writing, music, and art, it acts as a means of expression for the human mind. Precise cerebral control of the hand's movements permit a wide range of composite motions that may be executed with strength, speed, or precision as required by the specific situation. A salient characteristic of the human hand is its opposable thumb. The mobility and strength of this structure are crucial to ensuring a fully functional hand.

Indeed, the "human hand is a finely tuned piece of equipment that is capable of remarkable dexterity: creating art, performing music and manipulating tools" (Knight, 2013, p. i).

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Creation and the Fate of the Universe

Danny R. Faulkner and Robert Hill*

Abstract

We examine two biblical positions that recent creationists have taken concerning the ultimate fate of the universe. Some believe the destruction of the heavens spoken of in 2 Peter 3 refers to the atmospheric heaven only. Another possibility is that the astronomical and cosmic heavens will share in this destruction. We respectfully disagree with those who hold to the former position. Those who think that the astronomical heavens will not be destroyed believe that the stars will continue to exist forever. Though this amounts to a sort of eternity, the stars are not fully eternal, because they came into existence recently in the past.

Introduction

While creationists long ago established the premises and considerable detail of the recent-creation model, very few creationists have written about the future of the universe. A few years ago we discovered that Hugh Ross (2001) had compiled a list of ten differences between the teachings of recent creationists and day-age creationists. The fifth item on this list brought this shortage of creationary discussion about the future of the universe to our attention. The fifth point stated that recent creationists (or calendar-day creationists) believe the

stars and the universe are eternal, while day-age creationists believe the stars and universe are not eternal. We, the authors of this paper, were uncertain of the basis for this claim, because we certainly do not believe in the eternity of the stars and the universe and we did not think such a belief was common among recent creationists. Therefore, one of us contacted Hugh Ross requesting support for his claim.

We found Hugh Ross to be very helpful in providing further information, for which we are thankful. He asked to make three things plain in our discus-

sion of this matter. First, Ross has not committed this list to print, because the points require explanation and qualifications for a general audience. Second, the comparisons are generalizations only. Third, Ross recognizes that there are disagreements among recent (calendar-day) creationists on these points, just as there are disagreements among day-age proponents. Again, we wish to thank Ross for his cooperation in this matter.

We found that some of the references from the creation literature that Ross offered did, at least when taken at face value, seem to support this claim. Most of these references were to the work of Henry M. Morris (e.g. Morris, 1997; Morris and Morris, 1999), perhaps the creationist who has published the most on the subject of the fate of the universe. Herein we offer a clarification of the is-

* Danny R. Faulkner, Ph.D., Answers in Genesis, Distinguished Professor Emeritus, University of South Carolina Lancaster

Robert Hill, Ph.D., Bob Jones University, Astronomy Program

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sues involved, as well as a suggestion of what we think is the proper biblical view of the future of the universe.

What Does *Eternal* Mean?

We must first tackle the meaning of the word “eternal,” for the word has at least two connotations. One meaning is to have neither beginning nor end, while the other is to have a beginning but not an end. The correct biblical view of God is that He alone is eternal in the first sense. Created things, such as the soul of man, can be eternal only in the second sense. The Genesis creation account makes it very clear that God created matter in the beginning, and so matter, too, cannot be eternal in the first sense. That is, material things, such as stars and the universe, can be eternal only in the sense that they may have a beginning but have no end.

We do not hold this view, but apparently some creationists do hold this position. However, we are concerned when people use the word “eternal” to describe this belief, because when astronomers and cosmologists speak of the eternality of the universe, they nearly always—if not always—mean a universe that has neither beginning nor end. Therefore, describing those creationists who believe this universe will not end as believing in an *eternal* universe can inadvertently associate them with those who believe in a truly eternal universe, which has no beginning or end. People who believe in a truly eternal universe subscribe to the steady-state theory or some variation thereof and are nearly always atheists.

Biblical Issues

What does the Bible say about the fate of the universe? Psalm 102:25–26 states

Of old hast thou laid the foundation of the earth: and the heavens are the work of thy hands. They shall perish, but thou shalt endure: yea, all of

them shall wax old like a garment: as vesture shalt thou change them, and they shall be changed.

This passage contrasts the fact that God is superior to His creation in that He made everything in the world. Unlike Him, this creation will grow old and wear out, but God will one day renew and change the creation. Incidentally, Hebrews 1:10–12 quotes this passage. Isaiah 51:6 continues in this vein.

Lift up your eyes to the heavens, and look upon the earth beneath: for the heavens shall vanish away like smoke, and the earth shall wax old like a garment, and they that dwell therein shall die in like manner: but my salvation shall be for ever, and my righteousness shall not be abolished.

In Matthew 24:35, Jesus said, “Heaven and earth shall pass away, but my words shall not pass away.”

Isaiah 34:4 too speaks of the end of the creation, but it indicates a more violent end to the world.

And all the host of heaven shall be dissolved, and the heavens shall be rolled together as a scroll: and all their host shall fall down, as the leaf falleth off from the vine, and as a falling fig from the fig tree.

In his second epistle, the apostle Peter echoed these words. Consider II Peter 3:10:

But the day of the Lord will come as a thief in the night; in the which the heavens shall pass away with a great noise, and the elements shall melt with fervent heat, the earth also and the works that are therein shall be burned up.

The apostle John wrote in Revelation 20:11,

And I saw a great white throne, and him that sat on it, from whose face the earth and the heaven fled away; and there was found no place for them.

After the destruction of this world, there will be a new world to take its place. Isaiah 65:17 reads,

For, behold, I create new heavens and a new earth: and the former shall not be remembered, nor come into mind.

According to Isaiah 66:22, this new world will continue into perpetuity:

For as the new heavens and the new earth, which I will make, shall remain before me, saith the LORD, so shall your seed and your name remain.

The promise of the new heaven and earth is repeated in the New Testament. Second Peter 3:13 says,

Nevertheless we, according to his promise, look for new heavens and a new earth, wherein dwelleth righteousness.

In Revelation 21:1 the apostle John wrote,

And I saw a new heaven and a new earth: for the first heaven and the first earth were passed away; and there was no more sea.

These passages make it very clear that God will destroy the current heavens and earth, but God will also replace them with new heavens and a new earth. Thus, the present cosmology is not eternal. Why, then, do some creationists claim that some of the current creation will persist and exist into perpetuity? One psalm seems to contradict the end of this cosmos. Psalm 148 is a song of praise to the LORD. Its first six verses read,

Praise ye the LORD. Praise ye the LORD from the heavens: praise him in the heights. Praise ye him, all his angels: praise ye him, all his hosts. Praise ye him, sun and moon: praise him, all ye stars of light. Praise him, ye heavens of heavens, and ye waters that be above the heavens. Let them praise the name of the LORD: for he commanded, and they were created. He hath also established them for ever and ever: he hath made a decree which shall not pass.

The words in the final verse proclaim that they—the things previously mentioned—were established by God

forever and ever. On its face, this verse would seem to suggest that since the sun, moon, and stars are on this list, they must be eternal in the sense that they will have no end. How can one reconcile this passage with the ones previously discussed here? There are several possible answers. One must realize that the Psalms, being a poetic book, contains some hyperbole and figures of speech. For instance, the psalmist could directly observe that the heavens don't change as far as he could tell. The unchanging nature of the sky would then be a symbol for the immutability of God Himself. It is unwise to base a conclusion solely upon a psalm, especially when that conclusion appears to contradict other, very clear biblical statements found in nonpoetic books.

Some claim one other passage, Daniel 12:3, to support the eternity of the stars. That verse reads,

And they that be wise shall shine as the brightness of the firmament; and they that turn many to righteousness as the stars for ever and ever.

However, care must be taken in probing the meaning of this verse. This is a poetic passage: shining like the firmament of the stars clearly is an analogy, not a physical event. What property or properties will the wise share with the stars? Obviously, the metaphorical comparison to stars shining is intended, but does this comparison extend to eternity? We know that God's redeemed people will live forever, but that does not necessarily mean that stars will also. Thus, this passage's reference to "for ever and ever" may exclusively refer to the wise, not to the stars. We can illustrate this meaning if we were to delete the two similes from Daniel 12:3 and read, "And they that be wise shall shine; and they that turn many to righteousness for ever and ever." Notice that the emphasis clearly is upon the wise, not the stars. We do know that there will be new heavens and a new earth (2 Peter 3:13), and there is no reason why the new heavens will not include stars; but, as many of us

believe, the destruction of the heavens refers to the astronomical heavens, so God must re-create those new stars.

If all that remains to support the eternity of the stars is Psalm 148:6, we cannot entirely dismiss the verse, but we must look for another meaning that agrees with the clear, nonpoetic passages. Notice that Psalm 148 also refers to the waters above the heavens. If this refers to some sort of vapor canopy that no longer exists, as many creationists (and certainly Morris) believe, then how can we explain the inconsistency of the nonexistent waters above being forever and ever? Perhaps what is eternal in this passage is God's decree concerning the original creation. However, the introduction of sin into the world has frustrated that decree, at least temporarily. One could say that the new creation will take the place of this cursed creation so that in a sense the creation will continue forever.

The word "heaven" can have several meanings. The three most common meanings are the atmospheric heaven, the astronomical heaven, and heaven as the abode of God. Some, including Morris (1997, p. 79), have suggested that the destruction of the heavens refers only to the atmospheric heaven. That is, the stars, not being part of the atmospheric heaven, will not pass away. This solves the problem with Psalm 148 but introduces another problem. Based on Romans 8:20–22, recent creationists generally agree that the entire creation is subject to the curse. If this is true and if the entire creation must be purified of the effects of sin by destruction and re-creation, then this process must apply to all of creation. It is inconsistent to claim that the entire universe was affected by the sin of Adam but that the stain of sin will be removed by the destruction and restoration of the earth and its atmosphere alone. Therefore, we suggest that the entire universe will partake in this destruction.

How did Morris come to his conclusion on the eternity of stars? Prior to

Morris, Lucas A. Reed (1919) reached the same conclusion using similar arguments that Morris used. Morris was an avid reader, and while developing his ideas in his youth, he read many other authors who were committed to six-day, recent creation. For instance, a large influence in developing Morris's flood geology was George McCready Price. Both Price and Reed were Seventh-day Adventists, and a century ago Seventh-day Adventists were among the few who still maintained scientific arguments for six-day, recent creation. We cannot be certain, but it is likely that Morris read Reed's book, though he clearly rejected some other teachings of Reed.

Conclusion

Just what does it mean that the heaven and the earth will pass away? There are two basic schools of thought on this. One possibility is that God will truly destroy this universe. That is, the matter of the cosmos will be annihilated, followed by a new creation of matter and the new heaven and new earth. The other possibility is that the matter of this universe will survive, but that God will completely rework matter so that it is a new creation. With the limited biblical information that we have, one cannot be dogmatic on this question. We prefer the option that God will destroy the matter of the cosmos and completely re-create the universe. Stewart Custer (1977, p. 174) also promoted this view when he wrote, "There will be an atomic reorganization of all the universe (II Peter 3:10)."

DeYoung (1989, pp. 133–134) also indicated the temporary state of the present-day stars because of the curse. However, DeYoung did state that stars will be permanent in the eternal state. Furthermore, he noted that more research is needed on the relationship of the curse to the end and entropy.

One of us contacted Henry Morris about his teaching on the eternity of

the universe. Besides his very rapid and courteous private letter, he also quickly clarified his position with a public response (Morris, 2004). There he clearly stated that the universe has not always existed. He further stated that the earth and its atmosphere will be destroyed before they are created anew. However, he also reiterated his position that the rest of the universe will not end.

We respectfully disagree with him on this latter point. We conclude that stars and the universe, as it now exists, will not exist eternally in any literal sense. Instead, this cosmos will end, and God will replace the cosmos with a new creation. Whether in this destruction and re-creation matter is preserved is a matter of conjecture with no firm indication

in Scripture. We believe the current structure of the universe will not survive, and we have no clear indication of how different from this cosmos the future one will be. In any regard, we believe the proper recent-creation view is that the stars and the universe are not eternal.

We make these statements out of no disrespect for the late Henry Morris. To the contrary, both of us hold him in the highest regard, and we had the pleasure of personally knowing him. He was a very gentle man all the while he contended for the truth. Not only did he teach us many things through his writings, but he also led by good example. If we ever were to write a tenth of what he wrote and get a tenth of what he got right, we would be truly blessed.

