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- *GENESIS FLOOD DRAINAGE THROUGH SOUTHWEST MONTANA—PART III*
- *DARK MATTER REVISITED*
- *A SCIENTIFIC ALTERNATIVE TO EVOLUTION*

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Haec Credimus

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

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Dark Matter Revisited

Delmar Dobberpuhl*

Abstract

The relationship of dark matter to a creationist perspective of the universe was evaluated in an article in the March 2000 issue of the *Creation Research Society Quarterly*. It is interesting to note that even after seventeen years of intensive searching since that article was published, no one has directly observed dark matter or provided a definitive theory to what it is. Its existence and location were first based on observations of the dynamics of galaxies and galaxy clusters. More recently it has been absorbed into the assumptions by the standard model cosmology for the evolution of the universe. This article provides an updated creationist perspective on dark matter and what is and is not known about it. It addresses galaxies and their flat rotation curves; clusters of galaxies and how their supposed dark matter distribution formed gravity lenses; and how dark matter is related to the large-scale structure of the universe. It investigates the latest searches for a dark matter particle by accelerator experiments and astronomical observations. It also presents a creation-based cosmology and a possible new interpretation of the observations that originally led astronomers to propose the existence of dark matter. This new cosmology and its new interpretation of observations question the need for dark matter in a universe created only 6000 years ago.

Introduction

Of the six mysteries in modern astronomy listed in the introduction to DeYoung's original article on dark matter (DeYoung, 2000), all remain to be solved. Recently, at least six more have

been added to the list by astronomers according to an article in *Science Magazine* (Coontz et al., 2012). The additional mysteries they identified include:

- Dark energy (or what drives the expansion of the universe)

- Missing baryons
- How do stars explode?
- What re-ionized the universe?
- Why is the solar system atypical?
- Why is the sun's corona so hot?

These new mysteries plus the six old ones all point to weaknesses in the concordance, or lambda cold-dark-matter model of cosmology (standard model), which is based on the theory of Friedmann and Lemaître. It may be time to promote a creation model that resolves

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all these mysteries, including the dark matter mystery explored in this article.

Dark matter is still considered a major mystery in both modern astronomy and particle physics. Its greatest unknown is why, if it is made of particles, they do not emit, reflect, or absorb electromagnetic radiation. Also, as far as has been determined, they have a negligible cross section of interaction with known particles they pass through or pass through them. According to the current understanding of the universe, it is cold dark matter that accounts for the missing mass that provides enough gravity to explain certain observed astronomical phenomena. In most cases these phenomena are interpreted entirely in terms of the standard model of evolution of the universe. The most recent theories estimate approximately 20% of the mass in the universe is provided by visible material (atomic matter made of baryons and fermions) and the other 80% of the mass is provided by dark matter. No one has explained how such a large percentage of the mass in the universe can remain unidentified.

What Is Not Referred to as Dark Matter

Astronomers observe dark nebulae that can obscure stars located beyond them. But these are clouds of debris and dust made of atomic matter. They appear dark in the visible portion of the electromagnetic spectrum. At other wavelengths, such as infrared and radio waves, stars have been observed through these dark nebulae.

Besides dark nebulae, astronomers also have observed black holes. These are relatively small volumes of space that do not emit radiation from within their boundary. Their gravity is so great that nothing escapes from within them, not even photons. The border of a black hole is called its *event horizon*. Black holes have been inferred from observations of binary star systems where the visible

components interact with an invisible mass or black hole. They have also been found at the centers of most galaxies in super-massive form. Astronomers have been able to detect these super-massive black holes by the motion of stars near them. Others that are near enough have been observed by the x-ray radiation emitted just outside their event horizons as atomic matter is being torn apart. Recently scientists claimed that gravity-wave detectors have directly detected the ring-down signature of two stellar-sized black holes joining.

Astronomers have found other objects of atomic matter that are not visible but also cannot be considered dark matter. Some of these objects are dwarf stars/planets that do not emit/reflect enough visible light to be seen, molecular gaseous clouds, and comets/asteroid belts around many stars in most galaxies. Recent data from infrared-detecting satellites have shown that there are 75% more dwarf stars than visible stars in the Milky Way galaxy. A recent study (Gupta et al., 2012) using x-ray absorption data from the Chandra satellite collected by the European Space Agency's XMM-Newton space observatory and x-ray emission data from Japan's Suzaku satellite have allowed the astronomers to calculate that as much as 10–60 billion solar masses are in the form of high temperature gaseous oxygen and hydrogen in a halo around the Milky Way galaxy. Another study (Eckert et al., 2015) found hot baryon gas in the cosmic web structure near the giant cluster of galaxies labeled Abell 2744. Masses of such baryon gases as these may someday solve the mystery of the missing baryons, if sufficient quantity is detected in or between all the galaxies in the universe.

Proposed Dark Matter Locations

Dark matter has been proposed to fill in the missing mass to complete theoretical models for three hierarchical levels of

universe structure and their formation. It was proposed to provide the gravity that holds single galaxies together, that holds multiple galaxies in clusters, and that helps balance Einstein's general relativity (GR) equations for the large-scale structure of an expanding universe. To satisfy all three requirements, large quantities must be located both inside, around and between all the visible galaxies. Most of the theoretical models that it completes are based on the standard model of cosmology beginning with a big bang approximately 13.8 billion years ago. The theoretical models for each hierarchical level of cosmic structure that make use of dark matter will be considered in the following sections.

Single Galaxies

Galaxies do not function the same way as stellar systems. In a star system like our solar system, the planets travel faster or slower depending on how far they are from the star. They follow Kepler's third law of planetary motion. However, in the Milky Way galaxy (hereafter Galaxy) the stars outside the central bulge orbit the Galaxy center at nearly a single linear velocity of an average 232 kilometers/second (km/s). This effect is called a flat rotation curve (DeYoung, 2000). Measurements of several nearby galaxies show that a flat rotation curve is typical for spiral galaxies (Worraker, 2002).

Isaac Newton showed that only the distributed mass within a star's orbit affects its motion around the center of the Galaxy if it follows Kepler's law. This motion is theoretically based on the virial theorem, which is applicable to a gravitationally stable system. A galaxy is considered stable if it does not dissipate or collapse over time. The virial theorem equates the gravitational potential energy within an orbit to twice the kinetic energy of the orbiting star. Astronomers using this equation have calculated that any star in the outer Galaxy that is moving at 232 km/s re-

quires more than 5 times the amount of mass than that visibly observed within its orbit to maintain the energy balance. This energy balance provides the gravitational stability and prevents the stars from eventually exiting the Galaxy or spiraling into its center. Most astronomers have proposed that dark matter provides this invisible or missing mass. At the time of DeYoung's article, a dark matter halo was proposed for a typical spiral galaxy so that the velocity of stars located beyond 40,000 light years (ly) from the center of a galaxy would fit the observed flat rotation curve. A light year is the distance light can travel in one year in a vacuum on Earth or approximately 10 trillion kilometers.

More recently, astronomers have proposed dark matter resides inside the Galaxy within 13,000 ly of Earth. They first found that the density of visible stars within a cylindrical region centered on the solar system was enough to explain the region's orbit around the Galaxy center (Moni Bidin et al., 2012). But in a responding article (Bovy and Tremaine, 2012) the authors showed that such a result was due to the assumption that the mean azimuthal velocity of the stars does not change with distance above or below the galactic plane. They showed that if this velocity change (named azimuthal drift) is left out of the equation, there is an unobserved stellar density falloff with distance from the plane. This density falloff would result in a radial velocity of stars on the galactic plane that violates the assumption of zero radial velocity for the application of the virial theorem. They also showed that with the observed azimuthal drift included in the calculation, the amount of dark matter mass required in the vicinity of the solar system is the same as predicted by several earlier studies.

But another study (Garbari et al., 2012) used measurements of individual velocities and positions of K dwarf stars to determine their density in a volume of space. They used only the faint K dwarf

stars because the distance and velocity data from that single type of star is not dependent on their magnitudes. The data for K dwarf stars that were available from a previous survey were also the most complete for any star type. They then determined the density of stars versus distance below or above the Galaxy plane. From this density of baryonic matter, they found that 2.5 times more dark matter was required than had been found in the previous studies for a volume centered on the solar system. They suggest this increased density of dark matter could be attributed to a more oblate rather than spherical distribution, and it may even point to only a disc of dark matter centered within the Galaxy disc of visible stars. From such conflicting results, which are all based on the virial theorem, it is obvious that the amount and location of dark matter near the solar system and in the whole visible disc of the Galaxy remains unresolved.

