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Articles

Departments

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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Editorial

Calling Evil Good and Good Evil

June 26, 2015, was a very sad day in the history of the United States and, indeed, the world. On that date, the Supreme Court of the United States by a 5–4 vote in the Obergefell v. Hodges case redefined marriage so as to permit two men or two women to marry one another. It never occurred to the five judges in the majority that the Supreme Court does not have the authority to do this, for the U.S. Constitution gives legislative power to the Congress, and redefinition of marriage clearly is a legislative issue, not a judicial one. Nor does it appear that many people in the United States understand this raw abuse of power for what it is, or there would be widespread calls for the nation to ignore what the court has ruled. If the Supreme Court can so easily redefine an institution so fundamental to our society in an attempt to reengineer our society, then there is nothing this Court cannot do.

This decision strongly parallels the 1973 Roe v. Wade decision that struck down state abortion laws. Forty-two years ago there was growing support for abortion on demand, just as there has been growing acceptance of homosexuality and same-sex marriage in recent years. Both then and now, the Court took note of changing attitudes and decided that its intervention was necessary to reflect those changing attitudes in the law. However, the U.S. Constitution lays out the manner in which such changes in laws can be made by the Congress, with or without the president's participation, and ultimately the United States may amend the Constitution to reflect changes in society, as it has done on numerous occasions. This impatience to allow the system to work as intended and prescribed by written law is by its very nature unjust and hence ungodly.

Roe v. Wade did not solve the abortion issue, nor will Obergefell v. Hodges solve the marriage issue. This latest travesty will further divide an already divided nation. The United States has not been this divided in a century and a half. The only difference from the nineteenth century is that today's division lacks the very strong regional and economic factors that it had then. Today's deep division appears to be widening, which does not bode well for the future of the United States.

The injustice of ignoring the U.S. Constitution and the law is just one type of wickedness in this decision. Far more serious is the immorality this decision promotes. It was just three and a half years ago that my predecessor wrote an excellent editorial addressing the issue of homosexuality and homosexual marriage (Anderson, 2012). There he gave a refutation of some of the so-called science supporting homosexuality and also discussed the proper biblical response. That response includes showing love to those who are caught up in this, as well as other types, of sin. I highly recommend rereading that timely editorial.

A proper understanding of Creation is very important, because so many questions, such as those related to marriage, can be traced back to it.

What does this have to do with creation? Plenty. In the beginning God created man in His image, both male and female, and He told them to be fruitful and multiply (Genesis 1:26–30). Genesis 2 gives more detail about the creation of man: God made man from dust (v. 7), and He noted that it was not good that man be alone (v. 18), so He made woman from man's side (vv. 21–25). This is the origin of marriage. If there were any doubt about this, Jesus affirmed the origin of marriage in the Genesis Creation account in His response to a question about marriage and divorce (Matthew 19:3–12). Marriage is an institution given to us by God for our benefit. We trifle with the institution of marriage at our peril.

A proper understanding of Creation is very important, because so many questions, such as those related to marriage, can be traced back to it. Unfortunately, far too many people who profess Christ fail to grasp this. Shortly after the Obergefell v. Hodges decision, former President Jimmy Carter, who forty years ago made a few waves by describing himself as "born again," was asked about homosexual marriage. Mr. Carter responded that he thought Jesus would approve of homosexual marriage. He admitted that he had no Scripture to support that contention, but he was convinced that it was so. Apparently, the former president has created God in his own image.

The evidence of the rapidly declining moral standards of our society is abundant. This spring, 1976 Summer Olympic champion Bruce Jenner announced that he is transgender, now dresses as a woman, and henceforth wishes to be called Caitlyn Jenner. It was not long ago that transgender people were viewed as delusional and in serious need of help, but today they are enabled, applauded, and celebrated. At the same time that acceptance and tolerance have expanded to include all sorts of perversions and spiritual and mental conditions, toleration of those who disagree with this new way of the world seems to be in short supply. Anyone who dares to disagree with the campaign to establish acceptance of homosexuality is labeled a bigot. Note that the condemnation of bigotry need not be supported by actual evidence of deeds but is based solely upon one's expression of disagreement with politically correct ideas. This is the height of intolerance.

Part of the success of the campaign for acceptance and approval of homosexuality is due to the nearly universal support it receives from the powers that drive popular culture. This praising of sin in motion pictures, TV, and music, along with the condemnation of those who oppose it, is the sort of thing the prophet Isaiah warned about. Isaiah 5:20 pronounces a woe on those who call evil good and good evil, who substitute darkness for light and light for darkness, who swap bitter for sweet and sweet for bitter. But the movers and shakers in popular culture alone do not explain the success of this campaign. In 2 Thessalonians 2:1–12, the apostle Paul spoke of latter days in which there will be a great falling away (v. 3), and God will send a strong delusion so that people will believe a lie (v. 11), thus bringing condemnation on those who reject the truth and have pleasure in unrighteousness. These words seem an appropriate description of recent events.

Romans 1:26–27 is one of the few New Testament passages that explicitly mentions homosexuality. However, many people miss something significant in this passage. Homosexuality here is not the *cause* of God's judgment but rather the *result* of God's judgment (Romans 1:24, 26). That is, rampant homosexuality such as we are experiencing today is the result of the removal of God's restraint upon human depravity in response to man's rebellion against God. The chapter closes (v. 32) with the observation that those under God's judgment not only commit gross sin but also take pleasure in those who do so. This accurately describes the campaign promoting homosexuality, because its supporters demand that all people give their approval to such acts. The United States, as is much of the rest of the world, now may well be under God's judgment.

Rampant homosexuality such as we are experiencing today is the result of the removal of God's restraint upon human depravity in response to man's rebellion against God.

In the West at least there seems to be a strong correlation between the ac-

ceptance of homosexuality and belief in evolution. For instance, while there are many creationists among those who have spoken out against homosexuality, there appears to be a total absence of evolutionists among those who oppose the homosexual agenda. Evolution supposedly is descent with modification, with natural selection being the mechanism. This necessarily involves reproduction. Apart from modern reproductive technology, full expression of homosexuality does not result in reproduction, so homosexuality ought to be an evolutionary dead end.

This clearly is a contradiction, though evolutionists might prefer to call this a paradox instead. Many evolutionists are well aware of this problem, for there have been numerous attempts to explain how homosexuality persists in a world governed by evolution. One explanation is that within a human community, homosexual men may not have offspring, but they can be doting uncles who can help ensure that their nieces and nephews have a better chance to survive and pass on their genes. While the homosexual uncles do not directly pass on their own genes, they can vicariously do so in that they share some of the genes that their nieces and nephews carry. Of course, this sort of explanation amounts to a just-so story that hardly qualifies as being scientific in the sense that it can be tested.

How did evolutionists end up in this contradictory situation? Evolution affects one's worldview. If evolution is true, then God is unnecessary. Thus, evolution often leads to atheism. Even if an evolutionist does not profess atheism, the evolutionist's God largely is irrelevant. Once God is irrelevant in some matters, it is easy for God's irrelevance to spread to other matters. Therefore, God soon is irrelevant to morality, leaving humanity to be the definers and arbitrators of morality. In modern morality, tolerance is the only virtue, and intolerance is the only vice. The homosexual lobby has very successfully carried out a campaign of framing their argument in terms of tolerance. So, step by step, society today has fallen to the state where homosexuality is not only accepted but is also celebrated.

As members of the Creation Research Society, what should be our response? As Christians, we have a very different worldview from the rest of humanity. Our authority in all matters is the Bible. Where the Bible defines and condemns sin, we ought not to be loathe in doing likewise. However, as Dr. Anderson emphasized, we must proclaim truth while at the same time expressing our love to those caught up in homosexuality. This is a very delicate balance that calls for godly wisdom. I direct your attention to the fourth point of our Statement of Belief:

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

It is our job as Christians to proclaim the truth of the gospel to a lost and dying world. May we redouble our efforts to that end.

Danny R. Faulkner
Editor
Creation Research Society Quarterly

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Using Analogies to Understand "Worldview"

Steven Chisham*

Abstract

This article uses analogies as explanatory aids to systematically understand the concept of worldview, along with its underlying principles and mechanisms. First, a mathematical analogy uses equations to describe the consequences of large-scale data flow in human cognitive processing. Anomalies like autism and extreme intelligence are used to illustrate the analogy's explanatory value. Then, a worldview is compared to advanced modeling and simulation programs to highlight worldview's predictive purpose. Finally, a summary of key findings from my first three papers is presented.

Introduction

This article uses analogy as a method for explaining the dynamics of "worldview," making it easier to conceptualize, evaluate, and understand. Analogy, unfortunately, can present a double-edged sword, for it may not resonate with those less familiar with its example. Consequently, several analogies will be explored to broaden general understanding for readers.

This epistemological exercise differs from classical and modern approaches, which use tools like syllogism and rhetoric to trace the nature of rationality for a given conclusion. Instead, this approach attempts to account for the broad flow of cognitive information (Chisham, 2012). That is, while classical and modern philosophical approaches attempt to answer what it *means* to rationalize, this approach asks what resources and conditions are *required for* rationalization? Since both purport to describe human rationality, neither should preclude the other. Rather, if correct, they should complement and cross-check each other.

Moreover, because this discussion references the Ten Premises of Chisham (2012), Table I lists them again for the reader's convenience.

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Premise I:	Sense experience, relative to the perceiver, forms the basis of all understanding.	**Premise VI:**	The operation of thinking algorithms described in Premise IV is not the same as instinct.
Premise II:	Raw sense information must usually be interpreted, which is the function of thinking.	**Premise VII:**	Thought requires a logical "error checking" function that also validates meaning. It attempts to answer the question: "What is true?"
Premise III:	A second information category—virtual data—is used in the same way as sense data.	**Premise VIII:**	This function also provokes a parallel validation question: "How can I be certain what I believe to be true actually is?"
Premise IV:	The function and purpose of thought is to interpret sensory and virtual data via rationalization processes (or algorithms).	**Premise IX:**	Belief that something is true also defines what is true about self. Consequently, the search for certainty leads to the question: "How do I understand myself relative to ultimate truth?" Cumulative answers here provide a matrix that defines one's worldview, which defines self-image *and* perception of truth.
Premise V:	Primary sense information is not subjective, but observer bias influences both observation and interpretation of data.	**Premise X:**	Since humans are finite, a worldview is, at best, a self-limiting reflection of truth.

Table I. Ten Premises

Illustrating the Worldview Mechanism via Mathematical Analogy

This analogy borrows from mathematics to illustrate how people process information from within their worldview to reach a conclusion, typically compounding conclusions to reach more complex insights. Since rationality necessarily implies information is being acquired and processed, at its highest level rationality can be seen as *data in motion*, the mechanics of which pivot on Premises I, III, and IV (see Table I). These respectively address the acquisition of sensory data, "virtual" data (information rationally generated from sense data, other virtual data, or a combination), and the rational operations synthesizing new virtual data. A worldview, then, enables processing current circumstances in light of belief, thus *emulating objectivity* (Chisham, 2012, p. 70) to define meaning, with the ultimate goal of predicting proper courses of action in order to achieve correct outcomes.

Plantinga (1993, p. 137) describes this concept of data and virtual data as two levels of evidence: "In the first sort of case we have nonpropositional evidence—the evidence of the senses, perhaps, or of memory." Whereas, the "second-level source of warrant" is a "mechanism or faculty [that] takes beliefs … as input … and yields as output another belief, or a modification of belief." He suggests the first form of evidence (or information) is transformed into the second by way of "perception, memory, induction, reason … and so on." Similarly, Thomistic philosopher Frederick Wilhelmsen (1956, p. 188) suggested that "[Scientific] Method implies two stages: (a) the hunt for meaning; (b) the penetration or judgment of meaning—the search for evidence and weighing of the evidence once discovered. … Induction is of two kinds: experiential and direct; experimental and rational." Thus, we see that people collect sense data and then interpret more basic information toward more complex conclusions.

Just as Craig (2000) utilized Bayes' theorem to examine the probability of becoming a Christian, mathematical analogies could usefully describe a functional worldview. To begin with, thinking implies information is being "processed," for if one has no information about a subject, the likelihood of coming to a conclusion would tend toward zero. Therefore, if thinking

is viewed as "data in motion," intelligence in part represents a time rate of conversion of existing data (sense and virtual) into useful conclusions. For example, we often refer to smart individuals as "quick" or a "quick study" and their opposite as being "slow." Moreover, observation confirms ideas do not generally appear instantaneously or spontaneously; rather individuals generally prefer time to consider important decisions, and the more important the decision, the longer the preference. The popularity of timed tests also confirms this.

One might suggest a standard power conversion efficiency calculation to describe this (i.e., Pout = η * Pin, where η represents conversion efficiency). However, in this case η cannot exceed 1.0 because you never get more power out of a system than you put into it. However, cognition is different because something new is clearly being manufactured, so to speak. Perhaps a manufacturing efficiency calculation might be more appropriate. Note, the goal is not to model how the brain functions *internally* but merely to make the external observation that coming to a conclusion requires the conversion of information and that time and efficiency are contributing components. This might be represented mathematically by a standard conversion rate equation, where information (D) is being converted at some relative efficiency (R_x), which, we will observe shortly, varies among individuals. Thus:

$$C = \Delta t(R_x * D) \quad (1)$$

where:

C = a particular cognitive conclusion

Δt = change in time

R_x = rational algorithms, where X represents different algorithm types used to process information (e.g., R_i = induction, R_d = deduction, etc.)

D = data; i.e., the targeted information to be converted (Chisham, 2012)

Equation 1 can be improved by normalizing R_x to nominal intelligence. For example, a value of 1.0 for R_i or R_d might represent a normal inductive or deductive aptitude. Deduction, of course, draws conclusions from existing data, while induction rationally infers conclusions, effectively "creating" new data by interpolation. If we consider two possible extremes—a mentally handicapped individual and a child prodigy—R_i might vary from 0.2 for the former (converting data toward an inductive conclusion at only 20% of normal), while R_i for the prodigy might be 3.0 (300% above normal).

In a slightly different direction, analogical parallels could also be made between biological rationality and computer microprocessors, both in the types of rational algorithms and the rate that manipulations are performed. For example, microprocessors have sets of "opcodes" (or operation codes) that are "called" to carry out various tasks (e.g., multiplication, division, logarithms, trigonometric functions, and etc.). These opcode sets vary according to the design intent for each device (e.g., digital signal processors [DSP] perform signal processing functions, while laptop CPUs provide a different range of capabilities). Similarly, a human's range of rational algorithms differs from a dog, which in turn differs from a bat or worm, each having unique sensory and data processing capabilities related to their roles. Chisham (2012) noted that while evolutionary iterations might be rationally conceivable for certain limited features, human consciousness, for example, becomes an epiphenomenal challenge by "coincidentally" appearing with rationality for no apparent reason (cf. Stevens, 2009). In addition to different *types* of processing functions, similar microprocessors are compared by speed or efficiency for superiority, usually stated in millions of iterations per second (MIPS). Likewise, some people can do certain rational operations faster and more efficiently than others.

Autism provides a practical illustration of how Premise IV's "rational algorithms" work (see Table I). Dr. Miguel Ángel Romero-Munguía (2008) observed:

> Whereas the ability for inductive reasoning in children with ASD [Autistic Spectrum Disorder] is poor, their deductive reasoning ability is good, but their deductive reasoning ability may appear poor if the correct answers are inconsistent with the facts and it is difficult to disentangle what is more important. This means that fantasy can convert a deductive problem into an inductive problem, perhaps explaining the lack of interest among children with ASD in imaginative activities.

So, while the autistic individual may hypothetically have an R_d of 1.0, his R_i may be far less, with the ratio between R_i and R_d describing the relative efficiency of those mental conversions. Moreover, the unique characteristics of the savant help illustrate Equation 1. Treffert (1989, p. 165) explains:

> Whatever diversity does exist in Savant Syndrome, remarkable memory—of a unique, uniform type—welds the condition together. … Indeed, the linking of special skills with special memory—in the presence of substantial intellectual defect—is Savant Syndrome.

Approximately half of Savant syndrome cases are also autistic (Treffert, 2010, p. 18). As far back as 1887, Dr. J. Langdon Down, who coined the unfortunate term "idiot savant" (from French meaning "unlearned skill"), referred to their characteristically massive memory with the term "verbal adhesion," which others have called "memory without reckoning" (Treffert, 2010, p. 25).

It is not the autistic savant's phenomenal ability to acquire information (Plantinga's first category) limiting an individual who, for example, has memorized a phonebook. Rather, the problem lies in his functional inability to manipulate data he has—in surprising abundance! This paradox demonstrates that

the conversion efficiency of induction (as a function or operation manipulating information) is a key source of Plantinga's second level of information, providing "warranted" beliefs.

Premise III (see Table I) explains how rational conclusions can then be adopted as "virtual data." Indeed, people capable of aggregating long sequences of related information are sometimes called "deep thinkers." Thus, as a chess master anticipating multiple moves, the number of informational cycles one can aggregate is another possible measure of intelligence, illustrating that equation 1's D, for most reasoning activities, should expand to include both sense and virtual data.

$$C = \Delta t\,(R_x * (D_S + D_V)) \qquad (2)$$

where:
D_S = sense data (Premise I)
D_V = virtual data (Premise III)

A paradox of human understanding is that finite beings *cannot process* or even *possess* infinite knowledge, but as moral decision makers we *require* context to understand our circumstances in order to assign purpose for future actions. For all we know, missing historical (or future) information may provide crucial context. We are thus forced to *simulate* infinity to fill in context, especially for significant moral decisions. *The essence of a worldview, therefore, is to provide a finite (or "digitized," to use a familiar analogy) reduction of reality that approximates perfect knowledge.* Consequently, a worldview (W) is the practical substitute for omniscience, since human nature precludes it, effectively integrating all known data useful for decision making, which yields the next analogical equation:

$$W = \int_{t=-\infty}^{t=\infty} (D_S + D_V) \qquad (3)$$

(Note that because D_S cannot predate the individual, D_V often provides context in the form of accumulated human knowledge.) If we assume R_x is relatively constant over time, equation 2 can be rewritten as:

$$C = R_x * W \qquad (4)$$

Worldview answers consist of the totality of known truths, with individual truths naturally weighted according to conviction, while tentatively positing questionable conclusions for validation. Again, the best test of a person's conviction of a "truth" is whether or not he believes it true of himself (Premise IX). This weaving of data with virtual data yields an information superstructure emulating reality in the mind (the *worldview structure* of Chisham, 2014).

Equation 4 shows how one's worldview directly influences cognitive conclusions (C). Each conclusion then becomes new virtual data (D_V) whose certainty is tested through the standard validation process, affirming some conclusions and rejecting others in the light of new data. In this way, an ever-expanding truth matrix forms, driven by the thirst for information, which simulates perfect knowledge. Unfortunately, this expansion can cascade the wrong direction toward falsehood if a series of conclusions are built on a key but false virtual datum premise. A wise old saying (variously attributed to Will Rogers, Mark Twain, and others) humorously summarizes this common cognitive catastrophe in saying, "It ain't what you don't know that gets you into trouble. It's what you know for sure that just ain't so."

This cascade effect is particularly important regarding origins because one's entire worldview rests on Aristotle's narrowest of questions: "What was the first cause?" Fracturing one's rational answers to that creates uncertainty in numerous related issues. Consequently, a person may respond defensively when caused to doubt his own answers (regardless of his view) because it unhinges fundamental matters he previously considered settled. Emotive *ad hominem* attacks, rather than on-topic discussion, are a common response. Only resolution of the question can restore internal stability. Creationist debaters meeting unexpected personal attacks or off-topic questions, for example, must recognize this as the source of conflict, addressing it with grace to move the discussion back on track. One way of defusing such responses is to accept the accusation(s) for the sake of argument and ask what difference that makes to the subject, exposing the red herring. This is a human condition, to be sure, so Christians are not immune and should be ready to admit the need for further research where appropriate.

These equations also touch on certainty. Since any given D_V consists of aggregates of D_S and D_V, "objective truth" is often viewed as the aggregate ratio of (D_S/D_V). For example, if $D_S >> D_V$ for any given conclusion, many regard it as "objectively true" because it consists primarily of sense observations and, thus, open to verification. Conversely, in the opposite case the item under consideration may be viewed as rationally or morally true but not scientifically valid.

Applying the Mathematical Analogy

To illustrate how these equations apply to worldviews, consider again the autistic savant able to memorize a phone book but unable to use acquired information to draw significant rational conclusions. As R_i approaches zero (remember induction is problematic for autism), the value of C goes to zero regardless of how much D is present. Mental retardation, by contrast,

tends to see R_x and D decrease equally but with the same effect on C. Thus, equation 2 shows that any situation where R_x is severely limited also limits the creation of new virtual data (D_V).

This raises an interesting question: can an autistic savant form an effective or robust worldview? Equations 3 and 4 indicate the answer is no, based on his inability to create new D_V. Intelligent, creative persons in contrast are naturally able to form more comprehensive views of reality (hence the terms "intelligent" and "creative"). Treffert noted:

> The inability of the savant to think abstractly, with reliance almost exclusively on concrete patterns of expression of thought, is well known and seen often in savants. For some researchers, the inability of the savant to think abstractly has been viewed as an interesting but incidental finding. However, others have defined concrete thinking as the central defect in the savant and they propose that that phenomenon explains the condition. … These researchers concluded that the limitation of concrete thinking … [was] the only way he can come to terms with the *world* [emphasis added] beyond his grasp. … It seems an almost universal symptom or trait. So it is probably best approached as that—a symptom rather than a cause, and a description of what occurs in savants rather than an explanation. As a theory, impaired ability and a limitation to concrete thinking thus *describes* the savant, but does not *explain* him or her. (Treffert, 2010, pp. 41, 42)

Notice Treffert's use of "world" intuitively acknowledges restriction of the individual's worldview in comprehending reality. Treffert's analysis agrees with our equations. Neither explains *why* the savant cannot rationalize effectively. One must look elsewhere for causes. Both, however, predict the consequence of a worldview truncated by the inability to develop significant virtual data (D_V). Furthermore, those familiar with autistic spectrum disorders recognize this "concrete thinking" applies to persons other than savants. Certain jokes, for example, are simply unintelligible to many with ASD who are mentally confined to a literal world, unable to project second- and third-order meanings using innuendo, insinuation, ambiguity, or allusion. Conversely, intelligent individuals are often observed using just such means to demonstrate intellectual prowess.

This is not to suggest intelligence necessarily correlates to a more *realistic* view, however. Per Occam's razor, less complicated views are often correct. Consequently, "simple" people (e.g., children) occasionally surprise us with their clarity of insight. More convoluted solutions, however, are often inaccessible to people with difficulty rationalizing.

Since a worldview significantly exists to address (among other things) moral dilemmas, another question one might be tempted to ask is whether intellectual superiority might be a measure of personal worth? This presumes a prior question: In whose eyes? Those who contribute less financially are often devalued by modern society. The Judeo-Christian standard of human value, of course, is our *Imago Dei*; that is, we are image-bearers of God. Moreover, "handicapped" persons may provide many invaluable lessons to those socially less self-absorbed. Since humans construct worldviews and thus learn by analogy to self (Chisham, 2012), brokenness in others can teach the elegance in our own design, for observation of malfunctioning often demonstrates the complexity required for correct function. Furthermore, in God's purposes the "less fortunate" may help the "more fortunate" with self-realization of the giftedness of "normality," appreciation that our own existence is likewise contingent on humble social means, and understanding that our value derives from God. This is philosophically untrue, however, with a utilitarian, mechanistic, "privileged" or "elite" class, which we have seen gain prominence in recent centuries.

Taking this mathematical analogy further, another step can be taken by expanding the data in Equation 3 into a matrix (the *worldview structure* of Chisham, 2014). In it, each data point is assigned a force multiplier (F_m) to weight specific data:

$$W_V = \begin{bmatrix} Fm1 * Ds1,\ Fm2 * Dv2,\ Fm3 * Ds3,\ Fm4 * Dv4 \\ Fm5 * Ds5,\ Fm6 * Ds6,\ Fm7 * Dv7,\ Fm8 * Ds8 \\ etc. \end{bmatrix} \quad (5)$$

While this equation breaks out force multipliers (F_m), sense data (D_S), and virtual data (D_V), an even more descriptive matrix would include dimensions of time, as well as categorical dimensions like politics, religion, art, science, etc. In this way the worldview mechanism dynamically responds to a person's experience and interests by adjusting the force multipliers (F_m). This allows dynamic rational focus in an on-demand fashion toward any problem under consideration, providing focus, much as the iris and muscles controlling the thickness of the cornea coordinate, bringing dynamic focus over a range of distances and brightness levels.

Computer Modeling Analogy: The Worldview Mechanism as a Truth Simulator

Good decision making is critical to both individual and social progress. Decision making is enabled by one's worldview, which is created by rationality. Decisions require prediction to guide moral and practical action. Like scientific theories, the quality of human decisions are judged on how successfully they anticipate reality. Notice that this presumes the correspondence theory of truth (i.e., truth is that which corresponds to reality).

Thomistic philosopher Henry Veatch reminds us:

> For never should it be lost sight of that in the view of Aristotle and Aquinas all human knowledge must proceed from our perceptual experience. … Accordingly, for such a rational understanding in the fullest sense, our beliefs could well be said to need to be either self-evident in themselves, or else derivatively evident from truths that are thus self-evident. (Veatch, 1988, p. 56)

A primary principle of knowledge (and therefore worldview) is that literally every fact one can possibly know is either directly sensed or derived from sense information. Thus, our worldview perspective consists solely of sense and virtual data acquired during our lifetime and believed to be true. As Chisham puts it:

> A worldview … serves to interpret information and correct for observational distortions and/or limitations, providing the reference tool for emulating objectivity in determining truth. … [This is] perhaps best expressed as answers given to the question "how do I understand myself relative to ultimate truth?" (Chisham, 2012, p. 70)

Moreover, although worldviews *function* as a historic database establishing current truth claims, their *purpose* is predicting and guiding future courses of action. As such, one could say it functions like a software navigation tool—simulated future-vision, so to speak. In fact, if we are not careful, this simulation is often so convincing we can sometimes mistake reality for our fabrication of it. (Solipsism commits this error.)

The worldview mechanism exists to simulate or predict future reality, given certain proposed courses of action. More than simply providing understanding of past reality, it incorporates ethical value into decision making, trying to determine what one *ought* to do. Borrowing from Francis Schaeffer, it asks, "How *then* shall I live?" This is the normal learning process, the scale varies from tomorrow's activities to future life goals, but the decision process is the same.

The ever-entertaining Magic Eight Ball® (Mattel Inc.) makes decision making much simpler. Each of its polyhedron's twenty faces is etched with general answers; ten are positive, five neutral, and five negative. Shake it up, ask any yes/no question, wait a few seconds, and a face will float into the observation window revealing a (oversimplistic) plan of action! Its comic value provides stark contrast with real decision making. Similarly, however, rationality calls on one's worldview to predict true consequences, much like a programmatic subroutine weighing options. Perhaps our closest human equivalent to this is computer aided design (CAD) modeling. What CATIA®and AutoCAD® are to mechanical flow and 3D simulation, what Microwave Office® and SPICE are to radio frequency (RF) and analog electronic design, the worldview mechanism is to human truth simulation and prediction. In each case the goal is to make decisions in virtual reality before actual choices have to be made and valuable resources expended.

Surprisingly, given its decision-making role, the actual, practical value of a worldview is more about truthfully predicting future consequences than defining the present or past! While we validate our predictive models against known data, we *use* our worldview to identify optimal future actions. Because human finitude precludes obtaining "perfect" objectivity, a worldview *simulates* it, just as these programs use data in their attempt to create virtual predictive prototypes to achieve certain design choices. A familiar truism to CAD users, however, is that simulations are only as good as (a) the data that was collected and (b) the accuracy of the simulation model. The same is true regarding one's worldview; if a person is not careful in collecting data or accurate in his worldview simulation, poor decisions are predictable. Unlike the Magic Eight Ball®, however, worldview predictions ought to be more than loosely worded yes/no/maybe responses or educated guesses regarding real-life problems. Worldviews ought to provide predictive responses to existing conditions, producing decisions reasoned with compassion, honesty, justice, and truth. While admitting many and notable failures, human engagement with the future would be rationally impossible without a worldview.

While they are more than a guess, we should be careful to note that worldview predictions are not the same as actual reality. Solipsism, for example, commits this categorical error by insisting our mind's existence is the only knowable reality, mistaking a condition of the mind (consciousness) for a condition in the world. Indeed, this article is discussing how we synthesize knowable and unknowable aspects of reality! While worldviews functionally *emulate* absolute truth, they often fail in reality—which is part of the learning process. Our finite predictions are bound to fail at some time, but a wise person attempts to correct his assumptions, while the fool attempts to redefine reality. For the same reasons it would also be a mistake to dismiss worldview as simply perspectivism or perspectivalism, which again confuses truth with human perception of it. Worldview is not about rationally defining truth; it is about rationally discovering it and predicting how to respond to it.

However, while worldviews are not reality, they do regularly affect reality as a consequence of the people who hold

them. For good or bad, personal and social behaviors follow personal and social beliefs. We have only to reflect on the behavior of Mother Theresa as opposed to Hitler's to see the difference.

The Limits of Objectivity

Some will object to this simulated reality idea processing necessarily limited data because it inherently implies that our finitude naturally prevents achieving absolute objectivity. To the opposite extreme, a contemporary *reductio ad absurdum* and *non-sequitur* is the false dilemma that, lacking *perfect* objectivity, humans cannot know to even a reasonable certainty (e.g., post-modern rationalism). Though unable to know all but the narrowest of things with complete certainty, we clearly know many things with functional sufficiency to operate at fairly high levels daily. We obviously do know with human certainty, but what does that mean? Where do we draw the line between equivocation and reasonable certainty? Radical skeptics will deny we can know things we obviously do know (e.g., David Hume), so how can we judge when we are being objective and to what levels of certainty?

In a practical sense, though we have epistemological limitations, we routinely acknowledge and work within them and expect others to do likewise. Indeed, our sense of fairness rises in protest to situations we feel are not fair. Both biblical and social practice acknowledge and accommodate human epistemic limitations. For example, Romans 2:12–15 indicates that God held individuals responsible only for things they should have known, not things they could not possibly have known. Paul assures us in 1 Corinthians 10:13 that God is not capricious but provides a potential way of escape with *every* temptation, again suggesting accommodation to human finitude. This is further supported by James 1:2–5 and 12–18, which teach that God has no intent to secretly trick us in order to accuse and/or punish us, which would be contrary to His loving nature (1 John 4:7). Having said that, we must acknowledge that God is also perfectly just and righteous and makes no claim that our trials will necessarily be easy or seem fair from our limited perspective. For example, an innocent death is not the worst thing that could happen to a person from God's vantage point, but it usually seems that way from ours. Furthermore, the Old Testament did acknowledge culpability for sins committed in ignorance, but the sacrifice for such sins was *after* the individual came to *understand* his error (e.g., Lev. 4:14). Furthermore, criminal and civil law place high value on knowledge of and intent regarding potential accusations. Reality is the only immediate and unforgiving agent, while rational judgments implicitly require due process to ensure charges are understood and fairly made. Consequential judgments are also expected to be fair and impartial. When these conditions are not complied with, cries of unfairness are expected, giving basis for appeals—that is appeals for justice, which implies an absolute standard for truth.