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Letters to the Editor

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Variable Speed-of-Light Theories

Dear Editor,
 Something I'd like to see in the *Quarterly* is a discussion of variable speed-of-light theories (VSL), such as the type started in 1999 by the author, Dr. Joao Magueijo (2003). Cosmology and astrophysics seems to be a small world of people. Magueijo's PhD advisor and coauthor Albrecht held a conference at Cambridge in 1999, the year their paper was published, and names still in cosmology today showed up there. You can see the conference recorded at http://ned.ipac.caltech.edu/level5/Albrecht/Alb_contents.html (accessed April 19, 2013), and see Magueijo referenced as #22 at [\[ences.html\]\(#\) \(accessed April 19, 2013\). A start in seeing current VSL thought is Magueijo's 2008 defense \(Magueijo and Moffat, 2008\). Just going by the book, Magueijo's theory is almost totally math—going by his 2008 defense of VSL, he was still leaning on only one empirical work done by others, the same experiment he referenced in his 1999 published paper. VSL seems to be all about the first \$10^{-30}\$ seconds after the big bang, and he has one more measurement to support him than Dr. Alan Guth's zero measurements of any kind for inflation theory. This side of that first time span, Magueijo is constant \$c\$ except for anomalies like VSL wormholes or the](http://ned.ipac.caltech.edu/level5/Albrecht/Alb_refer-</p>
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like. Not being a physicist, I see glimpses of young-universe implications in the book and in the 2008 paper. I would like a scientist to take a look at it.

Chuck Glatt

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Giants of the Past

Editor,

I was reading a review of Joe Taylor's book, *Giants Against Evolution*, and two things occurred to me. First, I find myself many times noticing a pattern in creationist literature and I begin to build a bigger picture of an historical event or scenario in my mind, and if I wait long enough someone will connect the dots and that larger picture I see will appear in a creation journal or book. For instance, I've read countless articles over the years describing animals or insects in the past as being much larger. I've read that dragon flies used to have six-foot wingspans or how elephants are ancestors of the larger mammoths and big cats (lions and tigers) are descended from the larger saber-toothed tiger; and there is plenty of evidence that this is the case with humans too: they too were larger in the past.

It seems that everything living today had a much larger relative in the past, and a real evolutionary chart should have a timeline of some creature progressively getting larger and then a sudden drop in size at the end of the progression, for what we see today is that all things have the exact same drop in size at the end of their evolutionary progression. The question to an evolutionist would then be, "Why the drop in size for every living creature on the planet and none that show a constant increase in size progression?" My further comment would be, "It seems if we take away the first part of the evolutionary chart of the hypothetical advancing stages and only use what is truly known in the fossil record—larger in past and smaller today—then this would fit the Creation-Fall scenario better."

So I was glad that this book by Joe Taylor was written; but in reading a recent review of the book, I was dismayed to see that the author apparently favors the fallen-angels-mating-with-humans scenario for the cause of giant humans

in the past. This is one belief that I wish would die and stop rearing its ugly head in science journals and church podiums.

When any article begins to try to describe who the giants were or who the "sons of god" in Genesis were, there usually are two or three theories described. In reality, there are a few more, including aliens from space, righteous descendents versus evil descendents, demon-possessed humans, evil-influenced humans, and another I will describe below that seems to be the best answer. I think the part about people being demon possessed and people doing evil by demonic influence and what the real difference between the two is should be explored more.

There sometimes is a problem within science (creationist) literature, the church, and the study halls of Christianity, in that, I find those who study theology should be careful about making science fact claims and those who study science should be careful about making theological fact claims. Then we have pastors who take the wrong thinking from both of those disciplines and preach it in the churches, and then Christians have wrong or bad information. For example, in theological literature, we will read science claims for the Bible that are not in the Bible. The view that it never rained before the Flood of Noah's time is most likely false, just as the claims that the rainbow was created after Noah's Flood and that the earth is billions of years old are false. There are many more examples, but Creation scientists reading this or hearing these claims in the pulpits cringe, knowing bad information is being given to congregations. Theologians/apologists like James Warwick Montgomery and Wayne Grudem, who publish textbooks used in many Christian colleges, state the Earth is billions of years old, using bad or outdated science even for their time; they seem confused by the science, but

they still make science claims that infiltrate the church. We then have people like James Dobson, Ravi Zacharias, and Norman Geisler, who continue the belief that the Earth is billions of years old based on theologians' writings in those textbooks. I have contacted these men and asked if they've ever read anything by Russell Humphreys, John Hartnett, or Danny Faulkner, and they all say no. They base their science beliefs about the age of the Earth, not on scientists but on theologians making science claims. One even stated he based his belief in an old age of the universe on an atheist because that person "doesn't have an axe to grind."

On the other hand, sometimes there are scientists making theological claims and getting it wrong too. In particular is the belief that angels mated with humans to create giant humans. If the scientists read the theologians, the majority of them believe that the "sons of god" were followers of God (humans) who chose to be unequally yoked to nonbelievers, and then those offspring chose not to follow God. This is the running theme throughout the entire Bible: If you become unequally yoked, you most likely will have offspring that does not follow God. The verse in the Bible that states "in those days there were giants in the land" was a statement about the normal condition of the people and not the exception about people at that time. The biblical experts would say "sons of God" couldn't be fallen angels because that description would never be assigned to demons. Jesus would tell people behaving badly that they were of their father, the devil; so if these were fallen angels, I think the description would be "sons of Satan."

The reviewer of the book informed me in private email that the author indicates that the larger animals/insects were just created that way by God at Creation, whereas humans became large because of the mating of "fallen

angels” and humans. I would ask Mr. Taylor, “If fallen angels mating with humans were the reason for giant humans, then are we to believe there’s fallen angelic beings that mated with elephants that made them mammoths or angelic beings that mated with dragonflies that made them larger?” Shouldn’t we also assign angelic sexual mating as the cause of giants of all creatures in the past? If not, then why believe that only for humans?

To finish up, let’s look at this logic scenario. Let’s say we ask someone,

“What makes a motorcycle go?” Answer: “Engine fuel.” Question: “What makes a car go?” Answer: “Engine Fuel.” Question: “What makes a tractor go?” Answer: “Engine fuel.” Question: “What makes an airplane fly?” Answer: “Pixie dust!” Where is the consistency?

And now with Giants in the past ... Question: “Why were cats bigger in the past?” Answer: “Purer genes, fewer bad mutations.” Question: “Why were sharks larger in the past?” Answer: “Purer genes, fewer bad mutations.” Question: “Why were insects larger in the past?”

Answer: “Purer genes, fewer bad mutations.” Question: “Why were humans larger in the past?” Answer: “Demons mated with females.” Where is the consistency here?

I think it is amazing that some scientists find it hard to believe that human size and age superiority in the past was because of better genetics, but rather they believe it was the mating of fallen angels with humans.

Jeffrey Wilson
Palmetto, FL

jwilso73@tampabay.rr.com

Quantum Physics—A Personal View

Editor,

The only view of quantum physics that gives factual results every time you ask it something is the Copenhagen view. This was developed by Niels Bohr and others.

The state of nature is in two or more states at the same time. Proof of this came in 2010 when work was carried out on a microscopic cantilever made of aluminium nitride, which showed it could simultaneously be made still and vibrating (Ananthaswamy, 2010). This is equal to the famous case of Schrödinger's cat, where the cat is in two states, one dead and one alive. It is the observer who, just by looking, causes the system to be in one state or the other. Throughout his book, Paul Davies (1988) pointed out that in the case of macro objects, such as a football, the difference between looking at it or not is infinitesimal.

The Copenhagen view carries with it action at a distance. This is where particles coming from a common origin are linked together no matter how far

apart they become. The "many worlds" view of the universe, where we create other universes by making choices in our own world, would split the worlds into billions of universes (Rae, 1994, p. 82). However, the many worlds view does not possess this feature.

The ultimate idea of the Copenhagen view is that there would have to be an observer outside the universe (Kaku, 2008, p. 246) in order to make the quantum system act the way it does in the Copenhagen view. The observer, for me, would be God. However, a wonderful experiment carried out by the late Leonard Mandel showed that the mere threat of the observer knowing what the Copenhagen view is going to do is enough to make the system act the way it does (Ruthen, 1991, pp. 17, 18). This would still need an observer outside the universe to produce nonobservational reaction by the quantum system. The Copenhagen view fits God into the picture quite nicely.

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Colin Brown
Warrington
England, U.K.

On the Caution about the 360-Day Year

Editor,

In his paper, “Was the Year Once 360 Days Long?” (Faulkner, 2012, pp. 100–108), creationist astronomer Danny Faulkner rejects that the earth was created with a 360-day year. The paper begins, “There is a belief among many recent creationists that the year once had 360 days and that the month was 30 days long.” This paper does not mention any proponents or Walt Brown’s hydroplate theory. Dr. Brown is the only leading creationist who presents historical and biblical evidence that the earth’s year was originally 360 days *and* whose Flood model provides a mechanism for speeding up the earth’s rotation. (The same mechanism, if true, also explains how the moon’s orbit was slowed down.)

Dr. Faulkner also recently authored “An Analysis of Astronomical Aspects of the Hydroplate Theory” (Faulkner, 2013, pp. 197–210). That article did not deal with Dr. Brown’s claims about the adding of five days to the year or of the slowing of the moon’s orbit.

In his calendar paper, Dr. Faulkner never denies that (astronomically astute) ancient cultures used a 360-day calendar and his argument is that a 360-day year, including in the Bible, is a rounding convention. Outlining Dr. Faulkner’s paper:

- The first third defines many astronomical terms and is at best neutral (see below) regarding the matter.
- Biblically, the paper argues for 360 as a rounding convention.
- Historically, aside from minor clarifications, the paper never denies that ancient man used a 360-day calendar.
- Regarding the hydroplate theory’s physical mechanism for changing the earth/moon orbital measurements, surprisingly, the paper says nothing. Instead it says:

Ultimately, one must change both the length of the month and alter

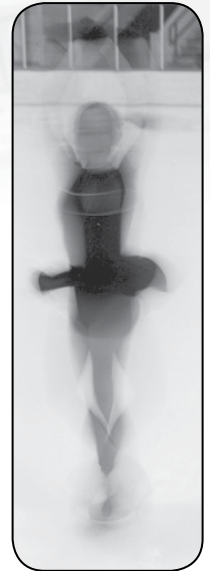
the number of days in a year. It is possible to do this several ways, so it is difficult to criticize the exact mechanism that might be employed (until someone actually suggests such a mechanism). If and when such a model is proposed, then it may be possible to assess whether this is a physical possibility that does not require too much energy (Faulkner, 2012, p. 107).

Dr. Brown’s popular theory (Brown, 2008) proposes exactly such a mechanism. It is true that Walt’s 300-page hydroplate theory (HT) has not been peer-reviewed, yet Dr. Faulkner had just addressed Dr. Brown’s theory at length in his previously accepted paper. It appears that Dr. Faulkner was limiting his consideration to his own field, looking for what he acknowledges would have to be an unrealistic *astronomical* mechanism, whereas a terrestrial mechanism is the one that has been proposed.

Hydroplate Theory Mechanism for Changing the Calendar

When the fountains of the great deep broke open (producing the globe-encircling mid-oceanic ridge), ejected rock and water severely cratered the moon, especially on what is now the near side, and especially when it was moving “retrograde.” (That severe cratering, sometimes called the Late Heavy Bombardment, is not seen on Earth because our planet was the source of the projectiles, and those falling back to Earth crashed into Floodwaters covering sedimentary layers that were still being formed.) The fountains breaking forth also launched rocks and water that gravity later merged to become comets and asteroids, and they melted much of the inner Earth as the Atlantic floor rose and the Pacific sunk. The melting reduced the earth’s volume, with gravitational

settling reducing the earth’s rotational moment of inertia, and like a figure skater conserving angular momentum, as it shrunk, the earth rotated more quickly.



In his other paper that did address the HT, Dr. Faulkner wrote, “It is left to others to judge the merits of the geological arguments of the hydroplate theory” (2013, p. 197). Thus Dr. Faulkner, an astronomer, overlooked the terrestrial mechanism of inner Earth melting to increase the earth’s spin rate. Of course, the Flood did not split itself up into our academic specialties like astronomy, engineering, and geophysics.

Introduction

“I propose here a very simple model of how [the year could have changed] and I show that the energy involved is unrealistically high” (Faulkner, 2012, p. 100). The actual proposed HT mechanism is based on the law of the conservation of angular momentum. While Dr. Faulkner’s proposed mechanism, he admits, is unrealistic, Dr. Brown points to melting in the inner Earth, which is likely, as discussed below, not a result of the perfect Creation but a result of judgment.

The paper’s goals include evaluating “the time at which the bases for calendars allegedly changed” (Faulkner, 2012, p. 100). This seems only indirectly related to the topic. The more relevant

question is: Did the ancient world use a 360-day calendar? As widely discussed, intense social inertia caused societies to retain unworkable calendars. But what would have caused sophisticated cultures to adopt a 360-day calendar in the first place?