The flat rotation curve is apparently typical of spiral galaxies. However, it is difficult to apply such a curve to elliptical and lenticular (irregular) galaxies. These two types of galaxies have a majority of their stars moving in random directions and velocities. This makes it difficult to obtain galaxy rotation rate data.

Modified Newtonian Dynamics. The flat rotation curve around the center of the Galaxy of the stars outside the bulge has also been explained without dark matter. Theorists have proposed that a new law of gravity is required for galaxies. One new law developed for spiral galaxies is an ad hoc modification of Newton's law of gravitation that meets the requirements of the virial theorem and fits the measured flat rotation curves. This new theory called modified Newtonian dynamics (MOND) would be applied only when accelerations are very low due to the distance between gravity sources (masses). It sets a single universal value for the minimum acceleration of gravity at $1.2 \times 10^{-10} \text{ ms}^{-2}$ (Worraker,

2002). With this additional constant acceleration term, the galaxies are shown to be stable over the billions of years as required by the standard model cosmology. Many spiral galaxy rotation curves have been calculated using MOND and successfully compared to observation data. One objection that has been raised to MOND is due to Einstein's general theory of relativity (GR), which does not include such an additional acceleration term. Since the acceleration term is small, it is not involved in many of the tests that have been performed to verify GR.

Verlinde Law of Gravity. Another new law of gravity is based on a theory proposed by Erik Verlinde (Verlinde, 2011). He assumed space and gravity are emergent quantities in a quantum gravity and holographic scenario. In this scenario gravity is explained as an entropic force caused by changes in the information associated with the positions of material bodies. The relativistic generalization of this concept leads to Einstein's equations. A black hole is the clue that leads to using the holographic principle in this scenario. The mass of a black hole is related to the surface area of its event horizon, and not to its density or volume. In holography with light, a three-dimensional image is produced from a two-dimensional record (hologram) of the object. The inverse process is used to make the hologram.

In Verlinde's original theory, the gravitational potential energy at a point on a surface that acts as a holographic screen to the Galaxy's stars behind it changes as the acceleration of the individual stars cause changes in their position relative to the screen. The change in potential energy is equal to a change in entropy of the entire system behind the screen. The coarse-grained average of the changes in the acceleration of the stars leads to the value of the force of gravity at that viewing point in space.

He provided a more detailed description of his theory named emergent

gravity (EG) as related to the observed universe based on assumptions found in the standard model of cosmology (Verlinde, 2016). He utilized insights from string theory, black hole physics, and quantum information theory. In this version, he replaced the idealized empty anti-de Sitter space and point sources with the galaxy-filled Minkowski space of GR and the big bang theory. One noted exception to the standard model is the absence of dark matter. He replaced dark matter by the force of quantum entanglement in his EG theory. Quantum entanglement is a property of quantum particles (photon, electrons, etc.) and as far as is known does not depend on the particle mass. In the EG theory the total energy potential ends up with an added constant term from entanglement that leads to a force equal to the MOND theory constant acceleration found at galactic and intergalactic distances. He makes another assumption that differs from the standard model cosmology, where dark energy was displaced by baryonic matter when it formed after the big bang. The elimination of the dark matter is compensated by the reduction of the amount of dark energy required to model the forming universe.

A first test of EG theory has been reported (Brouwer et al., 2016). They reported on weak lensing measurements of the apparent average surface mass density of 33,613 isolated central galaxies. They compared their measurements to EG predictions and found that they are in good agreement.

Another recent study by astronomers (McGaugh et al., 2016) pointed to a direct relationship between galaxy rotation rate and its baryon mass distribution. The measurements were made on rotationally supported (spiral and irregular) galaxies. If the flat rotation curves of these types of galaxies are supported directly by their baryon mass distribution, then any dark matter and its motion must be correlated with the baryons. Since this correlation is highly

unlikely for most models, the authors claimed that a new law of gravity may be the only solution.

Satellite Galaxies, Globular Clusters, Star Streams

Further evidence concerning the distribution of dark matter in the Galaxy has been found in the proposed dark matter halo surrounding the visible stellar disc. Astronomers have found that the uniform spherical distribution of dark matter in the Galaxy halo predicted by the standard model of galaxy formation cannot be confirmed. A recent analysis (Pawlowski et al., 2012) of the position of satellite galaxies, globular clusters, and star streams relative to the orientation of the Galaxy poles and visible disc indicate a significant asymmetry in mass distribution.

The authors analyzed the motion of 24 satellite galaxies (SG) and 137 globular clusters (GC) within the proposed dark matter halo connected with the Galaxy. SGs are compact groups of stars (mostly dwarf galaxies) that are not within the basic structure of the Galaxy. The Large and Small Magellanic Clouds are the largest of these satellites with approximate diameters as viewed from Earth of 35,000 ly and 15,000 ly respectively. Their analysis showed that all 24 SGs orbit in a disc that is nearly perpendicular to the visible plane of the Galaxy. In the first half of 2015, detection of 20 more SG candidates were announced, and so far, fourteen have been confirmed. These fourteen also orbit in the same plane as the other SGs within 9 degrees of the original defined satellite disc polar orbit (Pawlowski et al., 2015).

GCs are smaller clusters of stars (typical diameters < 30 ly) than the SGs, and most are located within the basic Galaxy structure. The authors placed the GCs into three categories based on their location (inside or outside the visible disc and bulge) and color (blue for young or red for old). Their analysis

showed that the 30 blue outside GCs orbit the Galaxy center in the same polar disc as the SGs. The 70 red outside GCs and 37 inside GCs orbit with the visible plane of the Galaxy.

They also analyzed the orientation of 14 star streams that have been located in the proposed dark matter halo outside the visible disc. The normal to seven of the star streams point in the same direction as the normal to the polar disc of SGs. The remainder point in a direction somewhere between the normal of the visible galactic plane and that of the polar disc of SGs.

The results of these analyses of SGs, GCs, and star streams all indicate that there is a large asymmetry in the visible mass distribution within the halo region that extends 32,000 ly to over 800,000 ly from the center of the Galaxy. A spherically uniform dark matter distribution as required by the standard model of galaxy formation cannot explain these observational data.

These results are also supported by observations of the Andromeda galaxy (M31). In a recent article, McGaugh and Milgrom (2013) reported 17 satellite galaxies that orbit the galaxy center in a disc not in the same plane as the majority of the visible stars. They went on to show that using MOND theory they could predict the dispersion of these satellite galaxies without requiring dark matter.

The authors of these articles attempted to explain formation of spiral galaxies with such an asymmetric mass distribution by attrition during one or more collisions with other galaxies. But according to the author of a recent article in *Scientific American* (Libeskind, 2014), there is not enough evidence to support collision theories for spiral galaxies. He suggested that the abnormal amount of satellites and star clusters that are out of the visible plane of a galaxy is due to the web of dark matter that supposedly formed the large-scale structure of the universe. This large-

scale structure was recently described in a *National Geographic* article (Ferris and Clark, 2015).

Galaxy Clusters and Beyond

The next level in the hierarchical structure of the universe where dark matter has been proposed is in galaxy clusters. Many of these clusters contain several hundred to over a thousand galaxies in a relatively compact volume. Examples given by DeYoung (DeYoung, 2000) are the Coma, Virgo, and Abell 1060 clusters. Astronomers have detected visually 10% or less of the mass required for these clusters to be gravitationally bound in a stable configuration. The remainder (over 90%) is missing, of which the majority has been assumed to be dark matter.

Since 1933 astronomers have measured the average relative velocities of individual galaxies within clusters and then used the virial theorem to calculate the missing mass to support their assumption that the clusters are stable. The average velocity data are obtained by measuring the redshifts of the individual galaxies in the cluster. This method actually provides only the velocity data in a single dimension, and an assumption has to be made that the galaxies in a cluster move the same average amount in the other two dimensions. Also, all the velocity measurements have the Hubble law redshift for the center of mass of the system (obtained from their average redshift) subtracted to obtain each galaxy's velocity from the residual Doppler redshift. These measurements showed that the galaxies are moving relative to each other at velocities that would have disrupted the clusters in much less time than the assumed 13 billion years since galaxy clusters supposedly formed after the big bang.

For example, in the Virgo cluster, the dark matter required is 50 times the visual matter that has been detected. Most of this extra matter must be lo-

cated between the galaxies since only 5 times the visual matter within a galaxy is required for typical spiral galaxies to be stable. If dark matter exists in dense halos around the galaxies in the clusters, the question becomes how those dark matter halos move with the galaxies without colliding and being distorted as galaxies pass each other.