Regarding the matter of equivocation and certainty, Evans saw this truth validation process as a "critical dialog" (in context, regarding evaluation of one's philosophy of religion):

> How does one go about testing one's beliefs? Simple beliefs about particular matters of fact are subject to fairly direct experiential tests. More general and comprehensive scientific theories can only be tested indirectly. One looks for theoretical coherence, a predictive power, the ability to illuminate what was previously unintelligible. Usually a theory must be tested relative to its rivals. A scientific theory which explains a great deal will be accepted even if it faces serious objections as long as there is no viable alternative. Sometimes the decision to continue to accept a theory requires one to discount or reinterpret what purport to be facts; at other times it seems more reasonable to accept the fact and reject or modify the theory. In short, the testing of theories is a complicated affair, requiring an element of good judgment as well as honesty and concern for truth. … Such a process cannot be guaranteed to work successfully, of course. Finite, fallible, human beings cannot survey all the alternatives or assess those they do examine with total accuracy. And the process of reflection cannot be extended indefinitely. (Evans, 2010, p. 119)

Hume attacked Locke's *tabula rasa* ("blank slate") for denying innate knowledge by claiming experience and perception to be the only sources of human knowledge. Most accepted Hume's critique. Though Locke no doubt overstated his case, his theory does address human epistemological finitude (which many later philosophers missed, focusing on Locke's mistakes rather than intent). The Veatch (1988) quote above also engages this human limitation. Knowledge and even one's very language base derives from sensory experience. Rationality and one's worldview framework then operate as overlays on this acquired language base. Note that language here is meant in the broadest sense, which includes all sensory information the mind can use as symbols. Limiting language to written or spoken words or symbols is too restrictive and cannot account for how the mind uses information. For example, the fact that water runs downhill is an observation not requiring words. The phrase "water seeks its lowest level" is a linguistic expression sometimes used as a euphemism to indicate a broader principle, but it is grounded in experience, not those particular words. The mind observes much that it converts directly to principles. For example, being a good mechanic is as much about observation as knowing the names of components. Consequently, rationality is based in sense, not the reverse.

This is why humans form worldviews as an ideological simulation test environment. Resolution of broader, complex ideas about reality require more assumptions, more thought, and greater trust in one's intuition. How well the simulation

predicts reality, however, can be validated only after the fact. Wrong yet convincing paradigms may obscure truth. Thus, if possible, it is helpful to begin with an accurate paradigm based on existing eyewitness accounts, which demonstrate the historical development of ideas rather than starting from scratch. This, in fact, is what Christianity finds in the Bible.

Two Types of Certainty

If a worldview cognitively simulates reality, it follows there are two major certainty categories—that created within the simulation and that acquired directly from the environment. Because rational certainties (e.g., theoretical, mathematical, or Cartesian) are generated *within* a worldview, at least some *can* be known with perfect certainty. Examples include the laws of logic, without which rationality would be impossible, and mathematical certainties; e.g., two plus two always equals four. Also, some rational certainties are true by definition. These are all examples of *a priori* certainty in most philosophical traditions since Hume and Kant. *A priori* is distinguished from *a posteriori* certainties, which draw on sense experience. Analytic Platonist Plantinga (1993, p. 15) clarifies: "*A priori* beliefs … are not, as the denomination mistakenly suggests, formed prior to or in the absence of experience." And Cartesian foundationalist Lawrence Bonjour (2013, p. 308, brackets added) explains: "*A posteriori* reasons are based on or derived from experience … *A priori* reasons are [or are able to be known] independent of experience"; i.e., strictly through rationalization.

Descartes (1596–1650) found his "way of doubt" convincing *because* rational certainty could be known perfectly. However, beyond certifying his existence ("I think, therefore I am"), reaching any physical reality was difficult without relying on sense perception, which he eschewed in search of perfect certainty. He missed, however, that his entire linguistic structure was sense-based and served as the underlying fabric his rationality was manipulating. Descartes necessarily expressed his rational doubts linguistically, creating them from within his worldview simulation of reality using his language base, having acquired it through thousands of sense experiences. Thus, his use of linguistic arguments to doubt reality was self-defeating and absurd. His "way of doubt" could not validate truths in physical reality without referencing it. Unfortunately, this error propagated through much of modern philosophy, suggesting that rationality *defines* rather than *discovers* truth. Ironically, his problem had been solved centuries prior in the Aristotelian/Thomistic tradition, which acknowledges rationality's fundamental dependence on sense, as reiterated by Veatch (1988) above.

In contrast to rational certainties, physical *a posteriori* certainties cannot be humanly absolute; they can only be known to some level of approximation. Evidential apologetics and scientific "proofs" fall into this category. Consequently, "scientific certainty" cannot be as perfect as many currently believe since science deals with probabilities. As mentioned, however, conclusions or "virtual data points" tend to be regarded as objectively true if they consist primarily of sense observations ($D_S >> D_V$) because of being more open to independent verification. Conversely, when the ratio of sense data drops off, a fact may be viewed as rationally or morally true but probably not scientifically valid. The fact that neither *a priori* nor *a posteriori* knowledge leads directly to perfect certainty regarding the external world has led to existential skepticism in most philosophical traditions since Descartes (e.g., nominalism of Hume, idealism in Kant and Hegel, etc.). The classical or scholastic (Aristotelian/Thomistic) tradition resolves recognition of existential reality through the acknowledgement of forms and essences to assist rationality in the classification of things in the world.

Nonetheless, thinking nearly always involves a mixture of *a priori* and *a posteriori* reasoning, though discerning the role of each is often difficult. Additionally, they explain some aspects of human epistemological finitude. For example, many assumed Newton's gravitation theories to be absolute truth, having solid *a priori* mathematical reasoning and a preponderance of supporting sense data. Later work eventually produced evidence identifying the limiting conditions in his mathematical model; what looked very much like "objective truth" was limited to a specific set of circumstances. Furthermore, Einstein's general relativity model has the same problem, lacking absolute certainty as a universal explanation. At its best, each new scientific discovery pushes the boundaries of human finite knowledge closer and closer to the actual truth.

The so-called "Gettier" examples, in honor of Edmund Gettier's famous paper (1963, pp. 121–123), suggest that even if one accepts forms and essences, a certain minimum threshold must be reached before a thing can be correctly recognized. For example, suppose you see three cows standing on a distant hill. Notwithstanding whether Gettier's obligatory third cow might be lurking just out of sight, upon closer approach, you discover one of the three is a very convincing plywood sign advertising milk and cleverly shaped like a cow. Much has been written about such examples, but the mistaken identity really points to the fact you identified the third "cow" to the best of your abilities (while the advertiser and circumstances did their best to deceive). Plantinga comments on these "Gettier examples" saying,

> So the designer's overall aim [for human understanding] is at truth, but [must be] within the constraints imposed by these other factors; and this may require trade-offs [in His design of the human finite being]. It may not be possible, for example, to satisfy these other constraints and also have a system that (when functioning as it is designed to function) produces true beliefs in *every* sort of situation to be encountered in the

> cognitive environment for which it is designed. There are an enormous number of different situations arising within the cognitive environment for which the system is designed; and it might be impossible, given the constraints, to handle them all in the most desirable way. … the thing to do would be to trade-off some accuracy for efficiency (and the satisfaction of these other constraints). You would want to design a system that worked well (that is, produced true beliefs) over as large a proportion as possible of the situations in which its owners will find themselves, consistent with satisfying those other constraints. (The other constraints could be absolute and nonnegotiable, or they might also be subject to negotiation.) In this way you will wind up with a system that works well in the vast majority of circumstances; but in a few circumstances it produces false belief. (Plantinga, 1993, p. 39)

Plantinga is using "designer" generically here, although he personally holds a Christian perspective and sees the natural tie to his faith.

For broader conclusions, human knowledge is inherently limited. That is why some things can only be "known" by faith (Hebrews 11:1). Moreover, as Chisham (2012, p. 70) noted, while Christian doctrine requires the believer to come to Christ in faith, "careful examination … reveals the fact that all worldviews—theistic, pantheistic, or atheistic—at their most basic levels are arrived at by faith, regardless of view" (because each assumes things that cannot possibly be known by natural human experience). This is not at all to suggest faith should be blind, or devoid of evidence. Evidence can effectively support rational aspects of faith by opposing fiction and error, which by example is why evidential apologetics has value.

Conclusion

In its most comprehensive sense, *a worldview functions as the mechanism by which humans process a finite reduction of an infinite reality*. This is not solipsism but a human means of coping with the limitations of finitude in comprehending unlimited reality. The universe is not bound by our inability to understand it. Rather, the human imagination struggles continuously, often with great difficulty, to perceive what is real as a basis for action. The fallacy of solipsism, indeed, is confusing reality with one's worldview simulation of it, reversing their proper roles. Rationality does not *define* reality; rather, rationality *seeks to realize* what reality has defined.

Since humans are finitely constrained, thinking may be viewed as "data in motion" or a time rate of change in information toward desired conclusions. As such, a mathematical analogy was constructed illustrating how the worldview mechanism relates data with rationality in order to comprehend reality. This is an iterative process where conclusions can be reused as "virtual data" in order to build even more elaborate conclusions. One's worldview perspective forms from this over time, creating an aggregate matrix of sense and virtual reference information.

Mental aberrations were then used to illustrate how this data-flow process correctly predicts consequences, such as limiting the rational efficiency of induction, which causes the worldview simulation to stifle, unable to aggregate consequences over time. Hume wrongly disparaged induction, failing to see where the "missing" data originated. His objections are answered by understanding the worldview's function, which fills the gaps through interpolation. Philosophers like him who wrongly try to invalidate induction as a *principle* fail to see it as simply a *function* that processes existing information. The actual truth or falsity of the inductive conclusion depends on the variables in the equation. And, since induction projects outside its existing information, how reality matches up to prediction also involves some probability and, therefore, uncertainty.

Another analogy to CAD modeling (a class of computer software) was examined, by which designers predict outcomes based on existing data. Worldviews, unfortunately, share a common weakness: the worldview simulation is only as good as (a) the data available and (b) the accuracy of the simulation. Like CAD applications, humans must collect good information and predict carefully in their decision making.

The issue of certainty was further clarified by recognizing that while rational certainties can be known perfectly, physical certainties cannot without some rational mechanism for classification. Classical or scholastic (Aristotelian/Thomistic) philosophy uses forms and essences for this. Moreover, rationality is based in sense, not the reverse. This idea is validated in that we receive our vocabulary to speak about reality by way of interacting with it. Thus, discerning the difference between our cognitive simulation of reality and actual observed information is a subtle but important critical thinking skill, particularly in divining the difference between facts and our worldview's interpretation of those facts.

Along with previous papers (Chisham, 2012, 2014), this paper hopefully provides a solid foundation for understanding the concept of worldviews by defining the principles regarding their operation, function, and purpose. In addition to defining "worldview" more precisely, we have also sought to understand what it entails. This need arises because "worldview" typically has been used intuitively, missing its positive contribution as a systematic mechanism for comprehending reality, understanding truth, and making decisions. As such, our worldview allows us to operate in the domain of truth despite our finite understanding of reality. In summary:

1. We cannot define meaning and purpose without understanding what is true—ultimately *unbounded by time*. But finite humans cannot know infinite reality, leaving us with the paradox that although we cannot possess this kind of

truth, we require it daily as the context for making crucial real-life decisions.

2. Consequently, a worldview serves as a "digitized reduction" or approximation of "absolute reality," thus providing context for decision making.
3. A worldview is built from existing knowledge, which includes sense and higher order "virtual" data being manipulated via rational processing toward conclusions. Storage and retrieval of this information, *particularly for higher-level concepts*, is primarily linguistically based. This serves as the media that rationality manipulates. Thus, rationality is based on sense perception, not the reverse.
4. A worldview is a natural and necessary by-product of rationality that continuously expands over our lifetime toward infinite knowledge in order to simulate perfect objectivity.
5. Therefore, a worldview is far more than a "truth matrix" or a "comprehensive view of reality" or the "glasses we see the world through," for it serves as a fully functional *truth prediction simulator*, allowing evaluation of choices before committing to a course of action. Thus, people justify actions by thinking, "If I do X, I believe Y will happen," where Y is the consequence of their worldview prediction.
6. To make judgments, defining one's reference—truth—is a first-order task for a worldview. Defining who "I" am in relationship to that truth calibrates "my" personal observation vantage point. Before I can make clear judgments about anything other than myself, I must first be certain of what is true about myself, thus defining my self-identity as a consequence. Therefore, things "I" view as *most* true are *first* true about "me," in terms of philosophical order. Judgments are then made by analogy to self.
7. Thus, one's *worldview perspective* can be reduced to answers to the single question: "How do I understand *myself* in relation to ultimate truth?"
8. Contemporary usage of "worldview" includes four different meanings:
   a. The *worldview mechanism* consists of the overall principles supervising the rational processes described in the previous seven points.
   b. The *worldview structure* is the cognitive "container" into which each human will insert his worldview answers (e.g., "everyone's got a worldview").
   c. One's *worldview perspectives* are the specific truths or answers inserted into that worldview structure.
   d. A *social worldview* is an individual's worldview perspective within his social context, usually stated in reverse as the aggregate opinion of a group, expressing a Gaussian distribution around some mean; e.g., religions, political and moral philosophies, nationalities, etc. Worldviews are first and foremost personal, so social worldviews are second-order expressions of views accepted by individuals.
9. To date, many attempts have been made to define "worldview" that we have argued to be incomplete or even invalid in some cases. From the preceding, then, it seems a reasonably accurate definition for worldview *in toto* would be:

   > The mechanism by which finite beings perceive, assimilate, evaluate, and respond to infinite reality. Moreover, it is what it means for a being to be both *finite* and *rational*, which involves synthesizing a working model of reality of a size he can comprehend and, as a consequence, also defines him to be a *moral* being.

10. Since a worldview approximates infinite knowledge, only one actually possessing perfect knowledge would not need a worldview. Traditionally, this has been a monotheistic characteristic of God, which Christianity embraces. Though God can have opinions and viewpoints as a "person," He is not of this world and therefore does not have a "worldview." Rather, He would necessarily have a *perfect* view, without gaps in His knowledge of reality.

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Carbon-14 in Colorado CO_2 Gas Wells

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Abstract

Radiocarbon (carbon-14), with a half-life of 5730 years, is found throughout the geological record. The confirmation of this fact in the cases investigated in this paper further strengthens the young-earth creationist paradigm. This research broadens the information base by sampling two major CO_2 gas fields in Colorado for their carbon-14 content. The results indicate that carbon dioxide data are consistent with that obtained previously from other CO_2 and natural gas fields.

Introduction

This paper is the fourth in a series that shows that significant detectable amounts of radiocarbon (^{14}C) will always be found in the carbon dioxide gas fields of the western United States. Of those fields, well gas samples have been previously obtained from CO_2 wells in the Bravo Dome field in northeastern New Mexico, the Sheep Mountain field in south central Colorado, the McElmo Dome field in southwestern Colorado, and the St. Johns field in eastern Arizona (Doughty, 2005). The well gas samples were analyzed at the University of Arizona AMS facility for their stable and radioactive isotopic content: carbon-13 and oxygen-18 and carbon-14. This article presents a new data set for three CO_2 gas wells in the McCallum Dome field near Walden, Colorado. An expanded data set from four wells was obtained from the McElmo field. The results are compared with other carbon-14 data previously obtained. The stable isotopes, carbon-13, noted as $\delta^{13}C$, and oxygen-18, noted as $\delta^{18}O$, are also compared with previous data. The carbon-14 data are also examined relative to previously obtained data (Gilfillan et al., 2008) for certain noble gas isotopes: neon, argon, krypton, and xenon. The reason for presenting the comparison is to point out the error in the evolutionary model that attempts to ascribe an "age of millions of years" to these inert, nonradioactive gases (Lippmann-Pipke et al., 2011). The prevailing evolutionary model assumes the earth's atmosphere was formed by outgassing from the mantle (Porcelli et al. 2002). Thus the atmospheric values should be less than those obtained from the interior. This work shows that even if the noble gas atmospheric values are greater than those obtained from the interior, the gas is "young" because of the presence of ^{14}C in the CO_2 well gas.

The McCallum Field

CO_2 was discovered in the McCallum field in 1926. Unlike other CO_2 fields there are also oil wells in the area. Those wells are about 1600 feet deep. The production depths for the CO_2 wells are on the order of 5,000 feet. Based on the noble gas data reported by Gilfillan et al. (2008), well numbers 5, 13, and 8–3 were selected and sampled on August 27, 2013. Two gas samples were obtained at each well site. The sampling equipment is the same that has been used previously, with the exception that the sample

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Well #	Depth feet	^{14}C PMC	$^{20}Ne/^{22}Ne$	$^{21}Ne/^{22}Ne$	$^{40}Ar/^{36}Ar$	$^{84}Kr/^{36}Ar$	$\delta^{13}C$ pdb	$\delta^{18}O$ smow
8–3	5308	0.30 **2.97**	10.10	0.0627	7049	0.0349	-5.32	23.61
5	4988	0.25 0.20	10.17	0.0615	3894	0.0370	-6.30	27.32
13	5406	0.20 **0.94**	10.02	0.0464	3451	0.0368	-6.45	28.08
Air		*100*	*9.80*	*0.029*	*295.5*	*0.0207*	*-7.05*	*23.5*

Table I. McCallum Well Gas Data

cylinders are now joined to the main apparatus by quick disconnects rather than by threaded connections. That made the sampling process simpler and also provided a better means to further lessen the possibility of air contamination when changing out the sample cylinders. CO_2 gas well pressures were on the order of 500 psi. Once attached to the wellhead as shown in Figure 1, the sampling system was opened in the following sequence. The flow went through the surge cylinder first; then the valve to the other half of the system was opened (not fully), and the exhaust valve was opened. The sample system pressure was on the order of 20 psi. After the flow was well established (~ 5 minutes), the sample cylinders were opened, and flow proceeded through the two 10cc sample cylinders and a central port vent. After several minutes, the exhaust valves of the sample cylinders were closed, while the central port was left open. It was then closed and the system exhaust valves closed. The sample cylinders were then removed from the system via the quick disconnects and another set installed for use at the next well site. The expected $^{14}C/C$ values were in the range of 0.2 and 0.4 pmc based on the values obtained from CO_2 gas wells.

Gilfillan et al. (2008) measured the neon, argon, and krypton values of the McCallum wells. These values are shown in Table I. The values are *greater than air*, which goes against the evolutionary model of the atmosphere, as noted above. However, this is in keeping with observed behavior in two other CO_2 gas fields, the Bravo Dome in New Mexico and the Sheep Mountain field in south-central Colorado.

All the noble gas values are greater than air, an enigma for evolutionists. For comparison, the $\delta^{13}C$ for CO_2 in air is -6.7 to -7.4 pdb (Keeling, 1961). The $\delta^{13}C$ for CO_2 in the Bravo Dome, Sheep Mountain, and McElmo gas wells previously sampled (Doughty, 2005) varied from -3.36 to -4.59 pdb. While the McCallum $\delta^{13}C$ values are greater than other CO_2 gas wells, they are still less than the standard air value. Similarly, the $\delta^{18}O$ values are on the same order as the four fields sampled previously (Doughty, 2005): Bravo Dome = 19; Sheep Mtn. = 28.9; McElmo = 25.4, and St. Johns = 24.4.

The two higher-than-usual $^{14}C/C$ values are shown in Table I in bold print. I did contact the University of Arizona AMS Lab regarding them. Lab personnel said they were all measured on the

Figure 1. McCallum Field, well #13. August 27, 2013.

Figure 2. McElmo field, well# DC-9. One can see the two small 10 cc sample cylinders atop the sampling apparatus. May 29, 2014.

same run in the AMS device. The error bounds for the $^{14}C/C$ values are ± 0.1 pmc. Therefore the only reason for the marked differences must have been in the sample processing. That is because two samples are taken simultaneously at each wellhead, as can be seen in the accompanying photos (Figures 1 and 2). Thus, since it is the same gas in each of the two cylinders, the values should be similar as in that for well #5.

The McElmo Field

The McElmo field sampling was done on May 29, 2014 to compare carbon-14 values with noble gas values obtained by Gilfillan et al. (2008) in selected wells. Based on my earlier work, it appeared that there might be a mathematical correlation between ^{14}C and the $^{129}Xe/^{130}Xe$ values found previously in the Bravo Dome, Sheep Mountain, and McElmo fields. Four McElmo wells were chosen based on a spread of their $^{129}Xe/^{130}Xe$ values. However, no such ^{14}C - $^{129}Xe/^{130}Xe$ correlation appears for this field, and the hypothesis for its existence has been discarded.

Interestingly all four McElmo wells have $^{20}Ne/^{22}Ne$ values that are less than the air standard value. This is not usually the case for most CO_2 gas wells. However, the $^{21}Ne/^{22}Ne$ values are greater than the air reference standard, as are all the other noble gas ratios. This is what normally has been found in CO_2 gas wells. There is a plausible mechanism for the different $^{21}Ne/^{22}Ne$ values. Such a mechanism would come from previous production of neon by accelerated nuclear decay (ref. RATE) of uranium and magnesium found throughout the McElmo Dome area. The uranium decay would impact the alpha decay reactions on ^{24}Mg and ^{25}Mg, which produce ^{21}Ne and ^{22}Ne respectively. The $^{84}Kr/^{36}Ar$ and $^{129}Xe/^{130}Xe$ values are also

Well #	Depth feet	^{14}C PMC	$^{20}Ne/^{22}Ne$	$^{21}Ne/^{22}Ne$	$^{40}Ar/^{36}Ar$	$^{84}Kr/^{36}Ar$	$^{129}Xe/^{130}Xe$	$\delta^{13}C$ pdb	$\delta^{18}O$ smow
HE-2	8400	0.20 –	9.05	0.1119	14025	0.0256	6.6189	-4.367	15.09
SC-9	8025	0.20 0.20	8.62	0.1109	16296	0.0320	6.5688	-4.075	15.70
YB-2	8300	0.25 0.31	8.90	0.1112	15513	0.0346	6.5883	-4.224	14.83
DC-9	8675	0.20 0.20	8.82	0.0788	8069	0.0230	6.5400	-4.564	15.81
Air		*100*	*9.80*	*0.029*	*295.5*	*0.0207*	*6.48*	*-7.05*	*23.5*

Table II. McElmo Well Gas Data

greater than the air value as expected. Ballentine and Holland (2008) reported some $^{40}Ar/^{36}Ar$ data that are consistent with that given above: HE-2 = 14297; SC-9 = 16420; YB-2 = 14425. These values are only 7% less than the Table II values. The McElmo wells had wellhead pressures between 640 to 755 psig. All wells except DC-9 contained 98% CO_2. The DC-9 well had only 73% CO_2, 20% N_2, 4% CH_4, and 3% other impurities such as H_2S.

Conclusions

Once again, supposedly very ancient CO_2 well gas is not carbon-14 dead. The $^{14}C/C$ values for all the sampled wells fell within the range of 0.20 to 0.31 (with the exception of two spurious values of 0.94 and 2.97). Thus, the conventional age of the sampled gases is on the order of 51,000 to 47,700 years. This points to a young earth age that is thousands, not billions of years.

Acknowledgments

Photos of the well sites were taken by my wife, Jeanette. Thanks are due for the help provided by Mr. Bill Wright of Bonanza Creek Energy Company, who took us to the McCallum Dome field well sites. Mr. Rick Gersch of Kinder Morgan accompanied us to the four McElmo Dome field well sites. Thanks also to the Creation Research Society for the grant that made this work possible.

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Erosion of the Weald, Southeast England

Part II: A Flood Explanation of the Mystery and Its Implications

John D. Matthews and Michael J. Oard*

Abstract

After describing the failures of uniformitarian geologists to explain the geomorphology of the Weald (Oard and Matthews, 2015), we now present an explanation using a Flood geology paradigm. Seven key geomorphological features of the Weald have to be simultaneously explained: (1) the volume of the erosion; (2) the pattern producing erosion surfaces, ridges, crenulations, and water and wind gaps; (3) evidence for river capture; (4) underfit water gaps; (5) range of dry valleys; (6) the origin of clay-with-flints; and (7) the origin of the duricrusts and sarsen stones. We identify the uniformitarian assumptions that have led to the failure of their theories. Replacing these assumptions with a Flood-geology model allows us to provide an explanation for these seven challenging features.

Introduction

The Weald of southeast England is an eroded anticline. An estimated minimum of 1,300 m (4,260 feet) of erosion occurred at the center of the anticline, which covers an area ~200 km (125 miles) east-to-west by ~55 km (35 miles) north-to-south. The North and South Downs represent the eroded north and south limbs of this anticline, respectively. The dip of the North and South Downs is generally 1° to 5° away from the center, with inward-facing escarpments as either cliffs or steep embankments, like those seen in the gap in the South Downs at Amberley on the river Arun (Figure 1).

There are a significant number of other water and wind gaps that cut through the North Downs and South Downs, perpendicular to the escarpments. The center of the Weald is eroded down to the Purbeck Limestone. Although there are several erosional remnants within the central portion of the Weald, it is relatively flat in many places. The structure defined by shading, the gaps, and the rivers are shown in Figure 2.

In Part I, we described the geomorphology of the Weald and several of the popular uniformitarian interpretations of its origin (Oard and Matthews, 2015). In this part, we first note seven major geomorphological features of the Weald that must be explained and show how the uniformitarian models have failed to explain anything more than the odd isolated feature. We suggest that the problem is the uniformitarian para-

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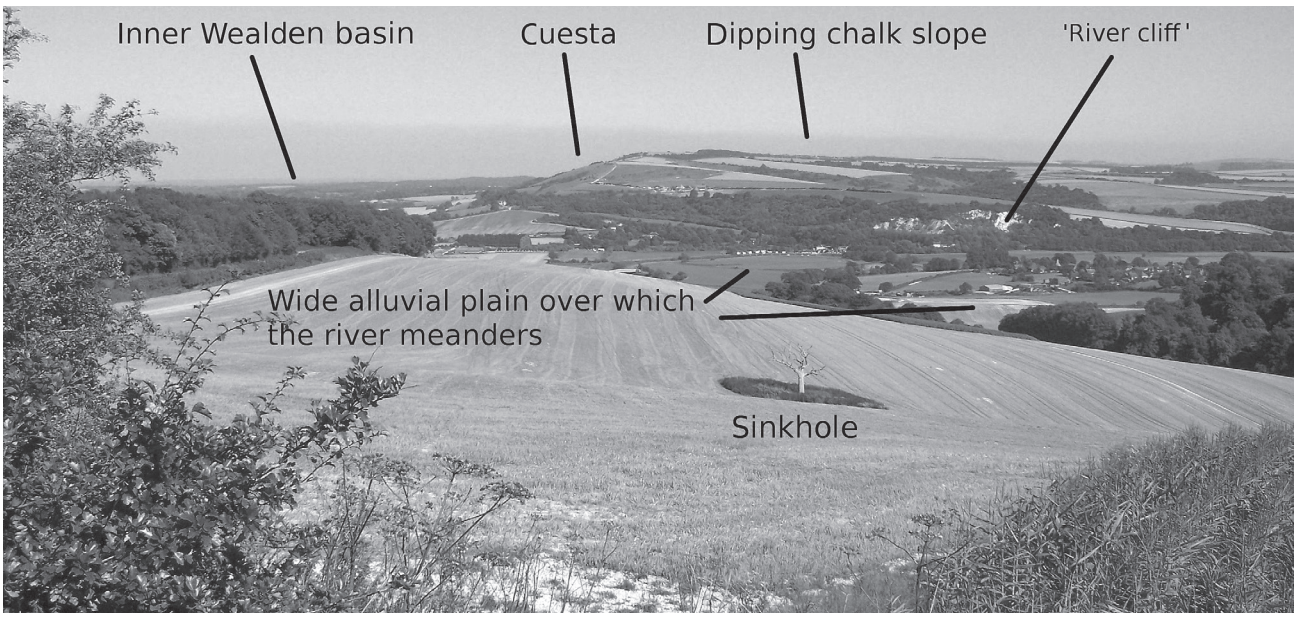

Figure 1. Erosion surface on the top of the South Downs on the dipping chalk slope. View east across the Arun water gap. Notice the shape of the South Downs on the other side of the water gap, showing the cuesta (steep slope) on the north side and the gently southward dipping erosion surface towards the south.

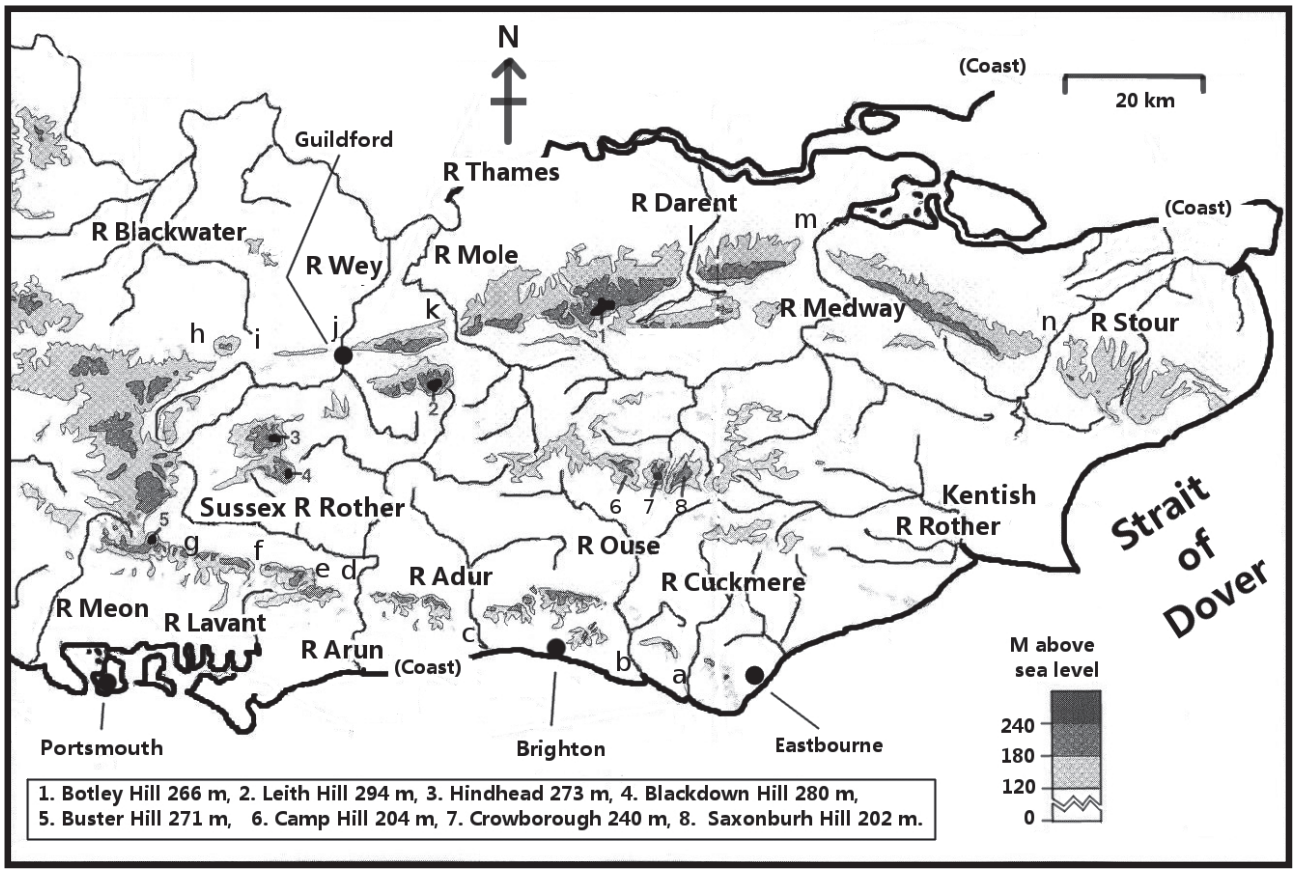

Figure 2. Map of the Weald by grayscale elevation above mean sea level with eight well-known high areas or erosional remnants showing important cities and rivers (modified from Jones, 1999b, p. 27).

digm and attempt to demonstrate that the Flood paradigm adequately explains the major geomorphologic features.