The new creation book, *The Genius of Ancient Man*, celebrates the brilliance and astute astronomical insights of ancient civilizations, rejecting “the evolutionary ‘monkey to caveman’ paradigm” and stating that “all over the world there are similar findings of ancient religions ... world travel, advanced astronomy” (Landis, 2012, p. 5). “Starting at Babel, astronomy has almost always been connected to the ancient religions of the post-Flood world ... they were skilled in astronomical studies ... They used the stars practically, for time-keeping and travel ... There are some astonishing examples ... Accurate charts and perfectly aligned monuments testify to careful study of the night sky. There is even evidence from many structures to show that ancient man had the advanced knowledge of astronomical movements, including the process of precession ... many of their structures are aligned with these movements in mind ... this precession knowledge is found everywhere [among] the ancient peoples” (Landis, 2012, pp. 47–49). Egyptian astronomers calibrated their religious calendar with the heliacal rising of Sirius (Clagett, 1995, p. 2). Ancient Rome’s Antikythera mechanism, with dozens of gears, tracked the sun, moon, and constellations. When the Mayans recognized a 365-day year, Landis notes that they were able to calculate its accuracy to better than 365.242 days. This goes to a concern about the Faulkner paper. Landis laments that the church has mostly ignored the records of ancient civilizations, even though these are an evolutionist’s “nightmare.” History severely contradicts Darwin’s grunting caveman caricature. Dr. Landis’s work is a benchmark, not regarding calendars

but in assessing the technology and sophistication of ancient man, and Dr. Faulkner’s paper highlights the need for a creationist repository of authoritative information on ancient calendars. For, if in different hemispheres astute ancient civilizations used a 360-day calendar, especially considering the difficulties that imposed, that historical evidence would reinforce the most literal interpretation of the biblical material.

Definitions

In his Definitions section (Faulkner, 2012, pp. 100–102), Dr. Faulkner explains many terms toward helping the reader understand the difficulty of understanding the calendar and its history. Faulkner defines the sidereal year, tropical year, vernal equinox, ecliptic, celestial equator, autumnal equinox, precession, precession of the equinoxes, anomalistic year, perihelion, perihelion precession, sidereal month, synodic month, nodal month, the beginning of a month on the Hebrew calendar, lunar calendar, Islamic calendar, the beginning of the year on ancient calendars, intercalary month, Metonic cycle, Babylonian calendar, Jewish calendar, Roman calendar, leap days, 1582 Gregorian calendar reform, century years, Hebrew calendar, Jewish New Year, religious calendar, day, solar day, and sidereal day. These many definitions are presented to help understand the history of mankind’s extreme confusion in simply attempting to have a functional calendar. Worse than being neutral toward an original 360-day year (as shown below), this section unintentionally argues that something has gone horribly wrong since the original Creation, as evidenced by man’s strained efforts to merely track days, seasons, and years.

“The years 1700, 1800, and 1900 were leap years,” should read, “were *not* leap years” (Faulkner, 2012, p. 102).

The statement “1600 and 2000 were not” (Faulkner, 2012, p. 102), should read, “*were* leap years.” The calendar is

truly so convoluted that even astronomers get confused.

Dr. Faulkner implies that the “mismatch between lengths of ... months and years” might not be real but merely *apparent* (Faulkner, 2012, p. 102). This entire definitions section seems to backfire, though, making it clear that the mismatch is not apparent but real. Removing the unhelpful words, “what appears to be,” however, seriously weakens the leading argument in the next *Reasons* section.

Dr. Faulkner speaks of the “many ... ways that one could reconcile what appears to be a mismatch between lengths of the days, months, and years, and ... *there is not a single, uniquely satisfying way to do this*” (Faulkner, 2012, p. 102; emphasis added). This contradicts a claim Dr. Faulkner makes later and also goes to the biblical evidence *in favor of* an initial 360-day year. Dr. Faulkner dismisses, inexplicably, the argument that a 360-day year would provide for an easier-to-use calendar. The night sky would thereby tell everyone around the world when each month began. Young-earth creationists frequently point out that old earthers overlook God’s description of the original creation as “very good,” for the fossil record of extinctions show the geologic column to be a result of the Fall and the Flood and certainly NOT “very good.” Likewise, God’s judgment at Babel confused tongues so that language was no longer the understandable, cohesive, and unifying resource for mankind that God had given to us in the beginning. Likewise, the Creation model would never predict the extreme confusion regarding something as basic as a calendar. What has gone awry?

God’s eyewitness account: Dr. Faulkner’s paper omits both the HT mechanism and also the primary biblical evidence, that is, the Genesis 1 verse that indicates an original creation of good heavenly timekeepers:

“Let there be lights in the firmament of the heavens... and let them be for

signs and seasons, and for days and years."

"And God saw that it was good."

Today, regarding the timekeeping of seasons, days, and years, Dr. Faulkner acknowledges that "there is not a satisfying way to do this." If biblical creationists attribute the extensive confusion inherent in the world's calendars to God's Creation itself, we then lose the high ground from which we criticize progressive creationists for attributing to the Creation all the dysfunction inherent in the fossil record. If God wanted to, He could create the solar system with a relationship between the sun, moon, and earth that would provide a simple, world-unifying calendar (the kind that ancient civilizations seemed determined to cling to). Thus, a glance at the moon would help mankind remember what day of the month it was. Jupiter's four largest moons were likely created with perfect harmonic orbital synchronicity that probably was disturbed by interfering comets. Creating the earth's moon with twelve 30-day orbits synchronized with a 360-day year would give us a very good calendar.

Reasons for Belief in a 360-Day Year (Bible)

Dr. Faulkner begins this section by repeating his earlier incorrect characterization that the mismatch in months and years is only apparent. "Some are motivated by *what appears to them* to be a cumbersome mismatch between the lengths of the day, month, and year" (Faulkner, 2012, p. 102; emphasis added). The complication and confusion presented throughout his Definitions section demonstrates that the mismatch is not merely apparent but real.

Dr. Faulkner then describes those who point out that the "mismatch" is not "very good" as "a bit presumptuous," asking, "Is it not a bit presumptuous to dogmatically assert that the current relationship between our timekeepers is somehow not 'very good?'" (Faulkner,

2012, p. 102). But he had just admitted that "there is no satisfying way to do this, or else there would not be such diversity" (p. 102). It is special pleading to suggest that the current timekeeping by the moon's and earth's rotations and orbits is "very good."

Regarding the "many recent creationists who think that the tropical year once consisted of twelve 30-day months," Dr. Faulkner presents an invalid theological argument. He claims that "proponents ... do not make this case" but "ought to postulate that the mismatch in timekeepers must have happened at the Fall, not at some later catastrophe" (Faulkner, 2012, p. 102). But no creationist has ever proposed that all consequences of sin (like Adam's physical death and the prohibition of the union of close relatives) manifested themselves immediately at the Fall.

Dr. Faulkner correctly points out regarding bankers that "some interest calculations are figured on a 360-day basis" (Faulkner, 2012, p. 103). This rounding convention, however, does not create the enormous societal confusion and religious conflict seen throughout history by the shifting of months, seasons, years, and holy days, and as seen in what could almost be called the *calendar wars*. Thus, a rounding convention that creates no crisis does not explain persistent and unnecessary rounding that created serious confusion.

A surprising claim is, "There is nothing natural or obvious as to why we use base-ten mathematics" (Faulkner, 2012, p. 103). Undoubtedly, billions of people have counted on their fingers, and there are good reasons why the metric system is dominating the world. (Negative corroboration that our ten fingers point to the preferential base ten comes from the minority of cultures that used base eight because they count the spaces *between* their fingers, and from those efficiency-minded peoples who, with one hand tied behind their backs, used base four or base five.) The English word "digit"

and its counterpart in many languages is also a term for fingers (and toes). Claiming that using base ten is not natural or obvious is a way of minimizing the extraordinary factors that must have led to the Babylonian's use of base 60 and their dividing the ecliptic, and all circles, into 360 degrees. Evolutionists dismiss observations of design preferences (like the conservation of the shapes of leaves) so that they can claim that any particular pattern is as expected as any other to evolve and to remain over eons. Likewise, by dismissing base ten as the Creator's design preference, it could be argued that nothing special was required for the mathematically and astronomically astute Babylonians, and the Sumerians before them, to overlook the use of base ten in order to adopt base 60.

Leading into his discussion of Daniel, and the Babylonian use of 60 and 360, Dr. Faulkner implies that this was not based on any ancient Near Eastern 360-day calendar. Instead, he gives a reasonable but not especially satisfying explanation that "360 is a very nice, round number, so it works *very well* in estimating time" (Faulkner, 2012, p. 103; emphasis added). But it does not work very well, as shown by the confusion far beyond even that which Dr. Faulkner so well documented. Anciently, in addition to Babylonia, India also (as preserved in their Rigveda) divided the circle into 360 degrees. Dr. Faulkner asserts this would be done by multiplying base 60 by 6. However, the reverse could easily be true. The Babylonians may have originally selected the rather unusual base 60 because they had a calendar of 360 days, thereby making it easier for them to perform astronomical and chronological calculations. Twelve original 30-day months would reinforce such a selection and help explain the ancient Egyptian and Near Eastern division of days into 12- and 24-hour periods and the eventual further division of hours into 60 minutes and into 3,600 seconds. God's mathematical brilliance is everywhere

manifest in nature and the physical laws. Giving mankind a synchronized calendar would have been wonderfully convenient also because the number 360 is a highly composite number (HCN), being divisible by every number from 1 to 10 except for 7, with a total of 24 divisors, including numbers especially relevant to calendars and timekeeping: 2, 3, 4, 6, 12, 24, 30, 90, and 180. One useful application of this divides the world into 24 time zones of, nominally, 15° each, to match the 24-hour day.

Dr. Faulkner suggests the Bible, including Daniel, is merely rounding to an apparent 360-day year. The book of Revelation (11:3; 12:6) explicitly indicates a year of 360 days. Like Revelation, Daniel idiomatically references three and a half years (Dan. 7:25; cf. Rev. 12:14) and then marks off 1,290 and 1,335 days, implying an additional month, and two and a half months. Daniel's 3.5 years parallels Revelation's "42 months" (Rev. 11:2; 13:5) and "1,260 days" (Rev. 11:3; 12:6). Dr. Faulkner does not address the Revelation passages and attempts to explain Daniel's calendar by considering which ancient Babylonian calendars were or were not then in use. These are prophecy books, however, and the Apocalypse is the Revelation of Jesus Christ, i.e., the Beginning and the End, bringing readers from "the beginning of the creation" to the "new earth," for, "the first heaven and the first earth had passed away." In that context, if God in fact had created a 360-day year, it could explain why He would return to that measurement in a prophetic countdown.

Noah's 150 Days: Dr. Faulkner says it is possible to interpret the following verses from Genesis 7 and 8 such that they may not indicate a 30-day month:

...in the second month, *the seventeenth day of the month*, on that day all the fountains of the great deep were broken up, and the windows of heaven were opened. And the rain was on the earth forty days and forty nights. ... And the waters prevailed

on the earth *150 days*. And the waters receded continually from the earth. *At the end of the 150 days* the waters decreased. Then *the ark rested in the seventh month, the seventeenth day of the month*, on the mountains of Ararat.

These passages indicate a timekeeping relationship between the day, month, and year. As the Bible writers (along with much of the ancient world) used 12 months to represent a year, "the second month" indicates the start of a year, and "the seventeenth day" indicates both the start of a month and the start of a day. The natural reading of this, which Dr. Faulkner agrees appears "to be sound," indicates that these were five 30-day months, exactly 150 days. Henry Morris wrote, "The implication is that the primeval year contained twelve months of thirty days each" (Morris, 1995, note at Gen. 7:11). Dr. Faulkner suggests that there may have been some time between the last two sentences above, and that although the 150 days are emphasized by repetition, he says they may have been an approximation. (The Bible does sometimes give approximations, including perhaps with the repeated use of the period of "forty years.") Summarizing, Revelation is explicit and the rest of the biblical material is highly consistent with a 360-day year.

Reasons for Belief in a 360-Day Year (History)

Dr. Faulkner never denies that early civilizations used 360-day calendars. Of the many examples that could have been offered, the Mayan *Baktun* equals 144,000 days (exactly four hundred 360-day years), and their *tun* was a year of 360 days made up of eighteen 20-day cycles, with 20 *tun* equaling a *katun* of exactly 7,200 days. Similarly, the Aztecs added five days to their 360-day calendar. Faulkner does acknowledge what all of scholarship knows, that "earlier calendars ... had failed to properly account for the true length of the tropical

year." As to whether 360-day calendars were actually used, the first editor of the journal *Nature*, the astronomer who co-discovered helium, described the difficulty Egypt encountered from their use of a 360-day calendar and the "first law" of the Pharaoh's to—of all things—never change the calendar (Lockyer, 1894, pp. 243–248).