Beyond single clusters, astronomers have found clusters of galaxies aligned in strings that form what they have named filaments in the large-scale structure of the universe. An artist's concept drawing of this structure in a two-dimensional section of the universe is shown in Figure 1. Each point of light in this structure represents visible magnitude and average redshift measurements of a galaxy of billions of stars. Astronomers have proposed that dark matter surrounds each galaxy and aligns along the strings of galaxies as structure for the filaments. The large-scale structure that includes the Virgo Cluster and our Milky Way galaxy is a super-cluster containing 100,000 galaxies that has been named Laniakea.

Gravitational Lenses

Another method used to measure the mass of galaxies and galaxy clusters is the strength of their gravitational lenses. These lenses are formed by gravity of a closer galaxy or cluster that bends the path of light from quasars or galaxies farther away as it passes by and through them. There had been approximately 500 galaxy lenses identified as of September 2015, and more have been found since. A lens formed by gravity bends all wavelengths of electromagnetic radiation the same amount, which makes them different from refractive or diffractive lenses. A conceptual drawing of the two images of a quasar (quasi-stellar radio object) that is beyond a galaxy is shown in Figure 2. A gravity lens is labeled strong if it produces multiple images of a background source that is recognized as a single galaxy or quasar by the observer through a telescope. If they just distort background sources' shape or orientation by an amount not recognizable to the observer, they are labeled weak lenses. Gravity lenses are based on Einstein's GR theory. The measurement of

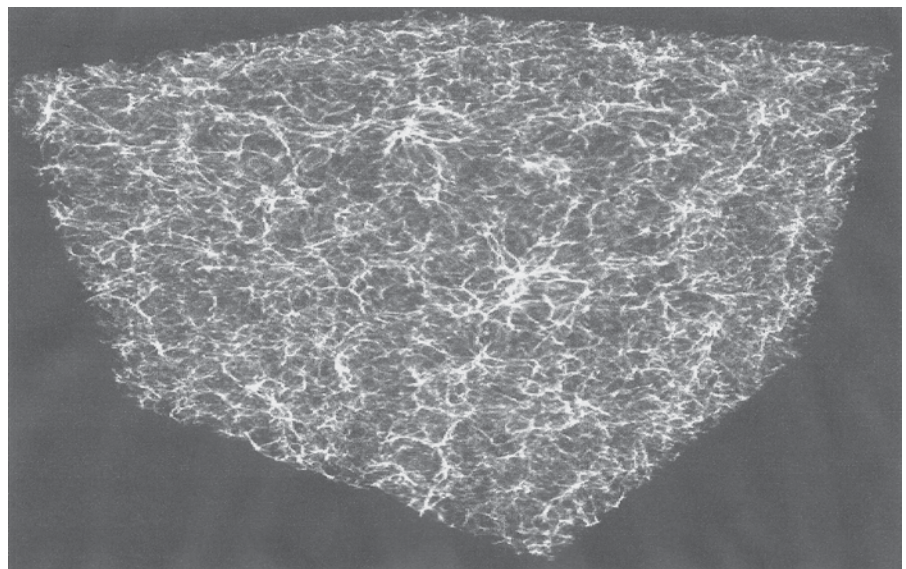


Figure 1. An artist's concept drawing of the large-scale structure of the universe in a two-dimensional quadrant as it would appear from Earth. Each point of light represents a galaxy.

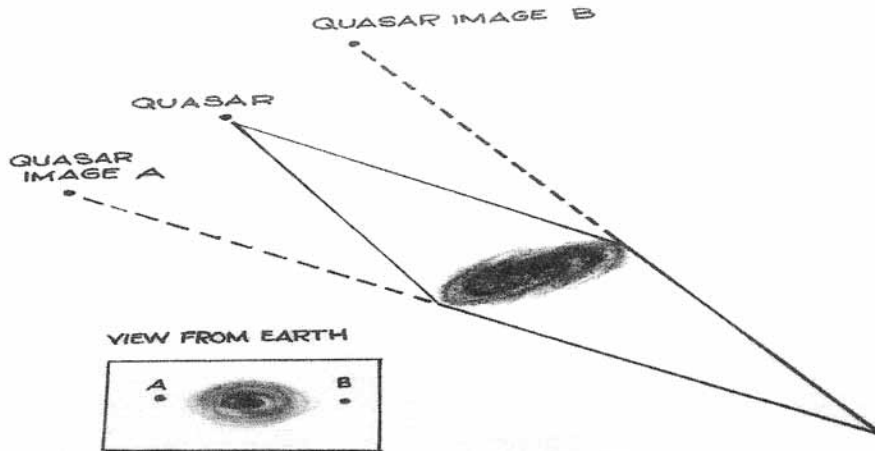


Figure 2. An artist's concept drawing that shows how two images of a single quasar are formed by a galaxy gravity lens. Inset shows the view from Earth.

the bending of light by the gravity of the sun was one of the original methods used to verify his theory. Theorists have shown that the MOND theory of gravity can be applied to lenses without the need for dark matter (Bekenstein et al., 1999).

Gravity bending of light by a star or stellar system within the Galaxy is called a micro-lens, and as far as can be determined they do not involve dark matter. In DeYoung's original article, he mentioned micro-lens events that could not be explained by ordinary matter. Since that time improved telescopes have shown that red and brown dwarf stars (visible only in the infrared spectrum at their distances from Earth) outnumber the visible stars and most likely caused these events. Because astronomers have not observed micro-lenses made of only dark matter, most astronomers now believe that dark matter does not form clumps.

Single Galaxy Lenses. Galaxies that form lenses for sources of light beyond them have been found throughout the universe. A collaboration of scientists from the University of Arizona and Harvard-Smithsonian Center for Astrophysics has compiled a list of 118

single galaxy lenses (Kochanek et al., 2013). This list is named CASTLES for CfA-Arizona Space Telescope Lens Survey. In this survey, the redshift of the lens galaxy varies from $z = 0.11$ to 1.01 or estimated distances from Earth of approximately 1.5 to 8.5 billion light years (bly). All the distances provided were calculated from the redshift data using a medial value of 21.5 km/s/mly as the Hubble constant. The source object redshift varies from $z = 0.48$ to 4.5 (6 to 12.4 bly). Recently a giant elliptical galaxy was found in a cluster at $z = 1.62$ (9.6 bly) that is presently the farthest known lensing galaxy. It provides an image for a tiny spiral galaxy at $z = 2.25$ (10.7 bly) (Wong et al., 2014).

One item that is not listed in the CASTLES survey is the estimated amount of dark matter required by the galaxy lens. According to DeYoung's original article, there is 5–10 times more dark matter in galaxies than visible matter. The observation of the images indicates that the dark matter is distributed throughout the galaxy lens and not only in a halo around it. As the search for gravity lenses continues, astronomers predict more sources will be found that

are closer to the predicted limit of visibility (13.4 bly) in the early universe.

Galaxy Cluster Lenses. Astronomers have searched the distant universe (using the Hubble Space Telescope) for large clusters of galaxies that contain multiple images of galaxies and quasars indicative of strong lensing. Two examples of such clusters are MACS J1149.5+2223 and MACS J0416.1–2403. Both clusters were discovered by the Massive Cluster Survey (MACS) (Ebeling et al., 2010). Other astronomers have searched for weak lenses in clusters of galaxies using the Subaru telescope (Okabe et al., 2013). They have used the data to determine the average dark matter distribution within 50 massive galaxy clusters. Weak lenses have also been used to detect a dark matter bridge between adjoining clusters Abell 223 and Abell 222 (Dietrich et al., 2012).

Observations of cluster J1149 located at $z = 0.544$ (~ 6 bly) revealed 33 multiply lensed images in its central 6400 ly diameter region (Zitrin & Broadhurst, 2009). The authors used a standard model-based simulation, where the mass density $\Omega_{m0} = 0.3$, dark energy density $\Omega_{\Lambda 0} = 0.7$, and the normalized Hubble constant $h = 0.7$, to determine a uniform surface mass distribution of 0.5 g/cm^2 within that region. They estimated that all but 5–15% that is baryon matter must be dark matter. They estimated that fainter source galaxies in the background range from $z \sim 1.5$ to 2.5 (9 to 11 bly).