In our paradigm, we propose that the Weald landscape developed during the retreat of the Floodwaters. Three overlapping stages are identified: (1) major sheet flow to the south and east during the elevation of the UK relative to the new ocean basins, (2) uplift of the Weald anticline causing accelerated erosion along its crest, and (3) formation of a "Flood lake" that gradually drained, forming wind and water gaps. Major erosion surfaces and the transport of gravel ("clay-with-flints") occurred during the first phase. Changes in water chemistry largely explain the silcrete.

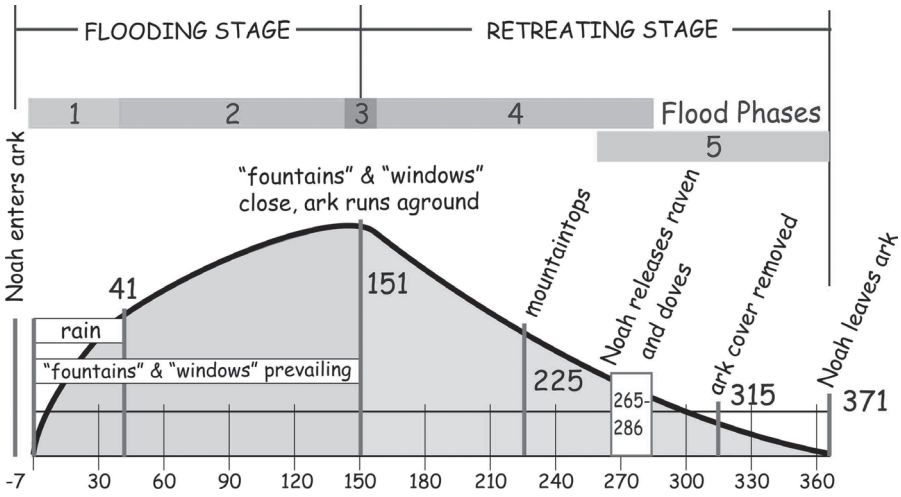

Figure 3. Graph of relative sea level for the two stages and five phases in Walker's biblical geological model of the Flood (drawn by John Reed).

The Need for Another Paradigm

Why do we need another paradigm or hypothesis? For almost 200 years secular geologists have tried to explain the pattern of erosion of the Weald (Oard and Matthews, 2015). Jones (1999a) discussed three major models that focus on the erosion surfaces, but there are different problems with each one, especially in providing comprehensive explanations. All these models assume uniformitarianism, or "the present is the key to the past," in spite of its many problems (Reed and Williams, 2012). Uniformitarianism took geology away from biblical natural history, but ironically it cannot be justified, because it explains little of the geomorphology of Earth's surface, including, of course, the Weald:

> It became increasingly evident after 1960 that no satisfactory understanding of geomorphological processes existed…. The most far-reaching implication arises from the recognition that almost all landforms are relics [i.e., formed in the past] and have not been shaped only, or even largely, by present-day processes. (Green, 1980, pp. 252, 255, brackets added)

If landforms formed in the past by processes not operating today, the uniformitarian principle is contradicted, and we are therefore entitled to reconsider the Flood. The classification of the Flood into stages and phases (Walker, 1994) provides our starting point. The major consideration we would propose is that landforms of the earth were shaped by global processes of the past that are no longer operating, particularly the retreating stage of the Flood (Figure 3).

No explanation can be considered successful unless it explains all the major geomorphological features of the Weald. We identify seven major features (Figure 4):

1. The large volume of erosion, especially considering the limited erosion in the adjacent London Basin to the north and Hampshire-Dieppe Basin to the south
2. The patterns of erosion that resulted in (a) the major erosion surfaces, (b) the ridges, (c) the crenulations, (d) the water gaps, and (e) the wind gaps
3. The examples of "river capture"
4. The overfit river gaps, where narrow

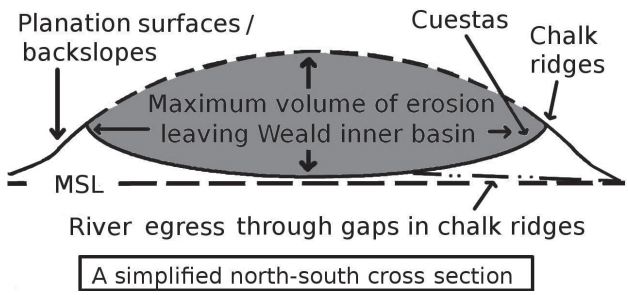

Figure 4. A simplified north-south cross section of the Weald showing most of the major features needing an explanation.

rivers meander across wide alluvial plains, bordered by significant "river cliffs"
5. The many dry valleys
6. The clay-with-flints
7. The silcrete duricrust and sarsen stones

Our model differs significantly from those proposed by uniformitarians in the following respects:

1. Uplift occurred in days, not millions of years, generating eroding currents of high velocity.
2. Minor erosion that resulted in a "Weald island" surrounded by a Pliocene sea (Wooldridge, 1952) is thereby ruled out.
3. The geological column is not an accurate means to correlate time in the past.
4. Erosion of the cuestas (Figure 5) into crenulations/side valleys was not caused by present-day-scale tidal withdrawal processes on beaches.
5. Major fracturing and faulting cannot be ignored at any stage in the model.
6. The total three-dimensional nature of the Weald has to be part of the full model rather than limiting the model to a two-dimensional north-south cross section.

Figure 5. Escarpment of the South Downs (view southwest from near the Adur water gap).

The Weald Sediments

In order to explore our erosional Flood-retreat model, we need briefly to discuss the sediments described in Part I and their emplacement. A key factor to note is that the sediments that comprised the uneroded Weald anticline could have been deposited only during the early stages of the Flood. That puts a limit on the time for the subsequent erosional events, which is much shorter than the millions of years of uniformitarianism. Similarly, any attempt to explain the Wealden sedimentation as a post-Flood event fails. This would include the re-colonization model (Reed et al., 2009; Tyler, 2006).

There are three specific features of the sediments that point to Flood deposition. First, several oil and gas fields in the greater Wealden area (Butler and Pullan, 1990) suggest reservoirs deposited during the Flood (Matthews, 2008), probably during Phase 2 of Walker's (1994) model (Figure 3). Second, extensive chalk in the area prior to erosion is better explained by Flood conditions (Matthews, 2009a)—deposited in Phase 2 or Phase 3 and eroded during 4 and 5. Third, dinosaur tracks are found in the Jurassic Purbeck Limestone farther west, indicating early Flood deposition (Oard, 2011). Since those rocks are continuous with those in the Weald anticline, they also probably were laid down during Phase 1 or 2 but certainly not later than Phase 3.

The Basic Erosion Explained

The development of the present Weald landscape from the emergent anticline would have occurred later in the Flood, during the differential vertical movement implied in Psalm 104:6–9 (Oard, 2008, 2013). As water drained into new ocean basins, differences in topography and vertical movement rates would have caused the water to flow episodically and often at high velocity, causing significant erosion. A simple paleo-reconstruction of the Weald strata shows that Wealden sediments were roughly horizontal prior to the uplift. Neither the chalk nor the lower layers had formed a preexisting anticline. The depth of water at that time could have been several hundreds of meters (Rayner, 1981), and there is no field-based reason to challenge that uniformitarian estimate (Matthews 2009a).

Walker's (1994) model suggests a period of sheet flow (wide currents), followed by channelized flow. However, that simple theory would have been scale-dependent and so much more complex in reality. Since the withdrawal of water was certainly episodic locally (Matthews 2009b; Snelling 2009), there would have been periods when sheet flow on a smaller scale would have been dependent on local uplift rates. Renewed differential erosion could likewise have led to channelized flow in those areas, and even possible cyclic

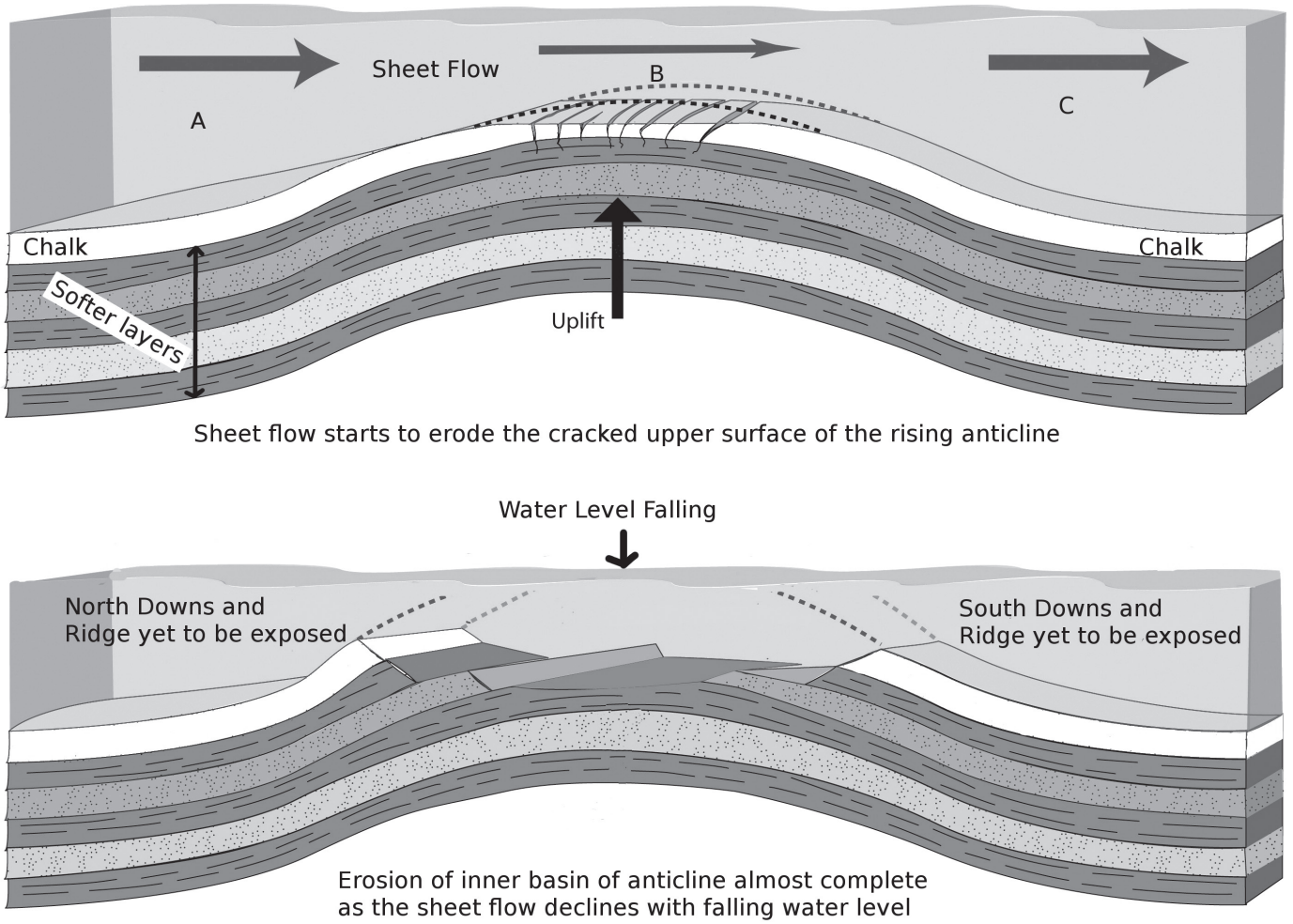

Figure 6. A block diagram showing the erosion of an anticline by Floodwater (drawn by Peter Klevberg). The cracking and brecciation of the center aids rapid erosion.

repetition between sheet and channel flow.

Oard (2008) discussed the general case of anticline erosion based on Walker's (1994) model. Figure 6 shows that sequence adapted to the Weald. England and Wales appear to have emerged from the Floodwaters due to doming in the Irish Sea region (Matthews, 2013). Initial high-velocity sheet flow, probably flowing southeast to south-southeast, would have caused deep erosion over extensive areas of the chalk that covered much of the UK. Figure 6 (top) shows water moving from the left. It was probably carrying eroded clasts of flint and sand from a broad area of Wales and England and could have carried a high dissolved load of ions since the water had recently emerged from the fountains of the great deep. Some of that load would have been deposited in the region marked "A" as clasts and precipitates. In region "B," flow would have been constricted by the rising anticline, resulting in higher current velocities. This, combined with fracturing chalk across the crest of the anticline, would have resulted in even more extensive erosion. Once the harder chalk had been removed, softer underlying sediments would have been deeply eroded along the anticlinal crest (Figure 6, bottom). Returning to the top frame, velocity would have dropped in region "C," leaving a lag of flint nodules and finer-grained sediments. This simple alternative model to uniformitarianism has thus far explained several key features, including the local volume of erosion, major erosional surfaces, ridges, and the "clay-with-flints," which are challenges 1, 2a, 2b, and 6.

River	Location	Ht (m)	Area (km^2)	Mean flow	Max winter	Max summer	Min winter	Min summer
Ouse *	Barcombe Hill	5	400	3.48	100	4	1	0.1
Gt Stour	Horton	12	350	3.16	25	3	2	0.6
Cuckmere	Sherman	3	135	1.32	50	0.5	0.4	0.01
Darent	Otford	60	100	0.64	10	0.7	0.2	0.05
Darent	Lullingstone	45	120	0.72	5	1	0.2	0.02
Rother 2	Udiam	2	210	2.3	50	1	0.5	0.05
Darent	Hawley	11	190	0.64	5	1	0.05	0
Wandle	S Wimbledon	10	175	1.83	7	2	0.8	0.2
Hogsmill	Ewell	30	35		0.2	0.07	0	0
Mole	Esher	10	470	5.44	70	4	2	0.4
Mole – main gap *	Castle Hill	39	320	3.73	50	3	1	0.6
Thames	Walton	9	9290	55.6	300	40	30	6
Wey	Weybridge	9	1010	7.17	60	5	4	2
Wey – N	Farnham	64	190	0.77	10	0.5	0.4	0.1
Wey – N+S	Tilford	48	400	3.22	50	3	1.5	0.6
Bourne	Adlestone	11	90		10	0.6	0.6	0.1
Blackwater	Farnborough	67	35	0.5	4	0.4	0.4	0.04
Loxwood/Arun	Drungewick	13	90	1.15	50	0.5	0.2	0.01
Kird/Arun	Tanyards	9	67	0.85	20	0.1	0.1	0
Arun	Pallingham	4	380	3.92	50	3	1	0.1
Arun	Alfordean	21	140	1.72	50	1	0.5	0.05
Rother 1	Hardham	4	350	4.45	50	5	2	0.6
North/Arun	Brookhurst	23	54	0.57	10	0.6	0.1	0
Adur	Hatterell Bridge	4	110	1.1	10	1	0.1	0
Adur E	Sakeham	3	93	1.28	20	1	0.3	0.01

Table 1. River flow data taken from locations reported by the National Rivers Authority (NRA) in m^3/s. The height of the station is shown, along with the NRA estimate of the drainage area. The river Thames is included for comparison. For our purposes it would be ideal if those recording stations were in the water gaps, but most are not. Exceptions are shown by an *. The mean flow is an average over 20+ years. Some of the data has been plotted on Figure 7. Further notes: The river Arun does not include the Sussex river Rother, which at Hardham would add another 4.45 m^3/s for a total at the water gap of 8.37 m^3/s. The river Adur is missing an additional 1.1 m^3/s for a total of about 2.38 m^3/s.

The synclines adjacent to the Weald, the London basin (north) and the Hampshire-Dieppe basin (south), must have formed in tandem with the rise of the anticline, maintaining a subsurface balance of rock during the rheological flow of rock into the anticline, as suggested by their similar western extent, which, in turn, suggests related tectonic conditions. We will return to this and its impact on sheet and channel flow after addressing the wind and water gaps, which uniformitarian scientists also find so difficult to explain.

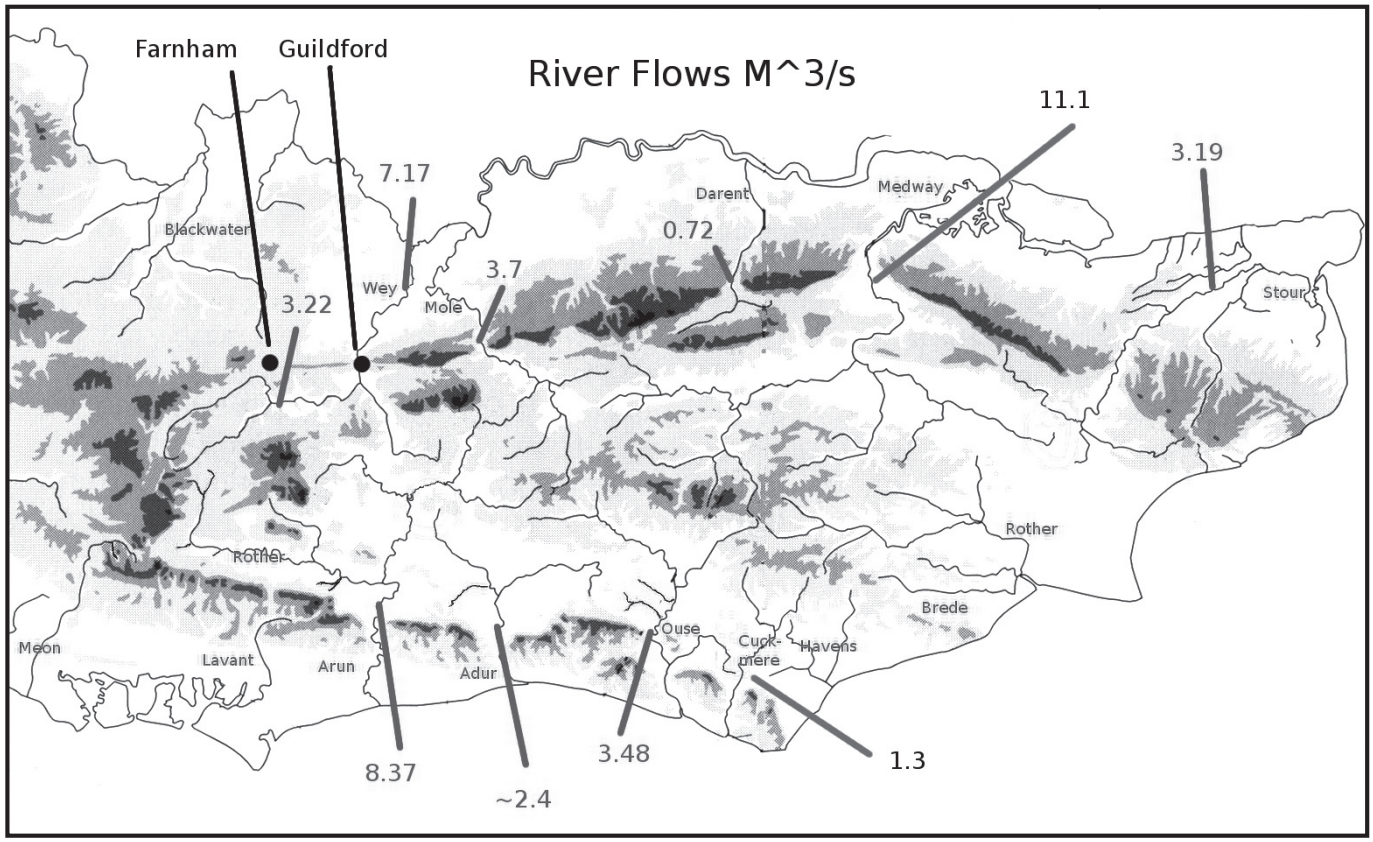

Figure 7. Average river flow through some of the water gaps in m^3/s.

The Water and Wind Gaps Described

Starting in the eastern section of the South Downs and moving clockwise around the edge of the anticline (Figure 2), we summarize Wealden water gaps (Table I). Figure 7 is a plot of several of these water gaps. The rivers Cuckmere (gap a) and Ouse (gap b) pass through the eastern end of the South Downs in water gaps. Next, and of particular interest, are the Adur (gap c, Figure 2) and Arun (gap d, Figure 2) water gaps through the central portion of the South Downs, which are very similar in width at both the 80 m (262 ft) and 160 m (525 ft) contours (cf. Figures 7 and 8 in Oard and Matthews, 2015). Yet the river Arun has a present flow rate almost four times that of the river Adur (Table I, Figure 6) due to different drainages. Similarity in the gaps suggests erosion by something other than the present rivers and points to channelized Flood currents.

The rivers Meon and Lavant start on the southwestern edge of the South Downs and flow south. There are wind gaps close to their headwaters (locations e and f, Figure 2). The Sussex river Rother drains the area in the Weald north of the wind gaps, eventually joining the river Arun.

The river Blackwater does not originate in the Weald either but is associated with the lower ridge between Farnham and Guildford. Because of the wind gap near the Blackwater and the extensive drainage basin of the river Wey to the west, uniformitarians think the Wey captured the Blackwater (Dines and Edmunds, 1929). "River capture" is thought to occur when one stream/river erodes through a ridge and captures another stream (Figure 8). However, this theory has numerous problems (Oard, 2008, 2013), and the Flood-geology alternative can explain the apparent examples in the Weald (challenge 3 above in the section on the need for another paradigm). One obvious problem is that the same logic that proposes that the Blackwater was originally sourced in the inner Weald basin until "captured" by the Wey can be used to infer the "capture" of the Meon and Lavant by the Arun. No answer to this problem is forthcoming in the literature.

Moving east, the river Wey (gap j, Figure 2) has long stretches where it runs parallel to the ridges within the

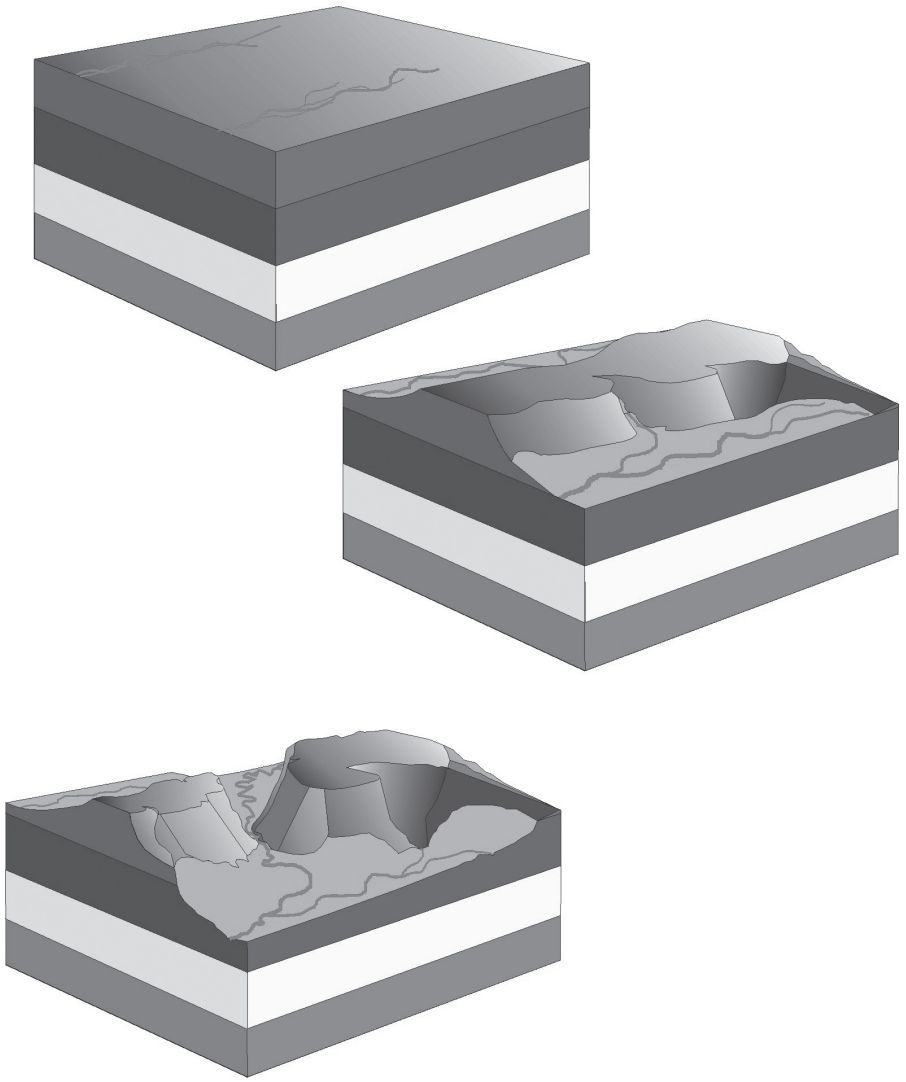

Figure 8. Schematic of stream piracy (drawn by Peter Klevberg). As the stream valleys erode, a tributary stream supposedly erodes through the intervening ridge and eventually captures part of the stream on the other side of the divide.

Weald, but then it exits the North Downs through a water gap at Guildford. The rivers Mole and Darent pass through major water gaps (k and j respectively, Figure 2) through the North Downs. The Darent has two main tributaries that originate and flow parallel to the ridges before joining and exiting the Weald.

The river Medway (gap m) drains a significant portion of the northeastern Weald. It has several major tributaries that also run parallel to the chalk ridges. Its water gap is one of the widest through the ridges, and the river Medway is correspondingly larger than the others (Table I). The river Stour (gap n, Figure 2) follows the pattern of the rivers Mole and Wey, with tributaries flowing parallel to the ridges inside the North Downs before turning north through a water gap.

All these water gaps are uniformitarian mysteries since in their paradigm no significant erosion occurred until substantial uplift (uniformitarian assumptions 1 and 2 in the section on the need for another paradigm). In that case, topography would have created rivers that flowed down-dip, outward from all parts of the anticline. Studies based on the Flood paradigm can explain single sets of wind and water gaps (Oard 2008, 2013), and the challenge (number 2d) for the Weald is to explain river gaps where the flow is in opposing directions. For that we first need to examine the anticline as a three-dimensional object.

The Three-dimensional Nature of the Weald

So far, we have discussed the erosion of the Weald inner basin in a notional, two-dimensional model, with flow in a single direction. More of the process can be understood by expanding our view to all three dimensions. During uplift of the Wealden anticline, three factors would have influenced erosion. There was sheet flow from the north and west, but as the Wealden anticline lifted (and the London Basin sank), the changing submarine topography would have complicated the flow. In addition, the Flood's sea level relative to the continents would have been constantly declining. Eventually, the rising elongated north-south anticline would have diverted flow to the north and south, initially as local sheet flow (Figure 9).

This flow pattern is supported by the present-day southward flow of the rivers Arun, Adur, Ouse, and Cuckmere, which carry a total average of 16.6 m^3/s. The matching rivers in the north (Wey, Mole, and Darent) have a smaller total flow rate (11.6 m^3/s). This is consistent with that earlier southern flow having helped to create a subterranean gradient north to south. When the Floodwaters had retreated, this gradient encouraged development of the present-day rivers.

This off-slope recession of water explains the numerous dry valleys on the back slopes of the Downs (Figure 9). As the sheet flow subsided into channelized

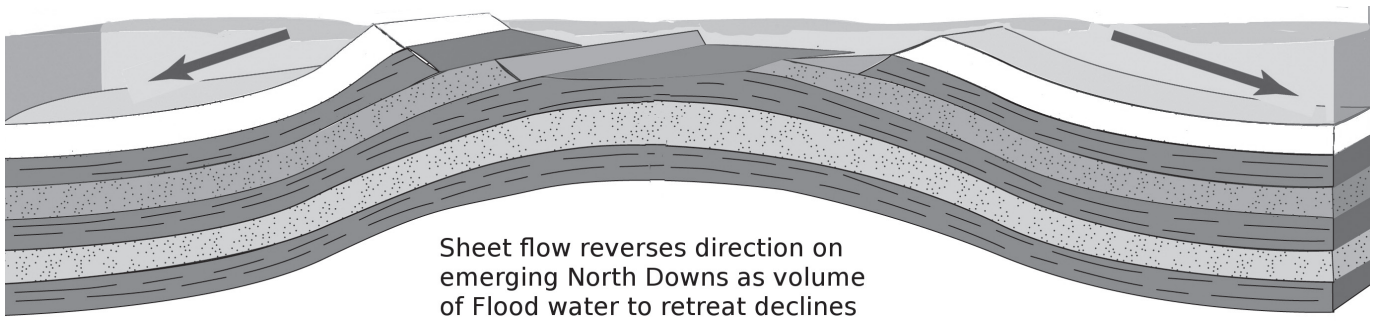

Figure 9. Sheet flow reverses direction on the emerging North Downs and causes a flow reversal (modified from Figure 6).

flow down the anticlinal limbs, these valleys were carved. Because they are not the product of the present-day water cycle, they are dry. Today's rainfall is insufficient to sustain any form of stream flow in these valleys.

The erosional retreat of the Floodwaters was further complicated by the differential uplift. Today we see evidence for it in the slope of the axis down to the east, as well as the north-south slopes of the limbs. Fracturing of the chalk on the surface during uplift would have then included complex patterns oriented both parallel and perpendicular to the axis. This would have created faulting and brecciation along zones of weakness. One obvious outcome is the course of the river Medway as it emerges from the inner basin (gap m, Figure 2). The abrupt change in the angle of the ridge (about 30°) at that water gap points to a complex rotational fault having occurred there during uplift. There would have been a significant region of breccia between the two portions of the ridge (Walsh et al., 1998). This would have been easily removed with the sheet flow, whatever direction it was flowing. Other examples of significant faulting include the river Wey gap (gap j, Figure 2), where there is a change in the angle of dip in the strata of ~45° from here west until the wind gap (i, Figure 2).

Deformation was further complicated by several local periclines—combinations of anticlines and synclines—that developed in the inner Weald basin as overburden was removed. These are not addressed in this paper. Several similar geomorphological features are present in northern France. Thus, it is probable that the English Channel did not form until relatively late in the development of the Weald's geomorphology. That too is a topic for another paper, as we must now focus on the formation of the water and wind gaps.