Dr. Faulkner critiques only a couple of relatively insignificant particulars from the admittedly imaginative Immanuel Velikovsky's 40 pages of material in which he provides both questionable and strong support for his claim that a 360-day calendar was used by the Persians, Incas, Egyptians, Chinese, Chaldeans, Assyrians, Babylonians, Hebrews, Greeks, Hindus, Romans, Aztecs, Mayans, and Peruvians. Consider, if there is a biblical explanation for otherwise inexplicable Egyptian use of a 360-day calendar, not the Egyptologists but the creationists would discover it. Thus the perplexing calendars of the Egyptians are imminently understandable if, in fact, God created original 30-day months.

Aside from the secondary sources Dr. Faulkner mentions, for my critique of his paper I have begun to look at authoritative original sources. Marshall Clagett documents that various original Egyptian calendar sources, such as the *Ebers Papyrus* (c. 1550 BC) and the astounding astronomical ceiling (1200s BC) of Pharaoh Ramesses II's memorial temple simply did not contain the five days, called epagomenal days, that by practice were added annually to Egypt's twelve 30-day months. In his *Ancient Egyptian Science: A Source Book: Volume II—Calendars, Clocks, and Astronomy*, Clagett, speaking of both the "Ebers calendar" and "the astronomical ceiling of the Ramesseum," writes, "The epagomenal days here as elsewhere are not counted as part of the 'year'" (Clagett, 1995, p. 196). Also, of the Egyptians he writes, "In the third millennium B.C. ... a new [non-lunar] calendar was invented. ... it

is a great achievement of theirs to have invented a calendar year divorced from lunar movement” (p. 3).

Grunting cavemen would understandably blunder into a dysfunctional, lunar-based first calendar. Biblically, though, intelligent ancient man’s time-keeping struggles make sense as a result of an original 360-day year. Switching then to a simple tropical-year calendar would have averted centuries of tremendous seasonal confusion. However, whereas secular scholars would never come upon the biblical explanation for the 360 days, they do commonly acknowledge the intense social inertia that explains the continued use of a dysfunctional calendar. Thus, a created 360-day year explains the genius of ancient man with many centuries of unnecessary struggle with an outmoded calendar.

Dr. Faulkner quotes an Egyptian translator, Sharpe, to contradict a Velikovsky passage, even though both explicitly speak of “the five days which were afterwards ordered to be added.”

Illustrating Dr. Faulkner’s theme in this section, regarding Velikovsky’s quote from an eighth-century Zoroastrian text, Danny wrote, “Notice that his quote doesn’t actually state when or why the practice of adding five extra days each year began” (Faulkner, 2012, p. 106). This is somewhat off the more relevant topic. Whether ancient or modern writers correctly perceived “when or why” is not as relevant as “whether or not.” Did the ancients use a 360-day calendar?

As described by Velikovsky and now documented separately by Faulkner, even when the Persian Zoroastrians began counting 365 days, they persisted in presenting a 360-day calendar, tacking on, almost as an afterthought, an additional five days.

The passages Dr. Faulkner quotes from that same eighth-century-AD Bundahis text seem evidently anachronistic. The Zoroastrians brag about anciently using a “three hundred and sixty-five”

day calendar with “six additional hours” which “make up one day for four years ... Again the commencement of the year has been fixed by great kings from the first day of the year from the beginning of creation. ... ‘The creatures of the world were created by me complete in three hundred and sixty-five days,’ ... completed in a year” (Faulkner, 2012, p. 106). If the Bundahis text were the Word of God, then by this the case would be settled against Walt Brown. On the other hand, as bragging is evidenced without exception by all of ancient history, Dr. Faulkner’s excerpts seem easily explainable as a late pagan fabrication attributing modern knowledge back into a period in which it did not exist.

Mechanism to Change the Days in a Year

Dr. Faulkner writes, “The most straightforward change would be in the orbital period of the earth. That is, an impact or some other catastrophe moved the earth farther from the sun and thus increased the orbital period. This is fraught with problems” (Faulkner, 2012, p. 107). He then easily knocks this down. But that is not the proposed mechanism that “many” young-earth creationists have been convinced of. From the 8th edition of *In the Beginning* and online:

When the flood began, the year likely had 360 days ... If so, either earth’s spin rate or its orbital period around the Sun increased during the flood. Increasing earth’s orbital period requires a large, unknown energy source; increasing the spin rate does not. Therefore, the spin rate probably increased (Brown, 2008, pp. 163–164, note 35).

Dr. Faulkner once gives a veiled acknowledgment of the hydroplate mechanism: “An alternate way to lengthen the year would be to shorten the day. This could be accomplished either by applying a torque that speeds the earth’s rotation or by decreasing the earth’s momentum of inertia, perhaps by shrinking the

earth in size” (Faulkner, 2012, p. 107). Torque is not in consideration. What has been widely proposed, however, is the melting of part of the inner Earth to shrink the planet sufficiently to speed up its rotation to add five days in a year.

The hydroplate mechanism explains that the fountains of the great deep eroded away much of the crust that was on top of what is today the Atlantic Ocean. With the crust there being removed, gravity over the remainder of the globe forced the floor of the subterranean chamber to rise, becoming the floor of the Atlantic (thus the qualitative differences between the two, with 40,000 volcanoes and ocean trenches congregating in the Pacific). If the Pacific sunk to compensate for the rising of what became the floor of the Atlantic, this helps to explain the “startling” announcement in 2007 in ScienceDaily that “thousands of square kilometers” of the “Earth’s Crust [are] Missing in the Mid-Atlantic” (ScienceDaily, 3/2/2007). The movement of rock through the inner earth toward the rising Atlantic created enough frictional heat to melt much of the planet’s interior. Below a certain depth, melting rock decreases in volume by about half. As could be said regarding the dangers to mankind from earthbound radioactivity, the original “very good” creation would not have had tectonic instability either. Even after Eden, it is very possible that the pre-Flood world had no earthquakes. Regarding the millions of earthquakes in the millennia since the Flood, however, the melting of rock is a deeper and likely a more significant cause of earthquakes than most geologists realize. So like a figure skater pulling in her arms to spin more quickly, the melting rock decreased the earth’s radius sufficiently to increase the rotation speed to add five days to the year.

Dr. Faulkner writes, “This leaves the difficulty of changing the length of the month. This must happen by decreasing the moon’s angular momentum ... This

is the reverse of the scenario just mentioned about raising the earth's orbit. Ultimately, one must change both the length of the month and alter the number of days in a year" (Faulkner, 2012, p. 107). The hydroplate theory claims that the fountains of the great deep ejected water and rock with enough velocity to escape Earth's gravity and put much of it into various orbital planes around the sun. Some of the lower velocity debris would have been in orbit near the earth and going in the same direction around the sun. This could explain something that Dr. Faulkner has observed previously: that the moon has been struck mostly from one direction. As the moon was repeatedly in its retrograde phase while orbiting the earth, it would have experienced intense, head-on collisions with this orbiting debris. While traveling prograde, the fewer impacts would have had less energy. After massive, high-velocity bombardments primarily on the side of the moon facing the orbiting ejected matter, the gravitational tug of the earth rotated the moon 90 degrees to bring this high mass concentration on the moon to face the earth. Today we can see these impact areas with the naked eye, and the added mass from the impacts explicitly explains why the near side is now the near side. NASA's 2012

GRAIL lunar gravity mapping has authoritatively shown that the moon's areas of greater-than-average gravity overlay the large craters and maria. (Perhaps a computer simulation could calculate backward in time the near side of the moon's rocking back and forth to provide an independent method of dating the Flood.) Thus Dr. Brown's hydroplate theory provides a claimed mechanism that explains these interesting lunar anomalies and the earth's increased rotation rate that added five days to the tropical year, and it explains how these impacts slowed the moon's orbit (i.e., decreasing its angular momentum) around the earth, thus lowering its orbit and bringing about a new moon about a half day sooner each month as compared to before the Flood.

Conclusion

"Proponents of an original 360-day year ought to produce their models of how the change might have happened so that we can assess the energy input. Until such models are produced and examined, recent creationists are cautioned against advocating an original 360-day year" (Faulkner, 2012, p. 108).

There are significant challenges from creationists for hydroplate theory proponents to respond to, including

in Dr. Faulkner's astronomy critique (Faulkner, 2013). However, I think Dr. Faulkner has not justified his caution against the possibility of an initial 360-day year.

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Bob Enyart
Arvada, CO

Bob@RealScienceRadio.com

Response to Bob Enyart

I thank my friend, Bob Enyart, for writing in response to my article on the hypothesis that the year originally was 360-days long and that the month was 30 days (Faulkner, 2012). This gives me the opportunity to clarify a few issues and make two corrections. Bob pointed out that I had incorrectly stated that the years 1700, 1800, and 1900 were leap years and that the years 1600 and 2000 were

common years; of course, the reverse is true, as my discussion would clearly indicate. I regret that that slipped past my multiple proofreadings and several reviewers.

Bob also pointed out that Walt Brown (2008) has proposed a mechanism for a change in the amount of days in the month and year at the time of the Flood, something that I failed to

acknowledge and even implied was not the case. Bob was puzzled about this, as I had a critical review of Brown's work in the next issue of the *CRSQ* (Faulkner, 2013a). Even though my 360-day-year article appeared prior to the Brown article, I had written the Brown article much earlier. In fact, in my study of Brown's book, I saw that he supported the idea of an original 360-day

year, which encouraged me to write the article on that subject. Brown's proposal is found in the technical notes, a sort of appendix to his book. I had read Brown's proposal in preparing my analysis of his work, but I omitted discussion of this topic in my Brown paper, with the intention of mentioning it in the 360-day-year paper. When I later consulted Brown's book (especially p. 163) in preparing for the 360-day paper, I overlooked Brown's proposal in his technical notes. I apologize for this omission; perhaps I will address this particular proposal in the future.

Bob expressed his surprise that I had stated that there is nothing natural or obvious about base-ten mathematics, and he went on to discuss the numbers of fingers and toes that we have. However, my statement was immediately followed by an acknowledgement that the number of digits that we have on our extremities probably did influence the choice of base-ten. My primary point was that base-ten is not the best system for computation. Despite our input of base-ten into electronic devices, those electronic devices do their computations in binary. There is much to be said for base-two and base-three and multiples of those bases, because they are divisible by so many numbers and hence make nice fractions. Without a mechanical or electronic computation device, multiplication and division is much simpler using fractions rather than using long division and long multiplication. Even our divisions of the day into 24 hours, the hour into 60 minutes, and the minute into 60 seconds are a reflection of that reality. By the way, the French, after their revolution, used decimal time measurements for about a decade. Their calendar consisted of a 360-day year with five to six extra holidays thrown in to bring their calendar back into reality. Their months were 30 days, each with three ten-day weeks. The day was divided into ten decimal hours, each with 100 decimal minutes contain-

ing 100 decimal seconds. While most of the rest of the metric system established then was maintained, the new time standards proved to be so unpopular that Napoleon abolished them in 1805.

In complaining about the complexity of so many definitions in my paper, Bob appears to argue that a 360-day year would have eliminated the need for most of those terms, but that isn't the case. I mentioned the anomalistic year, nodal month, and perihelion precession only for completeness—they have nothing to do with our normal timekeeping, and so I could have omitted them. Even with the 360-day-year hypothesis, we'd still need to discuss the solar and sidereal days and the synodic and sidereal months. Some recent creationists think that initially the earth's axis had no tilt, but that is a separate issue from the possibility of a 360-day year. Assuming that the earth's axis had some tilt, we'd still need to discuss the sidereal and tropical years, the ecliptic, the celestial equator, the equinoxes, and precession of the equinoxes. The other terms dealing with various calendars, such as the Metonic cycle, the Babylonian, Jewish, Roman, Julian, and Gregorian calendars, don't address confusion but merely express different ways of measuring time. Man has developed many different standards of measurements, such as for weight, length, area, and volume, so it isn't surprising that we've done the same with time measurements. Furthermore, arguing that the perceived complexity of the terms in my discussion is evidence for an alleged simpler 360-day year is begging the question.

In my paper I divided the arguments for an original 360-day year into three categories.

- That the current arrangement doesn't fit the Genesis 1:31 description of the creation being "very good."
- That certain biblical passages, such as Genesis 8:3–4, Daniel 7, 9, and Revelation 11–12, imply 30-day months and a 360-day year.

- That ancient historical records show widespread use of a 360-day year.