Cluster J1149 is unusual because of its uniform distribution of mass over its central region. This uniformity is demonstrated by five images of a spiral galaxy located along a line of sight near the center of the cluster at a redshift of $z = 1.2$. These images have very little distortion of the estimated 0.9 arcsecond diameter of that background galaxy and lead to a calculated magnification of this source of 200 times. Multiple images are matched to a single source by spectroscopy that determines that they have the

same redshift. This is a safe assumption since a gravity lens bends all the wavelengths of electromagnetic radiation from the source the same amount.

Cluster J0416 is unusual because of the 194 images that have been identified of 68 galaxies located beyond the cluster (Jauzac et al., 2014). This cluster is located at $z = 0.397$ (~ 5.5 bly), and it is elongated in one direction. Because of the elongation, this cluster is considered to be a merging system evidenced by its double-peaked surface brightness of x-ray emission. The images are attributed to 68 source galaxies with redshift varying from $z = 1.1$ to 5.9 (8 to 12.6 bly). The astronomers calculated that a projected mass within an area of 650,000 ly across totaled 160 trillion suns to 1% accuracy. They assumed that dark matter was distributed in two cluster-scale halos and 98 galaxy-scale halos within the cluster.

An international team of astronomers led by Okabe (Okabe et al., 2013) analyzed images for weak lenses of 50 galaxy clusters of similar mass from a Subaru telescope survey. They determined from the distortion of background sources where the mass is concentrated in each galaxy cluster lens. The distribution of dark matter in each cluster is than described by its cluster mass and a concentration factor. By aligning the centers of the visual clusters and then stacking the fifty galaxy clusters on top of each other virtually, they determined a root mean square (RMS) dark matter density distribution. The RMS density distribution demonstrated that the dark matter was peaked at the center and decreases toward the edge of the combined clusters. Because the mass density distribution of the individual clusters varied significantly, they concluded that the standard model best describes the dark matter distribution in galaxy clusters.

Dark Matter Filaments. Using the standard model, astronomers have predicted that galaxy clusters occur at the intersection of large-scale structure dark-matter filaments. According to their

theory, the filaments contain high concentrations of cold dark matter, and they cause the clusters to form in strings that are observed. Jorg P. Dietrich and his collaborators believe they have detected the weak lensing of such a dark matter filament between the clusters Abell 222 and Abell 223 (Dietrich et al., 2012). They claim a 4.1σ significance level just short of the 5σ required for declaring a discovery. In their best-fit models, they used elliptical clusters with the filament between them. The average redshift of the super-cluster that the clusters form is $z = 0.21$ (or a distance of 3 bly). They determined that the redshift measurement resolution in the distance dimension limits the significance level calculation. They also used x-ray emission data from hot gases in the super-cluster to help determine the relative positions of the Abell clusters and the orientation of their filament connection.

What Could Dark Matter Be?

In the standard model of cosmology, cold dark matter is assumed to be made of particles that have not yet been identified. Out of the many proposed candidates, five candidates have been researched more than the others. None have been found in significant quantity and/or have all the required characteristics. The leading candidate for the hypothetical particle has been named a weakly interacting massive particle (WIMP). Two other candidates that particle physicists have proposed are the axion and the sterile neutrino. Two candidates that have been nearly eliminated for consideration are the massive astrophysical compact halo object (MACHO) and a Kaluza-Klein particle that hides itself in a fifth dimension. Both of these should have been easy to detect, but neither can be found. Each of the remaining candidates has at least some of the characteristics that the standard model requires to explain observations from particle accelerator experiments

and/or astronomical phenomena. All three candidates appear to be outside the standard model of particle physics and may also be eliminated in the near future by in-process experiments.

WIMPs. In Earth-bound laboratory experiments, the search for a dark-matter particle has not produced a single confirmed detection. WIMPs have eluded detection so far in five different lab experiments set up to detect them. The lab experiments, two in deep mine shafts in South Dakota and Minnesota plus three beneath Gran Sasso Mountain in Italy, have not generated consistent data between the five different methods used for detection. Also, many WIMP-type particles should already have shown up in the data produced at the Large Hadron Collider (LHC) with its energy range of 50 to 13000 giga electron Volts (GeV). All the known elementary particles except the Higgs boson had been found in even less energetic accelerators. This range of energy also rules out the neutralino, the hypothetical lowest energy super-symmetric (SUSY) particle. Neglecting the three types of neutrinos and their antiparticles, which have almost no mass, all the elementary particles and their antiparticles have been found in the energy range from 0.5 mega electron Volts (MeV) of the electron to 173 GeV of the top quark. The Higgs boson also falls into that range at 126 GeV and was the only new elementary particle found so far by the LHC.

Axions. Because of the failure to detect dark-matter particles in the expected energy range that has been searched, several new and unique candidates other than WIMPs have recently gained publicity. The axion is one hypothetical particle that has been searched for but not yet found at lower energy. It was first postulated by Peccei and Quinn as a solution to the strong force charge-parity (CP) symmetry problem (Peccei and Quinn, 1977).

According to their theory, axions should be formed from photons in a

strong magnetic field such as in the cores of the sun and stars. Theorists expect axions to be detectable because they should turn into radio-wave photons in a strong magnetic field in a laboratory. They would exist as dark-matter particles only between the originating magnetic field and the detection field. Their energy is predicted to be between 10^{-6} to 10^{-3} eV, and they would have minimal interaction cross section with all ordinary particles. An experiment named Axion Dark Matter Experiment (ADMX) has been running since late 2013 at the University of Washington. Its investigators predicted that they would detect these elusive particles or prove they do not exist by the end of 2016 (Cho, 2013), but neither goal has been announced.

Sterile Neutrino. Other scientists are searching for a fourth type of neutrino designated a “sterile neutrino” because it would be its own antiparticle. Such a particle would be an example of a Majorana fermion, first hypothesized by Ettore Majorana (Majorana, 1937). So far, the experimental evidence for this new type of neutrino is insufficient to claim discovery. An experiment located at INFN Gran Sasso National Laboratories in Italy, named Cryogenic Underground Observatory for Rare Events (CUORE), has been set up to detect this particle. They are searching for the rare event of a neutrino-less, double-beta decay in tellurium-130. Normal double-beta decay in a tellurium nucleus emits two anti-neutrinos. A neutrino-less decay would signal that one of the anti-neutrinos transformed into a neutrino and they annihilated each other. The expected energy released as photons by the annihilation would be 2.528 MeV (Lawrence Berkeley National Laboratory, 2015). Neutrinos are neutral particles and therefore rarely interact with known particles.

All the hunters of dark matter are looking for particles that can provide the mass or energy that generates the gravity their theory requires. If the mass

of each particle is small, there must be a large quantity, or each particle must have a high velocity. If their mass is large, they must not move at high velocities or they would interact frequently with each other. In the standard model, most cosmologists assumed WIMPs of cold dark matter exist. Their favorite WIMPs would be super-symmetric versions of the known elementary particles. But they have a difficult time justifying cold matter of any kind at energies above those reached by the LHC (13000 GeV), where no detection has surfaced.

If dark matter consists of axions or sterile neutrinos, it would be considered hot matter. They would be moving at high velocities at, or near to, the speed of light. A very high density would be required of such high-velocity particles to provide the energy for gravity 5–10 times that supplied by the visible matter in galaxies. This would tend to cause them to interact with ordinary matter or each other, and such an interaction should provide a detectable signal. There have been reports of detecting such a signal (i.e. Geringer-Sameth et al., 2015; Davis and Silk, 2015), but determining whether it results from dark matter or not still requires further research. At the present time, the energy for hypothetical dark-matter particles that have been eliminated ranges from below 10 eV and to above 200 GeV. These are extremes as far as explanations for the characteristics of dark-matter particles where both laboratory experiments and astronomical observations are concerned. A Dark Sectors workshop held in April 2016 provided a summary of the results from the search for dark-matter particles and where the search is still ongoing (Alexander et al., 2016).

A Creationist Perspective on Dark Matter

As pointed out above, the recent standard model proponents have assumed dark matter particles existed as far back

as the big bang, and they have required them to be widely distributed throughout the universe. How they were distributed without interaction with baryons and photons remains a mystery. The reason the proponents presented was that the galaxies, their clusters and the whole universe itself are held together by gravity in a stable configuration that cannot be explained by the mass of detected baryonic matter. The question that evolutionists and old-universe creationists must face is this: What if dark matter does not exist? It then becomes obvious that the universe could not have evolved as presently explained by their standard model and its big bang theory.