The Formation of the Water and Wind Gaps

Detailed uniformitarian explanations for the erosion of the Weald inner basin in conjunction with the water and wind gaps do not exist except for brief discussions about river capture (Dines and Edmunds, 1929). There is a throwaway remark by Jones (1999a) that the geomorphology and river pattern in the inner basin was originally considered to be "superimposed from a high-level marine erosion surface" (Jones, 1999a). In contrast, Stage 3 of our model provides an explanation outside the uniformitarian framework.

Since we are discussing events occurring over days rather than millions of years, the emergence of the Weald above sea level from a large "Flood lake" would have occurred rapidly over exposed portions of the North and South Downs (Figure 10). Since the English Channel had not yet formed, the "lake" in the center of what was the crest of the anticline would have extended across the present English Channel into northern France.

At this point, this lake was isolated by the chalk Downs, and it continued to rise relative to sea level. Weak points, either from faulting or brecciation, were inevitable, and pressure would have led to its breaching at several locations. Water and wind gaps would have started as relatively structurally high notches on the limbs of the anticline. As the "Flood lake" drained, it eroded the soft rock of what is now the inner Weald basin and deepened the outlets, resulting in the present-day gaps. Changing water level and local topographic features caused by the periclines may have caused flow through some gaps to cease, resulting in wind gaps being left behind as the main drainage continued.

Figure 10 shows their development in symbolic form. Notch G1 was eroded when the water level was higher than in the figure. Minor diversions of flow, less breccia, or resistant rock slowed up the rate of erosion relative to other gaps

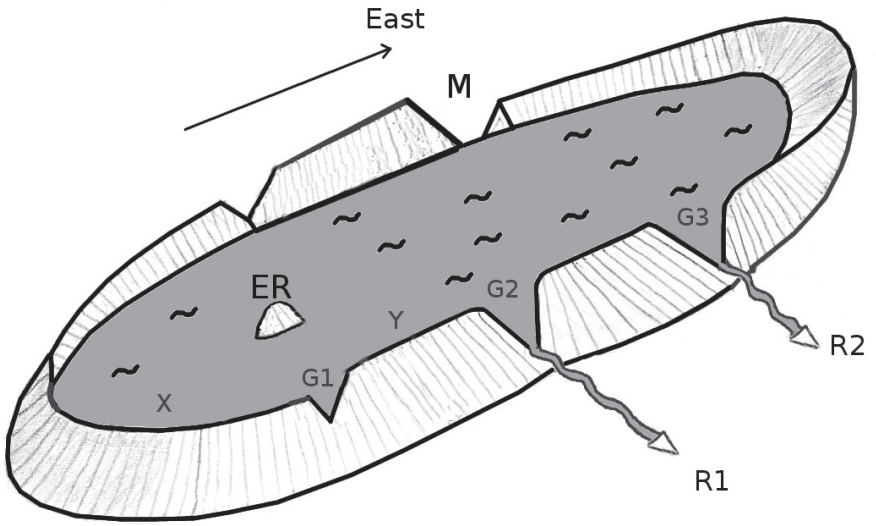

Figure 10. The Flood "lake" that formed after the erosion of the inner Weald basin exposed much of the rim of the North and South Downs. This was the beginning of the formation of water and wind gaps.

such as G2 and G3. With farther fall in the water level, G1 became completely dry while G2 and G3 continued to allow flow out of the basin. The symbols R1 and R2 represent the portions of two of the present-day rivers that flow southward such as Arun and Adur, where they are external to the Weald basin. The large gap M represents the Medway gap, though the river is not shown.

River "Capture" and Differences in Water Gaps

River capture of the Blackwater by the Wey (gaps i and j, Figure 2) was seen by Dines and Edmunds as a case of completing headward erosion. That explanation is questionable (Oard 2008, 2013). The location of the Sussex river Rother leading into the Arun (d on Figure 2) suggests that the river Arun "captured" the Lavant and the Meon. But this topic has not been addressed by uniformitarian literature, other than a brief discussion of the "capture" of parts of the Wey by the Arun (Worssam, 1973). The explanation for the Blackwater-Wey capture is vague, and the two rivers are separated by a short stretch of land a few meters in height, nearly the same as the supposed Arun-Wey capture. In contrast, the river Lavant with its highest point of ~60 m (200 ft), is separated by two wind gaps (e and f in Figure 2) of minimum heights ~100 m (330 ft) and ~150 m (500 ft). Furthermore, the main portions of the Sussex river Rother are at less than ~20 m (65 ft). That firmly rules out subareal capture theories.

We have already noted that the Arun and Adur gaps are similar in profile east to west. Yet the river Arun has a mean flow approximately four times that of the Adur (Figure 7 and Table I). The explanation for that difference is the larger drainage basin of the Arun. But why then are the gaps similar, if these water gaps were formed by some kind of unspecified uniformitarian process? At an early stage in the development of the Weald, the three Lavant and Meon wind gaps represented by the single gap G1 in Figure 10 would have been draining water from the area around X, since that is the nearest exit point, and from around Y. Thus at that stage, the Arun gap (represented by G2) would have been developing with far less portion of the total flow than now emerges at that position, and by inference, have a similar erosional potential to that occurring at the Adur gap (represented by G3) rather than four times.

Eventually, the water level in the "lake" would have fallen below the notch in gap G1 because erosion did not keep pace with the fall in the water level. So G1 becomes a representative of the Meon/Lavant wind gaps. But flow that was emerging from the Weald inner basin from regions between X and Y now had to emerge from other gaps such as G2. The reversal of flow direction of water originally flowing from Y to G1 changed the scouring on the lakebed and left the impression, when the lake was completely dry except for the rivers now sustained only by rainfall, of "river capture." No such "capture" has occurred.

Erosional Remnants in the Inner Weald Basin

There are erosional remnants in the inner Weald basin (Oard and Matthews, 2015). Much of the Weald inner basin is below ~50 m (160 ft). However, there are numerous hills of heights up to 300 m (1,000 ft) away from the chalk ridges; eight of the most significant ones are shown in Figure 2. ER in Figure 10 means "erosional remnant," such as Hindhead (Figure 2) with its series of closely spaced dry valleys. These erosional remnants likely were caused by the complex uplift and erosion of several periclines developing while the "lake" was near its maximum height. Their existence and, in particular, the steep sides

with tightly bunched dry valleys (see below), often in a radial pattern, point to a rapid rise through the Floodwater in the "lake."

Dry Valleys in the Chalk

The many dry valleys in the chalk are a major mystery for uniformitarian geology. Wooldridge and Goldring (1953) suggested that they are remnants of past higher water tables. Roman wells, now dry, confirm that the water table was higher in the past, suggesting higher rainfall too. But the amount of rain required to create the dry valleys has been recognized as being exceptionally "speculative." Also, much higher amounts of rainfall contradict uniformitarianism. But within the Flood paradigm, sheet flow turning to channelized flow down the dip-slopes of the emerging chalk is a realistic explanation. As far as the erosional remnants are concerned, a mechanism for the formation of dry valleys on them, which form a 360° pattern, has not been envisaged apart from this proposal of the water level in the "lake" declining rapidly.

Around the inner edges of the cuestas are tightly bunched dry valleys, clearly seen in Figure 5. They are almost like crenulations. Typically they are twice as frequent as the dry valleys on the outward chalk slopes. Parts of the slopes are up to 45°, while the average is around 20°. Such crenulations exist in many parts of the chalk landscape, particularly to the west of the Weald. They all point to huge volumes of water flowing down from the ridges toward the inner Weald and eroding these patterns with water emerging by Darcy flow from the saturated rocks.

Silcrete and Sarson Stones

As indicated in Part I, the origin of duricrusts is also a mystery for uniformitarian science. The origin of silcrete is especially so, because of the problematic origin of the silica. Since the Weald has a partial silcrete layer capping the highest terrain with eroded sarson stones (the silcrete layer is best developed farther west in south-central England), our model of Flood runoff erosion offers some light on this mystery.

The silcrete layer is really hard, silica-cemented sandstone (Catt and Hodgson, 1976). There is a lot of coarse gravel, mainly flints, in the silcrete. So the silcrete is not a pure chemical deposit, like some of the silcretes in Africa and Australia, but silica-cemented sand, with the grains also being predominantly silica. It is the origin of the *sand* that is the key to this mystery, and we hypothesize that it was transported during sheet erosion from the north-northwest. The erosion of the chalk accounts for the flint nodules. The silica cement could have originated from the dissolution of either the sand or the flint nodules. Flint is almost pure silica. On the other hand, it is possible that the Floodwater was highly charged (supersaturated) with silica during transport and deposition of the sand.

A similar model explains that duricrusts in general, whether ferricrete, silcrete, calcrete, or bauxite, depended upon the composition of the Floodwater for a particular deposit. The chemical could have been dissolved from the regional bedrock or transported from a distance. These chemicals flowed through the depositing material, cementing the particles rapidly. The origin of duricrusts is by Flood runoff after the formation of erosion and planation surfaces.

Summary

This creationist study of the geomorphology of the Weald in southeast England has tied the massive erosion and the formation of the landforms to the Genesis Flood in seven key points. Similar processes have been seen in the western United States and elsewhere in the world (Oard, 2008, 2013). Uniformitarianism, or its slightly refined form of actualism, is unable to explain many of these features.

Future Work

The Weald is just a small part of the UK. It would be interesting to try to correlate the events in the Weald with those in the neighboring Thames basin, possibly across into France, and south and west into the Hampshire-Dieppe Basin. The incentive would be to examine the area to the north of the Weald, where gravel terraces on the Thames River have been correlated by uniformitarian geologists with numerous ice ages (Lewin and Gibbard, 2010). But if there was only one ice age (Oard, 2004), then how are the many terraces to be explained? Preliminary examination shows that it is quite possible the lower terraces resulted from the melting of one ice sheet over the British Isles and the higher terraces are from channelized Flood runoff, similar to those in the upper Wind River Basin of northwest Wyoming, USA (Oard, 2014). This could be another significant challenge to uniformitarianism.

Acknowledgments

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Imaginary Uniformitarian Thrusts

Michael J. Oard and Peter Klevberg*

Abstract

The explanation for "overthrusts" and "thrusts" is one of many challenges facing creation researchers. We evaluated the stacked thrusts in the Sun River Canyon, along the Rocky Mountain Front, about 100 km west of Great Falls, Montana, USA. We have examined four possibilities for these thrusts, and have eliminated the uniformitarian option of slow uphill movement of older strata over millions of years, because there is little broken rock or deformation at the contact. We also examined a paraconformity of 130 million years but saw no evidence for deformation or erosion, suggesting that this "missing time" is imaginary. At present levels, erosion would denude the continent to sea level in a maximum of 50 million years. This places constraints on the timing of thrusting. Absence of deformation or motion at bedding planes along the northeast shore of Gibson Reservoir also suggests that four proposed minor thrust faults do not exist.

Introduction

Although creationists have answers to many geological questions (Oard and Reed, 2009), there are many challenges for Flood geology that need investigation. One of these is the existence and origin of "overthrusts" and "thrusts." An overthrust is formally defined as "a low angle thrust fault of large scale, with displacement generally measured in kilometers" (Neuendorf et al., 2005, p. 462). A thrust fault is "a fault with a dip of 45° or less over much of its extent, on which the hanging wall [upper rock] has moved upward relative to the footwall [lower rock]" (Neuendorf et al., 2005, p. 670). Figure 1 shows a diagram of how secular researchers view the formation of a thrust fault with "older" rock pushed over "younger" rock. There are hundreds of examples of claimed overthrusts and thrusts in the world, and they are mapped in most mountain ranges.

Creationists need to derive explanations of overthrusts and thrusts. In the past, some creationists denied their existence (Read, 2000; Whitcomb and Morris, 1961). Others accept their existence but think they were formed during the Flood (Clarey, 2013; Coffin, 1983). Only field exploration can answer the question of which are real and which are not. We encourage creation researchers to go out into the field and find the answer to this and other geological challenges and not just accept the *interpretations* of secular researchers.

If thrusts and overthrusts do exist, then their origin and development needs to be explained in the paradigm of Flood geology. Implications are important: If some overthrusts and thrusts are based on paleontological or stratigraphic evidence only, rather than on structural or geophysical evidence, their potential

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nonexistence may negatively affect the geological timescale.

Sun River Canyon Thrusts

Geologists see the Rocky Mountain Front in northwest Montana as a series of stacked or imbricate thrusts. It is probably the best exposure of this kind of thrust in North America. Secular geologists have mapped at least nine major stacked thrusts and dozens of minor ones in the region just east of the continental divide. Mudge (1972b) claimed to have found 80 thrust faults in a 28-km section perpendicular to the mountain range axis.

The famous Lewis Overthrust is located about 8 km west of the study area along the Rocky Mountain Front. It stretches over 320 km in length in a general north-south direction, from the northern Rockies of Montana into the Rockies of southern Canada. The Lewis Overthrust has been given various local names, and it is possible that it continues even farther north and south. We have observed the Lewis Overthrust at several locations, one of the best being northeast of Marias Pass in southern Glacier National Park, where fractured Precambrian dolostone lies over Cretaceous shale (Figure 2).

The Sun River Canyon, including Gibson Reservoir, lies west of Great Falls, Montana, within the Rocky Mountain Front. The canyon cuts perpendicular to the thrusts of the Rocky Mountain Front (Figure 3). Major thrusts have placed mostly Devonian and Mississippian limestones and dolostones over Cretaceous and Jurassic sandstones and shales (Mudge, 1972a, 1972b). According to the geological column, the age difference between the Devonian and the Jurassic is about 230 million years. The angle of dip of the beds and thrusts is very steep, mostly dipping west on the order of 60° to 85°. Because of these steep angles, most of the thrusts are technically not *thrust* faults, but *reverse* faults, which are high-angle faults with a dip greater than 45° that lift lower strata relative to higher strata. For simplicity, we will simply refer to all of these faults in the study area as *thrusts*.

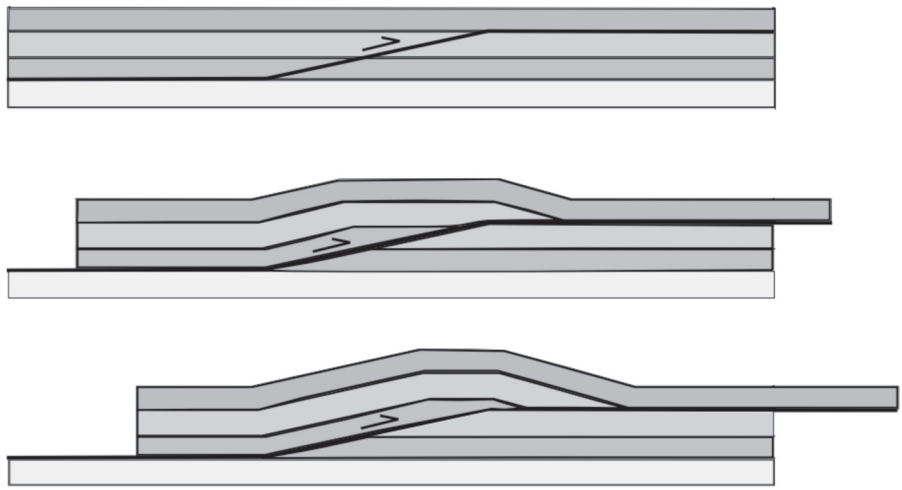

Figure 1. Diagram of the origin of a thrust fault (Wikipedia). A lateral force pushes up older strata over younger strata.

Figure 2. The Lewis Overthrust at the contact with the light-colored dolostone and the darker shale, northeast of Marias Pass in Glacier National Park, Montana, USA.

We have been researching thrusts in the Sun River Canyon since the early 1990s. We revisited the canyon in September 2014 on a six-day field trip for a closer examination of the strata

exposed there. We performed a geological reconnaissance, measuring the strike and dip of the beds at many locations in the canyon (Figure 4). Based on these field observations, we have derived four options for explaining the thrusts: (1) older layers were slowly pushed east at a steep angle over younger rocks, just as uniformitarian researchers claim; (2) there are no thrusts at all; (3) the thrusts are real, but the mechanism is different from that proposed by uniformitarians; and (4) some of the thrusts are real, and some are not. We compared these four options in the field.

The first option can be eliminated because such faulting would invariably result in meters to tens of meters of pulverized fault gouge or breccia at the plane of faulting. This is normally observed at real faults and expected when large bodies of solid rock push against each other. We observe less than 0.5 m of fault breccia at the French Thrust (Figure 5), one of the major thrust faults in the Sun River Canyon. In fact, deformation at and near the contact of major thrusts is astonishingly limited, usually less than 10 m below the contact where deformation could be observed. Based on our preliminary analysis and the absence of field evidence of motion, at least some of the alleged thrusts in the area are not real, existing only in the minds of the geologists. That leaves options 2 and 4.

Figure 3. View north of the multiple overthrusts (ridges) along the Rocky Mountain Front (Wikipedia). The waterbody is Gibson Reservoir, west of Augusta, Montana, USA, created by a dam on the Sun River. The Lewis Overthrust is just off the figure to the left, west of the wide north-south valley of the Middle Fork of the Sun River.

"Mental" Thrusts

Melville Mudge (1972a, 1972b) has done the most extensive work on the geology of the Sun River Canyon and its thrust faults. He concluded that there were 80 such thrusts. He mapped four of them in Mortimer Gulch, a valley north of the eastern end of Gibson Reservoir (Figure 6). His geological map (Figure 7) showed three of the thrusts in middle Jurassic Ellis Group strata, while the fourth transported at least part of the Ellis Group over the younger Jurassic Morrison Formation at one location. A "group" is composed of two or more formations, which are bodies of rock identified by their rock type or characteristics. However, we are now skeptical that the Ellis Group or the Morrison Formation in the study area can be correlated with the rocks of the same name to the east in the High Plains. Because the uniformitarian age difference of these purported thrusts was small, the thrusts were considered minor in the sense that the purported thrust faults did not have much of a stratigraphic difference. Very few surface exposures of the thrusts are mapped on Figure 7. Data using visible outcrops is mapped as solid lines, while dashed lines indicate inferred boundaries or faults. Rocks in Mortimer Gulch are often covered by soil and trees; the dashed lines under the reservoir indicate that the thrusts are concealed, probably by sand and coarse gravel. Therefore, we would not expect major offsets, which would be visible in the nearby terrain, but there should be minor deformation or offsets in the strata that show minor thrusting.

The Imaginary Unconformity

We were able to see and measure the strike (azimuth) and dip of the strata in exposures along the northeast shore of Gibson Reservoir. This area corresponds to the southern boundary of Mortimer Gulch (Figure 6). Most of the beds were covered by sand and coarse gravel. The strike of the layers was generally north-south. The strata where the dam is located are limestone and dolostone, dipping to the west at a very high angle of 83° (top arrow in Figure 8). These strata are dated as belonging to the late Paleozoic Mississippian Castle Reef Do-

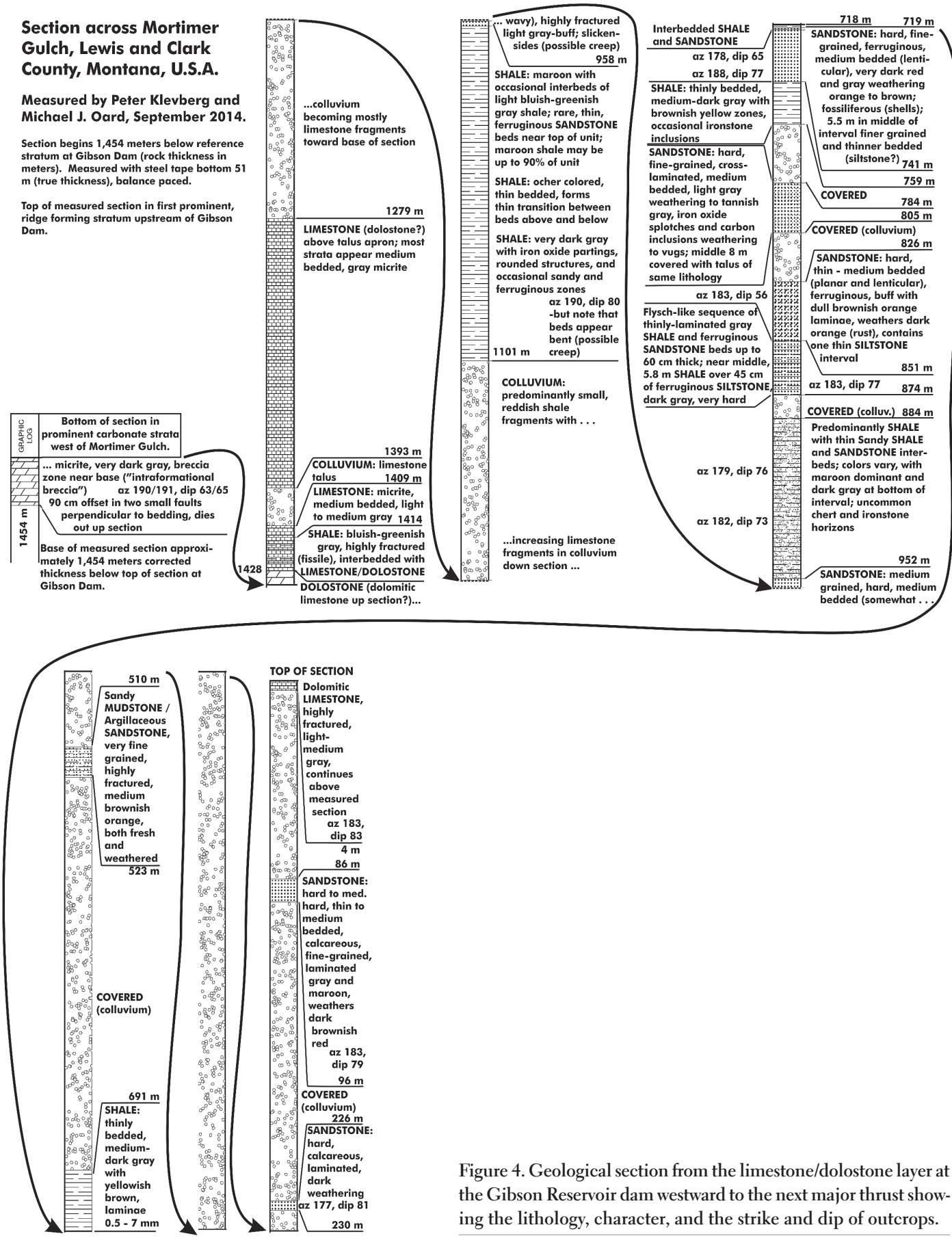

Figure 4. Geological section from the limestone/dolostone layer at the Gibson Reservoir dam westward to the next major thrust showing the lithology, character, and the strike and dip of outcrops.

lostone; 300 million years old according to the secular geological timescale. The strata just above these limestone and dolostone layers in Mortimer Gulch (to the west) are sandstone and shale assigned to the Jurassic, and dated as about 170 million years old (Figures 8 to 13).

The first layer above the limestone/dolostone was measured as dipping about 80° to the west (lower arrow on Figure 8) and was therefore conformable with the underlying Mississippian carbonates. There is no visible erosion in the field, but based on their dates, these layers are separated by 130 million years! Mudge (1972a, p. 40) stated:

> The unconformity at the base of the Jurassic rocks represents a time span of about 130 million years from Late Mississippian to Middle Jurassic.

Note that Mudge called the boundary an "unconformity" because of the relative stratigraphic position of the layers and the "missing time." However, there is no observable lithologic gap, and thus this is an example of a "paraconformity," which is a gap in time with little or no geological evidence. Since there is no field evidence, the "gap" appears as a simple bedding plane. In other words, there is no *field* basis for the time gap. Uniformitarian geologists disguise problems such as these with nomenclature; hence the "unconformity." It is a mystery to them because 130 million years is ample time for extensive erosion, which should have been preserved. A straightforward field interpretation would be that there is no significant missing time and that the stratigraphic interpretation therefore needs to be reconsidered.

Figure 5. Contact at the French Thrust, showing ~0.5 m of fault breccia. Edge of ~3 m layer of metamorphic rock to left. Out of picture, ~10 m left, soft shale was dipping at the same high angle as the limestone of the French thrust.

Figure 6. View northwest from the Gibson Dam overlook of Mortimer Gulch, a north-south valley between two overthrust sheets.

All Continents Can be Leveled to Sea Level in 10 to 50 million years

The amount of time seen in this one paraconformity is much more serious a problem than just the stratigraphic puzzle it presents. Modern erosion rates show that erosion should be seen at almost all stratigraphic boundaries. Given today's rate of erosion, even Charles Lyell would have to admit that continents would be eroded to sea level, were there not sufficient offsetting uplift. Roth (1998) estimated that all of North America (and other continents) would have been eroded to sea level in just 10

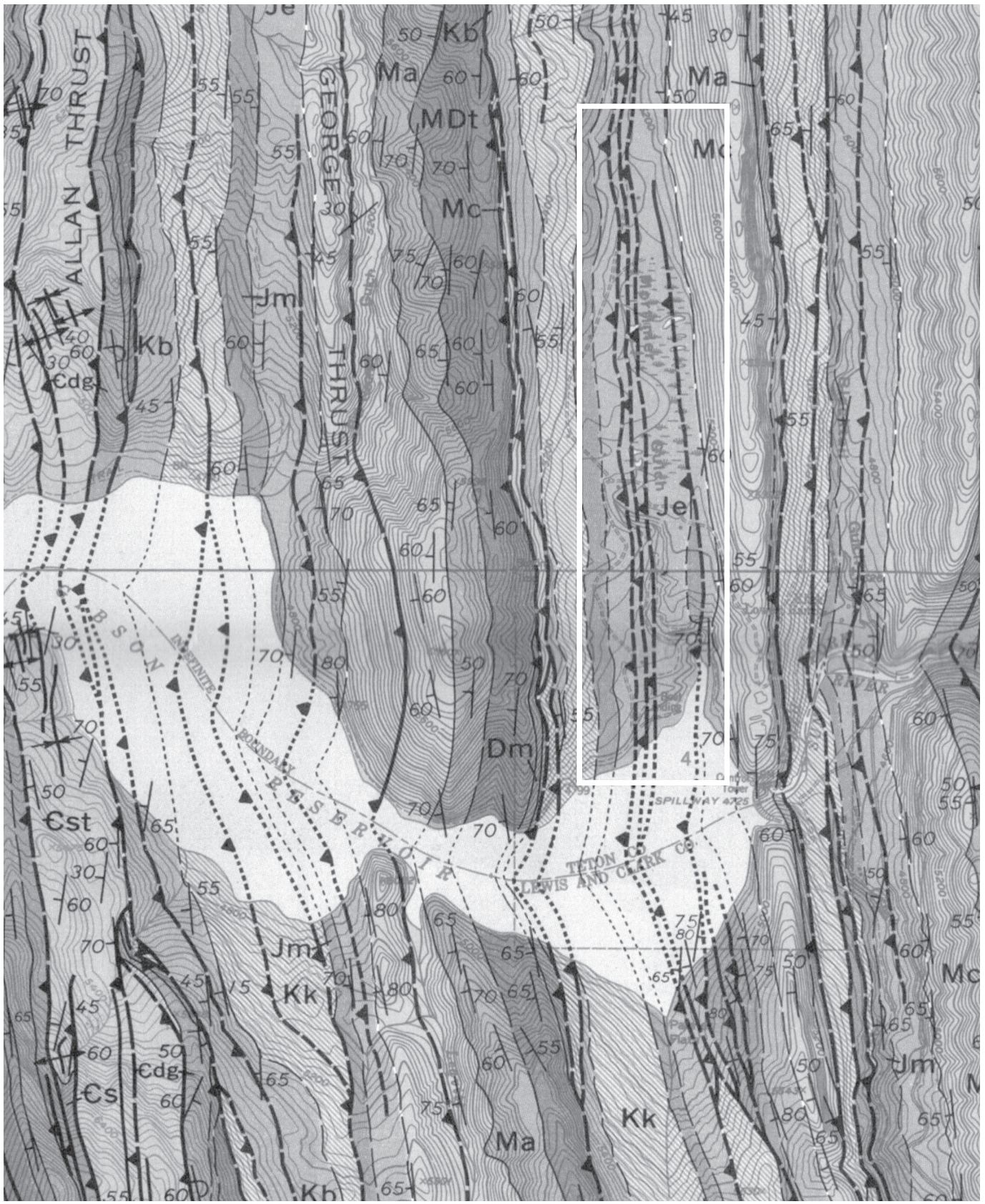

Figure 7. Geological map through eastern Gibson Reservoir with Mortimer Gulch the first valley to the north (Mudge, 1972a, plate 1). Note the four overthrusts (triangle points to the upper block) that trend north up the gulch.

million years at the present rate of erosion, based on the output of rivers into the oceans. But the estimate is too slow because Roth did not factor coastal erosion, which is rapid in many locations such as the Arctic coast. His estimate could be as little as 8 million years. The offsetting uplift is inferred by uniformitarian geologists because the continent obviously has not been totally denuded.

Geologists might argue that the rate would be slowed because the measurements include man's influence on the environment. But granting these arguments and doubling the rate to factor out man's contribution to the measurements of present-day erosion, the time needed to denude North America would be only 16 million years. That period of time is very small compared to the 130 million years contained in the one paraconformity at Sun River Canyon.

However, it is well known that areas of high mountains and cliffs erode faster than more subdued relief. Including the slowing down of erosion with decreasing relief would result in more time to erode the continents to sea level than 16 million years. Schumm (1963) estimated this rate at 33 million years, but that too is very small compared to 130 million. Changing the climate would have little effect because the more erratic erosion of an arid climate is still significant during heavy rains and flash floods. Warm, humid climates experience less catastrophic erosion due to vegetative protection, but there is more rain and a greater number of streams and rivers to erode the landscape. Either way, the rate to erode the continent to sea level remains insignificant compared to the time gap at the observed paraconformity in the Sun River Canyon. Summerfield (1991, p. 392) stated:

> Climate has been widely held to have a predominant influence on rates of denudation, although in the light of more recent data it is doubtful whether this view can now be sustained.

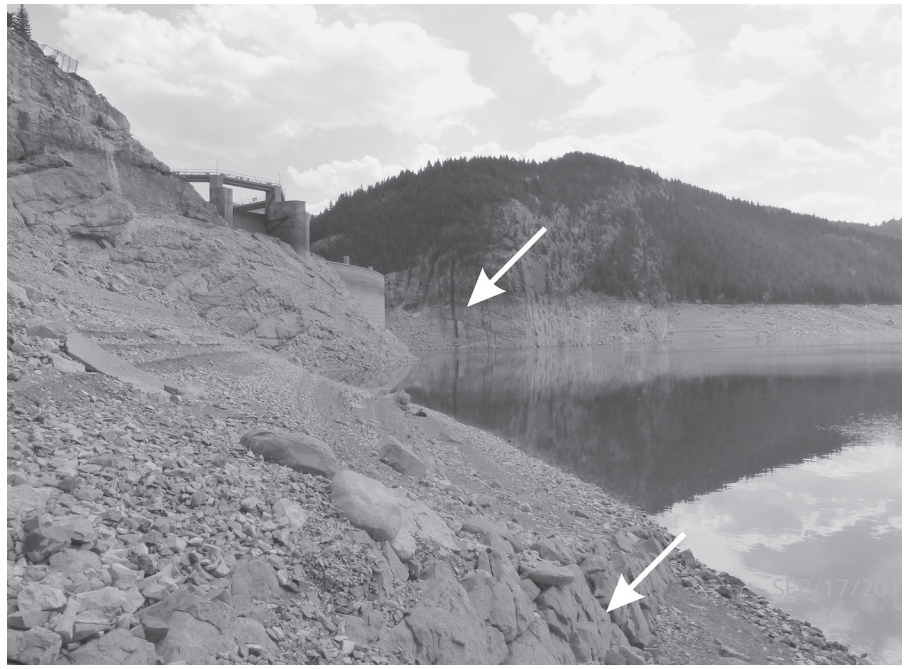

Figure 8. Gibson Dam (left center) with limestone/dolostone dipping west (right) at 83° as seen across the Gibson Reservoir (center). Sandstone bed near the contact with the limestone/dolostone dipping west at 79°.