Bob didn't spend much time discussing the first argument: that the calendar as it now exists doesn't appear to be "very good." Lee Anderson (2013) and I (Faulkner, 2013b) have in submission companion papers that discuss this topic more fully. For a long time many recent creationists have equated the "very good" of the creation with perfection, but is this warranted? There are three possible meanings of this "very good": completeness, purpose, and moral perfection. Six times in the Genesis 1 Creation account, God proclaims what He has made as "good," followed by the pronouncement at the end of the Creation Week that it was "very good." This gives the sense of completeness in that God had accomplished what He set out to do. It fulfilled its purpose in that nothing conflicted with God's intended order. Since sin had not yet entered the world, moral perfection also was present in the world. But does this perfection extend to physical perfection, such as perfect crystals and no second law of thermodynamics? This is doubtful. The problem is that we equivocate and use the word "perfect" in the moral and physical (and the abstract) sense to mean different things. Further compounding the problem is that while we can agree on what moral perfection means, physical and abstract perfection is far from certain. In these matters, it appears that perfection is in the eye of the beholder, for two people will have two different opinions as to what is perfect and what is not.

As for the second argument concerning the biblical texts put forth for a 360-day year, I can't say much here without repeating what I previously wrote. In using Genesis 8:3–4 to prove the 30-day-month thesis, one must insist that those two verses refer to coincident events with the same precision. I believe that in my paper I admitted that that is a possibility, but it isn't required by the text. That is, one can properly and faithfully under-

stand that passage differently. Daniel and Revelation are prophetic books. As such, they contain much apocalyptic imagery, including imagery with respect to the use of numbers. This is especially true of Revelation, with the numbers 4, 6, 7, 12, and 24 being most prominent. I see no problem in using 360-days to approximate a year in this context. Furthermore, even supporters of the 360-day year must admit that when Daniel and John prophesied, the year had been 365 days long for millennia. And it's not at all clear that supporters of this idea think that the year will revert back to 360 days prior to the Judgment, so what practical purpose an exact 360-day year has in these contexts is a mystery to me. That is, Daniel and John used years of a length that had not been used for a very long time and likely won't be, if ever, for a very long time. How this proves a 360-day year as part of the original creation escapes me. There also is the hermeneutic challenge of imposing later revelation on an earlier text.

As for the third argument—that many ancient cultures used a 360-day year but were forced by some change to alter their calendars—in my paper I examined the original source of this claim, Velikovsky's *Worlds in Collision*. There I clearly showed that Velikovsky either misunderstood or misrepresented ancient texts that supposedly supported this claim. Bob noted that I never denied that ancient cultures used a 360-day calendar. Many ancient cultures did have a 360-day year, but that's not the entire story. Most of them, like the French of two centuries ago, added five or six extra days (most often at the end of the year) to bring their calendars into line with

the reality of the year's true length. The reason for the 360-day year is unknown, so to insist that it must be because the year actually was that long in the distant past is unwarranted. Again, most of these alleged 360-day calendars were about two millennia after the supposed change in the length of the year. If left uncorrected, the discrepancy between a 360-day calendar and reality amounts to nearly two months in just a decade, so it is insulting to the sophisticated ancients to suggest that they struggled with this for two millennia. Recently on his radio show, Bob told me that he was assembling many other ancient texts beyond those cited by Velikovsky to show that many more ancient cultures observed a 360-day year. I look forward to examining those when he is finished.

I will close with an illustration of what I find is wrong with this entire line of reasoning concerning the 30-day month and 360-day year. I find irrational numbers to be far from perfect. The fact that mathematicians have chosen the term "irrational" to describe these numbers as opposed to the more perfect rational numbers is evidence that I am not alone in this belief. Therefore, in the perfect world of the original creation, there could not have been any irrational numbers. The value of pi, the ratio of the circumference of a circle to its diameter, is an irrational number, so prior to the Fall pi had some other value. Since nothing could be more perfect than a whole number, I propose 3. For scriptural support for this value of pi, I note that 1 Kings 7:23 records that a basin at the temple was 10 cubits in diameter and had a circumference

of 30 cubits. This yields a value of pi of exactly 3. For years skeptics have used 1 Kings 7:23 as an argument that the Bible contains errors. And for years Christians have concocted all sorts of explanations for this problem, when the most obvious solution is that the value of pi has changed. Now, if I could find a reference from ancient secular sources for this value of pi, I will have established the truth of my proposition. Of course, I am facetious about this proposal, but I see no difference in my reasoning here and that of those who insist that the year originally was 360-days and that the month originally was 30 days.

I'm encouraged by Bob's interest in this issue. I had hoped that my paper would stimulate discussion.

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Danny R. Faulkner

The Rapid Formation Model

Editor:

The General Grand Unification Model (GGU-model) and its General Intelligent Design Model (GID-model) interpretation are based upon observed empirical evidence. In general, the GGU-model processes are independent from specifically described physical laws. As hypotheses, various modes of human mental and physical behavior are formally modeled. Biblically, this satisfies the Genesis phrase, “Let us make man in our image.” The GGU-model can generate any describable cosmology that develops via conceptual time (Herrmann, 2013). During Creation Day 4, there is a special scheme that can apply to the portion of any such cosmology that is, prior to star formation, external

to the created earth and its local environment (LE).

The Rapid Formation Model (RFM) satisfies the GGU-model processes. Although mathematically predicted, it is easily described. During Day 4 and after the formation of the sun and moon, the earth and LE are placed into a state of suspended animation. While in this state, an external universe is formed about the earth and LE. At the moment when the exterior universe is at a state of development that corresponds to its appearance about 6,000 years ago, the suspended animation portion ceases. The RFM is discussed in more detail by Herrmann (2011).

Obviously, the RFM does solve the starlight and time problem, as do other

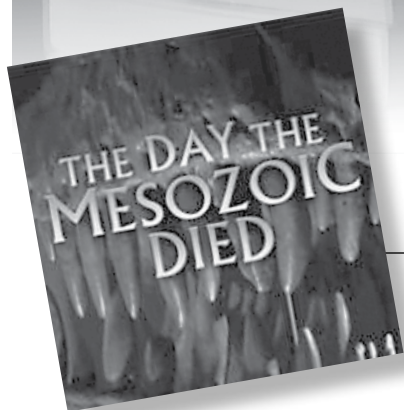
approaches. It should merely be considered as yet another approach that can be chosen for this purpose. Additionally, in all cases, the GGU-model can be used to modify all known cosmologies so that, during the time of Eden, various physical aspects have an “eternity” feature.

Robert A. Herrmann, Ph.D.
South Riding, VA

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Media Reviews



The Day the Mesozoic Died

DVD produced and directed by Sara Holt

Howard Hughes Medical Institute, Chevy Chase, MD, 2012, 34 minutes, Free.

Howard Hughes (1905–1976) became one of the wealthiest men in the world through film and aviation business dealings. At age 48, before his latter eccentric and reclusive years, Hughes began a foundation dedicated to biomedical research. In his words, one goal was to understand the “genesis [origin and evolution] of life itself” (Wikipedia, 2012).

The research effort Hughes initiated continues today at the Howard Hughes Medical Institute (HHMI), one of world’s top philanthropic organizations with an endowment exceeding \$16 billion. Entirely secular and evolutionary in nature, HHMI funds hundreds of postdoctoral researchers and produces quality educational materials for public schools. The online catalog lists posters, DVDs, virtual labs, and study guides for educators, all free and postpaid.

The Day the Mesozoic Died DVD is based on Sean Carroll’s book with the

same title (2009). The video presents the view that the dinosaur world was abruptly ended by a comet collision. The lines of evidence are several: A buried 200-mile diameter cryptocrater is centered on Chicxulub, Yucatan Peninsula, Mexico; traces of the element iridium, often associated with comets, are found worldwide at the Mesozoic-Cenozoic boundary, also called the K-T boundary, and dated at 65 million years; a fundamental change in fossil foraminifera is described, above and below the K-T boundary, and taken as evidence for a fundamental breakdown in the base of the food chain due to global catastrophe.

The impact hypothesis described in the DVD was critiqued earlier (DeYoung, 2001). Contrary data includes evidence for a more gradual dinosaur extinction. Also difficult to defend is the selectivity of the alleged impact, wiping out all dinosaurs, flying reptiles, and marine reptiles, yet leaving many other plants and animals alive and well.

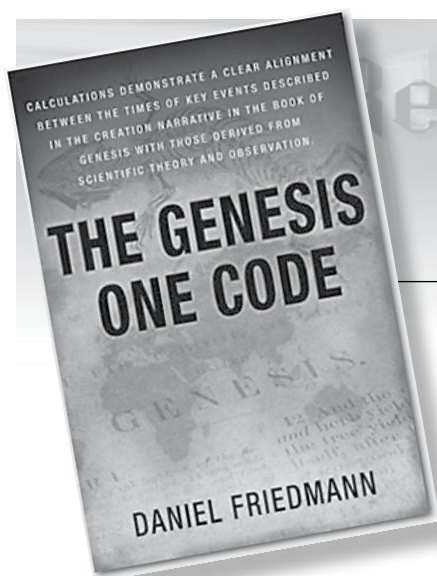
The DVD suggests that “small creatures inherited the earth.”

Many schools across the country surely will feature this DVD, further confusing students and biasing them against a biblical view of dinosaurs. One might assume that the HHMI board of directors is reacting to the growing creationist interest in dinosaurs. This DVD can be freely viewed at <http://www.hhmi.org/biointeractive/shortfilms/index.html>.

Don B. DeYoung
DBDeYoung@Grace.edu

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Reviews *The Genesis One Code*

by Daniel Friedmann

Inspired Books, 2012,
205 pages, \$10.00.

It is common for the Society to receive notification from publishers promoting a wide variety of books on topics of evolution, creation, apologetics, and even New Ageism. Normally these promotions are a mass mailing and are books of little interest to the CRS. These promotions often make rather grandiose claims about their literary achievement—almost certainly a claim they fail to attain.

Among these advertisements, one recent book promotion caught my attention with the bold declaration that “*The Genesis One Code* is the first book to rigorously reconcile the religious and scientific accounts of our origins, written in response to the common quandary about the origins of the universe and life and the seeming incompatibility between the biblical description and the latest scientific findings.” This clearly sounded a bit too grandiose and appeared to be another book in a long list of compromise positions.

The claim of being the “first to rigorously reconcile” seemed an excessive exaggeration and prompted me to reply that “considering that the Creation Research Society has been engaged in this type of ‘reconciliation’ work for 50 years, I find it a gross misrepresentation to say that Mr. Friedmann’s work represents the ‘first book.’ Also, from what I have seen of this book, I hardly would call it a

reconciliation. No reconciliation is even needed. The Bible and science speak the same language and say the same thing.”

A bit to my surprise, I received a reply from the book publicist: “Thank you [and] appreciate your reply. Have you read the book? Daniel Friedmann is a great admirer of the Creation Research Society. Daniel is a scientist who is committed to full belief in the Biblical record of creation. You will see this in the book. He supports what is written in Genesis. He says his book is in-line with your beliefs.”

I replied that I had not read the book but would be willing to provide a review in the *Quarterly*. I warned, though, that its “being in line with the CRS position would be a welcome surprise.” Sadly, *The Genesis One Code* is not a welcome surprise. In fact, it is a very discouraging book to read. The author makes a number of rather odd claims that certainly do not correspond to being “committed to a full belief in the Bible record of creation,” and certainly are not “in-line” with the position of the Creation Research Society. Mr. Friedmann approaches both science and the Bible with a very secular perspective. In turn, virtually all of his views of “science” parallel the stridently materialistic version of science (i.e., the very most godless version; Anderson, 2013).

For example, he quotes Psalm 104:24: “How many are your works, O LORD! In wisdom you made them all” (NIV). Mr. Friedmann concludes that in this verse “wisdom” refers to elemental hydrogen, which he claims God created first and then used as the source for all other elements by fusion reactions in stars (p. 96). He arrives at this conclu-

sion based upon the writings of Rabbi Yitzchak Ginsburgh. The author draws significantly from several rabbis, including Ginsburgh, Shlomo Yitzhaki, and Aryeh Kaplan, and also from Jewish commentaries, such as the Midrash Rabbah, the Kabbalah teachings, and the Pirkê De-Rabbi Eliezer.

In the 104:24 verse the psalmist uses the Hebrew word *chokmâh*. This word is a derivation of the Hebrew word *châkam*, which means wise, wisdom, teach, govern, refrain from evil actions, and free from defect by the exercise of skill (Brown, 1980). *Chokmâh* specifically means wisdom (as it is commonly translated) and is typically used within the context of skill, wit, and shrewdness (Brown, 1980). It is the same word used for wisdom in Proverbs 4:5–7; 15:33; and 16:16. In none of these passages could *chokmâh* rationally be translated as hydrogen, or any other chemical process or structure. There is not a shred of textual justification for Mr. Friedmann’s interpretation.