Scientists who believe in a young world by special creation not much greater than 6000 years ago have seldom included dark matter in their models. Some even claim it does not exist and it is just a philosophical issue (Hartnett, 2015). If dark matter is discovered in the future, the young-earth creationist would say it was created with everything else in the universe sometime in the first four days. On which day it was created would depend on the person’s interpretation of the events described by Genesis 1:1–19. For example, one interpretation is that God created all energy and matter at the beginning on the first day (Dobberpuhl, 2011). Another interpretation is that God created the planet Earth on the first day but the galaxies of stars among which dark matter supposedly resides on the fourth day (Hartnett, 2007). The difference in the interpretations is based on the definitions the authors used for the Hebrew words for “earth” (*’eres*), “water” (*mayim*), “light” (*’ôr*) and “he made” (*’āsāh*) used in the first chapter of Genesis. The differences in these definitions between the two interpretations are shown in Table 1.

According to Hartnett’s definitions, the planet Earth was created on the first day and the sun, moon, and galaxies of stars were made from nothing on the fourth day *in situ*. Since the dark mat-

Table 1. Two authors' definitions of Hebrew words in Genesis 1.

	Dobberpuhl	Hartnett
earth (<i>'ereš</i>)	All energy and matter combined	Planet Earth
waters (<i>mayim</i>)	Liquid earth material	Molecular water (H ₂ O) only
light (<i>'ôr</i>)	All electromagnetic radiation wavelengths	Visible wavelengths only
he made (<i>'āśāh</i>)	God made from existing material	God made from nothing (created)

ter, if it exists, resides in and around the galaxies, it also would have been created on that day. If Dobberpuhl's definitions are used, dark matter would have been created and separated from light photons on the first day with all the atomic matter. On the second day, it would have been spread out into the expanse and positioned where it is found along with the atomic matter. A portion of it could have been included in the formation of the galaxies of stars. Then on the fourth day, God only initiated the fission and fusion processes that turned the sun and stars into the light providers of the universe that made the heavens visible.

The questions that DeYoung asked in his "A Creationist Response" section remain relevant. But recent developments from theory and observation may have modified some of them. For example, the first question on whether the laws of nature are universal depends on mankind's understanding of those laws. One argument for assuming missing mass within a galaxy was found in their flat rotation curves. Other astronomers proposed an alternative to missing mass with the MOND and EG theories of gravity. Still others assumed a different metric than the standard model metric based on Friedmann-Lemaître-Robertson-Walker (FLRW) cosmology. FLRW assumed that the universe is both homogeneous and isotropic. In that universe model, the relationship

between redshift and distance was defined as the *Hubble constant*. More recently, observation data showed that the Hubble constant has changed with time. In the 1990s, Moshe Carmeli derived a different metric that allowed the Hubble constant to change with a time constant (Carmeli, 1996). His universe was based on five dimensions instead of the four dimensions of space-time in GR. He added a velocity dimension to GR and named it the *spacevelocity* model. Hartnett (2007) expanded on Carmeli's work to show in spacevelocity there was no requirement for dark matter in spiral and elliptical galaxies and it provided the theoretical basis for MOND. The question becomes, which law of gravity does the rotation of galaxies follow: MOND, Verlinde's EG, or Einstein's GR with the FLRW or Carmeli's metric? These laws of gravity also depend on a yes answer to the second question: Are galaxies stable with respect to the virial theorem?

Does a creation scientist have any more information about the Galaxy from the Bible? First a scriptural reason was given for the stars in the local region around the solar system to have the same linear velocity. This was reported in Genesis 1:14. We can infer from this verse that all the stars in the constellations visible to the naked eye (which are stars less than 6000 ly from Earth) were positioned and put into motion on the fourth day. With nearly the same linear

velocities, the stars retain their resolvable relative locations so that their constellations remain as perpetual signs. This means that constellations change only very slowly with time, and the change would not be noticeable, at least to the naked eye in a human lifetime.

Let us assume that the same relative positioning is true for most of the stars in the Galaxy, since by its symmetry it is logical that they were made at one time. We look especially at those stars that are at the outer edge of the Galaxy's visible disc. They will remain in the Galaxy for many years because most of their initial velocity was tangential and not radial when God fixed their motion on the fourth day (Genesis 1:17). For example, a star at 50,000 ly from the center of the Galaxy that is traveling at 232 km/s of the flat rotation curve and not gravitationally bound will have moved a distance of 1 ly from the Galaxy center while traveling 316 ly in the tangential direction as depicted in the conceptual drawing of Figure 3. In the 6000 years since Creation, stars traveling at that initial velocity would have moved less than 5 ly in the radial direction. If any gravity supplied by the baryonic matter in the disc is taken into consideration, the ra-

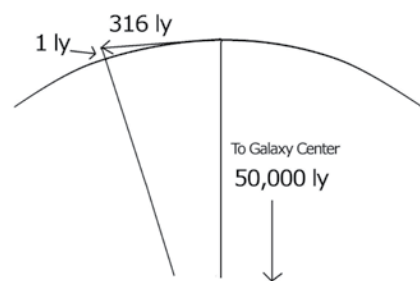


Figure 3. An artist's concept drawing (not to scale) of the motion of a star 50,000 ly from the center of the Milky Way galaxy as it would have traveled at 232 km/s without gravity. It would travel a distance of 316 ly in the tangential direction for every 1 ly in the radial direction.

dial movement would be even less. Such a small radial motion at 22,000 ly from Earth would not be detectable even with modern telescopes. Another factor to consider is that the solar system and Earth may also be moving slowly away from the center of the Galaxy, reducing the relative change even more.

DeYoung used essentially this same argument to answer his third question about galaxy clusters. If God created the galaxies in a cluster and set their motions at the beginning, they would not have moved far enough in 6000 years to have disrupted their clusters. The answer to the questions would be that they may not be stable, and the virial theorem does not hold for both galaxies and their clusters. Evolutionary astronomers claim the universe is expanding at an ever-increasing rate, so why couldn't the galaxies and their clusters also expand at a much slower rate? In fact, Carmeli and Hartnett's theory predicts such a motion (Hartnett, 2007).

One question that DeYoung did not ask but remains for creationists to answer is this: How were gravity lenses formed by galaxies and their clusters without dark matter? As believers in Creation know, the Creator was involved in the forming of the heavens and all natural processes. Scientists have not yet determined the relationship between gravity and photons at the most basic level. Newton defined gravity as the attractive force between two masses. Einstein defined gravity as the curvature of space-time caused by mass. He proposed that photons propagate along a geodesic of that curvature. But according to Verlinde's EG theory, there is a hidden force at the quantum level that interacts between photons and gravity, and it sets a lower limit on gravity. This may indicate some hidden physics connecting photons, space-time, and mass/energy that GR does not include. It could be the cause of the difficulty in combining gravity and the three other forces into a theory of everything.

A New Genesis Cosmology without Dark Matter

A new cosmology based on the Genesis creating-and-making account was proposed in the book *The First Four Days* (Dobberpuhl, 2011). The main premise of that book was that God recorded the miracles He performed during the first four days, which explained the creating and making of the physical universe in preparation for mankind's habitation. The following paragraphs provide a summary of these miracles and how they relate to a universe without dark matter. It is assumed that dark energy was God's hand in forming the stretched-out heavens. More details can be found in the book on each of the miracles that God performed.

In the beginning, God created the heavens and the earth. In this interpretation of Genesis 1:1, the heavens were a four-dimensional space-time and the earth was all the energy and matter now found in the universe. The definition of earth was obtained from Genesis 1:10, where God named dry ground "earth." Dry ground contains atomic matter, electromagnetic energy, and gravitational energy. If this interpretation is true, the originally created earth material would also have contained dark matter if it exists. From Genesis 1:2 it can be inferred that the heavens were empty except for the earthen material that was in liquid form. The liquid did not emit light (electromagnetic waves or photons), and therefore it could not have been composed of atoms. It is possible that this was a unique form of matter and energy that does not exist after the first day.

God commanded light to exist at dawn of the first day (Genesis 1:3–5). It is reasonable to assume that He formed light from the dark earthen material that He had created. God claims to form light and create darkness in Isaiah 45:7. It is also reasonable to assume that He formed atomic matter at the same time as the perpetual source for light.

He allowed a portion of the light from the earthen material to propagate into empty space for daylight on that day. The remainder of the earthen material was made of a mixture of baryonic matter and electromagnetic radiation, possibly in the form of very hot plasma. There is no physical reason to believe that dark matter existed at a time shortly after the big bang in the standard model, much less in this model.