Figure 9. Shale layer farther west from limestone/dolostone layer along northeast shore of Gibson Reservoir dipping west at 81°.

Figure 10. Farther west of Figure 9, a sandstone layer dipping west at 77°.

Figure 11. Farther west of Figure 10, a wavy sandstone and shale layer dipping west about 75°.

This general rate of continental erosion has been accepted by uniformitarian geologists (Nott, 1995; Twidale and Campbell, 1993). Young (1983) stated that the continents could be stripped to sea level in 10 to 25 million years. Twidale and Campbell (2005, p. 188, brackets added) conclude:

> However, in all cases, assuming no further major uplift or lowering of sea-level, it has been estimated that a small area like New Zealand, although mountainous, would be base-leveled [reduced to sea level] in about 11 million years. Larger land areas, like the continental United States, sub-Saharan Africa, peninsular India or Australia, would be reduced to base-level in 33 million years or so.

We will be conservative and assume total continental erosion would take a maximum of 50 million years. Even if it took 50 million years to level the continents, the amount of erosion that should be observed at Sun River Canyon in this one paraconformity is staggering. It is also absent. From a field standpoint, it appears that little to no time elapsed between deposition of these beds. Where is the erosion? Mudge (1972a, p. 41) gave the standard explanation:

> The nature of the unconformity indicates that the Mississippian rocks were exposed for a long time before middle Jurassic sedimentation.

But this is no explanation. It is a clear case of belief overriding visual evidence. It presents a glaring contradiction with the uniformitarian timescale, and for that reason the problem is essentially ignored. This is not a unique situation. Reed (2002a, 2002b, 2004) showed that it is actually quite common. Worse, for the uniformitarian point of view, the lack of erosion between layers supposedly separated by many millions of years is the rule, not the exception (Roth, 1998). On the other hand, this is what we expect in the Genesis Flood, which would lay down layers in rapid succession over wide areas.

No Evidence of Minor Overthrusts

The strata of Mortimer Gulch on the northeast shore of Gibson Reservoir outcropped intermittently, but the strata

showed little or no deformation, and exhibited a generally uniform dip of about 75 to 80° (Figures 8 to 13). There were some wavy beds, with less of a dip, but there was no significant deformation we could see. We would expect to observe some deformation of the bedding caused by the thrust faulting and sliding of one layer over another if the thrusting claimed by Mudge (1972a, 1972b) were real. Because the dip of the layers is so uniform, we conclude that the four mapped thrust faults in Mortimer Gulch are not supported by field evidence.

A Possible Cause of "Mental" Thrusts

Based on the evaluation at Mortimer Gulch, we began to suspect that most, if not all, of Mudge's (1972a, 1972b) minor thrusts are "mental" thrusts. Outcrops are few in the study area because much of the rock is covered by colluvium, soil, and vegetation. Also, some thrusts were mapped on cliffs. Having checked other locations of Mudge's proposed minor thrusts, we saw no evidence of structural deformation.

Since most strata are dated by their fossil content, we suggest that Mudge's minor thrusts resulted from out-of-order fossils. We also suspect that Mudge (1972a, 1972b) was just filling in the geological column. For instance, strata above the middle Jurassic Ellis Group would by default be identified as the Morrison Formation, since that is the formation that succeeds the Ellis Group on the geological column over the Montana high plains. The Morrison Formation supposedly stretches from southern Alberta and Saskatchewan to New Mexico. This absence of evidence of faulting in the study area and the lack of deformation on the northeast shore of Gibson Reservoir shows that the geological column is not an exact sequence of fossil changes with time; there are at least minor deviations (Oard, 2006; Reed et al., 2006).

Figure 12. Farther west of Figure 11, a sandstone and shale layer dipping west about 75° (Peter Klevberg for scale).

Figure 13. Farther west of Figure 12, wavy sandstone and shale layers with dip west about 80° (Peter Klevberg for scale).

Conclusions

We measured the strike and dip of exposed bedding planes through the Sun River Canyon, a series of tilted strata that are reported to contain nine major thrusts and about seventy minor ones. Some of these reported thrusts do not show field evidence of faulting. We measured the strike and dip of the limestone/dolostone ridge where Gibson Dam is located and were able to make about ten measurements of exposed strata along the northeast shore of Gibson Reservoir, stratigraphically above the limestone/dolostone. We found that the dips of all of these layers were nearly uniform; we saw no significant deformation of the strata or evidence of motion along bedding planes that would be expected if thrusting had occurred. In nearby locations where minor thrusts have been mapped, we also found no evidence of deformation. Since the strata were dated by their fossil content, we conclude that some of the minor thrusts were proposed because the fossils are out of order, suggesting more significant problems exist with the application of the geological column to the rock record.

The lead author favors the idea that the nine major thrusts are real and caused by gravity sliding (Clarey, 2013) as the Rocky Mountains uplifted during the recessive stage of the Flood. However, more research is required.

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Conference Reports

CRS Conference Abstracts

July 30–August 1, 2015 · Dallas, TX

On July 30–August 1, 2015, the Creation Research Society held its fifth conference in Dallas, Texas, kindly hosted by the Institute for Creation Research. The purpose of our meetings is to promote ongoing research, give people an opportunity to gain exposure for their work, and solicit feedback crucial in developing their ideas. We expect that many of these eventually will be published in the Quarterly or some other publication. Since these are works in progress, we normally do not record the presentations. However, we do publish the abstracts provided by the authors. Below are the abstracts of presentations at the 2015 meeting.

Coordinating Committee:
Danny Faulkner and Kevin Anderson

Plenary Presentations:

The Real Jurassic World

Kevin Anderson

The discovery of original tissue and biomolecules in several dinosaur fossils has drawn attention from both creationists and evolutionists. Biochemical models predict that proteins and cells within animal tissue would degrade long before the 65+ million-year age assigned to these fossils. Nonetheless, the presence of original biomolecules has been repeatedly documented by different studies, including the Creation Research Society's iDINO project. These results indicate that either the tissue is preserved by unknown preservation mechanisms or the fossils are far younger than 65+ million years. Thus, various models have been proposed to explain the prolonged survival of the original material. The models include (1) apatite sequestering of collagen, and (2) iron (Fe) induced Fenton reactions causing cross-linking of proteins. However, closer analysis of the chemistry involved in these models reveals significant shortcomings. There is little evidence that apatite can provide such extensive preservation of collagen, and free radicals released by Fenton reactions would counteract many of the preservation processes. In addition, oxygen-, water-, and microbe-free environments are seen as essential for adequate long-term preservation. Yet, tissue-containing dinosaur fossils are typically not found in such environments (e.g., the brow horn examined by the iDINO project was wet and muddy). Thus, the more consistent conclusion is that original "soft-tissue" provides direct physical evidence that dinosaur fossils are far less than 65+

million years of age (and likely just a few thousand years). This raises challenges to the standard (evolution-biased) geologic dating framework.

New Data Debunking Human Chromosome 2 Fusion

Jeffrey P. Tomkins

A major argument that humans evolved from a common ancestor with chimpanzees is the proposition that ape chromosomes 2A and 2B fused end to end, forming human chromosome 2. Allegedly supporting this idea is the apparent presence of a 798-base degraded "fusion site" on human chromosome 2. However, in 2002, an analysis of 614,000 bases encompassing the site discovered that it was located in a gene-rich region bearing no synteny to chimpanzee, and the fusion sequence was positioned inside a putative pseudogene. In 2013, I expanded upon this data and published a report showing that the alleged fusion site is not a genomic fossil at all but a functional domain inside an active and highly expressed gene (*Answers Research Journal* 6:367–375). In fact, the sequence encodes a transcription factor binding site in the first intron of the *DDX11L2* long noncoding RNA gene. The gene contains three exons, and its transcripts are alternatively transcribed and/or spliced to create two classes of transcripts—one set contains two exons and the other three. Based on the two-exon transcript variants, some evolutionists have errantly attempted to debunk the data, claiming that the fusion site is not actually inside the *DDX11L2* gene—disregarding the first exon and the three-exon transcripts. I will review the research and present additional data from both the ENCODE and FANTOM databases that further bolster the already clear evidence negating fusion—including new information showing the fusion site is a key point for gene transcript initiation.

Presentation Abstracts:

Anomalous Inclinations of Exoplanet Orbits

Wayne Spencer

Recent research on extrasolar planets has included attempts to measure the orbit inclinations of exoplanets compared to the spin axes of their stars. The Kepler Space Telescope as well as other research teams studying transiting exoplanets have found that a preponderance of exoplanets seem to have highly inclined orbits. In fact, many seem to have inclinations in the range of 80 to 110 degrees. There are now dozens of cases of these systems, raising questions about the origin of these planets. No planet formation theory allows for planets forming from disks in such orbits. Therefore my effort in this research is to clarify the significance of these findings by reviewing the scientific literature on extrasolar planet research. Questions are raised by these results. Are these high inclinations some type of observational or experimental error, or are exoplanets really in near-polar orbits? This study will look at how the scientific community is dealing with these findings and evaluate the implications for a young-age creationist viewpoint. Thus far, experimental errors or incorrect methodology do not seem to explain these results. Thus, secular scientists turn to various dynamical effects of multibody systems to explain how planet orbits could be altered after their formation. My conclusions are that extrasolar planets are more consistent with biblical creation than naturalistic origins, but more study is warranted on the issue.

New Vistas from New Horizons

Robert Hill and Danny R Faulkner

The recent images of Pluto from the New Horizons mission have challenged the traditional view of solar system history. We will briefly discuss some of the implications that these images have for the evolutionary and the creationary models for the solar system.

Milankovitch Manipulation? Why Secular Scientists No Longer Accept as Valid Many of the Data Used in the Iconic "Pacemaker of the Ice Ages" Paper

Leo (Jake) Hebert III

The authors of an iconic 1976 *Science* paper computed power spectra using paleoclimatological data from two sediment cores in the Indian Ocean. The resulting prominent spectral "peaks" corresponding to dominant Milankovitch cycles were largely responsible for making the Milankovitch hypothesis the consensus explanation for Pleistocene ice ages. Despite the crucial role that these data played in acceptance of the Milankovitch hypothesis, the original data values are not readily available but only *revised* values for

these data. These revised data sometimes show dramatic discrepancies with estimates for these values obtained from the figures in the 1976 paper. Moreover, a key age of 700 kiloyears used to construct the initial timescale for one of the cores is no longer accepted as valid by secular scientists; this age has been revised upward to 780 kiloyears—ironically, in order to agree with the Milankovitch hypothesis! Why did secular scientists feel the need to revise these data? And if one were to re-perform the original analysis used in the 1976 paper, but using *all* the available data for these two cores, would the results still provide support for the Milankovitch hypothesis? This presentation provides evidence of possible manipulation of the sediment data by secular scientists, as well as preliminary power spectra results calculated using *all* known data values. Because uniformitarians use Milankovitch cycles to date seafloor sediments and ice cores (and even to calibrate radioisotope dating methods), invalidation of this iconic paper would prove devastating to uniformitarian dating schemes.

A Proposal for Global Numerical Simulation of the Ice Age Climate

Richard L. Carpenter

During the Ice Age, ice sheets several kilometers thick covered Canada and Europe, while lowlands in portions of Siberia, Alaska, and Yukon remained ice-free. The Oard model predicts that the onset and departure of ice age conditions occurred rapidly (on the order of a few decades or less). Attempts to numerically simulate these conditions using global and mesoscale 3D atmospheric models have met with some success but were computationally limited to coarse grids or limited areas respectively. A new generation of global atmospheric models using unstructured hexagonal grids, advanced numerical techniques, and optimization for massively parallel computing is becoming available. Models such as MPAS and FIM are in a mature state of development, with the former being developed as a community model. The availability of these models coupled with steadily declining computing costs makes it possible to simulate the global climate over time spans of years or decades at reasonably fine resolution. Specific experiments are proposed, and computing requirements are determined, with the goal of simulating the Ice Age and testing the predictions of the Oard model. Notably, the onset and departure of ice age conditions, whether rapid or not, has never been successfully simulated. Sensitivity studies will examine the sea surface temperature distribution, aerosol concentration, and changing sea level and continental topography.

Mysteries of History Revealed: Fossils, Geology, Asteroid Impacts, and the Nephilim

Jeremy Auldaney

Many theologians have claimed that Scripture says that the Nephilim were the result of the godly race of Seth marrying women of the evil race of Cain. However, this does not explain why they became giants and mighty men of old who killed monsters as Nimrod did. It does not explain the numerous legends of history that tell of these Nephilim, such as Hercules. Legends of Gaia say she was the mother of the Titans, another name for the Nephilim. Secular history talks about the Nephilim. Henry Morris stated that the Nephilim were human offspring of the *bene elohim:* "The only obvious and natural meaning (of the designation, *bene elohim* 'sons of God') ... is that these beings were sons of God, rather than of men, because they had been created, not born. Such a description, of course, would apply only to Adam (Luke 3:38) *and to the angels*, whom God had directly created (Psalm 148:2, 5; 104:4; Colossians 1:16)." Many theologians have misrepresented what the Bible says about the Nephilim. My research shows that the Nephilim have been the cause behind all world events throughout history. The Nephilim were not wiped out as God commanded the Israelites, and they are with us today. This fact explains why God was not being cruel when he ordered Israel to utterly destroy them. Satan placed his serpent offspring in Canaan to prevent Israel from receiving their inheritance in the land promised by God and to create a counterfeit Messiah of the linage of the Serpent.

The Real Flood

Bryan Hughes, Mark Amunrud, and Michael Oard

Many believe that Noah's flood was initiated by two events: fountains of water and torrential rain. We believe the Bible does not support this interpretation. The Bible describes three events initiating Noah's flood: fountains of the great deep, portals to space, and torrential rain. We believe the context, words, related verses, and geological evidence all support this translation: On that day all fountains of the great deep burst open (volcanoes), and portals to space were opened (meteorite/comet impacts), and these caused continuous, torrential rain on the earth for forty days and nights.

We will discuss several important research issues:

- Preconceptions can lead astray. (Avoid them.)
- How many events does the text describe? (Three)
- The period between Genesis 7:11 and 12.
- The *waw* consecutive and imperfect verb (causal action).

- Why did rain subside at the 150-day mark? (Genesis 7:24–8:3)
- God defined "heavens."
- The event timing.
- What is a fountain? (Is it always of water?)
- What is the great deep? (Is it always the sea?)
- What are the "windows of the heavens" in other scriptures? (Something more devastating than torrential rain)
- Which events were revealed, and which were observed?
- What are the geological evidences?

The Bible is truth, but incorrect interpretations are not. Incorrect interpretations of the Flood account have contributed to uniformitarian geology, evolution, and billions of years.

Warm Icy Moons

Wayne Spencer

The moons Europa (at Jupiter) and Enceladus (at Saturn) both possess active geysers that have generated interest from planetary scientists. Evidence suggests there may be large amounts of liquid water under the surface of these moons. This has raised challenging questions because if these moons are over four billion years in age, calculations imply that Europa and Enceladus should have frozen solid. Thus, there is an age issue in the heat budget for these objects. They provide interesting case studies in physical processes affecting moons, such as tidal heating, radioactive heating, and other possible heat sources. This addresses how a young-age view in which heat from creation is still dissipating provides a more plausible explanation of these moons.

Evolution Hopes You Don't Know Chemistry—The Origin of the Atom

Charles McCombs

Evolutionists frequently report that the sciences of geology, physics, and biology confirm the teachings of evolution, but seldom do you hear that the science of chemistry confirms evolution. It is for good reason; the teachings of chemistry do *not* support nor confirm evolution. Many aspects of so-called "chemical evolution" are either not consistent with a fundamental knowledge of chemistry or prohibited by known laws of chemistry, making the term "chemical evolution" an oxymoron.

The evolutionary explanation for the origin of the atom claims protons, neutrons, and electrons were formed in the microseconds of cooling after the big bang, and the elements of hydrogen, helium, and lithium were formed minutes later. However, based on several known facts of the structure of the atom, there are serious problems when one tries to construct the atom by this explanation, which is one reason why evolution hopes you don't know chemistry.

Evolution Hopes You Don't Know Chemistry—Life Is Not Alchemy

Charles McCombs

Evolution claims that life started by chemical reactions in a primordial soup. If evolutionary processes are responsible for the accumulation of natural chemicals into a life-form, then chemical processes must be able to explain how evolution occurs, but chemistry cannot do that. If natural processes are responsible for the creation of life, then these processes must be explainable by the laws of chemistry, but they are not.

There are many attempts to explain the existence of life's important molecules, molecules such as proteins, DNA, and RNA, as being formed from simpler chemical molecules. Although evolutionists can show the chemical reactions by which these molecules can be formed, the stepwise formation of any of these molecules from their component parts is no different than early alchemists' attempts to turn lead into gold! These chemical reactions are not just highly improbable, hoping for slow, gradual changes, but impossible because of known chemical laws, making this another reason why evolution hopes you don't know chemistry.

Computer Simulation of Statistical Barriers to the Self-assembly of Bio-macromolecules

Marshall Jordan

The self-assembly by random process of bio-macromolecules from subunits in an alleged "primordial soup," a necessary step in the origin-of-life scenarios postulated by evolutionists, is impossible on a combinatorial basis. Yet many evolutionists insist that this event has actually happened. To demonstrate the absurdity of this claim, a computer program is devised that randomly selects letters of the alphabet, surrogates for macromolecular subunits, in repeated trials to compose the 15-letter string, "GONEWITHTHEWIND," without any error. The program, written in Hand Basic,

is run on an i-Pad2 at 100,000 trials per minute. Running the program clearly reveals the unlikelihood of generating the entire 15-letter string, since the probability of getting "GON" is about 0.000064 per run. This compares well with the theoretical result of 1/26^3. For the 15-letter string the number of possible combinations is 26^15, or 1.68x10^21. The probability of randomly getting the 15-letter string becomes more likely than not if the number of trials exceeds half this number, or 0.84x10^21 trials. At 100,000 trials per minute, this would take 8x10^15 minutes, or 15.9 billion years, which is longer than the proposed age of the universe. Being mathematically impossible within a universe of finite age, the origin of bio-macromolecules cannot be explained by random self-assembly. The existence of bio-macromolecules and all of life is a miracle of divine creation as described in Genesis.

Hermeneutics for General Revelation

Tom Carpenter

Hermeneutics is at the center of Bible interpretation and attempt, with the aid of the Holy Spirit, to reveal the original, intended meaning of the text. A constant challenge is to remove obstacles such as preconceived ideas, prideful desires, or carelessness, and to replace them with the diligent and accurate handling of God's Word. This is critical to a correct Christian worldview and Christian practice. Much emphasis has been placed on general revelation, especially in connection with Creation and the earth's age. It is important to understand the hermeneutics of general revelation in order to understand its place in this debate. Only when clearly defined and positioned in the Christian worldview can the relationship between general revelation and science be explained, as well as that between general revelation, science, and natural history, including the earth's origin, age, and history of life. The authority, function, and power of general revelation are examined relative to both Scripture and science. Interpreting special revelation involves accurate handling of the text and its relation to language, meaning, and exegesis. Interpreting general revelation involves significantly greater limits and precautions. Insight is obtained from examples using general revelation to defend Creation and define general revelation in its connection with science. Insight is also gained from historical analysis: the Copernican revolution is a much-misunderstood example. These demonstrate modern misunderstandings of the superiority of special to general revelation and of the purported, but erroneous, interchangeability between general revelation and contemporary natural history.

Language Diversification, Babel, and Historical Linguistics

Les Bruce

The Hebrew Bible records the confusion of languages at Babel. That narrative explains that the original human language changed into many different languages from which the 7,100 languages of today have derived. In this paper I will attempt to explore the linguistic nature of that event. In that process we will also consider how the historical-comparative method in linguistics can enlighten us regarding some of the details of what likely happened at that time and in the years following.

We are not given very much information in the biblical text about where the descendants of Shem, Ham, and Japheth migrated or what languages they spoke. Traditions from ancient historians will suggest some possibilities for us, and from that information we will draw conclusions about the languages they spoke. From this study we will find there were probably a few new languages introduced at the Babel event, but the majority of linguistic confusion was the result of a process of language change. This conclusion is reached because most of the descendants mentioned in the table of nations in Genesis 10 apparently spoke related languages.

Modern linguistic research has demonstrated that the languages associated with the descendants of Shem and Ham are genetically related languages. Some of their descendants developed common languages, and others saw their language change into different languages. Their descendants speak genetically related languages across northern Africa and the Middle East. The descendants of Japheth listed in Genesis 10 apparently began their migrations with three distinct languages, Indo-European, Altaic, and a Caucasian language.

Languages exhibit a great deal of diversity, and they are changing, in opposite ways sometimes with no particular direction in view. The language scene looks like a well-stirred mixture of elements and processes. Yet all languages exhibit an underlying unity of principles. None of the modern language families classified by linguists today represents a distinctive type of language in contrast to the others. There is only one ontological type of human language. There seems to be no good evolutionary explanation for why such superficial diversity exists among the languages of the world. If language in the human species were evolving in some general direction, we would expect languages to be much more similar to each other. The present diversity presents no advantage for the survival of the human species where one formal structure would do for all languages quite well. Creationists claim that our Creator decided to separate human communities by introducing superficial language

differences; and what we observe in comparative studies in linguistics today are quite consistent with the effects that such a process would produce.

Dating the Ipuwer Papyrus on the Biblical Versus Secular Timelines

Anne Habermehl

Controversy surrounds the Ipuwer Papyrus, an Egyptian manuscript residing in the Dutch National Museum of Antiquities in Leiden, Netherlands. This old document describes chaotic conditions in Egypt at what is proposed to be the time of the biblical Exodus. When it is understood that the secular timeline diverges from the biblical timeline, the date of the Ipuwer manuscript as determined by scholars sits exactly where it should and provides a powerful testimony to the biblical account of the plagues and their aftermath. However, those who deny that there are two timelines claim that the manuscript dates too early to refer to the time of the Exodus. The question of divergence of the secular and biblical timelines is a matter of enormous importance for biblical apologetics. Often secular scholars declare that biblical events like the Exodus or the conquest of Canaan could not have taken place because they can find no evidences of these at the time in history where the Bible places them. The Ipuwer Papyrus is strong extrabiblical evidence for the Exodus. Unfortunately, biblical scholars who deny that there are two timelines are unable to use this evidence to defend their biblical beliefs.

The Appendix: Designed for the Immune System

Marshall Jordan

Evolutionists say the appendix is a vestigial organ soon to be lost from human phylogeny, a notion discredited over the last century by evidence that the appendix functions in the immune system. A recent new theory suggests that the appendix is a reservoir for preservation of normal bacteria for repopulation of the colon after diarrheal illness or antibiotics suppress the normal bacteria. To test this "safe house" theory, a prospective, clinical study is proposed in which the incidence of antibiotic-associated colitis will be correlated to patient appendectomy. Study participants will be those started on antibiotic therapy for soft-tissue, urinary, or respiratory infections. Data will include a history of previous appendectomy, the type and duration of antibiotic therapy, use of probiotics, and age. Exclusion criteria will include immune suppression, prior antibiotic therapy, and history of Clostridium difficile colitis, or inflammatory bowel disease. IRB approval and patient consent will be obtained. Data will be collected by initial evaluation and follow-up phone interview. Statistical analysis will be used to test this null hypothesis: the absence of the appendix has no effect on the incidence of antibiotic-associated colitis other than what would be expected by chance alone. I conclude that God will be glorified by any attempt to better understand the function of the appendix, which He designed for a good purpose. As the psalmist has said, we are "fearfully and wonderfully made."

Unsubstantiated Evidence that Unearthed Deformed Skulls Are Hybrid Human-Aliens

Suzanne Vincent

Elongated, deformed skulls of desiccated bodies have been unearthed in Paracas peninsula of Peru and in Egypt among mummified pharaohs in tombs. Similar deformed skulls have been found in France and Germany, Siberia and Crimea, on the Mediterranean island of Malta, and in graves of native people of North America, Australia, and South Pacific islands, as well as in Africa. The Peruvian skulls are cone-shaped and elongated with greater bone density and greater cranial volume than normal. Some skulls have only one fused parietal plate and a stretched-out frontal bone. Peer-reviewed reports have not been published of anonymous stories of genetic analysis of mitochondrial DNA (mtDNA) from Paracas skulls showing mutations unlike human or Neanderthal mtDNA.

Can structural abnormalities be explained? Yes, types of craniosynostosis and fusion of skull sutures have been identified—either (1) genetic with other skeletal deformations or (2) nonsyndromic (sporadic). The most common nonsyndromic is sagittal synostosis (scaphocephaly) resulting in one parietal plate. Any time bones are broken, heterotopic ossification can occur between closely opposed parts, resulting in added bone weight. With head binding or flattening between boards, external pressures could result in added bone density. Cranial capacity being larger implies little about brain size; infants with hydrocephalus have enlarged skulls but not more brain tissue. External pressures could bring about a misshapen brain in a larger skull, with extra volume taken up by cerebrospinal fluid. Scientific explanation can be offered for abnormalities of these ancient but yet undoubtedly human skulls.

An Oceanographer's Insight for Researching and Analyzing Oceanic and Littoral Ecosystem Dynamics, Guided by "High-Definition" Biblical Philology

Jim Johnson

Matthew Fontaine Maury relied upon Psalm 8:8 as the biblical basis for recognizing and discovering the "paths of the seas," as he founded the empirical science of oceanography (*The Physical Geography of the Seas*, AD 1855). In contrast to closed-Bible "scientific method" research, Commodore Maury's creation research and analysis exemplifies how scientific research investigations (and methodology) should be guided by biblical information about Creation, such as specific biblical words and phrases that describe how Earth's interactive ecosystems (and their components) actually operate. Biblical philology research methods available (including "high-definition" applications of Maury's insight, e.g., from Genesis 1:16–18) can enhance creation research and its evidentiary analysis. The creation apologetics-relevant value of doing so, when analyzing oceanic and littoral ecosystem dynamics, is illustrated in whale migrations, Christmas Island red crab life cycles, Pacific salmon smolt emigration to sea, intertidal shoreline animal activities, and phenological-developmental abnormalities in littoral-ranch Atlantic salmon confused by artificial lighting. These examples also exhibit how understanding marine ecology (including oceanic and littoral ecosystem dynamics) has been retarded by evolution-distracted laboratory research (e.g., lobster behavior studies) by evolution-biased dismissal of real-world fish population data (e.g., North Atlantic codfish population declines) and deistic waste-management attitudes that impact oceanic and littoral ecosystems (e.g., oyster-bed productivity declines).

Blood Crying from the Ground: A Forensic Science Perspective, Illustrated by the Gruesome Killing of America's Most Hated Woman

Jim Johnson

Some scientific methodology distinctions are illustrated in the forensic analysis of what happened to the "most hated woman in America," atheist Madalyn Murray O'Hair, whose blood uniquely "cried" from the ground after her death, providing an ironic contrast to the testifying blood of Earth's first martyr, Abel (Genesis 4:10). In particular, this presentation shows how empirical and forensic sciences differ. Using empirical science principles (e.g., genetics), human blood can be analyzed to provide DNA evidence that is useful for human identification, within a forensic science ("cause-and-origin") analysis context. Unique events of the past—such as murders—being no-longer-observable facts of the past, require forensic science-based analysis, because empirical science observations (alone) cannot "prove" what occurred (or "whodunit"). Empirical and forensic sciences are *evidentiarily correlated*, however, because inferring *past causes* involves analyzing *present effects* of those causes. Using this forensic case study as an illustration, the closed-Bible limitations of deism-based "scientific method" analysis are examined. Of relevance to creationists, causation facts regarding creation origins (or causation facts regarding our own origins) are *non-repetitive etiology* facts, involving no-longer-observable events and processes. Accordingly, whenever investigating *causation* topics regarding *origins*, biblical creationists need to practice sensitivity to relevant forensic science methodology (informed by relevant Scriptures). The biblical philology analysis of Genesis 4:10 will also show how the notion of "crying" blood is not as "symbolic" as many have simplistically assumed. If time permits, other forensic context illustrations (and creation-science educator insights) will be noted to clarify evidentiary analysis concepts.

Status Report on a Creationist Interpretation of the Lance Formation (Upper Cretaceous, Wyoming)

Kurt P. Wise

Two years into a stratigraphy project in the type area of the Lance Formation in Niobrara County, Wyoming, several items have been discovered of interest to creationism. First, multiple Lance strata traceable over multiple miles seem interpretable only by catastrophic deposition of debris flows: (a) a 3'–4'-thick boulder breccia; (b) three dinosaur bone beds (with bones at all orientations in the *middle* of 4'–6' mudstones); and (c) two shell beds. Second, more than twenty sandstone beds have convolutions in them that seem interpretable only as the result of seismic disturbance from earthquakes many times larger than the largest earthquakes measured since the invention of the seismometer. Third, sandstones traceable over at least six miles, combined with the subaqueous interpretation of the seismic disturbances in those sandstones, argues for the sandstones being subaqueous sheet sandstones (rather than sand bars of braided streams). Fourth, a thin blanket of metamorphic and igneous cobbles on topographic highs suggests a catastrophic denuding of the Black Hills scores of miles to the northeast. Fifth, under-fit rivers, thick alluvium, and apparent breach points, combined with the overall low topographic relief of the area point to a relatively recent period of extremely high rainfall. The first three suggest that the Lance Formation could only have

been formed in the Flood. The last two seem to indicate catastrophic post-Flood processes.