Why apply such a forced and inappropriate translation to Psalm 104? Apparently because it helps the text fit the standard cosmological interpretation that hydrogen is the source of “all other elements in the universe” (p. 96). As such, it also fits within a very materialistic paradigm, which the author uses as a guide to the interpretation of Psalms. However, this interpretation is in direct contradiction to the clear intent of the psalmist that God created with “wisdom,” using a wise and orderly design to create his universe and organize its systems.

Based upon this secular approach to Scripture, it comes as no surprise that

the author fully accepts the standard assigned timescale for both the earth and the universe (p. 1). He uncritically accepts big bang cosmology with little acknowledgement of its difficulties as a model (p. 31). He seems to either have no knowledge of or is indifferent to creationist (and even non-creationist) critiques of the big bang (e.g., Faulkner, 2004; Williams and Harnett, 2005).

Mr. Friedmann also accepts the standard interpretation of radiometric dating. He again is either unaware of or indifferent to creationist research involving discordant isochron dates, the ubiquity of Carbon-14, helium diffusion rates, and accelerated nuclear decay (e.g., Vardiman, et al., 2005). Regrettably, he cites no creationist research on this topic either.

He also accepts the standard dating of the geologic column. He concludes that this geologic evidence (including fossils) demonstrates the process of evolution (p. 111). He makes no acknowledgment of the consequences of a worldwide flood on geologic formations. In fact, he never mentions the Genesis Flood, so it is probably a reasonable assumption that he does not consider it a factor in geology interpretation. Mr. Friedmann makes no reference to any creationist challenges to the standard geologic column, nor to any creationist analysis of Flood geology (e.g., Oard and Reed, 2009; Snelling, 2009) or the effect of the Flood on radiometric dating (Vardiman, et al., 2005).

From a biological understanding, *The Genesis One Code* also strongly endorses evolution. In this context Mr. Friedmann advocates the well-worn (and worn-out) notion that evolution is science and creation is merely religion. He describes the evolution-creation controversy as a dispute “among those who espouse religious belief and thus support a creationist view versus those who accept evolution as supported by scientific consensus” (p. 182). In other words, creation is strictly a matter of

religious faith, and evolution is a matter of scientific interpretation. Thus, while the book claims to offer reconciliation between “religion” and science (p. 2), it is very clear that all biblical teaching must be interpreted only in light of “scientific consensus” (e.g., stellar and biological evolution). So reconciliation is achieved only when biblical teaching bows to popular human opinion.

The author unquestioningly assumes that evolutionary common descent is documented by the fossil record (p. 111). He seems completely unaware of the vast amount of creationist literature challenging numerous aspects of evolutionary thinking. Even if aware, Mr. Friedmann makes no acknowledgment of such challenges, nor does he concern himself with the need for any response. Yet, these challenges pose real and valid questions that remain unanswered by the evolutionist community. Ignoring these questions does not provide a useful reconciliation (so-called) between the Bible and “scientific consensus.” In fact, once it is understood that evolution and science are not equivalent, there is no need for reconciliation. The Bible does not teach evolution or great geologic ages. So, there is no reason to impose such teaching upon Scripture.

Mr. Friedmann also mistakenly assumes the created *kinds* of Genesis 1 were contemporary species (pp. 123 and 185). This again indicates his lack of understanding of creationist arguments as well as basic biology. While Linnaeus may have originally intended that species represent the taxonomic level of biblical *kinds*, a species is actually a rather ill-defined concept that is very difficult to fully apply (even using comparative genomics). Instead, creationists have argued that the contemporary genus or even family likely represents a closer taxonomic level to the created *kind*. God has never been under any obligation to use a taxonomic system that could readily fit any of our inaccurate, man-made classification schemes.

Since he accepts the standard assigned ages of both the universe and the earth, Mr. Friedmann engages in some not-so-standard arguments and calculations of how the Creation “days” are not actual solar 24-hour days (p. 67). Again, drawing heavily upon arguments from various rabbis, he undertakes to show that biblical use of the numbers 7 and 49 can be mathematically applied (i.e., manipulated) to calculate the “real” elapse of time during the Creation Week. From his calculations he concludes that one “hour” during the Creation Week was the human equivalent of 106.5 million years (p. 114), and each Creation “day” is the human equivalent of 2.54 billion years (p. 182). Creationists have repeatedly shown that the context and proper usage of the Hebrew text does not support such a timeline or interpretation of Genesis 1 (e.g., Sarfati, 2004).

Applying this exaggerated time frame, Mr. Friedmann draws some rather strange conclusions. For example, God sowed plant seeds late on the third “day” of Creation, but these seeds did not physically sprout and produce visible plants until “day” 6 (p. 114). Hence, the original seeds remained in the ground for several billion years. Readers can draw their own conclusions.

According to the timelines presented on pages 113 and 177, the creation of Adam was about two “hours” before the creation of Eve. Thus, Adam lived for over 200 million years before Eve’s creation. That would certainly explain his aloneness (Gen. 2:18). Following Eve’s creation, Adam and Eve lived an additional three hours (320 million years) in the Garden of Eden before temptation and the Fall, which occurred late on “day” 6 of Creation. It can readily be asked how God was able to pronounce the entire creation “very good” (Gen. 1:31) at the end of the sixth day if sin and death had already entered the creation.

What is more, God told humans to “be fruitful, and multiply” (Gen. 1:28). Despite 300 million years, according to

Mr. Friedmann, Adam and Eve could achieve only two sons and three daughters (p. 148), although he does speculate they may have had more children while still in Eden (p. 149). (Of course, virile, perfectly healthy humans would easily be able to fill the entire earth many times over in that time frame.) Does this mean multiple generations of children were sinless and living in Eden for millions of years? Were they all still sinless, yet banished from Eden along with their parents? Or, did they all, one by one, individually sin and incur God's wrath? Again, readers can draw their own conclusions of how seriously *The Genesis One Code* can be taken.

It is also confusing that Mr. Friedmann refers to the fossil record as documenting an evolutionary timeline (p. 111), which he then uses as part of his interpretation for the timeline of the Creation Week. Yet, he seems to accept that both Adam and Eve were created rather than products of a prolonged evolutionary lineage. What is more, he states that their lives spanned a period of over 300 million years (and potentially thousands or millions of offspring). This directly contradicts any model of human evolution. Thus, it is inconsistent to accept the evolutionary timeline yet reject significant aspects of evolutionary teaching. How is one correct but not the other?

Ultimately, Mr. Friedmann makes no reference to any creationist arguments, either biblical or scientific. He cites only Morris and Whitcomb's *The Genesis Flood*, and that only as a historical reference to contemporary "creationism." Instead, he is very fond of the more extreme rabbinical commentaries, totally ignoring the scores of conservative commentaries, both Jewish and Christian.

Mr. Friedmann appears to be very impressed with what he refers to as a "scientific consensus" (i.e., the popular opinion). Regrettably, this means he has set his standard on the most popular hu-

man opinion of assigned ages and ideas of evolution. In fact, his entire premise is predicated on the supposition that the age of the universe is 13.7 billion years, the age of the earth is 4.5 billion years, and that life began on earth 3.5 billion years ago. These specific dates are an integral component of his calculations to provide a so-called reconciliation of the Genesis 1 timeline with contemporary assigned ages.

However, scientific knowledge (i.e., opinion) often changes. That is the way of limited human understanding. Popular scientific ideas come and go as they always have. Yet his premise does not appear to have sufficient flexibility to accommodate very dramatic changes of this "scientific consensus." If any of these assigned ages change, as they have and almost certainly will again, Mr. Friedmann's entire premise falls. Once this "consensus" changes, he will be forced to modify his calculations and offer some excuse for why such modification was even necessary.

What is more, popular opinions of origins typically are based more upon societal worldviews than upon actual scientific data. Mr. Friedmann gives a brief discussion of the scientific process (p. 3) but fails to consider that the objective scrutinizing of data easily can be biased by our preconceived notions and underlying suppositions. Does he think a fallen and disobedient population of humans will not be heavily biased against evidence that points toward a God they deny (Rom. 1:18–20; 2 Peter 3:3–7)? Does he honestly believe that evidence for a creator and declarations from biblical testimony would be readily embraced by a fallen world that rejects Christ (Matt. 10:22; 24:9; John 15:18; 17:14)?

When biblical teachings become subject to human opinion, they are no longer God's teachings. Does human thinking drive our understanding of the Bible, or should the Bible be the foundation for human thinking?

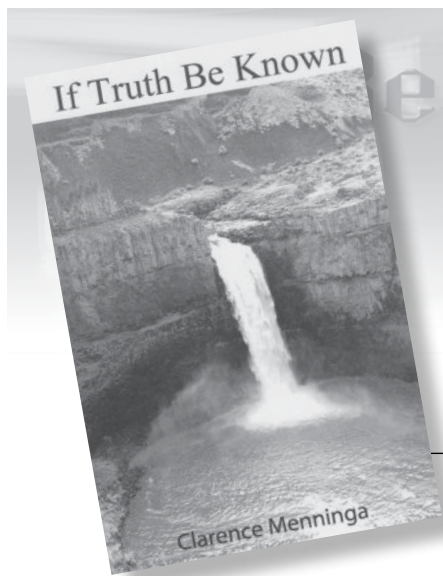
The Creation Research Society holds that the Bible is the inspired, "God-breathed" Word of God. As such it is not subject to human opinion, whim, or emotional state of mind. As the Word of God, it represents the last word, not the debatable first word. Does our understanding (i.e., our scientific conclusions) drive our biblical interpretation, or does God's Word drive our scientific conclusions?

The publisher of this book claims that Mr. Friedmann is a great admirer of the Creation Research Society. However, his views are completely materialistic and have nothing in common with the position of CRS. Regrettably, this book will serve only to further confuse and dishearten anyone naïve enough to seek it for answers.

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Kevin Anderson
Editor, *Creation Research Society Quarterly*



Reviews

If Truth Be Known

by Clarence Menninga

Self-published, Grand Rapids, 2012, 281 pages, \$11.00.

Dr. Clarence Menninga retired in 1990 as professor of geology at Calvin College. Previous to this position he was a chemist for industry and government. Menninga coauthored *Science Held Hostage* in 1988, a book that strongly challenged young-earth creation (Van Till, et al.). The author sent me a copy of this present book and requested a review in the *CRS Quarterly*. I replied that a review was possible but would likely not be positive. He answered that this was fine, and it certainly is true that book reviews, whether pro or con, make for good promotion.

Much of this book is a rehash of *Science Held Hostage* from 25 years ago. Dr. Menninga takes many pages to attack the 1974 book *Scientific Creationism*. This book is still available as a reprint but has not been updated. It is certainly not “cutting-edge,” young-earth creation thinking on many subjects. Other out-

dated topics in *If Truth Be Known* touch on solar neutrinos, Nebraska Man, brontosaurus and apatosaur skulls, and Mount St. Helens.

There are many book references from the 1970s; the most recent date I found was 2000. The *CRSQ* is mentioned regarding a 1977 article about the tilted whale fossil found in California. There is radioisotope discussion; however, no mention is made of the RATE project, which was most active during 1997–2005. Over and over, author Menninga gives a creationist argument, and then a rebuttal follows his overused phrase (and book title) “If truth be known...” The book includes Dr. Menninga’s testimony; Scripture references are not part of the book discussion.

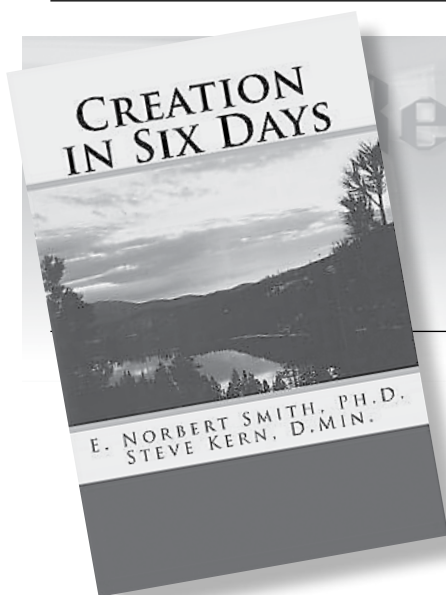
Dr. Menninga strongly accepts the deep-time assumptions of geology. He claims that any mature creation viewpoint is an “unsafe shelter” (p. 54). His listed reasons for this rejection have been fully answered in multiple

places (DeYoung, 2010). There is also the claim that no evidence exists for a young earth (p. 222). This comes as a surprise to many of us who work with abundant young-earth evidence every day from both Scripture and science. This self-published book has no index, which is somewhat like a day-planner set up for the year with no accompanying dates for guidance.

Don DeYoung
DBDeYoung@Grace.edu

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Reviews

Creation in Six Days

by E. Norbert Smith
and Steve Kern

Create Space, 2012, 182 pp.,
\$20.00.