According to this interpretation of Genesis 1:6, God divided this remaining earthen material into ultra-massive black holes at the beginning of the second day. He utilized gravitational energy for the first time. Each ultra-massive black hole contained at least one galaxy worth of atomic matter and electromagnetic radiation. Psalm 104:3 could refer to these as dark clouds that God made into His chariots to carry the physical hosts of heaven to their destinations. He dispersed these black holes out into the universe near to the positions where galaxies are now found. He performed this action supernaturally in less than a half day. His actions eliminate the requirement for both the unknown initial energy for inflation and the dark energy that is now causing the expansion of the universe in the standard model.

According to this model, God made the expanse that must have included the celestial bodies, or He would not have named it the heavens. He stretched out the gravitational fields between the masses of the black holes, forming the large-scale structure or fabric of the heavens. All the movement of these masses took place at superluminal speeds (faster than the speed of light now measured in a vacuum). The dispersion to their final positions may have continued until the fourth day as described below.

Then in the second half of the same day God formed holes in the event horizons of the ultra-massive black holes to release masses of atomic matter. They formed masses made of the chemical elements that had formed within the black

holes and are found in all the celestial bodies. In this manner, God spread out the earth (Isaiah 42:5) that formed the masses of all the celestial bodies and gas clouds found in each galaxy. In a spiral galaxy, the outpouring of the masses was wound up into the galaxy around the resulting super-massive black hole. First to exit would have been the satellite galaxies and globular clusters that formed the satellite disc perpendicular to the visible disc. Then the black hole could have been shifted 90 degrees to begin ejecting the liquid masses of the celestial bodies that later formed the visible disc. The celestial bodies were formed into spheres by their own gravity if they contained enough material.

In the Galaxy, the solar system was formed including the planet Earth. The star was led out by God (Isaiah 40:26) to a position located approximately 28,000 ly from the black hole in less than half a day. The hole in the event horizon that ejected the Earth could have provided the daylight for this day. God would have performed all these actions at superluminal speeds. With God's design and guidance, there would be no requirement for the universe to be homogeneous and isotropic as required by the standard model or even just isotropic as required by the Carmeli model.

On the third day, God first commanded sea water (molecular water and many other chemical elements) from pockets within the solidified crust to burst forth and cover the surface of the Earth. He then commanded the dry ground to rise above sea level (Job 38:8–11). When God gathered the water on the surface, escaping molecular gases could have formed an atmosphere. When God raised solid ground in a very short period of time, the rushing water runoff formed the surface sediment structure. The ground dried quickly before God planted the vegetation. The account reports that trees were mature and bore fruit in less than 24 hours. This indicates that vegetation growth rate was

much faster than what is considered normal today. Only if all the natural rates of the processes involved were accelerated by God could everything have taken place as described for this one day.

We inferred that God also provided a protective magnetic field for Earth. He could have provided light for the second half of the third day by particles impinging on the magnetic field forming an ultra-bright aurora effect that surrounded the planet. If the galaxy was still winding up the particles and even daylight may have been provided by the hole in the event horizon at the other end of the bar at the Galaxy center as it rotated past the direction to the solar system.

Finally, on the fourth day God finished the heavens by lighting the stars in all the galaxies. He provided the Doppler redshift for them and caused the supernovae and gamma ray bursts that are observed today. The redshift of the galaxies was provided by the difference between the rate the galaxy was receding from Earth and the speed of light at the galaxy's position in space (both much faster than c at that point). In the standard model, redshift was assumed to be caused by space expansion based on the cosmological principle that the universe has no center or edge and is homogeneous and isotropic. We assumed God placed Earth near the center of the universe and provided redshifts that are quantized as a result. The supernova and gamma ray bursts observed today can be explained as a slow-motion view of what took place in one day at accelerated rates due to the one-way slowing of the propagation speed of light.

God also fixed the motions of nearby stars in the Galaxy to form the constellations that provide perpetual signs. He set the rotation of the Earth, the orbit of the moon, and their combined orbit around the sun for mankind to tell time. Until this point in Creation Week, God was the only time keeper. How God treated space-time during the first four

days may always remain a mystery to us. But some knowledge from the results of His miracles can be gained that may provide some clues.

For example, on the fourth day the light from stars visible in all the constellations started and arrived on that same day. This means that light leaving stars up to 6000 ly from Earth traveled the distance in twenty-four hours or less. It would have traveled over 2,000,000 times faster than light travels now. Another indicator of what light speed was during that time would be at the Galaxy level. If it is symmetric as observed by mankind, it must have formed all at the same time. Electromagnetic radiation from the other side of the Galaxy that is now observed could not have arrived in 6000 years since Creation at its present speed. So, the assumption that the speed of light in a vacuum was always a constant could not be true for the first four days. If the constant-speed-of-light assumption is wrong, other process rates such as atomic decay rates and atomic material cooling rates also may have been accelerated the same amount.

Conclusions

In conclusion, what dark matter is and where it is located both are still mysteries. Its proposed existence was based on assumptions that may not be true. All cosmologies based on GR and the FLRW metric have now assumed that it exists, and it will be found. They also assumed that the speed of light has always been a constant. Another cosmology by Hartnett and Cameli based on a different metric that replaced empty space with a fabric and added a velocity dimension has already removed the requirement for dark matter. But their ad hoc assumptions may still hide unknown processes that relate time, space, and matter/energy during the first four days. Only a cosmology based on the correct interpretation of what God provided in His Word can hope to meet all the re-

quirements. That cosmology may never be developed or understood by mankind. So, unless dark matter is located and identified, the question of whether it actually exists within our universe will remain unanswered.

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Genesis Flood Drainage through Southwest Montana:

Part III: Water Gaps

Michael J. Oard*

Abstract

Uniformitarian science has been unable to explain wind and water gaps, but they are easily accounted for by the recessional stage of the Flood. Eight water gaps and three wind gaps in southwest Montana confirm that the three major and one minor uniformitarian hypotheses fall short, while the Flood provides a reasonable explanation. This model is further supported by other features examined—large slack water and eddy gravel bars, whose size and placement require drainage of great proportion, like those formed by the Lake Missoula Flood.

Introduction

Part I summarized the recessive stage of the Flood in Southwest Montana, focusing on the erosion of nearly 1,000 m of valley fill during the channelized phase (Oard, 2018a). This erosive drainage also formed pediments in special flow situations (Oard, 2018b), showing that the patterns of pediments supported the Flood interpretation. In contrast, uniformitarian hypotheses failed to explain pediments. In this paper, we will again contrast the two paradigms with regard to water and wind gaps, noting how the Flood interpretation is strengthened by

local gravel bars in slack water areas similar to those formed in the Lake Missoula Flood (Oard, 2004).

What Are Water and Wind Gaps?

A water gap is defined as “A deep pass in a mountain ridge, through which a stream flows; esp. a narrow gorge or ravine cut through resistant rocks by an antecedent or superposed stream” (Neuendorf et al., 2005, p. 715). In other words, a water gap is a perpendicular cut through a mountain range, ridge, or

other rock barrier that carries a stream or river. This definition unfortunately includes two theoretical ideas regarding their origin: (1) the “antecedent stream” hypothesis, which proposes a stream maintaining its course during slow uplift (cf. Neuendorf et al., 2005, p. 27), and (2) the “superimposed stream” hypothesis, which cuts down into rocks of different lithology (cf. Neuendorf et al., 2005, p. 645). Ironically, these two primary mechanisms have since been ruled out for most water gaps by geologists. Uniformitarianism cuts deep, influencing even definitions that should be purely descriptive.