Penguin Eggs to Die For: Forensic Science Perspectives on the AD 1912 Tragedy in Antarctica, Disappointing Natural Selection Apologetics and Phylogenetic Theory

Jim Johnson and Joel Kautt

During January–March of AD 1912, the British Antarctic Expedition, led by Captain Robert Scott, braved the summer weather of Antarctica's Ross Ice Sheet, hoping to be first to discover the South Pole, as well as hoping to marshal scientific evidence to prove the phylogenetic recapitulation theory that was assumed to provide a plausible mechanism for justifying Darwin's natural selection theory. Ironically, the expedition team collected some 35 pounds of fossils that showed Antarctica's former climate hosted tropical rainforest flora (botanical evidence consistent with the Genesis account of Earth's pre-Flood conditions). Eggs of the emperor penguin (*Aptenodytes forsteri*), prior to AD 1912, had not been scientifically analyzed, due to prior errors regarding the phenology of emperor penguin reproduction. The chief naturalist, Edward Wilson, regarded the flightless emperor penguins as Earth's most primitive bird. He hoped that penguin eggs would demonstrate how "ontogeny recapitulates phylogeny" and thus provide a forensic "proof," of sorts, that Darwin's theory was accurate, with quasi-forensic data regarding how dinosaurs evolved into birds. Emperor penguin eggs were collected, but they did not support the Darwin-Haeckel theory of "recapitulation." Unlike the prior Norwegian expedition's success, the British research expedition ended in tragedy. Biblical philology insights, including analysis of verbs used in Hebrew parallelism (e.g., from Proverbs 26:4–5), as well as Greek nouns used in epistemology-relevant texts (e.g., John 5:44–47; 1 Corinthians 15:39), analyzed in conjunction with contemporary forensic science perspectives, add extra insights into why the natural-selection apologetics efforts of Edward Wilson were destined for disappointment.

North American Earthworms Associated with Glaciated Soils

George A. Damoff

Since Darwin's publication of *The Formation of Vegetable Mould through the Action of Worms* in 1881, there remains a disproportionate dearth of knowledge of earthworm ecology, including in the USA. Fundamental to earthworm ecology are surveys that identify the distribution of earthworm species on the landscape with associated descriptions of soils and plant communities. Most current earthworm ecologists agree that native North American species of earthworms were obliterated from glaciated soils associated with the Wisconsinan glaciation event that is purported by old-earth theorists to have ended 11,000 years ago. These soils have remained earthworm-free in a majority of the land area for Canada and northern-tier states of the USA, until invaded by nonnative earthworms species introduced by European settlers in the past 400 years. It is a remarkable claim by old-earth theorists that native species of earthworms from warmer regions of North America never repopulated these earthworm-free soils for nearly 11,000 years when present-day ecological studies show that earthworm populations are capable of rapid establishment in soils, even those that have been heavily disturbed. A more reasonable hypothesis is that these glaciated soils have been earthworm-free for a few thousand years following a single ice-age event subsequent to the Noachian Flood. A young earth creationist perspective seems a more reasonable framework from which to interpret the biogeographical earthworm data. Methods and results for this research include comparisons of biogeographical distribution data for native and nonnative earthworm species presently inhabiting North American soils.

An Open Proposal to Experimentally Test the Evolution Model and the Creation Model and to Disentangle the Relationship of Different Organisms

Change Tan

Life is either evolved or created, ultimately from nothing. The evolution model suggests that all life-forms can be traced back to a common ancestor and are linked in a big phylogenetic tree or, more recently, a web. In contrast, the creation model suggests that different organisms were created, each according to its own kind. A creation kind can change with time, but it will not become a different kind. I propose to experimentally test these two models by determining whether each lineage of organisms contains its own lineage-specific genes (LSGs), whether the LSGs are essential for the survival or reproduction of this lineage. Multiple experimental studies and theoretical probability analyses have shown that new genes cannot be generated via accumulation of mutations and natural selection. Therefore, two lineages of which each contains its own lineage-specific essential genes cannot be linked via evolution. Current preliminary data suggest that each lineage contains its own lineage-specific essential genes. However, the organisms analyzed are very sparse. To ensure the conclusion is applicable to all organ-

isms on earth, I propose to investigate whether each domain/phylum/class/order/family of organisms contains phylum/class/order/family-specific essential genes and essential non-coding DNA sequences, starting with model organisms. Identification of lineage-specific essential genes will not only allow for determining whether evolution is a valid path but also facilitate the demarcating of the creation kinds and the extent of variation within each kind, thus disentangling the relationship of various diverse organisms.

Education Standards in the States: The Treatment of Origins Science

Robert P. Lattimer

State education standards are statements of what a student should know and be able to do at each grade level. Origins science is a historical science that includes the origin of the universe, of life, and of life's diversity. All states include instruction in origins in their science curricula. In every state the coverage is materialistic; that is, all explanations are based on unguided evolutionary processes (natural laws and chance). Teleology (purposeful design in nature) is not included as a possible explanation in historical sciences. All state science standards have adopted the dogma of methodological naturalism (MN or scientific materialism). In most states the use of MN is not disclosed. In the few states where it is disclosed, the effect of MN (to deny teleology) is not adequately discussed. Science standards from all states have been examined, including the new Next Generation Science Standards (NGSS). The presentation will discuss the treatment of various topics across the states, including the definition of science, materialism, teleology, operational and historical sciences, origins science, and environmentalism. Overall, state science standards present a disturbing picture of indoctrination in materialistic philosophy in science classes, particularly biology. No state standards give a balanced coverage, but NGSS is the worst. The exclusive presentation of science, and especially origins, from a materialistic/atheistic viewpoint violates parents' rights to direct the academic and religious education of their children. Public education needs to return objectivity and religious neutrality to curriculum standards.

The Legal Side of Creation versus Evolution

James Connor

Public school science standards on origins are where science, religion, and the law intersect. In four states, teaching objective science findings that deflate evolution's credibility are currently allowed. COPE vs Kansas Board of Education has had the effect of only 12 sates adopting the Next Generation Science Standards. This study researches winning and losing legal strategies for creation science. Five landmark cases were reviewed: "Scope's Monkey Trial," Epperson vs Arkansas, "The Lemon Test," Edwards vs Aguillard 1987, and Kitzmiller vs Dover. Two cases of atheism were reviewed. Six cases wherein creation lost were researched: Wright vs Houston, Willoughby vs Stever, Crowley vs Smithsonian, McClean vs Arkansas, Peloza vs Capastrano, and ICR vs Parades. Eight cases wherein creation did well include: Kentucky Revised Standards, Louisiana Science Ed. Act, Tennessee House Bill 368, Wisconsin 2004, Selman vs Cobb Co., Kansas BOE Hearings, Farnan vs Corbett, and Florida Science Standard Hearings (I attended) 2008. I interviewed leadership of COPE vs Kansas to comprehend the legal dynamics of this present case. Too often creationists employed faulty legalese. Though ID lost in Kitzmiller vs Dover, it revealed it took just one creation expert witness, Michael Behe, Ph.D., to cause Judge Jones to rule, "*Evolution may be false*, may be just dogma." This research revealed the complex multifaceted legal strategies that led to nearly 8 recent creation victories and possible future victories.

Learning the Unknown

Stanley E. Prussia

The purpose of this effort is to initiate discussion, not to claim final results. Scientific research is the most widely recognized way to learn the unknown. (Subsequent use omits "the unknown".) Evidence showing the scientific method is not the only way to learn could help creationists refute the claim by evolutionists that the only knowledge that is real must be obtained through science. Thus, by definition, they eliminate biblical truths such as the supernatural origin of everything from nothing, life from nonliving matter, and the human spirit. Creationists have made great strides in recent decades by framing the creation/evolution debate on biblical authority and solid scientific evidence. Additional progress should be possible if we can establish that the engineering method and systems thinking also enable publically verifiable learning. Efforts to learn can be viewed as a human activity system when using soft systems methodologies as developed and described in publications by Peter Checkland in the UK. A key step is to develop conceptual models that describe systems and subsystems with verbs to identify actions that result in flows of information and materials among the systems and subsystems. This report describes efforts to identify verbs that describe the learning processes of the scientific method, the engineering approach, systems thinking, and revealed truths.

If each description can be accepted as a valid way of learning and if the verbs describing their activities differ sufficiently from the other three, then a case has been made that the scientific method is not the only way of learning.

The following triads were identified. Research scientifically is described by Reduce reality, Refute hypotheses, and Replicate experiments (3-R's by Checkland). Design knowledgably is described by Desire improvements, Develop alternatives, and Deploy solutions (3-D's). Simulate holistically is described by Show emergent properties; Specify hierarchies and flows; and Simulate, validate, and verify (3-S's). Believe biblically is described by Bow before God, Build on revealed truths, and Broadcast biblical truths (3-B's). Examples are given for each way of leaning to help evaluate whether the triad is valid. Conceptual models are presented to show hierarchies and flows among the four ways of learning and with other systems such as Know logic and Apply knowledge to business, education, ethics, and other human endeavors. This report does not claim one way of learning is superior to another. Rather, the examples demonstrate how all four ways of learning are synergistic. Discussions are encouraged to decide if each way of learning is valid and if the four triads accurately describe the ways of learning. If the overall approach is judged as beneficial, then we need to organize an interdisciplinary team for making improvements in the description of ways for leaning the unknown as a means for increasing support of the creation model.

A Geological Critique of the Floating-Forest Hypothesis

Timothy L. Clarey

The hypothesis of a pre-Flood, floating forest biome has been in the creation literature for several decades. The idea was developed as an explanation for the coal beds found in Late Carboniferous system rocks but was based primarily on paleontological analysis. Surprisingly, this hypothesis was never adequately tested against other available geological data and techniques. This paper presents three challenges, from a geological perspective, that question the validity of the floating-forest hypothesis. First, floating forests are found incapable of maintaining a sizable freshwater lens to supply the plant life and the pools and springs, as suggested by previous authors. Second, tsunami-like waves associated with catastrophic plate movements would likely have broken up the floating biome earlier in the Flood than what has been asserted. This activity would have resulted in the formation of multiple coal beds mixed throughout much of the stratigraphic column, contradicting the rock record. Third, relatively few coal beds are found as a result of the closure of the Iapetus Ocean (pre-Atlantic) early in the Flood as Rodinia began to fragment. It is not until after this pre-Flood ocean was completely consumed that we find extensive coal beds deposited on the adjacent continents. When examined against available geological data, the floating-forest hypothesis lacks explanatory ability. It is a novel idea that may have been too readily accepted without sufficient scrutiny. Instead, a return to studies of pre-Flood paleogeography and plant zonation to explain the coal beds is suggested.

Sandy Gravity Currents as the Primary Sediment Transport Mechanism during the Global Flood

Steven A. Austin

What was the "conveyor belt" that moved millions of cubic kilometers of ocean sediment through distances of many hundreds of kilometers over continental platforms and margins in a rapid manner during the global Flood? We studied laboratory-scale models of sedimentary process, applied computational fluid dynamics to simulate sediment gravity currents, and documented some real-world examples within stratified sedimentary rocks. A device we call a "zag tube" illustrates both uniformitarian and catastrophist models of sediment transport. *Vertical* sediment fall within the zag tube produces a low-density suspension and "hindered settling," a demonstrably slow transport process. It simulates sedimentation from dilute tractive currents (e.g., river deltas and submarine canyon turbidity currents) where water current turbulence lofts and moves sediment. *Inclined* sediment fall within the zag tube produces a high-density suspension by the "boycott effect," a much faster and concentrated movement of sediment. Inclined settling within the tube simulates submarine, sandy gravity currents (sometimes called "sandy debris flows"), where liquefied sediment in laminar flow moves the entrained water. Slurry-flow experiments ("Fish Tank" at St. Anthony Falls Laboratory, University of Minnesota) made sandy gravity flows that were 50% by volume fluid and a density twice that of the tank's water. Flows reached velocities sufficient to hydroplane, retained a cohesive and liquefied plug with laminar shear at boundaries, and, during unsteady declining flow, quickly deposited massive or graded sand beds. These sandy debris flows displayed a shear-thinning rheology (the "ketchup effect"). Computational fluid dynamics (CFD) simulated a 4-meter-thick sandy gravity current on a nearly level surface. The computer-simulated current hydroplaned at a velocity of more than 5 meters per second. Dynamic pressure at the head of the flow was balanced by the added static pressure beneath the flow. Internal friction was significantly reduced

by silt particles killing the intergranular porosity, thereby inducing liquefied flow. Mobility was further enhanced by shear-thinning rheology, laminar flow, and a wing-shaped head that generated lift. There appears to be a thickness-velocity-concentration window of stability for slurry flow. This window theory suggests that a submarine gravity current can be torn apart abruptly at the onset of turbulence, producing "flow transformation." Turbulence within the flow abruptly dilutes the current, nullifies the wing shape, destroys the liquefied particle-support mechanism, and defeats the hydroplane. After flow transformation, sediment deposition with the familiar Newtonian rheology follows quickly.

Many Holocene gigantic seafloor debris flows (e.g., Storegga Slide, western Norway coast, volume 2,500 cubic kilometers) have horizontal runout distances of many hundreds of kilometers over the deep ocean floor. Submarine debris flows have been established as one of the most important agents of mass wasting at the continental margins of modern oceans. The "zag tube options" for sedimentation of the stratigraphic record are powerfully illustrated by the mudstones and sandstones of Fountain Formation (Pennsylvanian, Colorado Rockies). The MacColl Ridge Formation (Late Cretaceous, Wrangellia Terrane, southern Alaska) displays extraordinary matrix-supported conglomerates deposited from debris flows that moved northward. Sandstone strata of MacColl Ridge Formation increase in abundance northward and display upper-plane-bed bedforms, indicating flow transformation. The 2-meter-thick "Whitmore Floatstone Bed" (Redwall Limestone, Mississippian, Grand Canyon region, Arizona, Utah, and Nevada) has matrix-supported clasts with rapidly buried nautiloids diagnostic of a current moving 7 meters per second westward. Floatstone volume is about 25 cubic kilometers with the bed thickening significantly westward into Nevada, where upper-plane-bed bedforms indicate flow transformation and slower current velocity. Rhythmic, fine-textured carbonate muds that lay abruptly on top of the floatstone are diagnostic of bidirectional flow, indicating that the ocean recoiled in oscillation after the giant mass of slurry passed. The Pine Creek Limestone Member (Pennsylvanian, Glenshaw Formation, northern Appalachians), although less than one meter thick, is extremely persistent in West Virginia, Pennsylvania, and Ohio. It displays matrix support of imbricate marine fossil fragments that is diagnostic of sandy carbonate debris flow.

Therefore, a strong case can be made for slurry-flow transport from (1) laboratory-scale models of gravity currents, (2) computer models employing computational fluid dynamics, and (3) stratified field outcrops displaying criteria diagnostic of debris flow. Sandy gravity currents appear to have been the primary sediment transport agent ("conveyor belt") that accompanied the Global Flood.

Geologic and Biblical Constraints for the Ark's Landing Place

Roger Sigler

Biblical Flood chronology, geologic maps, and relative stratigraphic relationships clearly show that modern Mount Ararat was not the landing place of Noah's ark. Instead, the ark remained submerged in circulating waters that steadily receded from the time it came to rest until the face of the ground looked dry (Gen. 8:4–13). Within this time period Noah saw mountaintops (Gen. 8:5), but at least 47 days after this sighting, the dove was unable to reach them. The dove found no rest because the ark and most of the seafloor for many miles was still submerged (Gen. 8:9). After 7 more days, the dove left and returned with an olive leaf because more dry ground had emerged between the ark and the olive tree mountains. The face of the ground by the ark dried later. The biblical description matches well with the vast mountainous plateau that overlooks the Aras valley to the north and Mesopotamia on the south. This region was created when Upper Cretaceous ophiolitic mélanges rose from the sea floor with chaotic blocks of oceanic crust and pelagic limestone. Deposition of widespread Eocene to Lower Miocene shallow marine and continental clastic sediments shortly followed. These unconformably overlie the Cretaceous rocks as a peneplain. This is the best timing for the ark coming to rest. It was caught by the rising seafloor in a shallowing marine environment. Early post-Flood Middle Miocene regional uplift turned the peneplain into a high mountainous region, the "mountains of Ararat." Intermountain basins formed as sea level fell over many years. Upper Miocene is when the sea completely regressed from the area. Later, the Pliocene to Quaternary rock series formed, including a huge amount of volcanism. Modern Mount Ararat is one of many Quaternary, or post-Flood, subaerial volcanoes.

Thrusts Caused by Gravity Sliding during Late Flood Uplift

Michael J. Oard

Thrust faults have been very difficult for both creationists and evolutionists to explain. Thrusts are often found along the flanks of mountain ranges, such as both sides of the Pyrenees Mountains of northeast Spain and southeast France, which suggests they were formed by gravity sliding during mountain uplift. Some thrusts can be due to impacts that push up deep rock over surface rock along the rim and possibly along the edge of the central uplift. A reconnaissance survey of probably the best exposure of a stack of nine major thrust faults in North America will be summarized. The Sun River

Canyon is a perpendicular cut through these faults. Using the notation of the secular geological column, the major thrusts have placed Mississippian and Devonian limestones and dolostones over Cretaceous sandstones and shales. I favor the position that the nine major imbricate thrusts exposed in the Sun River Canyon are real. The emplacement could not have been slow because the deformation at and near the contacts is minor. However, many if not most of the minor thrusts are likely imaginary. It is likely that the imbricate stack of nine thrusts was caused by the stopping of a massive gravity slide as the Rocky Mountains uplifted late in the Flood. The geomorphology appears to be similar to a massive slump, since to the west of the imbricate stack of thrusts, a low basin exists, before the mountains of the continental divide are reached. The basin would correspond to the area of rotation of the slump. Massive erosion has put the final touches on the landscape.

Flood History as Recorded in the Sedimentary Megasequences of Africa

Timothy L. Clarey and Werner J. Davis

The sedimentary rocks across Africa record the extent of the Flood as the rising sea level progressively inundated more and more land. Early megasequences, such as the Sauk and Tippecanoe (Cambrian through Silurian systems), show less areal extent compared to the later megasequences, mimicking the results found in North America. The Zuni Megasequence (Jurassic and Cretaceous systems) shows the maximum extent, possibly indicative of the highest Flood water level. Comparison of the stratigraphic columns of Africa and North America shows many similarities while reflecting some obvious differences. Deposition of an extensive, basal Sauk sandstone layer is observed on both continents as flooding initiated. Furthermore, the early megasequences in Africa are dominated by clastics (clay and sand), while a significantly higher percentage of carbonate rock is found in the later megasequences. This is a complete reversal of the depositional pattern observed across much of western North America, which is dominated by carbonate rock early and clastic rock later. In addition, most of the six megasequence cycles in Africa begin with a basal sandstone layer, in stark contrast to many of the basal megasequence rock types in North America, which show more lithologic variety. Reasons for these differences may be related to the contrasting tectonic setting of Africa and North America during the Flood. Most of northern Africa was a passive setting until late in the Flood, and Western Africa remained connected to South America until well into the Zuni Megasequence.

The Impossibility of Evolution: Mathematics and Information Technology Show "Molecules-to-Man" Evolution is Impossible

Tom Foltz

Starting with an assumption that the first cell actually evolved, can it be shown that the second cell could not have evolved from the first cell? The answer is yes! That is, the evolution of the first cell into the second cell can be shown to be impossible, thereby negating the evolution or existence of any multicellular organism via molecules-to-man evolution. Information technology permeates each of our lives from the simplest to the most difficult task. Mathematics and information technology provide unique insight into the impossibility of evolution starting from the foundational or starting premise that evolution did occur and resulted in a first cell. By reviewing mathematics and information technology, it can be demonstrated that whether the first cell's attempt to evolve into the second cell was random or nonrandom, the first-cell-to-second-cell event never took place and never could have taken place regardless of any conditions or properties of the first cell or the environment surrounding the first cell. Starting from an initial premise that the first cell existed, mathematics and information technology provide the tools and structure to show that the evolution of the first cell into the second cell could never have occurred regardless of any time frame. Hence, if the second cell could never exist via evolution, then neither would cells three and above. Consequently, organisms could never have occurred by random chance or nonrandom materialistic, evolutionary processes—there are no other possible materialistic processes.

Analysis of Radiometric Dating

Richard Overman

A study that began with an interest in Argon-Argon dating has blossomed into a full research project on radiometric dating. The purpose of the research project is to identify a way of explaining the phenomenon of radioactive decay from a biblical creation perspective. To date, the project has resulted in a *CRSQ* and *ICC* publication and two presentations at CRS conferences. The project took a new turn recently with interest from faculty and students at a university. This presentation provides a review of the work to date and reports on future efforts by the entire group. Attendees will be invited to provide advice on future studies.

Analysis of GPS Relativity Testing Reveals the Source of the Carmeli Metric, Flaws in Special Relativity, and the Validation of an Alternate Energy Theory

Gene Brownd

A review of GPS satellite Doppler tracking was made. Simulation software was written to help analyze the effects of the several relativistic corrections as made and proposed by Dr. Neal Ashby of the University of Colorado in Boulder, Colorado, and to compare them with the model effects of my energy model. Relativistic corrections are compared, and where they differ from my model they are discussed. For example, the Doppler effect using special relativity appears to have a larger periodic error than expected, and I show the differences between my model and special relativity. Also I show that the large "eccentricity effect" in the data is caused by the equivalent to the Carmeli metric (scaling frequency by a factor of velocity divided by the speed of light). The significance to the creation modeling is that the origin of the use of velocity divided by the speed of light to scale frequency is an integral part of Hartnett's model for debunking the use of dark matter, dark energy, and his explanation of the light travel-time problem. The alternate energy model opens additional possibilities for solving the light-time problem.

A Foundational Flaw in Science

Mark Amunrud, Matt Thibault, Benjamin Moon

By failing to maintain the distinction between intrinsic and extrinsic measurements, science has accepted conclusions about the universe that are erroneous and in opposition to the creation worldview. Science is bifurcated by its methods of measurements. Science correctly adheres to consistent, intrinsic measurements of matter but fails to use intrinsic measurements of space. Instead, it uses extrinsic measurements of space that can vary by more than ten orders of magnitude in interstellar environments. This is a serious, foundational flaw. Two issues have hidden this flaw for centuries. First, the gravitational environment on Earth is nearly uniform. This allows extrinsic measurements of space to be consistent on Earth. Second, space is invisible, so it is difficult to detect space density being warped by gravity. The extrinsic measurement of space, length, is not a consistent measure of space because, as Newton observed, space has diverse densities. The Creation account presents space and matter as physical substances that can be measured intrinsically. It also alludes to the way to measure space intrinsically. Our research suggests that measuring space intrinsically not only corrects serious errors but also leads to new discoveries. Furthermore, measuring space intrinsically could mathematically confirm that the universe is young.

Magnetic Reversals in a Spherical Conductor

Tim Clayton and Josh Fann

Magnetic reversals in a spherical conductor are represented by a mathematical model based on the dynamic-decay mechanism. The north- and south-seeking magnetic fields are determined by opposing currents circulating within the sphere. The dominant field behavior is represented by a free-decay differential equation, while the growth of the field with opposite polarity is due to the emf generated by fluid motion radiating outward from the center of the sphere. The magnitude of the emf is determined by the angle between the dominant magnetic field and the direction of the moving fluid. Each equation includes a mutual inductance term due to the interaction of the two currents. The system is solved using elementary techniques and parameter values for the earth and sun to generate graphics modeling the behavior of the respective systems. Results show a decrease in energy as the system transitions from one state to the next. The solution of such a system can be compared to the observed behavior of the sun's magnetic reversals for plausibility of the model. A credible mathematical framework can be used in the investigation of possible geomagnetic field reversals during the Genesis Flood.

"Divide and Conquer": (Mostly) Low-Cost Research Proposals that Could Significantly Advance Creation Science

Leo (Jake) Hebert III

Despite the enormous strides creation scientists have made since the 1961 publication of *The Genesis Flood*, the creation science movement is hindered by both limited funding and a relatively small number of available researchers. Fortunately, there are a number of projects within the fields of physics, cosmology/astrophysics, and geophysics that could significantly advance the cause of creation science, many of which are surprisingly inexpensive. Preliminary work has already been done in most of these areas by leading creation researchers. Suggested projects include: refuting (dubious) claims that the Heisenberg uncertainty principle allows for "a universe from nothing," refuting claims that the cosmic microwave background radiation confirms predictions of big bang nucleosynthesis, literature searches to find contradictions and circular reasoning within secular dating schemes, literature searches that might help address concerns that

(relative) radioisotope dates for meteorites and moon rocks are older than similarly derived dates for continental rocks, finding additional young-earth arguments for the youthfulness of the ice cores and deep seafloor sediments (including carbon-dating of deep-seafloor sediments presumed older than 100 kyrs), and continuing research into the problem of distant starlight. In many cases, all that is needed are textbooks, Internet access, paper and pencils, and a willingness to work hard to learn the subject matter! Furthermore, nearly all these projects are ones I have already started but was unable to complete due to time constraints. I have already found significant "leads" (including online references) for most of these projects, which I would be happy to share with others.

Compelling Evidence for the M. Symphony's EPOLA (Electron-Positron Lattice) Model for "Empty-Space" Aether

Gene Brownd

The EPOLA model was evaluated as proposed by M. Simhony beginning in 1990. The purpose was to test the suitability for use as the required aether as part of an alternate energy model to relativity. There were three criteria used for consideration. The first criterion is, does it agree with the Bible? The second criterion is, does it agree with existing data that include all of the so-called aether-dragging experiments made in the early 1900s. The third criterion is, do mathematical models of the dynamics provide logical reasonableness. Derivations include relationship of binding energy and wave velocity, wave frequency proportional to energy, and the energy equation for particles moving in the EPOLA. The significance of the model and the subsequent energy model derived using EPOLA provide new insight into refuting the big bang, developing a light-time scenario, and generally understanding other physics issues such the nature of gravity, inertia, and the actual meaning of Einstein's energy equation $E = mc^2$. For example, the gravitational constant and speed of light are no longer fundamental universal constants but are a result of the bonding energy and mass of electrons and protons.

Design Analysis Indicates That Living Organisms Are Autonomous and Automated

Randy J. Guliuzza

Human engineers cannot create life but could design objects mimicking distinctive functions of living things. Tremendous engineering prowess will be evident in future decades *if* human designers can someday construct fully autonomous entities that can extract resources from environments, grow, self-adjust, and generate similar copies of themselves in a fully automated manner. Reverse engineering living things—across diverse taxa—illuminates how they accomplish the equivalent technological marvels of autonomy and automation currently eluding impressive human engineered systems, confirming God's engineering prowess. Though autonomy is not independence, there has been no genetic evidence that creatures possessing *nephesh* life are ever multi-organism mosaics or assimilated into collective bionetworks, which would confuse their autonomy. Automation is demonstrated by irreducibly complex innate systems configured to function within a self-contained whole (without detectable outside intervention) as causal for extraction of necessary environmental resources for processing, or sensing specified stimuli for self-adjustments. For example, to decipher *just* their self-adjustable capacity, molecular biology reveals networks of systems enabling great cross-generational physiological flexibility and exquisite self-regulation that yield extraordinary resilience. Resilience entails subsystems facilitating robustness (maintenance of primary function and autonomy under challenging conditions) and plasticity (intra and inter-generational self-adjustments to dynamic conditions). This implies self-adjusting populations of organisms initially programmed with the capacity to self-adjust to changing environments and tightly track relevant, variable environmental conditions through spatial gradients and time dimensions. Unsurprisingly, therefore, when design-based thinking underlies analysis of organisms, we find component, systems, and functional congruence to nonmystical, logically operating human-designed systems.

Design Analysis Suggests That Our "Immune" System is Better Understood as a Microbe Interface System

Frank Sherwin and Randy J. Guliuzza

What if our immune system today is actually functioning not very differently than it did in the pre-Fall world? A better understanding of its purpose may emerge if we (1) study it via design analysis and (2) consider some implications of microbiome research findings. One design certainty is that some interface system is essential to coordinate independent entities to harmonize together. Microbiome research reveals exceedingly more harmony than antagonism in organism-microbiome relationships. Therefore, design-based creationist research would look for, and actually find, myriads of human-designed interface systems possessing nearly indistinguishable counterpart elements as found in immune systems. When dynamic host system-to-microbe

relationships are understood in light of design analysis, the clear properties of a rich, multifunctional "microbe interface system" (MIS) are evident—which is the key link associating us to trillions of microbes. Like designed interface systems, the MIS recognizes and controls "self" from "non-self," using, for instance, different classes of TLRs that recognize microbial products and intestinal homeobox genes like *Cad*, which helps maintain gut homeostasis. Control of self follows innate self-adjustments after detection of changed conditions. Control of non-self may be by cell destruction or by *not* violating distinct boundaries and direct manipulation. Rather, non-self systems are presented with specific conditions (i.e., stimuli) that elicit a necessary consequence due to the outworking of that system. Thus, cell-destroying capacity is inherent, but the original and continuing primary purpose of the MIS is regulation, not defense. Concentrating on the presence of interface-distinctive elements could better characterize what may misleadingly be labeled an "immune" system.

Creationist Lessons from Evolution's "Internalism" v. "Externalism" Raging War

Randy J. Guliuzza

An escalating, decade-long debate amongst evolutionists continues relatively unnoticed in creationist literature. The argument turns on the true cause of the origin of organic form—a vital topic to creationists—most notably punctuated by Medina's 2010 paper, "Natural Selection and Self-Organization: A Deep Dichotomy in the Study of Organic Form." "Externalists" are battling "internalists." Externalists (predominantly) follow how Darwin "accepted the view that the environment directly instructs the organism how to vary…. The organism was like modeling clay" (Kirschner and Gerhart, 2005). Thus, the "originating organizing principle [of biologic form] is imposed from without" (Medina, 2011) by nature's agents of geology, climate, predation, which shape a population's organic form as they are driven through space-time in deadly struggles to survive. Internalists assert that externalist thinking is antiquated and vague and neglects a mountain of recent molecular research demonstrating that organic form always originates internally. Externalists mainly counter by framing internalists within a bizarre scheme of organism-environment isolationism. Insight for creationists come from analyzing the substantive internalist-externalist distinctives over true causality of form, significance of current research, and mechanism(s), which seem to ensure a continuing "deep dichotomy" and that neither side can compromise on some middle ground. Many new internalist arguments seem compelling. However, they could bolster their position if they replaced their organism-focused, "self-organization" perceptions with organism-focused, *design-based* explanations. Design-based explanations never posit organism-environment isolation. Design analysis better explains *how* autonomous organisms depend on a minimum of one (usually multiple) entity-based, complicated interface system that makes interdependent, close relationships possible.

DNA Topoisomerases: Molecular Scissors and Unknotters of the Genome

Joseph E. Deweese

DNA topoisomerases are essential enzymes that participate in the regulation of DNA topology by generating transient single-stranded (type I) or double-stranded (type II) DNA breaks. These enzymes alleviate torsional strain associated with replication, transcription, and DNA repair. Topoisomerases are found in all known forms of life and even in some viral genomes. There are five distinct families of topoisomerases, including three families of type I and two families of type II enzymes. Each class is nonhomologous and, according to evolutionary models, would have had to arise independently. Genetic evidence indicates that these enzymes do not fit well into molecular phylogenies and evolutionists rely upon horizontal gene transfer to explain some discordances. Based upon our current understanding of the type II enzyme, known as DNA topoisomerase II, this enzyme is known to be essential for life due to its ability to unlink (decatenate) linked chromosomes after replication. Topoisomerase II cleaves both strands of the duplex, generating an enzyme-DNA intermediate, and passes an intact duplex through the break before ligating the broken strands, making it both vital to survival and also a threat to genomic integrity, which has been exploited in the treatment of cancer. Due to the positive supercoiling resulting from transcription and replication, DNA topoisomerases are essential even in the smallest of genomes, making them a requirement in even the "simplest" forms of life. DNA topoisomerases are fascinating molecular machines that display intricate design rather than haphazard development through mutation plus natural selection.