Each chapter in this readable volume deals with one of the creation days as recorded in the book of Genesis and as correlated with scientific facts. At the end of each chapter are references that provide documentation and avenues for further study.

Author Smith is a widely published creation biologist who served on the Creation Research Society board of directors during 1979–1987. Steve Kern is a Bible scholar, author, and pastor of a local assembly. These writers have built a strong case for receiving the words of

the Bible as valid origins information from God, the Creator.

Subjects covered and questions raised include light without the sun or the moon, separation of the waters above the expanse from those below, where the Floodwaters went, biblical kinds, creation with apparent age, origin of salty seas, photosynthesis, God's pregnancy test, original vegetarianism, regulation of animal population sizes, thermodynamic laws of conservation and entropy, the Sabbath as a literal day, and the establishment of grace.

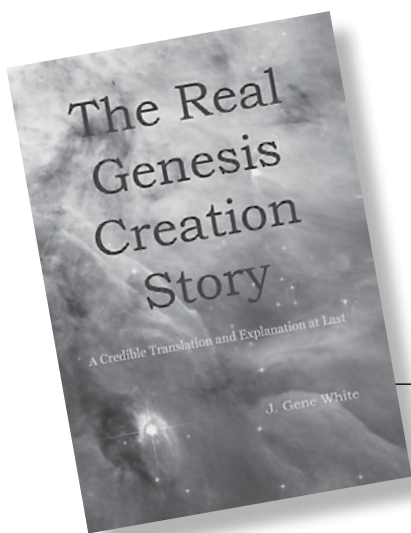
Pages 177–179 list of some of the other publications by each author. Works by Smith cover such subjects as design in buffaloes, animal hiding habits, “sacred cows” in science, alligators, and a provocative volume entitled *Battleground University*.

Creation-minded readers will find this volume helpful in resisting the voluminous stream of evolutionary, long-age propaganda widely promoted in academia and by the media. Non-creationist readers will be able to discover that the young-earth creation concept has the strong basis in real science that one would expect, if in fact it came from the living God. This book was previously reviewed in the CRSQ (Frair, 2012).

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Frair, Wayne. 2012. Review of *Creation in Six Days*, by E. Norbert Smith and Steve Kern CRSQ 49:86.

George F. Howe
georgehowe@sbcglobal.net



The Real Genesis Creation Story: A Credible Translation and Explanation at Last

by J. Gene White

Sunnybrooke Publications,
St. Louis, MO, 2010, 265 pages,
\$23.00.

Author Gene White is an engineer who has studied and taught the creation-evolution issue

for more than four decades. He moved from a young-earth to an old-earth position, convinced by science evidence in favor of the concept of geologic time (p. 195). Two initial comments are in order. First, in this book White does not explore the impact of the Genesis

Flood on geology: “Noah’s flood is a separate issue from the [biblical] creation account and [is] not discussed” (p. 9). However, the author then discusses ice cores, fossil fuels, fossils, and sedimentary rock formations in terms of the geologic timescale. The author does not

recognize the Flood as a major factor in all these formations. As a second initial comment, the author confuses the terms “data,” “evidence,” and “interpretation.” There is a growing wealth of physical data, or evidence, that everyone has equal access to. It is the interpretation of this data that results in distinct models for explaining the past.

The book gives good summaries of the gap theory, day-age theory, theistic evolution, and intelligent design. The discussion of mature creation is a disappointment. The author states that if the earth is truly just thousands of years old and stars were created to be seen from the start, then God “intentionally falsified physical evidence to make our planet appear old” (p. 84). This and similar challenges to mature creation have been answered elsewhere (DeYoung, 2010). The author’s pattern of limited research also is shown by a six-page description of carbon-14 dating issues with no mention of the 1997–2005 RATE research program.

Dinosaurs are assumed to have lived and died in a “land before time” (pp. 56, 202). How, then, does author White address the problem of death, disease, and predation occurring worldwide, long before the Curse of Genesis 3? Amazingly, it is claimed that animal extinction has nothing to do with the biblical Curse. Instead, the “very good” of Genesis 1:31 somehow includes animal danger, death, and decay, along with all aspects of the second law of thermodynamics. It is suggested that only inside the Garden

of Eden was it safe for Adam and Eve to move about without being attacked by wild beasts (p. 205).

If this were all, we might say the book is interesting with some odd speculation; but there is some extreme content. White claims that young-earth creation is a deception purposely written into Scripture millennia ago. “Rules of Hebrew grammar have been fabricated and key words have been intentionally mistranslated to support this errant theology” (p. 26). Thus, the Bible clearly teaches young-earth creation, but the original, old-earth text was hijacked and rewritten in the distant past by unknown scholars and for unknown reasons. White then goes to work with lexicons, interlinear Hebrew texts, and concordances to retranslate the biblical text. No Scripture is treated as metaphorical, mythological, or untrue; verses are simply rewritten by the selection of verb tenses and alternate word meanings.

White’s personal translation of Scripture seeks to eliminate evidence for a recent, supernatural creation. Consider the rewrite of Genesis 1:3 on Day One: “And God said, There is light, and light exists.” Thus in White’s view, light was already long in existence when God spoke; the verse is a declarative statement instead of a command. Likewise, regarding the creation of the heavens in Genesis 1:16, the White translation becomes, “And God is the one who made two great luminaries . . . to rule the night [also] and the stars.” Throughout Genesis 1–2, White moves the original

Creation to the distant past. White’s Bible rewriting does not extend to the New Testament because the “Holy Spirit kept any specific endorsement of [young-earth creation] out of the apostles’ writings” (p. 77). This and similar statements are overconfident and inaccurate.

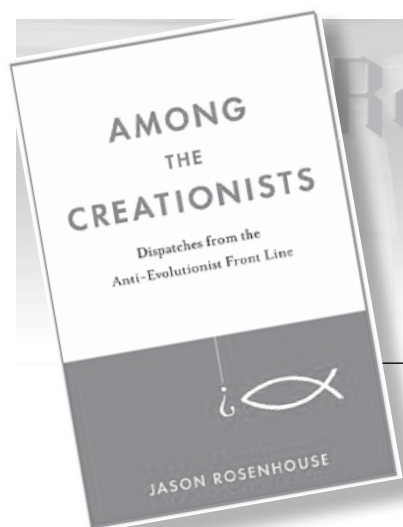
White calls his Bible revision the exemplar translation, utilizing a word meaning “original.” One must admire the courage—or audacity—of a non-Hebrew scholar to challenge the entire world of conservative biblical scholarship, over both past and present centuries, with failing to properly translate the Genesis text. The back cover promises “a credible translation of Genesis 1 and 2 that corrects over twenty-two centuries of error.” However, further thought gives a book motive, perhaps unintentional. The author was first enamored with the evolutionary timescale and then set about eliminating all young-earth intimations from the biblical text.

Whether the author is right or wrong, and most *CRSQ* readers would be 100 percent confident of the latter, this book takes a unique approach to the Genesis Creation account. An index and 380 footnotes and references are included.

Reference

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Don B. DeYoung
DBDeYoung@Grace.edu



Among the Creationists: Dispatches from the Anti-Evolutionist Front Line

by Jason Rosenhouse

Oxford University Press, New York, 2012, 257 pages, \$30.00.

Many creationists spend long hours studying the *other side*, that is, secular science or naturalism. We seek to understand the misguided efforts to deny the reality of angels, biblical inspiration, Creation, prayer, and the supernatural. It is an interesting position to be in: We fully accept recent Creation and yet realize the motives of those who attempt to maintain the purity of their limited, secular definition of science.

Meanwhile, secularists cannot fully comprehend the young-earth Creation worldview. When allegiance to the Bible as God's direct Word is absent, confusion inevitably results. The result of this dichotomy is that while creationists can clearly process both sides of the creation-evolution issue, the opposition understands only one side, their own. Informed creationists have an "unfair advantage"!

In this book, author Jason Rosenhouse attempts to absorb and analyze the Creation worldview from the outside. The effort is sincere but fails because of multiple layers of doubt, evolutionary presuppositions, and missing research.

Rosenhouse is a Ph.D. mathematics professor at James Madison University in Harrisonburg, Virginia. He describes himself as a Jewish atheist nonbeliever (pp. 8, 14, 117). The book is dedicated to his parents, who taught Rosenhouse "the value of being open-minded but skeptical" (p. v). The meaning of these

words is not clear; there is a great difference between negative skepticism and positive critical thinking. Rosenhouse's denial of the Creator is based on his perception of great earth age, evolution evidence, and the problem of evil in the world (pp. xii, 106). This latter theological point has tripped up many people over the centuries, including Job's Old Testament friends, Charles Darwin, and Richard Dawkins.

Rosenhouse has explored the Creation worldview for several years. The book summarizes his attendance at the 2005 Lynchburg Mega-Conference, the 2007 Knoxville Darwin vs. Design Conference, and the 2008 Pittsburgh International Conference on Creationism (ICC). The author also has made several visits to the Answers in Genesis Creation Museum. Overall, Rosenhouse is impressed with the openness and friendliness of creationists, which fits his own personality of nonconfrontation.

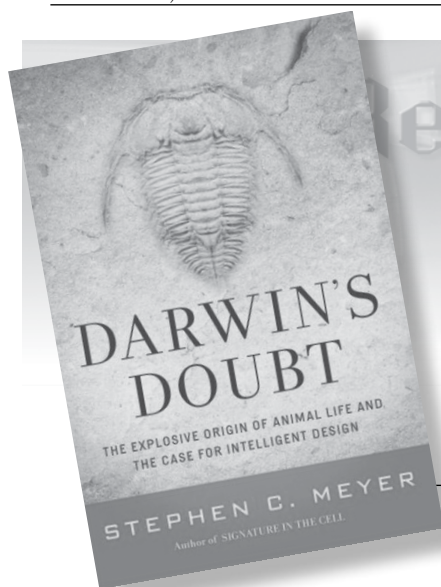
The author is no stranger to evangelistic teaching. During the 1990s while a graduate student at Dartmouth College, New Hampshire, he attended meetings held by evangelist Luis Palau. This, he says, "never brought me close to conversion" (p. 16). Several places in the book Rosenhouse clearly expresses the language of the gospel and salvation, but the discussion remains on an intellectual level of the mind alone and not the heart (p. 44).

Many of the book statements deserve challenge, and four will be mentioned. First, Rosenhouse writes that "science has found no such evidence" for an intelligent designer (p. 21). On the

contrary, Romans 1:20 states that there is no excuse for missing the fingerprint of God upon nature. Second, using the writings of sociologist Phil Zukerman, it is suggested that the morality of societies with a godly heritage is surpassed by godless countries. Denmark and Sweden are described as "remarkably strong, safe, healthy, moral and prosperous societies" (p. 25). As the daily news shows, however, every country across the earth has its share of serious issues and moral failures. A third book item subject to challenge is the quote, "Evolution ... makes no attempt to explain how life originated in the first place" (p. 32). The fundamental problem of the spontaneous origin of life cannot be sidestepped with such words. The fourth example of error concerns fossils: "With literally millions of fossils to examine, not a single one is out of place from an evolutionary standpoint" (p. 54). From Canada's Burgess Shale to Montana's Lewis Overthrust, the author needs to do his homework on fossil discrepancies.

This book gives serious insight on the thinking of biblical skeptics. Rosenhouse is sincere in his exploration of the Creation worldview, but any hint of faith is absent in the writing. One hopes that Jason Rosenhouse continues his Creation interest and study. The book does not mention the Creation Research Society, and CRS writings should be part of his further research. Even more important is all of Scripture, including the Old and New Testaments.

Don B. DeYoung
DBDeYoung@Grace.edu



Darwin's Doubt: The Explosive Origin of Animal Life and the Case for Intelligent Design

by Stephen Meyer

HarperOne, New York, 2013,
498 pages, \$29.00.

This historical journey begins with Darwin and his respect for his nemesis, Louis Agassiz, and takes the reader through a survey of today's leading evolutionists, who admit that neo-Darwinian mechanisms cannot explain (1) the origin of body plans, (2) mounds of molecular information, and (3) the fossils of the Cambrian explosion. One hundred and fifty years ago, Agassiz noticed that the very fossils that would connect the branches in Darwin's tree of life just happened to be among those that were "missing" (p. 24).

As an intelligent design advocate with the Discovery Institute, the author's old-earth perspective makes him vulnerable to some naïve claims, including that "radiometric dating methods" are straightforward and do not "depend on a host of contingent factors" (p. 109). Stephen Meyer then quotes a paper in the Oxford journal *Molecular Biology and Evolution*: "The rate of molecular evolution can vary considerably among different organisms, challenging the concept of the 'molecular clock'" (Ho, et al., 2005, p. 1355). Meyer should know regarding radiometrics, however, that the same could be said for differing techniques that give differing dates, whereas the same technique often gives differing ages for the same specimen.