A wind gap is defined as: “A shallow notch in the crest or the upper part of a mountain ridge. Usually, it is at a higher level than a water gap” (Neuendorf et al., 2005, p. 723). To qualify as a wind

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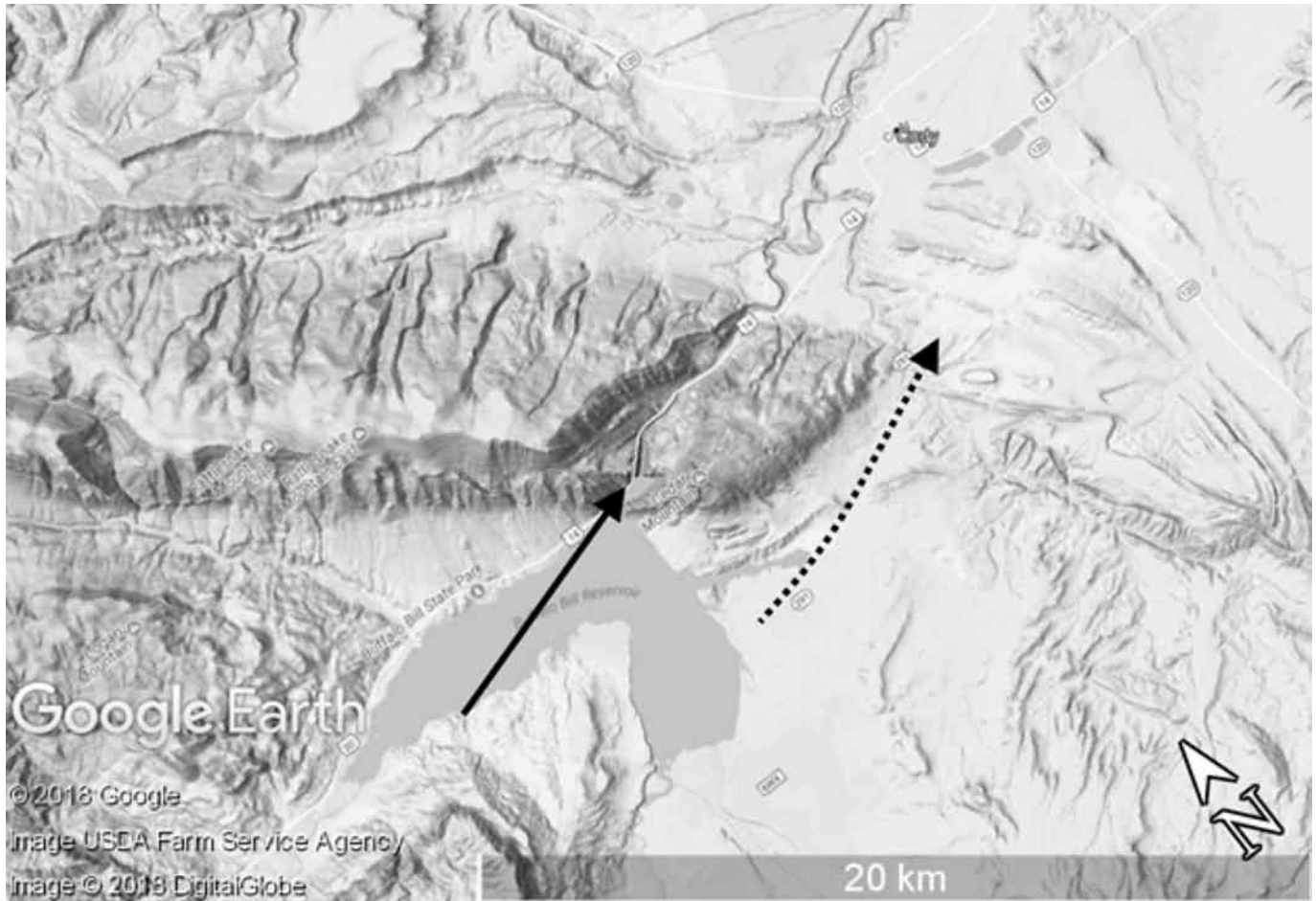


Figure 1. Shoshone water gap through Rattlesnake Mountains, Wyoming. Solid arrow shows direction of river flow. Dotted line shows low area to the south of the gorge. (Courtesy of Google Earth)



Figure 2. The water gap shown in Figure 1 (view west from Cody, Wyoming). The Shoshone River flows east toward the viewer.

gap, the notch must be *erosional* and not caused by faulting, folding, or another non-erosive factor. Many wind gaps began as water gaps, but uplift of the barrier or the lowering of local base level (and resulting erosion at lower elevations) has left them high and dry. Only wind now passes through the gap, which is why it is called a *wind gap*.

Water gaps are puzzling to uniformitarian thinking because over time, one would expect a river or stream to be diverted *around* the ridge, mountain, mountain range, or plateau instead of cutting through the barrier. Modern rivers are quite sensitive to slight changes

in elevation and divert easily to reduce their gradient. A notable example of a water gap is the Shoshone water gap that cuts through the Rattlesnake Mountains west of Cody, Wyoming (Figures 1 and 2).

The Rattlesnake Mountains are a narrow range east of Yellowstone Park, along the western Bighorn Basin. They are cored by granite, which is covered by a drape of sedimentary rocks, uplifted with the granite to form the mountain range. The Shoshone River flows east from Yellowstone Park. It continues without deviation through the Rattlesnake Mountains, through a 760-m-deep gorge.

Why did not the river simply flow around the mountains, a mere 3 km to the south as shown in Figure 1? Figure 3 is a view to the southeast across Buffalo Bill Reservoir, formed by a 100-m dam in the gap. The narrow water gap through the Rattlesnake Mountains is shown by the arrow. The wide gap to the south (right in Figure 3) is so low that engineers had to build another dam to keep the reservoir from spilling south. An irrigation canal flows from this southerly dam into the Bighorn Basin. When the valley sediments were higher in the past, the river should have *easily* gone south around the Rattlesnake Mountains.

One water gap that potentially could be explained by uniformitarian geology is the Columbia River Gorge between Oregon and Washington (Figures 4 and 5). It is a deep, narrow gap through the volcanic Cascade Mountains, which uplifted. It is possible to claim that the river was antecedent (see below) and the mountains uplifted slowly enough for the river to cut downward, but modeling shows uplift usually defeats the river (Douglass and Schmeckle, 2007). If uplift caused a lake to form, there should be evidence of such a lake and its breach. But thousands of significant water gaps that cannot be attributed to antecedence or lake spillover occur all across the earth.

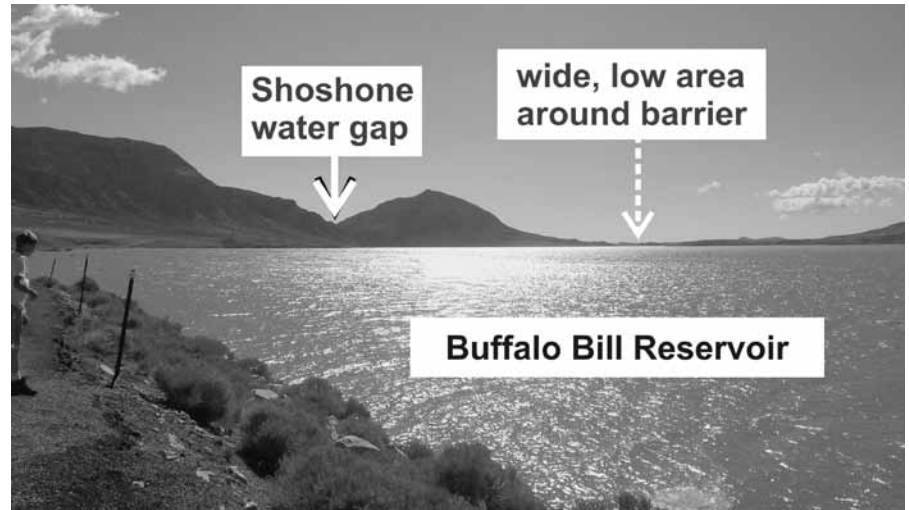


Figure 3. View to southeast across Buffalo Bill Reservoir showing actual (Shoshone water gap) and expected flow paths. See Figure 1 for aerial view.



Figure 4. The Cascade Mountains of northern Oregon and Washington with the Columbia Gorge through the mountains, shaded up to 420 m asl. (Courtesy of ESRI).

Water and Wind Gaps Challenge Uniformitarian Explanations

Water and wind gaps remain uniformitarian challenges (Oard, 2008, 2013). Crickmay, a uniformitarian geomorphologist, colorfully describes his fre-

quent troubles assuming rivers cut all water gaps, as many geomorphologists suppose:

Admittedly a fascinating picture, a river runs over low, open plains directly towards seemingly impassable mountains but, undiverted by their



Figure 5. The Columbia River flowing westward through the Columbia River Gorge between Washington and Oregon.