DNA Alignment Algorithms and Human-Chimpanzee Genome Comparisons

Jeffrey P. Tomkins

In 2013, I published a report asymmetrically comparing the chimpanzee genome chromosome by chromosome

to the human genome, using the technique of optimized sequence slicing and the BLASTN algorithm (v 2.2.27+) to ascertain overall DNA sequence similarity (*Answers Research Journal* 6:63–69). On average, the chimpanzee genome was found to be 70% similar to human with individual autosomal similarities varying between 66 and 78%. However, it has now been revealed that the BLASTN algorithm excludes query sequences of low similarity in query sets containing large numbers of sequences, such as were used in my previous study. In addition, it also appears that this particular bug in the algorithm is becoming progressively worse with each software package update by NBCI. As a result, new investigations into human-chimp genome similarity using alternative algorithms has been undertaken. An intensive effort into comparing BLASTN algorithm performance across software package releases (2009 to present) is also being performed to more fully document the problem.

Bacterial Genome Decay from a Baraminological Viewpoint

Matthew Cserhati

Bacterial genome decay (BGD) is a widespread phenomenon across bacteria, many aspects of which support the biblical creation/fall model. The phenomenon can be traced through species corresponding to different baramins, with a common ancestor dating back to only a few thousand years. Processes involved in this phenomenon include pseudogenization, genomic deletions, the spread of insertion elements within the genome, chromosomal rearrangements, and genome downsizing, which are the exact opposite of what supposedly happens during evolution. We present a survey of the scientific literature describing BGD in the *Bordetella*, *Mycobacterium*, and *Yersinia* baramins as well as their statistical genomic characterization. These baramins are also contrasted with bacteria with highly reduced genomes and organelles. The literature survey also examines the consequences of BGD for the minimal organism question and the endosymbiosis theory. Based on a minimum gene estimate for the last universal common ancestor (LUCA) of 1,000, the probability for the evolution of the first viable, nonparasitic cellular organism is approximately $10^{-167,500}$. Gene density, patterns of gene loss, and the differences in genetic code separate organelles from bacteria with reduced genomes. In conclusion, the study of BGD can be helpful in statistically characterizing baramins. It can delineate at what stage individual species are in this process within baramins. Genome size, gene number, and GC% can also help delineate individual baramins from one another. BGD fits nicely with the creation model yet presents an overwhelming challenge to evolutionary theory.

A New Chimpanzee Genome Assembly for Unbiased Sequence Comparisons

Jeffrey P. Tomkins

In 2011, I published a report describing how the chimpanzee genome was assembled using the human genome as a reference (*Answers Research Journal* 4:81–88). This strategy was undertaken under the assumption of evolution and common ancestry. As a result, the chimpanzee genome is likely biased and does not truly stand on its own merits. The possibility thus exists that detailed comparisons between chimpanzee and human may also be biased. To alleviate this, research at ICR has begun to reassemble the chimpanzee genome using a *de novo* approach from a ~14-fold redundant coverage of Sanger-style trace reads in the NCBI database (following removal of vector sequence and low quality bases). These reads are much longer in length than typical "next-generation" reads and should provide a large number of informative euchromatic contigs that can then be compared to both the current chimpanzee assembly and the human assembly. The comparative analysis of individual reads will also be discussed.

The Cit$^+$ *Escherichia coli* Mutant

Kevin Anderson

Previous studies have monitored the growth of *Escherichia coli* in a minimal medium for over 60,000 generations. During that time, several adaptive mutants have been detected, including mutants that lost genes for flagella biosynthesis and for ribose catabolism. The most "iconic" is the Cit$^+$ mutant, which can utilize citrate aerobically. Since wild-type *E. coli* utilizes citrate only under anaerobic conditions (a defining trait of *E. coli*), this mutant constitutes development of a new bacterial species. A detailed analysis of the Cit$^+$ mutant reveals that only two mutations were required for its development. First, a *rnk-cit*G mutation that splices the *rnk* promoter adjacent to *cit*T (a gene for a broad-range citrate/succinate antiporter), which enables *cit*T to be expressed under oxic conditions. The other is a mutation of the *dct*A promoter, which increases expression of a succinate/proton antiporter. This increases the level of citrate uptake

by the cell. However, neither of these mutations is likely to be advantageous to the organism separately; thus earlier potentiating mutations enabled weak citrate utilization prior to the final *dct*A mutation. The formation of this mutant is frequently cited as a classic example of evolutionary development of innovation. Creationists should take care to not trivialize the development of this mutant, but neither does it contradict a creation model of origins. While this mutant has presented geneticists with an interesting scenario of events, the wild-type already possessed the genes for citrate utilization. Thus, the Cit^+ phenotype is a result of altering the regulation of preexisting genes.

Minutes of the 2014 Creation Research Society Board of Directors Meeting

The fifty-first annual Creation Research Society (CRS) Board of Directors meeting was held 12–14 June 2014, at the Chase Suite Hotel in Kansas City, Missouri. This is the first time the board has met in Kansas City. The following board members were present: Mark Armitage, Rob Carter, Gene Chaffin, Don DeYoung, Danny Faulkner, Robert Hill, Russ Humphreys, Jean Lightner, Gary Locklair, Michael Oard, John Reed, Ron Samec, and Glen Wolfrom. Mark Armitage and John Reed participated via Skype as health issues prevented their travel.

President Don DeYoung called the first session of the general board meeting to order at 19:00 on Thursday, 12 June 2014. Don thanked the Wolfroms for their assistance in selecting the facilities.

President DeYoung shared an article, and his thoughts, on the characteristics of a healthy board. Healthy boards know their mission, keep their focus on the big picture, evaluate their work, tackle major issues, and don't divide into factions. While the CRS board is healthy, the president reminded us that it required dedication and hard work to remain healthy. The board discussed how the characteristics related to the CRS specifically and noted with gratitude the 51 years of research and friendships the society has developed.

President DeYoung overviewed the logistics of our meeting. The first part of the general board meeting would be Thursday evening. Friday would be dedicated to committee meetings. The second half of the general board meeting would be on Saturday. Don asked each board member to provide a brief update on his or her life and work. Rob Carter, our newest board member, shared that he speaks for Creation Ministries International and pursues research, writing, and movie production. The president introduced Bruce Scoggan as a guest for our meeting. Bruce is a member of the CRS and the local creation group, Creation Science Association for Mid-America.

Don shared several letters to the board. He noted with sadness the passing of two CRS members, Dr. Paul Zimmerman (officer and CRS Fellow) and Donald Ensign (a faithful book reviewer for the *CRSQ*).

Recording secretary Gary Locklair asked for corrections or additions to the 2013 meeting minutes as published in the Winter 2014 *CRSQ* (Vol. 50, No. 3). The minutes stood approved as printed. Gary reported the results of the 2014 board elections. With 187 ballots received, the following were elected to a three-year term: Rob Carter, Danny Faulkner, Robert Hill, and Mike Oard. A list of future candidates suggested by the membership was presented.

Financial secretary Mark Armitage reported that our income should be $220,000 for this fiscal year. He reported that investment income showed a slight increase. Mark reported that we used $20,000 of our endowment for expenses. Mark provided budget instructions for Friday committee meetings.

VACRC director Kevin Anderson reported that the 50-year reception for CRS held at the International Conference on Creationism last August was well attended with close to 200 people.

Treasurer Danny Faulkner reviewed the history of CRS conferences. The first was five years ago with 75 in attendance. The next CRS conference will be in August 2014 at Answers in Genesis (AIG). There are more than 90 currently registered for the event and more than 40 abstracts have been submitted.

Danny Faulkner suggested that the board consider a target expense budget of $220,000 to match income and avoid drawing from the endowment fund.

Don DeYoung shared information from the lab committee meeting held earlier in the day. The committee discussed the idea of moving from Arizona to a major metropolitan area or a college campus. Due to the projected cost of the move, this idea was put on hold. Some changes to the current VACRC facilities were discussed. The successful iDino lab project was reviewed and the committee hopes to produce a video on the project that would be self-funded. The committee presented a motion to allocate 10% of grant funds received for iDino and any other research for administrative expenses. It was indicated that this is an acceptable and common practice. Because this was originally discussed two meetings ago, the motion makes this retroactive to the previous year of the iDino project.

It was moved that 10% of research expenditures for special projects (e.g., iDino) be held back as overhead (retroactive for iDino back one fiscal year). The motion passed.

For future special research projects, the overhead will be allocated when donations are received. The 10% assessment does not apply to the research endowment.

VACRC director Kevin Anderson shared a number of thoughts regarding

the financial status of the CRS. The board discussed a number of ways to promote the society, raise awareness among current members, and recruit new members.

The first session of the full board meeting adjourned at 21:00.

Friday, 13 June 2014, was devoted to committee meetings. The constitution, finance, Internet, membership, periodicals, publication, and research committees all met and conducted business. (The lab committee met on Thursday afternoon.)

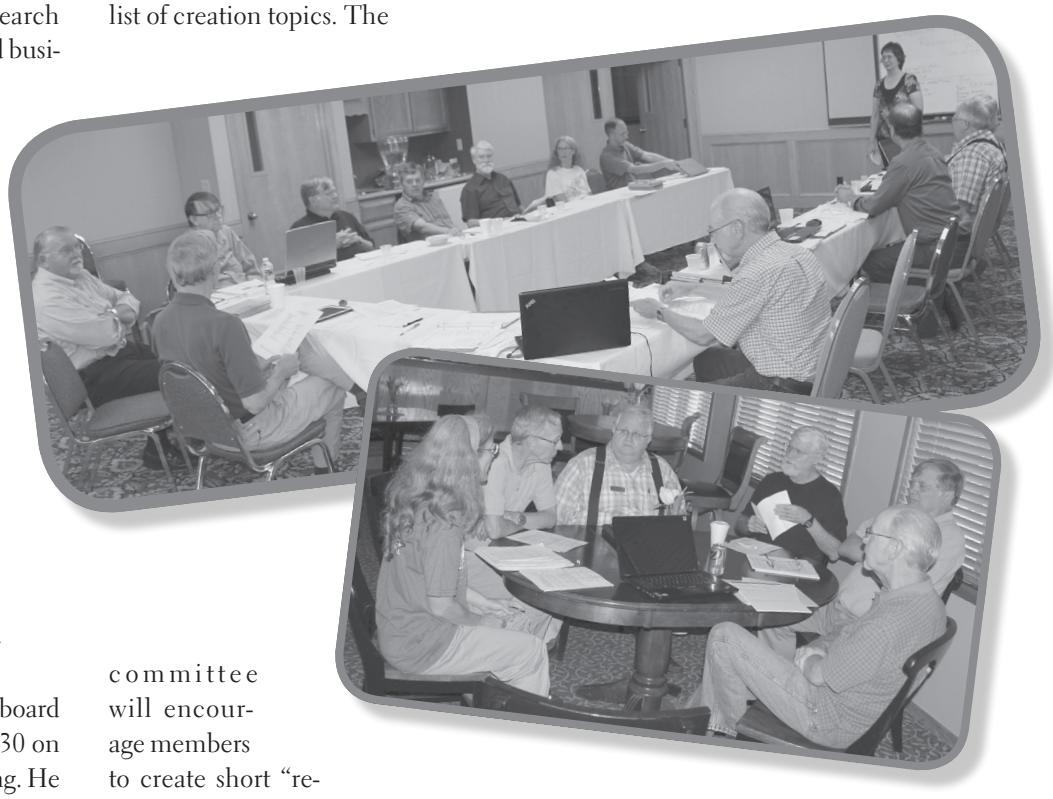
A free-for-all CRS discussion occurred early Friday afternoon with all board members participating. A number of topics were discussed and many ideas developed and suggestions offered. Because the CRS relies heavily on volunteers, we should make our needs known and encourage members and friends to volunteer their time on behalf of the society.

A reception with the CSAMA was held Friday evening after a dinner at the Smokehouse Restaurant.

The second part of the general board meeting was called to order at 08:30 on 14 June 2014 by President DeYoung. He reviewed the agenda for the morning and mentioned greetings to the board from former members Ted Aufdemberge, Bob Gentet, and Dave Kaufman.

Guest and CRS member since 1969, Dr. Stan Udd led the devotion based on "what we believe." Based upon the first principle of the CRS statement of belief, Dr. Udd shared 22 biblical claims regarding what God Himself has done. "The Bible is the written Word of God, and because it is inspired throughout, all its assertions are historically and scientifically true in 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."

Gary Locklair, Internet committee chairman, reported on matters relating to the CRS website, CRSnet, and the CRS Facebook page. The fine work of its volunteer webmaster, Fred Williams, and his assistant, Tony Massey, was noted. The CRS online presence continued its steady growth. The committee will begin to develop a "landing page" for the website with an organized list of creation topics. The committee will encourage members to create short "research notes" that can be shared on our Facebook page. Board members stated that the Internet was a key to help us share our vital message.



Periodicals committee chairman Gene Chaffin announced that members can access all issues of the *Creation Research Society Quarterly* and *Creation Matters* online at the website. Everyone can access publications that are older than 3 years. Editor Danny Faulkner has been working hard to learn and streamline the editor position. Currently the *CRSQ* is behind in its publication schedule. *Creation Matters* editor Glen Wolfrom, along with assistants Bob Hill and Jean Lightner, were thanked for their work on *CM*, which provides shorter articles targeted to a wide audience of interested readers.

Mike Oard, publication committee chairman, reported an eBook was recently completed (with Mike as author and Glen as publisher). The publication committee was over budget but also generated more revenue than anticipated (about $30,000 in book sales). In order to reduce expenses, the book catalog will not be published this year. Instead, we will rely on flyer mailings and online promotion.

Membership committee chairman Glen Wolfrom shared that there has been an increase in voting and sustaining members with a decrease in subscribers and student members. We retain about 50% of new members and subscribers for the second year, and then about 25% retention after that. The suggestion of a "future leaders" membership program was presented. This program will allow members to sponsor students so there would be no cost to the future leader. The future leader membership

CRS Board of Directors and professional staff.

(l–r) Standing: Robert Hill, Rob Carter, Kevin Anderson*, Diane Anderson*, Eugene Chaffin, D. Russell Humphreys, Ron Samec, Jean Lightner.

Seated: Danny Faulkner, Becky Wolfrom*, Glen Wolfrom, Don DeYoung, Gary Locklair, Mike Oard.

Not pictured are Mark Armitage and John Reed.

*Professional Staff: Kevin Anderson is Director of the Van Andel Creation Research Center. Diane Anderson and Becky Wolfrom are support staff.

would cost $10 and publications would be provided electronically. A fund will be established to support the future leaders program. The CRS currently supports 1569 members and subscribers.

Gene Chaffin, research committee chairman, reported on the move of microscopes from the lab and reviewed the list of active research projects including proposals dealing with geomorphology, helium escape, gas well radiocarbon dating, binary star ages, pyrinoids, and botany. Mike, Ron, and Mark shared some details of their current research projects.

Constitution committee chairman Gary Locklair reported on several issues related to the bylaws and ideas for long-range planning. The committee noted that the CRS has a procedure in place for dissolution (Constitution Article VIII) but no procedure for removal of board members. After discussion, the board directed the recording secretary to produce a bylaw to address the situation.

Treasurer Danny Faulkner presented information about fiscal year 2013–2014. Danny provided estimates of $231,700 for net income versus $237,200 of estimated expenses for the fiscal year. Our expenses will be less than the approved expense budget of $244,635 for fiscal year 2013–2014.

Financial secretary Mark Armitage reported on the Society's financial holdings. Mark listed the current value of CRS investments (endowments), which had gained $9,000 during the past year. The withdrawal of $20,000 from the endowment fund was offset by interest earned and deposits such that our end balance was slightly more than our beginning balance. Mark reported that the society funds are invested in a conservative manner.

Treasurer Faulkner and Financial Secretary Armitage led the discussion regarding the 2014–2015 budget. The following committee budget requests were approved: VACRC (lab)–$123,186; Executive/Treasurer–$14,250; Membership–$12,500; Publication–$21,000; Periodicals–$43,000; Research–$19,000; Internet–$1000; Constitution–$0; Finance–$0. President DeYoung noted that this represents $18,000 per board member.

An expense budget of $233,936 was approved for fiscal 2014–2015. The budget represents a 4% decrease from the previous year. It was moved and approved to authorize Diane to make a withdrawal from the endowment funds of up to $10K in order to cover CRS authorized expenses without board approval.

The CRS constitution requires 12–18 board members. The board submitted the names of Gene Chaffin, Jean Lightner, John Reed, and Glen Wolfrom as candidates for the 2015 board of directors election. [Subsequent to the board of directors annual meeting, the name of Jerry Bergman was put forth by nomination from the membership.] The board discussed several other candidates to be submitted for consideration next year.

Jean Lightner and Mike Oard were recognized for their anniversary years of service to the CRS. The board of directors, on the recommendation of Glen Wolfrom, elected Mike Oard as a fellow of the society.

Election of board officers was held. Don DeYoung was elected president, Gene Chaffin was elected vice-president, and Gary Locklair was elected recording secretary. The following were confirmed for the third year of their three-year term: Glen Wolfrom as membership secretary, Mark Armitage as financial secretary, and Danny Faulkner as treasurer.

A number of members shared informative comments with the board.

The next annual meeting of the board will be held at the VACRC facilities in Arizona from 4–6 June 2015.

The meeting was adjourned at 12:05.

Respectfully submitted,
Gary Locklair
CRS Recording Secretary

Letters to the Editor

The policy of the editorial staff of CRSQ *is to allow letters to the editor to express a variety of views. As such, the content of all letters is solely the opinion of the author, and does not necessarily reflect the opinion of the* CRSQ *editorial staff or the Creation Research Society.*

Questions from a Noncombatant

I should start off this letter by making it known that I am an acquaintance of Mr. Klevberg and that it is at his request that I have taken the time to send this response to his and Mr. Reed's article in the Winter 2015 volume of *Creation Research Society Quarterly* entitled "Battlegounds of Natural History III: Historicism."

I hold an earth sciences degree from a secular university and was raised in a conservative Christian home. Because of this, I have come to enjoy the discussions that arise in the area between what might be called literal creationism and that of a modern, secular, scientific origin story. As I am convinced that the topic in question is not of a salvific nature, regardless of your position on the matter, I have adopted the role of noncombative questioner and am open to all sides of the argument. I hope that this response only engenders additional conversation and thought on the issues at hand.

My first question is where you draw your basis for the claim that theistic evolution leads to the rejection of providence, when it should only allow for it in greater measure, especially considering that a similar statement was made by historic religious authorities regarding the theory of heliocentricity, a theory that has since emerged uncontested and is taught in grade school by even Christian educators and no longer is thought of as being in conflict with the existence or power of God. It seems to be the historical norm for the official church to reject emergent scientific theory on the threat it might pose to our limited understanding of the power of God. In the previous example, it took until 1992 before the Catholic Church officially acknowledged that Copernican theory was correct and the condemnation and imprisonment of Galileo to have been in error. I have found in my life that belief in a self-revealed, omnipotent, omnipresent God at the very least allows for possibilities beyond that of special creation but which still fall within our understandings of the origins and interpretations of Genesis. And this brings me to my next question.

You state that the "substitution of human knowledge for revelation" leads to "inevitable disappointment when meaning is lost." This statement is equally challenging for me, all things considered. When it comes to the dualism of Creation versus Evolution, in my opinion, far too much credit is given to Darwin and not enough is given to the work of Huxley, whose primary interest in the work of Darwin was to disallow the existence of God. Western Christianity has little knowledge of this aspect of the development of evolutionary ideology in opposition to God, that being largely from the application of Darwinian theory by Huxley and contemporaries rather than Darwin himself. Simultaneously, you have the works of Wallace in Indonesia, based on better observations and species distributions among island chains, which spurred Darwin into rushing the publication of *Origin*, just so that he would be credited with the theory of evolution, rather than delay for a more well-organized, thought-out approach that ultimately would leave the credit to Wallace. So, if neither Wallace nor Darwin set out to disallow God and through their study both reached an evolutionary conclusion, why, as Christians, should we take the immediate stance against it, knowing that a third party (Huxley) led the charge against God?

In conclusion, I agree with your claim that science has no place answering questions beyond what might be considered the "beginning"; that is the realm of philosophy and theology. However, in the meantime, I hope to continue to engage in these kinds of questions and attempt to find answers without fear that the God I serve is bigger than the answers I may find.

Regards,
Curt Swets
Great Falls, Montana
curt6387@hotmail.com

Reply

We appreciate the thoughtful response of Mr. Swets to our recent article (Reed and Klevberg, 2015) and the opportunity to explore the issues he raises. We agree that salvation does not rest on a particular position on origins and natural history but encourage the young-earth creationist position as a distinctly Christian one because it is the only view that provides a consistent basis for orthodox soteriology. Mr. Swets's skeptical posture would be appropriate for a minor intellectual puzzle, but this is a worldview war between Christianity and naturalism, and a battleground is no place for spectators.

We have explained before why we reject even the idea of a "modern, secular, scientific origin story" (Reed and Klevberg, 2014a, 2014b). By definition, speculations about origins are *metaphysical* speculations, and those about the past are *historical*. Because any origins story implies a worldview and its associated values, it is best defined as a myth in the technical sense of the word (myths may be true or not but are value laden).

Mr. Swets asks why theistic evolution implies a rejection of the doctrine of providence. Our answer is simple: There has been an indisputable loss of a pervading sense of providence causally connected to the rise of secular natural history. For a Christian, it would be bad enough to affirm a *deistic* god who would create a process of extended cruelty like evolution, but to think that such a process is overseen in every providential detail is infinitely worse. Another unbiblical alternative is a god of death and cruelty with limited foresight, but that reinforces the secular metaphysic of reality underlain by random chaos. In the end, however, "nature red in tooth and claw" was intended by secularists like Huxley to replace providence, and it did. The first two articles in this series addressed the relationship between providence and secular/accommodationist views of natural history in greater detail (Reed and Williams, 2011, 2012). We believe that the Bible teaches a good creation cursed because of Adam's sin. However, God did not abandon it but continues to rule through works of providence. This is both logical and biblical and makes for better theology and better science.

Although a staple of critics, linking the Copernican Revolution to creationism is a red herring at best. Most people have been miseducated about those events, as they have about Galileo's "persecution." At root is the thoroughly falsified "war-between-science-and-religion" meme. Its ancillary fables (e.g., flat earth, Dark Ages, angels dancing on pins, etc.) are falling by the wayside to modern scholars, both secular and religious (Glover, 1984; Gould, 1987; Rudwick, 2005, 2008; Russell, 1997; Stark, 2003, 2005). Creationists have identified the same distortions (Faulkner, 2001; Grigg, 1997; Schirrmacher, 2000). The common narrative hits many potholes: (1) the "revolution" occurred over several centuries, (2) the scientists were either Christians or working in the Christian worldview, (3) they were supported by Christian universities, and (4) they were encouraged by the Christian church. Kepler and Newton certainly did not think that their work diminished Christianity. Ironically, heliocentrism prevailed well before definitive scientific observation—the first direct evidence came in 1725!

Furthermore, any implied analogy between heliocentrism and natural history falls flat. Heliocentricity is a simple inference from direct observation; evolution is a complex set of inferences and secondary hypotheses that defy tests of observation. Orbital mechanics is much farther from the core of the gospel than Adam, his fall, and God's judgment, demonstrated by the Flood. That centrality is reflected in the exegesis of Scripture. Faulkner (2001) showed that passages supporting geocentrism are equivocal, reflecting anthropomorphic language still in use today. Those describing Creation and the Flood are quite different. Boyd (2005) crushed the exegetical gymnastics of theistic evolutionists, proving with a >99% statistical probability that Genesis 1:1–2:3 is Hebrew historical narrative. Also, deep time and evolution are a more direct attack on Christianity than Ptolemaic mechanics. Lyell the Unitarian, Hutton the ardent deist, and other early geologists were self-professed enemies of Christ. Rudwick (2005, p. 276, emphasis ours) tells us that Genesis was viewed by eighteenth- and nineteenth-century intellectuals as "ancient Jewish history, often scorned and dismissed by savants *hostile to religion*."

In other words, Copernicus is not a cautionary tale against creationism but against syncretism with alien worldviews. Centuries ago, it was the Ptolemaic universe. Today, it is the deep time and evolution of naturalism.

While Mr. Swets's doctrine of *God* may lead him to believe in the possibility of theistic evolution, Christianity also

affirms a doctrine of *revelation*. Since that revelation teaches the creationist position, any *potential* for theistic evolution, glimpsed in a doctrine of God, must be set aside. Believing that truth is bound by what falls within "our understandings" has been the source of innumerable heresies. God is the arbiter of truth and is quite capable of communicating it to those created in his image. It is easily comprehended—even by children—yet with riches beyond the greatest theologian. At root, either God is the arbiter of truth or we are—and the latter is a path to both folly and idolatry.

Finally, Mr. Swets asks about the inevitable disappointment in the substitution of human knowledge for divine revelation. Revelation is guaranteed truth. Human knowledge is not. A loss of truth leads to loss of meaning. This process can be traced over recent centuries in both individuals and culture. Mark Twain, one of the sharpest minds in American history, drifted into solipsism late in life (*The Mysterious Stranger*). Had he lived longer, full-blown nihilism would have been the final step, as documented by Schaeffer (1982), Rose (2009), and many other Christian commentators, and as illustrated by myriads of their secular counterparts. Romans 1 tells us that when confronted with truth, men repress it and seek a substitute. In our article, we showed how history was given meaning, structure, and content by Christianity. In our postmodern world, the Christian capital upholding history (and many other things) is overdrawn, and politicized narratives now distort our view of the past.

As an aside, Darwin, Wallace, and Huxley—important actors on the stage of the secular interpretation of origins and earth history—all opposed God in their own way and were preceded by a string of intellectuals back into the eighteenth century. As Jesus said, people are either for Him or against Him—some are against Him through rabid atheism; others more subtly. While the roles of Wallace, Darwin, and Huxley are fascinating and relevant, the real question is not their role but that of their ideas—thoughts that long predated the individuals.

Finally, we applaud and affirm Mr. Swets's desire to serve God. That should be the goal of all Christians. We encourage Mr. Swets to consider, however, that *serving* God must include *believing* what He says, even when human "experts" disagree.

John K. Reed and Peter Klevberg

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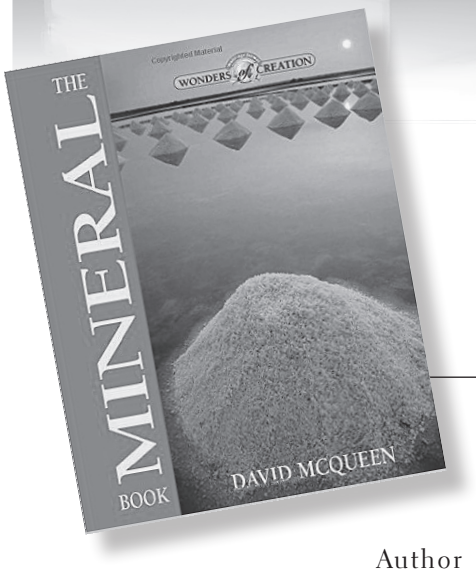
Media Reviews



The Mineral Book

by David McQueen

Master Books, Green Forest, AR, 2014, 100 pages, $17.00

Author McQueen is a hydrologist trained at the University of Tennessee and the University of Michigan. He is currently on the faculty at George Mason University, Virginia. This book is part of the 16-volume Wonders of Creation series from Master Books.

Three distinct skill levels of content are indicated throughout the book. I am surprised the introductory level for younger readers includes Egyptian amulets (p. 43), petrographic microscopes (p. 68), and uranium atoms located in zircons (p. 71). General interest items in the book include the abusive employment of young boys in coal mines during the 1800s (p. 16), salt production details (p. 12), blood diamonds (p. 59), and birthstones (p. 52).

There are six basic crystallographic forms based on geometry: isometric, hexagonal, tetragonal, orthorhombic, monoclinic, and triclinic. McQueen suggests that these six categories of crystals "are an active reminder of the six days of creation" (p. 27). There also are many Scripture references and applications throughout the book.

Several questions may arise from readers. First, there is no mention of ice as a mineral, although naturally frozen water fits all the defining criteria. Ice therefore could be called the most common mineral on earth's surface. Instead of water, mercury is listed as the only common liquid mineral (p. 28). Second, the term "God created" is preferred to "naturally occurring" (pp. 26, 32). However, the latter term is pervasive and does not necessarily imply naturalism. Third, of 50 million distinct chemicals, only around 100 are said to be poisons (p. 32). Surely of the myriad of known chemical compounds, hundreds of thousands, if not millions, are poisonous. Fourth, pure native copper is described as a rare mineral (p. 61). However, I lived four years on the Keweenaw Peninsula of Upper Michigan, where vast quantities of native copper were mined over the last century and still exist underground. This copper supplied much of the initial electrical wiring for the U.S. a century ago. Still today, mine tailings are used as road material in area counties and pure copper fragments embedded in the pavement are noticeable. Fifth, there is mention of Robert Gentry's 1970s work on radiohalos (p. 71) but nothing concerning the more recent and detailed RATE research of radioisotopes.

The book is attractive with many full color photos of minerals. There is a six-page mineral identification guide, glossary, and brief index.

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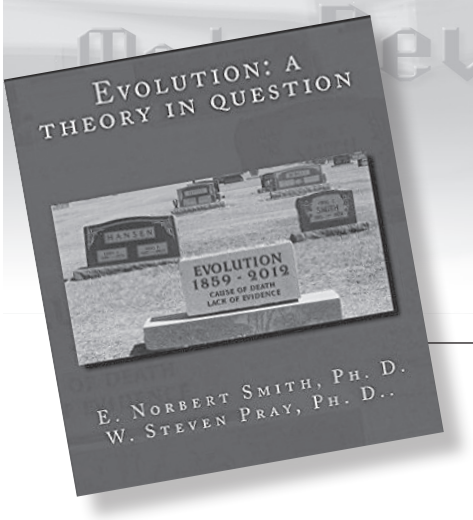
Book Reviews



Evolution: A Theory in Question

by Norbert Smith and W. Steven Pray

Shook Publishing, Weatherford, OK, 2014, 186 pages, $23.95

This collection of accounts covering various forms of animal life is a gold mine of stories about the wonders of the living world. The authors are fascinated with animals, and it shows on every page of the book. Smith has a Ph.D. in zoology and has published over two hundred papers in peer-reviewed scientific literature. Coauthor Steve Pray is professor of pharmacy at Southwestern State University, Oklahoma. Smith has obtained research grants from the National Institute of Health, the National Science Foundation, and the National Geographic Society. His research on alligators was featured in a 1978 BBC TV documentary titled *A Smile for the Crocodile*.

The book covers mammals, insects, reptiles, and plants, along with the role and importance of mimicry, water, milk, and even color for life. The authors focus mostly on the complexities of the life-forms they chose to highlight. They document why evolution cannot explain the complexities described in detail. One example is the armadillo. Their evolution has baffled Darwinists for decades, and evolutionists today are stymied about their origins because they are distinct from all other life-forms. A key problem for armadillo evolution is that they consist of a mosaic of different animal traits, ranging from insects to mammals, which frustrates attempts to produce a logical phylogeny. They are said to have eyes like a pig, a tail like a rat, ears like a mule, armored scales like an alligator, and a carapace like a turtle, "an endless collection of oddities" (p. 124).