Meyer's well-honed anti-Darwinian arguments include colorful examples,

like exoskeletons and ion pumps, to expose the lack of even broad-stroked explanations of how integrated functional requirements could arise via a nondirected process. The exoskeleton, which first appears in Cambrian strata, "is far more than a mere covering ... because it provides the sites for the attachment of the muscles." The limbs "can articulate," and shrimp exoskeletons have, "interior projections [to support] organs. At the same time, the skeleton of any arthropod is a product of, and in turn regulates, its metabolism." The first organisms to evolve an exoskeleton "would have had to have successively secreted a new skeleton beneath the old one, to have shed the used exoskeletons, and to have hardened each new exoskeleton. This tight functional integration suggests the implausibility of evolutionary models that envision the arthropod exoskeleton arising late as a kind of accretion to an already integrated system of soft parts" (end notes, p. 421).

Though not intended, pointers to biblical creationism are everywhere in *Darwin's Doubt*. The mudflows that "transported the Burgess [shale Cambrian] animals several kilometers into deeper waters" were "highly turbulent" (p. 45). Meyer imagines regarding the shale's discoverer Charles Walcott, "Finding marine animals so high above sea level no doubt made Walcott acutely aware of the way in which continents and seas had changed locations" (p.

46). But how high above sea level? The 7500-foot altitude is not mentioned till the end of the book.

Along the way, Meyer explains the failed Darwinist attempt to use sequencing to date divergence, for "the same or similar groups of molecules have generated dramatically different divergence times" (p. 107). He points out admissions from Dobzhansky protégé Francisco Ayala, who says that such evolutionary calculations are "fraught with danger." And Berkley's James Valentine joins others in acknowledging that "the accuracy of the molecular clock is still problematical, at least for phylum divergences, for the estimates vary by some 800 million years." Meyer then references a Michael Behe paper regarding DNA-packing histones, reporting that even with a dozen years of experiments in yeast showing that histones can tolerate dramatic deletions, regardless, across phyla histones remain highly conserved (i.e., minimally different). Meyer argues this against the Darwinists, showing their tendency to commit the cherry-picking fallacy, in this case by selectively ignoring data. But he doesn't mention that IDers are guilty of the same failure, regarding the same evidence no less. The evolutionists assume their own conclusion in that, as Meyer points out, histones "are never used as molecular clocks ... Because ... the small differences between histones yield an *extremely recent* divergence" (p. 107; emphasis added). By the way, how

recently? He does not say. And neither did Behe offer an estimate for how long he believes plants and animals have existed with this extreme lack of mutation. Behe did point out, though, for example, that “the green pea differs from that of mammals by only two conservative substitutions in 102” (Behe, 1990, p. 374). Yet intelligent design, Meyer explains, does not rule out common ancestry (p. 339), for, allegedly, a billion years ago a designer could have engineered a split between plants and animals. But Meyer cannot have it both ways. He wields the histone evidence against Darwinists but only by committing an equally circular, selective data fallacy. As with the intelligent design movement generally, Meyer’s book fails to acknowledge this extreme lack of mutations as at least apparent evidence against these phyla having lived for hundreds of millions of years.

The material on punctuated equilibrium (chap. 7) rightly exploits the findings of world-class evolutionary paleontologists who acknowledge that the fossil record lacks the transitions between phyla and more. Later, regarding how the designer may actually have implemented his design in nature, Meyer says of ID advocates, “We simply don’t know ... how the intelligent agent responsible for life arranged or impressed *its* ideas on matter” (pp. 305, 307, emphasis added). “Its”? The Christians among the IDers seem to believe in what we could call interventionist punctuated equilibrium, or IPE. That is, every so many millions of years, God introduced new life-forms by some kind of profane species conception or incarnation (i.e., hopeful monster), or even by repeated special creations, though the apparent ID reluctance to discuss this latter option seems to make it an unmentionable. As a longtime (though nowhere-near comprehensive) observer of the ID movement, I’ve frequently heard it said that ID does not

rule out universal common ancestry, but I’ve never heard their spokesmen say that ID does not rule out special creation.

Creationist authors represent a wide range of scientific disciplines. The intelligent design community—again by my subjective view—seems to be lopsided toward cosmology and molecular biology, with underrepresentation, for example, in geology. Thus IDers commonly suggest that prior to their own movement, opposition to Darwinism perhaps “seemed premature [and reflected] something of the prejudice of the times” (p. 379). However, both Newton and Einstein could make intuitive leaps from general observations. Likewise, neither the Hubble Telescope nor the electron microscope is needed to see irreducible complexity and intelligent design. “For since the creation of the world His [three] invisible attributes are clearly seen, being understood by the things that are made, even His eternal power and Godhead [i.e., persons, Enyart, 2008]), so that they are without excuse” (Rom. 1:20 NKJV).

Proposing earlier “the purposeful action of a conscious and rational agent” (p. 337) and “the activity of a designing mind” (p. 379), by the last three pages of his book Meyer finally gets to God. The “theory of intelligent design ... suggests the possibility that life may have been designed by an intelligent person, indeed, one that many would identify as God” (p. 412). Biological information points to the attribute of *intelligence* in the designer, which ID theorists admit, when taken alone, could suggest design by aliens. Interviewing Meyer for Real Science Radio (Enyart, 2013), I suggested that by the same “cause and effect” reasoning (p. 341) that they use to infer the designer’s intelligence, when considering the conscience manifest in the human family, they should be able to infer also the designer’s attributes

of being relational and moral. Meyer took that opportunity to repeat a common ID claim that when they consider the fine-tuning, not only of organisms but also of the cosmos itself, then they can argue that the evidence points to a designer who is not merely a very intelligent creature from somewhere within the universe but a transcendent Designer. This agent would be like the person Christians refer to as God, who created not only life but also the entire universe. As C. S. Lewis might point out, at that point you’re still far from the God of the Bible, but you might be thinking about Him.

Of a theistic evolutionist, Meyer asks (p. 411), “But why attempt to reconcile traditional Christian theology with Darwinian theory, as [Francis] Collins tries to do, if the theory itself has begun to collapse?” The biblical creationist cannot but smile, as he or she thinks of Meyer’s attempt, as a Christian, to reconcile the Darwinian epochs with dinosaur soft tissue, a million nautiloid fossils standing on their heads, and Carbon 14 everywhere it shouldn’t be.

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Bob Enyart
Bob@RealScienceRadio.com

Instructions to Authors

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2. Abstract page. This is page 1 of the manuscript, and should contain the article title at the top, followed by the abstract for the article. Abstracts should be between 100 and 250 words in length and present an overview of the material discussed in the article, including all major conclusions. Use of abbreviations and references in the abstract should be avoided. This page should also contain at least five key words appropriate for identifying this article via a computer search.

3. Introduction. The introduction should provide sufficient background information to allow the reader to understand the relevance and significance of the article for creation science.

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ated by placing abbreviations in parentheses following the first usage of the term in the text, for example, polyacrylamide gel electrophoresis (PAGE) or catastrophic plate tectonics (CPT). Only the abbreviation need be used afterward. If numerous abbreviations are used, authors should consider providing a list of abbreviations. Also, because of the variable usage of the terms “microevolution” and “macroevolution,” authors should clearly define how they are specifically using these terms. Use of the term “creationism” should be avoided. All figures and tables should be cited in the body of the text, and be numbered in the sequential order that they appear in the text (figures and tables are numbered separately with Arabic and Roman numerals, respectively).

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- Lipman, E.A., B. Schuler, O. Bakajin, and W.A. Eaton. 2003. Single-molecule measurement of protein folding kinetics. *Science* 301:1233–1235.
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- Walker, T.B. 1994. A biblical geologic model. In Walsh, R.E. (editor), *Proceedings of the Third International Conference on Creationism* (technical symposium sessions), pp. 581–592. Creation Science Fellowship, Pittsburgh, PA.

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Creation Research Society

History—The Creation Research Society was organized in 1963, with Dr. Walter E. Lammerts as first president and editor of a quarterly publication. Initially started as an informal committee of 10 scientists, it has grown rapidly, evidently filling a need for an association devoted to research and publication in the field of scientific creation, with a current membership of over 600 voting members (graduate degrees in science) and about 1000 non-voting members. The *Creation Research Society Quarterly* is a peer-reviewed technical journal. It has been gradually enlarged and modified, and is currently recognized as one of the outstanding publications in the field. In 1996 the CRSQ was joined by the newsletter *Creation Matters* as a source of information of interest to creationists.

Activities—The Society is a research and publication society, and also engages in various meetings and promotional activities. There is no affiliation with any other scientific or religious organizations. Its members conduct research on problems related to its purposes, and a research fund and research center are maintained to assist in such projects. Contributions to the research

fund for these purposes are tax deductible. As part of its vigorous research and field study programs, the Society operates The Van Andel Creation Research Center in Chino Valley, Arizona.

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1. The Bible is the written Word of God, and because it

is inspired throughout, all its assertions are historically and scientifically true in all the original autographs. To the student of nature this means that the account of origins in Genesis is a factual presentation of simple historical truths.

2. All basic types of living things, including humans, were made by direct creative acts of God during the Creation Week described in Genesis. Whatever biological changes have occurred since Creation Week have accomplished only changes within the original created kinds.

3. The Great Flood described in Genesis, commonly referred to as the Noachian Flood, was a historical event worldwide in its extent and effect.

4. We are an organization of Christian men and women of science who accept Jesus Christ as our Lord and Savior. The act of the special creation of Adam and Eve as one man and woman and their subsequent fall into sin is the basis for our belief in the necessity of a Savior for all people. Therefore, salvation can come only through accepting Jesus Christ as our Savior.

iDINO

Investigation of Dinosaur Intact Natural Osteo-tissue

A CRS Research Initiative

Scientists of the Creation Research Society are conducting a project to investigate the presence of intact tissue in dinosaur bones.

In the past several years, different studies have reported evidence of non-fossilized tissue (e.g., compact bone cells) and intact protein remaining inside fossilized dinosaur bones. Since these fossils traditionally have been dated at ages greater than 65 million years, the presence of this non-fossilized tissue is a direct challenge to the entire evolutionary “millions of years” time frame.

As part of the iDINO project, supraorbital horn of a Triceratops has been obtained and analyzed. This analysis revealed intact osteo-tissue containing osteocyte-like structures with detailed filipodial-like interconnections and secondary branching. The intricate detail of these observed cells offers a strong challenge to claims that the tissue is bacterial biofilm or microscopic artifacts. Instead, these results give powerful evidence that dinosaur fossils are really only a few thousand years old.

The Society is seeking funding from interested groups, churches, and individuals. This funding for the iDINO project will enable a more extensive examination of this supraorbital horn as well as other dinosaur specimens.

For more information contact us at (928) 636-1153 or crsvarc@crsvarc.com.

Also visit www.creationresearch.org for project updates and details.



Figure 1. CRS excavation team at a site in Hell Creek Formation, MT. Dinosaur specimens were obtained that have revealed the presence of intact tissue.



Figure 2. CRS team members excavated a large Triceratops horn at a the Montana site. Analysis of this horn indicates the presence of intact compact bone cells that have not yet fossilized.

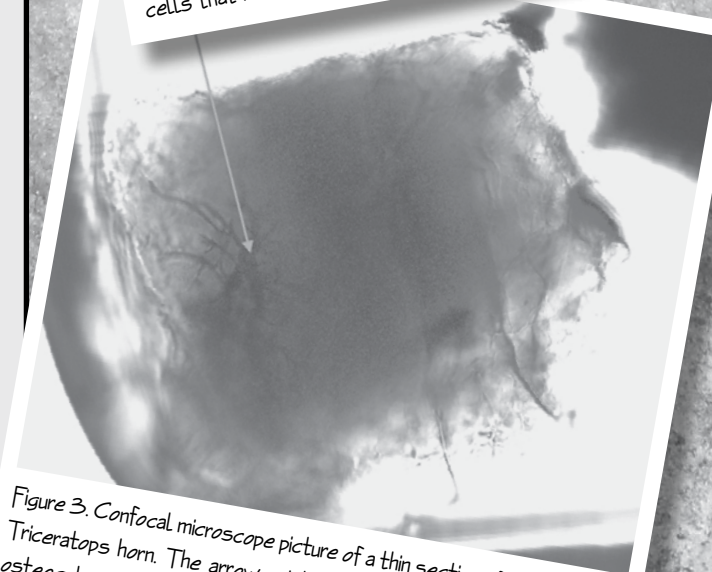


Figure 3. Confocal microscope picture of a thin section of material from Triceratops horn. The arrow points to what appears to be an intact osteocyte cell (a common cell in mature bone). The fluorescence of the cell indicates that it has not yet fossilized.