The authors document some of the ways the earth is designed to support life. One of the most notable examples is water, which covers close to 70% of the Earth's surface. For this reason Earth is called the water planet, with water absent or comparatively rare elsewhere in our solar system. Water is so essential that in the search for life on other planets, a first step is to look for evidence of water. The authors list the numerous unique traits of water that allow life to exist (pp. 19–22). Detailed water properties are described in a previous *Creation Research Society Quarterly* (DeYoung, 1985). The lack of sufficient amounts of this critical compound has all but ruled out life in our solar system with the exception of planet Earth.

One unique chapter concerns mother's milk, a liquid food that is designed for the complete needs of young mammals. It contains the ideal balance of fat, sugar, protein, and minerals, including calcium and water. The sugar in milk is lactose, while lactase, the enzyme that breaks down the lactose, is produced in the small intestine. This ability to produce lactase must simultaneously exist to allow an infant mammal to live. Without both in their fully functional form, infant mammals could not live (p. 25). If infant mammals subsisted on some other food before females evolved mammary glands, why and how was this other food source lost, and how did this radically new system of feeding mammals evolve? No evidence exists of another food source or of the evolution of such a new food source for infants.

The current evolutionary theory is that mammary glands evolved from ordinary sweat glands. The reason, the authors explain, is that most adult mammals no longer need to consume milk, a food designed specifically for infants. By the age of six, around 90% of Asians cease producing lactase. Only newborns normally produce the enzyme to break down lactose into glucose (p. 25). Some human groups, such as many Europeans, retain the ability to produce lactase due to a mutation that causes what is called *lactose persistence*. This mutation has spread in the population due to the advantages that it confers on the population, namely as an additional source of certain nutrients (p. 25).

The authors note this is a rare example of a beneficial mutation that illustrates the specific conditions required for a mutation to be categorized as beneficial. In this case, a specific gene mutation has been identified; namely, the gene that regulates the lactase enzyme that controls the production of an existing system. This mutation allows the lactase gene to operate long after it was designed to be disabled.

Second, lactase persistence has a clear beneficial affect in society today:

the ability to consume milk and milk products, such as cream, cheese, ice cream, cottage cheese, and yogurt, that contain lactose sugar. These factors and several others are required for a mutation to be labeled beneficial, yet very few beneficial mutations that meet these criteria are known. In this case, the beneficial mutation does not add information but instead damages a gene that disables a complex central system (p. 24). This is just one example in which the authors document why evolution is a theory in question.

Smith and Pray have achieved a wonderful, readable, very interesting book suitable for students from high school through college. Creation books like this are ideal to interest young people in biology disciplines and, in general, in the study of life-forms. Unfortunately, the book lacks an index.

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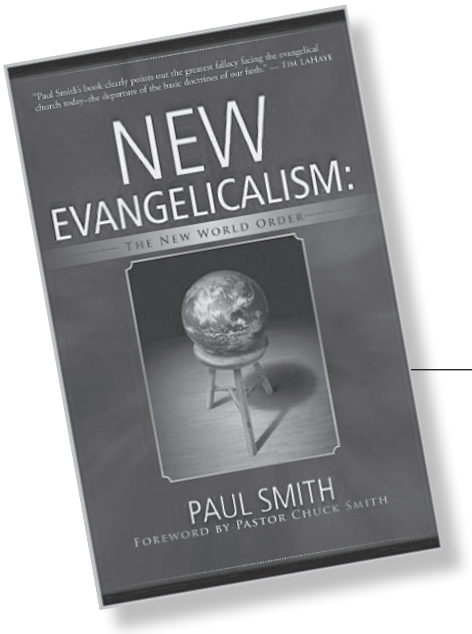

New Evangelicalism: The New World Order

by Paul Smith

Calvary Publishing, Lansing, 2011, 215 pages, $10.00

Pastor and author Paul Smith is the brother of the late Calvary Chapel founder Chuck Smith (1927–2013) and has been involved in ministry since 1951. Both his firsthand witness and personal investigation into significant turning points in evangelicalism qualify him to analyze the doctrinal erosion in mainstream Christianity. In this book he touches on a number of reasons why aberrant movements and unbiblical methodologies such as "emergent" postmodernism and the "purpose-driven" church-growth strategies were able to take shape and spread so rapidly beginning in the latter half of the twentieth century. He rightly traces the root of this departure from orthodoxy to the abandonment of biblical inerrancy.

Judging a book by its cover, one may expect another sensationalized meandering into "new world order" conspiracy theories. While Smith does utilize an underlying eschatological hermeneutic, which, though quite popular today, is not consistent with the historic Protestant interpretation of prophecy, Smith's main concern is the departure from the belief that Scripture is infallible, inerrant, and sufficient (1 Tim. 3:16). Most interesting are his brief but thorough historical sketches of Princeton, Westminster, and Fuller Seminaries, as well as the early twentieth-century rise of what became known as "fundamentalism." Using such case studies, Smith is able to show that once belief in the Bible as the infallible and inerrant Word of God was replaced with the Kierkegaardian "two-story" epistemology and Barthian notions of "partly inspired" Scripture, descent into post-modernism and irrationalism was the next logical step.

It is clear that Smith takes a firm stand on the historicity of Scripture, particularly with regard to the foundational account of Creation as recorded in Genesis. He writes, "The sacred Bible of the Christian faith is the accurate, historical revelation of God, describing His work in creation and redemption" (p. 26). He also makes the important point that vague statements about *infallibility* minus the key component of *inerrancy* open the door to modernist notions of "non-revelatory Scripture":

> The advantages of settling the issue for infallibility only—without inerrancy—suffers from three serious

> difficulties. First, the Bible does not appear to be aware of any such distinction between theological and non-theological truth. The second difficulty proceeds from the first. The New Testament affirms that Jesus Christ is God in human flesh, the second Person of the Trinity. If Jesus was mistaken about the historicity of Adam and Eve, or if he believed incorrectly that Jonah was swallowed and preserved in the stomach of a great fish, or the flood destroyed the entire human race except the eight passengers on the ark, then it follows that God was mistaken. (p. 41)

Smith devotes a large portion of the book to the history of Fuller Seminary, which was established by fundamentalist scholars who took a strong stand on the doctrine of inerrancy at a time when theological liberalism and modernism was on the rise. He documents how in the space of only two generations inerrancy was abandoned at Fuller, which gave rise to modernism, compromise, accommodation, and all of the rotten fruit that comes with it. Daniel Fuller, the son of the seminary's founder, was largely responsible for putting Fuller on this slippery slope. He believed it was a "colossal error" to insist that "the Bible is without error in whole or in part" (p. 93). While studying under Karl Barth in Switzerland, Daniel became convinced that the Bible "was composed of revelational and non-revelational material" (Cooke, 2011, p. 46).

Another valuable feature of Smith's book is his investigation into files concerning Fuller Seminary, which were "restricted from research until January 15, 2008" (p. 67). These include letters and documents that shed some light on the internal struggles over inerrancy during Fuller's slide into neo-orthodoxy. For example, Smith includes a transcript of a speech given by then-student Wayne Grudem before the faculty in which he said, "Not one of my courses here has strengthened my confidence in the Bible. … I have not had one professor who teaches biblical inerrancy as a possible option. … I want a seminary to make me a minister of God's Word, not its critic. I have no choice but to leave" (p. 74).

Overall, Smith's book is an interesting, informative, and captivating read. Two criticisms must be pointed out regarding his analysis, however. First, his eschatology plays too big of a role in his understanding of the unfolding historical degeneration of evangelicalism. For instance, while dispensationalism happened to be indispensable to many early "fundamentalists," such an eschatological and prophetic backdrop does not enhance the doctrine of inerrancy, nor does it illuminate the factors contributing to the breach with orthodoxy. Unfortunately, Smith at times gives the impression that a departure from dispensationalism is necessarily a move to the left. But as Smith himself is aware (p. 88), Reformed theologians J. Gresham Machen and Gordon Clark were unquestionably two of the twentieth century's foremost defenders of inerrancy and inspiration, neither of whom could be classified as dispensationalists.

Second, Smith has an idealized and unrealistic view of Calvary Chapel as an antidote to the erosion of evangelicalism. While it is true that founder Chuck Smith generally took a strong stand on the sufficiency of Scripture, the Calvary Chapel movement has hardly been immune to the influx of "purpose-driven" techniques, "emergent" mystical elements, and other practices that undermine the sufficiency and authority of Scripture (p. 8; Bobgan, 2014; Oakland, 2011; Schimmel, 2012).

Paul Smith's book is recommended mainly because it provides a concise and important history of twentieth-century evangelicalism and the erosion of biblical inerrancy. He does a fine job of connecting the dots between various influential leaders who have contributed to the departure from inerrancy and the rise of existentialism, relativism, and the anthropocentric "social gospel." He strongly advocates a return to belief in the historicity of the biblical narrative as foundational to sound theology and worship of the Creator.

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Flatland:
A Romance of Many Dimensions

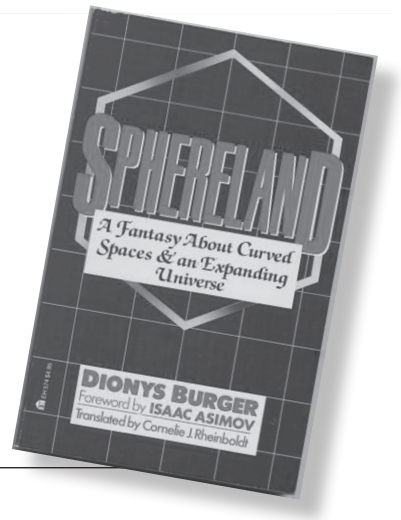
by Edwin A. Abbott

Princeton University Press, Princeton, NJ, 1991 reprint, 134 pages, $13.00

Sphereland:
A Fantasy about Curved Spaces and an Expanding Universe

by Dionys Burger; Translated by Cornelie J. Rheinboldt

Harper and Row, New York, NY, 1983 reprint, 208 pages, $12.00



In a 2014 paper, Russell Humphreys (Humphreys, 2014) made reference to the classic book *Flatland* written in 1884 by Edwin Abbott Abbott. (Yes, the repetition is not an error). While I had heard of this book, I had never read it, and the Humphreys paper influenced me to find it. While reading the modern introduction by Thomas Banchoff, I also learned of a sequel, *Sphereland* (Burger, 1983). These two books are a delightful pair that amusingly teach the geometry of the cosmos as well as give insight into some visualization techniques that are helpful to those trying to sail the ocean of higher dimensions and non-Euclidean curved space. Though written on a simple level easily understandable by high school students and very entertaining, the books provide a profound insight into life in 0-4 and higher dimensions. Since the books are closely related, I will incorporate both in this review.

Flatland is whimsically written by an inhabitant of a two-dimensional space. Named A Square, this person is a four-sided fellow with equal-length sides. His world is populated by triangles, squares, pentagons, hexagons, higher-sided polygons, and upward to full circles, the priests of Flatland. There are also line segments, which represent the female gender. This is something of a social commentary on the status of women in the Victorian era in which the book was written.

The book relates A Square's adventures in multiple dimensions and his striving to understand and visualize what a higher dimension is like. He does this by analogies to visualizations of lower dimensional spaces, which can be easily understood. Along the way he tries to help an inhabitant of a zero-dimensional universe (a dimensionless point) understand what life is like in the two-dimensional universe. Ultimately, A Square receives a visit in his two-dimensional space by a being from a three-dimensional space (a sphere), who tries to help him understand three-dimensionality. Though a difficult concept, A Square does grasp the concept of a third dimension and comes to believe in its existence. Unfortunately for our hero, belief in the existence of a third dimension is illegal in his two-dimensional universe and carries a stiff penalty.

The book's visualization concepts provide the basis for such modern tasks as reading CT scans and MRIs (using thin slices to visualize a three-dimensional image), as well as manifold space-time cosmologies. Brief thought excursions into a four-dimensional universe suggest a visualization of n-dimensions. This makes the book relevant today, 130 years after its initial publication. The book's introduction provides a useful commentary on the Victorian context of the book.

Sphereland, mentioned earlier, is purportedly written by A Hexagon, the grandson of the two-dimensional A Square, whom we met in *Flatland*. Procreation in the two-dimensional universe normally results in male offspring having one more side than their fathers. The male offspring of a square (male) and

a line segment (female) is normally a regular pentagon, and so on.

This second book starts with a 26-page summary of *Flatland* in order to make the present book understandable to readers who have not read *Flatland*. The book then moves into a discussion of the many things the Flatlanders have discovered about their two-dimensional universe. These are told in the form of stories, some of them recognizable parodies of folk tales from the three-dimensional universe.

Sphereland inhabitants discover that their world is actually curved and not flat. This episode reminds me of Jules Verne's *Around the World in 80 Days*. Their explorations cause a few of the leading scientists to discover that their universe is actually expanding—horrors! And the persecution, just as in the days of A Square, begins once again. Putting these two books together, we have an excellent introduction to the visualization necessary to understand the characteristics of our own universe.

One objection to the concepts that are discussed in these books is that two-dimensional beings would not be visible to each other unless they had some thickness, that is, a third dimension. This objection is answered in the books: It depends on the actual dimension in which you are thinking. This kind of spatial thinking is even recognized in the popular *Star Trek: The Wrath of Kahn* (1982) film when Mr. Spock provides Captain Kirk an analysis of the tactics of Khan, his opponent in a space battle: "He's intelligent but not experienced. His pattern indicates two-dimensional thinking."

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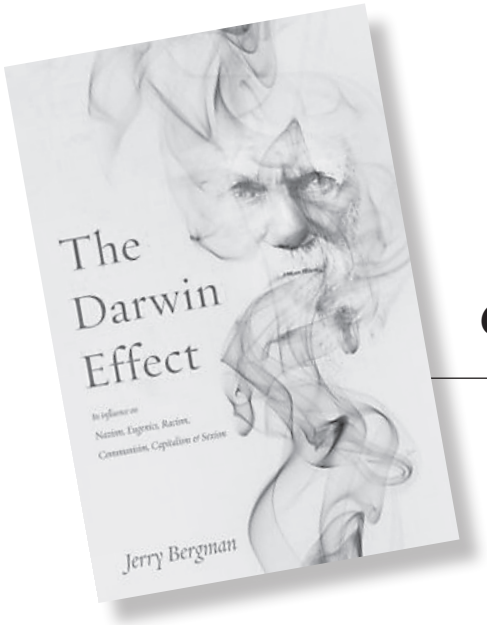

The Darwin Effect: Its Influence on Nazism, Eugenics, Racism, Communism, Capitalism, and Sexism

by Jerry Bergman

Master Books, Green Forest, AR, 2014, 358 pages, $16.99

There is a common thread that runs through this book by Jerry Bergman: the thread of atrocities committed by man against his fellow man. These atrocities run the gamut from those perpetrated against a single human (Ota Benga and "circus freaks") to those directed against entire races or nations (the twentieth-century totalitarian holocausts). This book appears to form a series with Bergman's earlier books, *The Dark Side of Charles Darwin* (2011) and *Hitler and the Nazi Darwinian Worldview* (2013). The thread is pulled through the layers of each of these books, documenting the negative aspects of evolution on society. The needle that pulls that thread is Darwinism in all its forms and variations and applications.

Bergman points out that Darwin did not originate the idea of evolution but was only the most competent popularizer of it. In fact, the iconic phrase "survival of the fittest" was coined by Herbert Spencer, a contemporary of Darwin.

In several chapters Bergman elucidates the "science" of eugenics as practiced in the late nineteenth and early

twentieth century. It was more like a "family business." Although Darwin supported the basic principles of eugenics, it was his cousin, Francis Galton, and his sons who were the "board of directors" of the eugenics movement. Furthermore, America was not innocent of eugenics research and promotion. Hitler relied heavily on the eugenics research of both England and America to support his racial policies.

Darwinism's effect on Russian communism, contemporaneously with it effect on Nazi Germany, is also documented. During 2014 I spent time studying World War II and its causes and effects. In what I read there was no discussion of how Darwinism (or evolution) influenced the worldview, politics, and policies of the totalitarian states. There was more on this topic in just a few chapters of Bergman's 358-page book than in the entire 10,000 pages of history that I read. The effect of Darwinism is simply ignored in these well-respected histories. *The Darwin Effect* fills in the gaps in these history volumes. Bergman also brings out the differences in the way Darwinism was interpreted within these two competing social orders. And, so that non-communists cannot gloat, there is also a chapter on Darwinism's use as a justification of "ruthless capitalism," the application of "survival of the fittest" among businesses and the exploitation of workers.

Several chapters are devoted to a discussion of the use of "circus freaks" and the false claims made about them in an attempt to provide evidence for evolution by showing them as "missing links." The popular circuses of the nineteenth century thrived on showing the unusual to the gullible crowds who were willing to pay for a glimpse of something that could give them a feeling of superiority. Even though these "freaks" often were nothing more than people suffering from mutations and diseases, they were touted as proof of evolution. An entire chapter is devoted to the account of Ota Benga, an African pygmy who was put on display at the 1904 St. Louis World's Fair and later in the monkey house of the New York Zoological Park, all with the blatant promotion of evolution as a purpose for the exhibition. The protests of this exhibition and the controversy that flooded the press were factors in everyone wanting to see what the fuss was about (and willing to pay for the privilege). Meanwhile, indoctrination of the public into the truth of evolution continued at a fast pace.

There is a chapter devoted to a discussion of the sexism that Darwinism engendered. The human female was considered by Darwinists (including Charles Darwin himself) to be less evolved than, and thus inferior to, the human male. The attitudes, especially during the late nineteenth century, toward women and their purpose for existence are astounding. A further chapter on the notorious Klu Klux Klan documents the influence of Darwinism on its beliefs and activities.

In the final chapter Bergman provides some tables showing the deaths that can be attributed to the various holocausts that accompanied the application of Darwinism to the social models—mostly communism—of the twentieth century. The scale of these holocausts dwarfs anything prior to the rise of Darwinism and its use to justify social policy and war. The Holocaust of the Jews in Nazi Germany was by no means the largest loss of life.

Anything that Darwinism touches it damages, as should become apparent to the reader of this book. The thread winds through a wide variety of prejudices, abuses, and atrocities committed against individuals of a particular gender, race, nationality, and social class and even people-groups of imagined affiliation. The thread connects all of these episodes, weaving them into a pattern of evil. The thread is soft and flexible and needs something to guide it, the task of the needle. In this case the needle is Darwinism, dragging the thread behind it. Unlike a sewing project, what this needle and thread binds together is not something useful and beautiful but instead a tragedy.

Extensive footnotes and long lists of references at the end of each chapter bear witness to the research behind the book. One item lacking is a good index.

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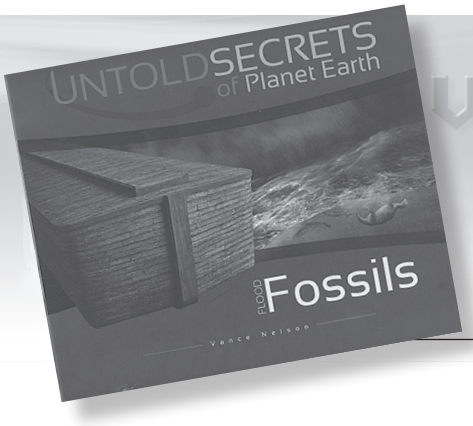

Untold Secrets of Planet Earth: Flood Fossils

by Vance Nelson

Untold Secrets of Planet Earth Publishing Co., Red Deer, Alberta, Canada, 2014, 195 pages, $29.95

This book is the second in a series, the first covering dinosaurs (2011). Author Vance Nelson lives in Alberta, Canada, and holds B.S. degrees in theology and biology. He is a full-time promoter of biblical creation with seminars, a traveling museum, and website (www.creationtruthministries.org). This volume and the dinosaur book are attractive, full-color hardbacks, even including built-in ribbon bookmarks. Editing help is credited to Wayne Deckert, Jonathan Henry, John MacKay, Gary Parker, Spike Psarris, and Tasman Walker.

Nelson is an active amateur researcher in the fields of paleontology, geology, and archaeology. The text describes many of his travels, including 2012 Amazon pictographs with dinosaurlike images. The first third of the book concerns the Genesis Flood ark and its historic sightings. There are many impressive color re-creations of ark descriptions prepared by graphic artist Jeff Chiasson. The figures look so realistic they may cause confusion with actual photos. Many traditional ark-sighting stories are reviewed, including the classic 1916 Russian army expedition (p. 9).

The Hebrew word for "ark" is shown to be used for both the basket that carried the baby Moses in Egypt and the Genesis Flood ark. Nelson further connects this word with a box or chestlike shape and therefore concludes that Noah's ark was a simple box shape similar to traditional drawings.

The middle third of the book reviews physical evidence for the global Flood. This includes sedimentary rock strata, twisted strata layers, pillow-lava, which forms underwater, and fossils. Some rather unique fossils are illustrated, including a U.S. dollar bill imprint (p. 65), closed clams (p. 98), wood alleged to be 30 million years old that still burns, and the death position of many dinosaur fossils. There are further photos of unlikely fossils preserved together, including a horse and fish, and a dinosaur and fish (p. 118).

The final third of the book concerns rapid fossil formation. There are dozens of photos of permineralization and carbonization of cultural objects. Nelson has commissioned radiocarbon dating for carbonized wood and bone, in each case getting ages more than 2,000 times less than assumed; that is, thousands of years instead of millions. Also featured are rapidly formed fossil photos from Canada, Cyprus, the Czech Republic, England, France, Italy, and the U.S. The book concludes with 130 references. There is no subject or name index provided.

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Instructions to Authors

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Electronic submissions of all manuscripts and graphics are preferred and should be sent to the editor of the *Creation Research Society Quarterly* in Word, WordPerfect, or Star-Office/Open Office (see the inside front cover for address). Printed copies also are accepted. If submitting a printed copy, an original plus two copies of each manuscript should be sent to the editor. The manuscript and copies will not be returned to authors unless a stamped, self-addressed envelope accompanies submission. If submitting a manuscript electronically, a printed copy is not necessary unless specifically requested by the *Quarterly* editor. Manuscripts containing more than 35 pages (double-spaced and including references, tables, and figure legends) are discouraged. An author who determines that the topic cannot be adequately covered within this number of pages is encouraged to submit separate papers that can be serialized.

All submitted manuscripts will be reviewed by two or more technical referees. However, each section editor of the *Quarterly* has final authority regarding the acceptance of a manuscript for publication. While some manuscripts may be accepted with little or no modification, typically editors will seek specific revisions of the manuscript before acceptance. Authors will then be asked to submit revisions based upon comments made by the referees. In these instances, authors are encouraged to submit a detailed letter explaining changes made in the revision, and, if necessary, give reasons for not incorporating specific changes suggested by the editor or reviewer. If an author believes the rejection of a manuscript was not justified, an appeal may be made to the *Quarterly* editor (details of appeal process at the Society's web site, www.creationresearch.org).

Authors who are unsure of proper English usage should have their manuscripts checked by someone proficient in the English language. Also, authors should endeavor to make certain the manuscript (particularly the references) conforms to the style and format of the *Quarterly*. Manuscripts may be rejected on the basis of poor English or lack of conformity to the proper format.

The *Quarterly* is a journal of original writings, and only under unusual circumstances will previously published material be reprinted. Questions regarding this should be submitted to the Editor (CRSQeditor@creationresearch.org) prior to submitting any previously published material. In addition, manuscripts submitted to the *Quarterly* should not be concurrently submitted to another journal. Violation of this will result in immediate rejection of the submitted manuscript. Also, if an author uses copyrighted photographs or other material, a release from the copyright holder should be submitted.

Appearance

Manuscripts shall be computer-printed or neatly typed. Lines should be double-spaced, including figure legends, table footnotes, and references. All pages should be sequentially numbered. Upon acceptance of the manuscript for publication, an electronic version is requested (Word, WordPerfect, or Star-Office/Open Office), with the graphics in separate electronic files. However, if submission of an electronic final version is not possible for the author, then a cleanly printed or typed copy is acceptable.

Submitted manuscripts should have the following organizational format:

1. Title page. This page should contain the title of the manuscript, the author's name, and all relevant contact information (including mailing address, telephone number, fax number, and e-mail address). If the manuscript is submitted by multiple authors, one author should serve as the corresponding author, and this should be noted on the title page.

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.

4. Body of the text. Two types of headings are typically used by the *CRSQ*. A major heading consists of a large font bold print that is centered in column, and is used for each major change of focus or topic. A minor heading consists of a regular font bold print that is flush to the left margin, and is used following a major heading and helps to organize points within each major topic. Do not split words with hyphens, or use all capital letters for any words. Also, do not use bold type, except for headings (italics can be occasionally used to draw distinction to specific words). Italics should not be used for foreign words in common usage, e.g., "et al.", "ibid.", "ca." and "ad infinitum." Previously published literature should be cited using the author's last name(s) and the year of publication (ex. Smith, 2003; Smith and Jones, 2003). If the citation has more than two authors, only the first author's name should appear (ex. Smith et al., 2003). Contributing authors should examine this issue of the *CRSQ* or consult the Society's web site for specific examples as well as a more detailed explanation of manuscript preparation. Frequently-used terms can be abbrevi-

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).

5. Summary. A summary paragraph(s) is often useful for readers. The summary should provide the reader an overview of the material just presented, and often helps the reader to summarize the salient points and conclusions the author has made throughout the text.

6. References. Authors should take extra measures to be certain that all references cited within the text are documented in the reference section. These references should be formatted in the current *CRSQ* style. (When the *Quarterly* appears in the references multiple times, then an abbreviation to *CRSQ* is acceptable.) The examples below cover the most common types of references:

Robinson, D.A., and D.P. Cavanaugh. 1998. A quantitative approach to baraminology with examples from the catarrhine primates. *CRSQ* 34:196–208.

Lipman, E.A., B. Schuler, O. Bakajin, and W.A. Eaton. 2003. Single-molecule measurement of protein folding kinetics. *Science* 301:1233–1235.

Margulis, L. 1971a. The origin of plant and animal cells. *American Scientific* 59:230–235.

Margulis, L. 1971b. *Origin of Eukaryotic Cells*. Yale University Press, New Haven, CT.

Hitchcock, A.S. 1971. *Manual of Grasses of the United States*. Dover Publications, New York, NY.

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.

7. Tables. All tables cited in the text should be individually placed in numerical order following the reference section, and not embedded in the text. Each table should have a header statement that serves as a title for that table (see a current issue of the *Quarterly* for specific examples). Use tabs, rather than multiple spaces, in aligning columns within a table. Tables should be composed with *14-point type* to insure proper appearance in the columns of the *CRSQ*.

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Special Sections

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Submission of letters regarding topics relevant to the Society or creation science is encouraged. Submission of letters commenting upon articles published in the *Quarterly* will be published two issues after the article's original publication date. Authors will be given an opportunity for a concurrent response. No further letters referring to a specific *Quarterly* article will be published. Following this period, individuals who desire to write additional responses/comments (particularly critical comments) regarding a specific *Quarterly* article are encouraged to submit their own articles to the *Quarterly* for review and publication.

Editor's Forum:

Occasionally, the editor will invite individuals to submit differing opinions on specific topics relevant to the *Quarterly*. Each author will have opportunity to present a position paper (2000 words), and one response (1000 words) to the differing position paper. In all matters, the editor will have final and complete editorial control. Topics for these forums will be solely at the editor's discretion, but suggestions of topics are welcome.

Book Reviews:

All book reviews should be submitted to the book review editor, who will determine the acceptability of each submitted review. Book reviews should be limited to 1000 words. Following the style of reviews printed in this issue, all book reviews should contain the following information: book title, author, publisher, publication date, number of pages, and retail cost. Reviews should endeavor to present the salient points of the book that are relevant to the issues of creation/evolution. Typically, such points are accompanied by the reviewer's analysis of the book's content, clarity, and relevance to the creation issue.

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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.

Membership—Voting membership is limited to scientists who have at least an earned graduate degree in a natural or applied science and subscribe to the Statement of Belief. Sustaining membership is available for those who do not meet the academic criterion for voting membership, but do subscribe to the Statement of Belief.

Statement of Belief—Members of the Creation Research Society, which include research scientists representing various fields of scientific inquiry, are committed to full belief in the biblical record of creation and early history, and thus to a concept of dynamic special creation (as opposed to evolution) both of the universe and the earth with its complexity of living forms. We propose to re-evaluate science from this viewpoint, and since 1964 have published a quarterly of research articles in this field. *All members of the Society subscribe to the following statement of belief:*

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.

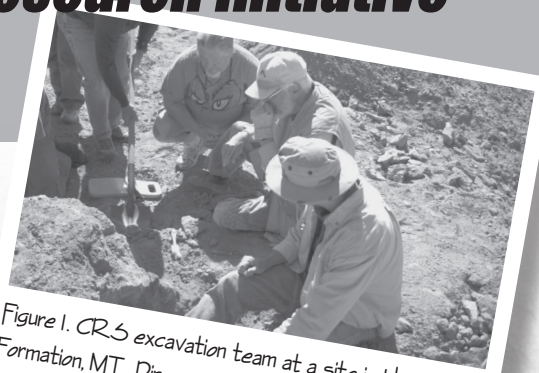

Figure 1. CRS excavation team at a site in Hell Creek Formation, MT. Dinosaur specimens were obtained that have revealed the presence of intact tissue.

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.

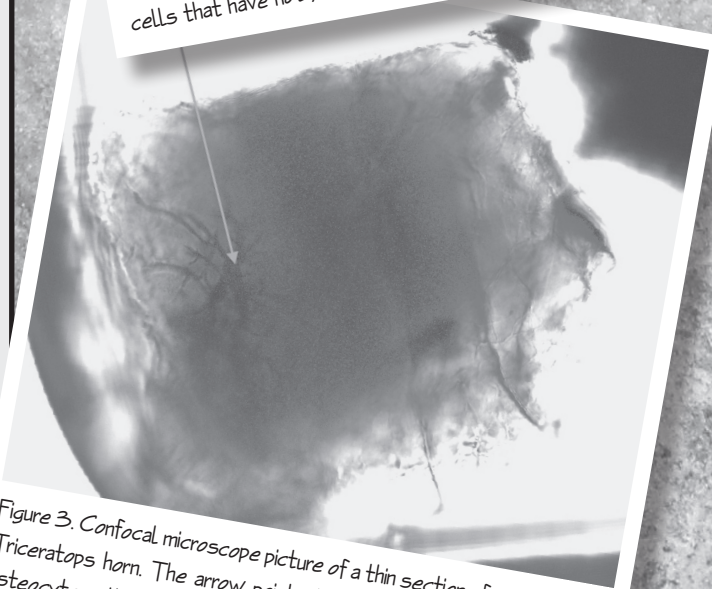

Figure 3. Confocal microscope picture of a thin section of material from Triceratops horn. The arrow points to what appears to be an intact osteocyte cell (a common cell in mature bone). The fluorescence of the cell indicates that it has not yet fossilized.