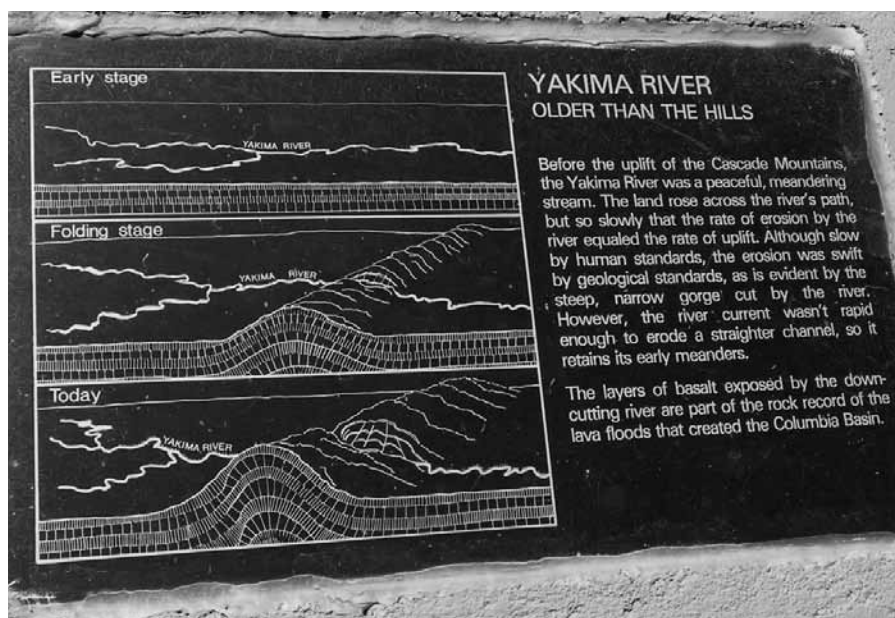


Figure 6. Plaque of the antecedent river hypothesis of the Yakima River through a lava ridge. The Yakima River supposedly came first and then the ridge slowly uplifted while the river eroded the ridge at the same location.

presence, passes through them by way of a narrow defile, or water gap, to a lower region beyond. (Crickmay, 1974, p. 154)

There are three major uniformitarian hypotheses for the origin of water and wind gaps: (1) the antecedent stream (or river) hypothesis, (2) the

superimposition hypothesis, and (3) the stream piracy hypothesis. A minor hypothesis, the overspill hypothesis, is rarely invoked. These will be briefly summarized.

The Antecedent Stream Hypothesis—Largely Rejected

The antecedent stream hypothesis proposes preexisting rivers *before uplift* of a landscape of low relief. Upon uplift, the river stubbornly stays its course, downcutting into rising land. Uplift is sufficiently slow that the erosional rate equals or exceeds it (Figure 6). This hypothesis applies mainly to *large* rivers because only they supposedly have enough erosive power to match the rate of uplift (Ahnert, 1998, p. 201). This hypothesis seems to have been the first developed in the 1800s to explain water gaps. It was commonly invoked into the late twentieth century.

Despite its early appeal, the hypothesis faces many difficulties. Newer geological information has shown that many structural barriers are “older” than the stream. Others question the balancing of erosion rates with tectonic rates and the difficulties in avoiding stream deflection (Ranney, 2005). If erosion were ever slower, the river should have diverted, and no transverse gorges formed. Twidale (1976) clung to the hypothesis but had to admit that antecedent streams were rare. Another problem is the absence of evidence of upstream lakes. If a river is flowing through an enclosed basin and the adjacent mountains rise too fast, there should be lake deposits upstream from the barrier, but they are rarely found. Worse, many water gaps are aligned, showing that this delicate balance was maintained across multiple rising barriers. Aligned water gaps are found in the Appalachian Mountains; out of 653 in the Susquehanna River basin, 19% of them aligned (Lee, 2013). Even small tributary streams, which are supposedly too weak to carve water gaps, cut through Appalachian ridges.

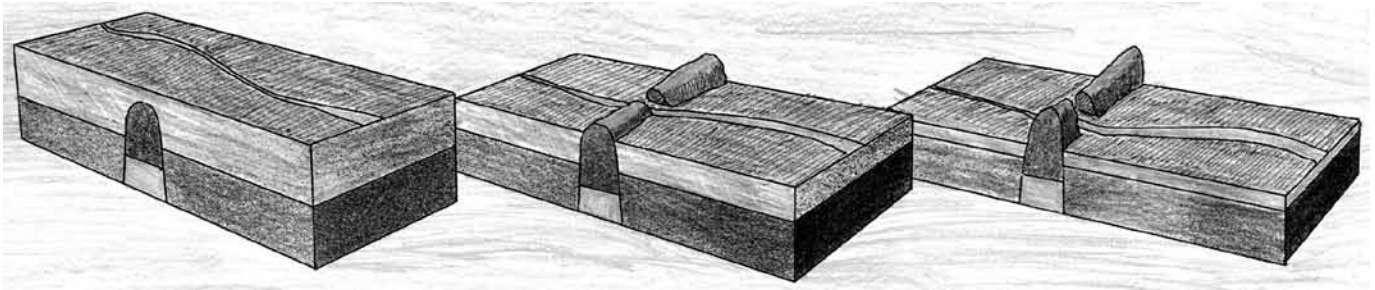


Figure 7. Block diagram of the superimposed stream hypothesis. The stream maintains its course as most of the covermass (top layer) is eroded. (Drawn by Bryan Miller, formerly of Master Books)

The Superimposed Stream Hypothesis—An Act of Desperation

Problems in the antecedent stream hypothesis led to alternatives being explored. A prominent one is the superimposed (or superposed) stream hypothesis. Under this scenario, a landscape is buried by renewed sedimentation, usually a marine transgression. When eventually uplifted, rivers and streams eroded down through the flat sediments and their course did not change although the covering sediments are all eroded away (Figure 7). Geomorphologists default to this hypothesis if they find *any* remnant of the vanished sedimentary cover (Twidale, 2004). Eroded sedimentary rock can usually be found in at least some areas.

This hypothesis requires two difficult tasks. First, rivers must maintain the *same* course as they downcut into both resistant and nonresistant formations. Second, at the same time, the drainage system must somehow remove all the sedimentary cover over the old landscape (Douglass and Schmeckle, 2007). There is usually little or no evidence for either.

The Stream Piracy Hypothesis—The Final Fallback Position

The third major hypothesis explaining water gaps is the stream piracy or stream capture hypothesis. Summerfield (1991, p. 410) explained: “River capture oc-

curs when one stream erodes more aggressively than an adjacent stream and captures its discharge by intersecting its channel.” Figure 8 shows this process. This is currently the most popular “default” mechanism to explain transverse drainage (Douglass, 2005). The required higher rate of erosion of the piratical stream has been attributed to: (1) a steeper gradient of flow, (2) greater discharge, (3) less resistant riverbed, and (4) higher precipitation.

There are certain features of a stream attributed to stream piracy, but these have alternative explanations (Oard, 2013). To demonstrate stream piracy, it must be shown that a tributary of the pirate stream was incised to a significantly lower level than its victim. But erosion is an ongoing process, and capturing “snapshots” of its progress is difficult. There is usually little definitive evidence for the process of piracy. Geomorphologist John Douglass (2005, p. 81) concludes:

The paucity of definitive evidence of piracy [sic] transverse drainages suggests that this mechanism does not occur commonly, especially in regions dominated by extensional tectonics. (Emphasis mine)

Overspill Hypothesis

A rare event, but one that must be addressed, is the overspill hypothesis, where a lake overtops a ridge and cuts

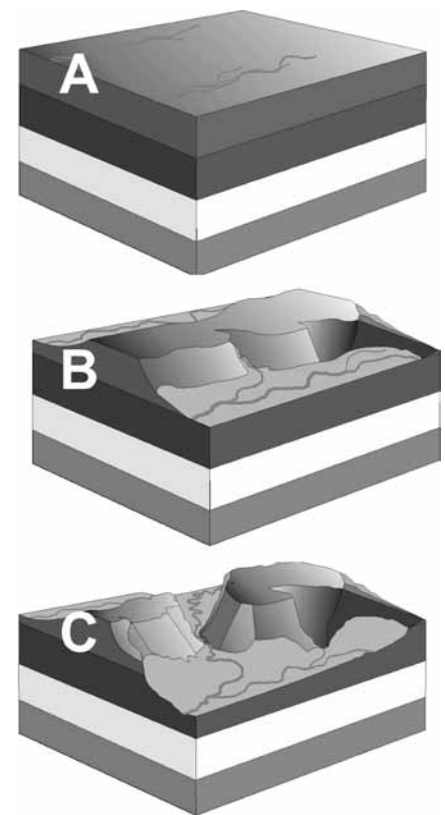


Figure 8. Block diagram of river capture: (A) Two parallel streams begin (B) eroding valleys and creating a ridge, through which (C) one stream's tributary erodes, allowing capture of the other stream. (Drawn by Peter Klevberg)

a new canyon. Though rare, it is real. However, its application to the past is not clear. It can be used to explain some Ice Age channels as proglacial lakes over-

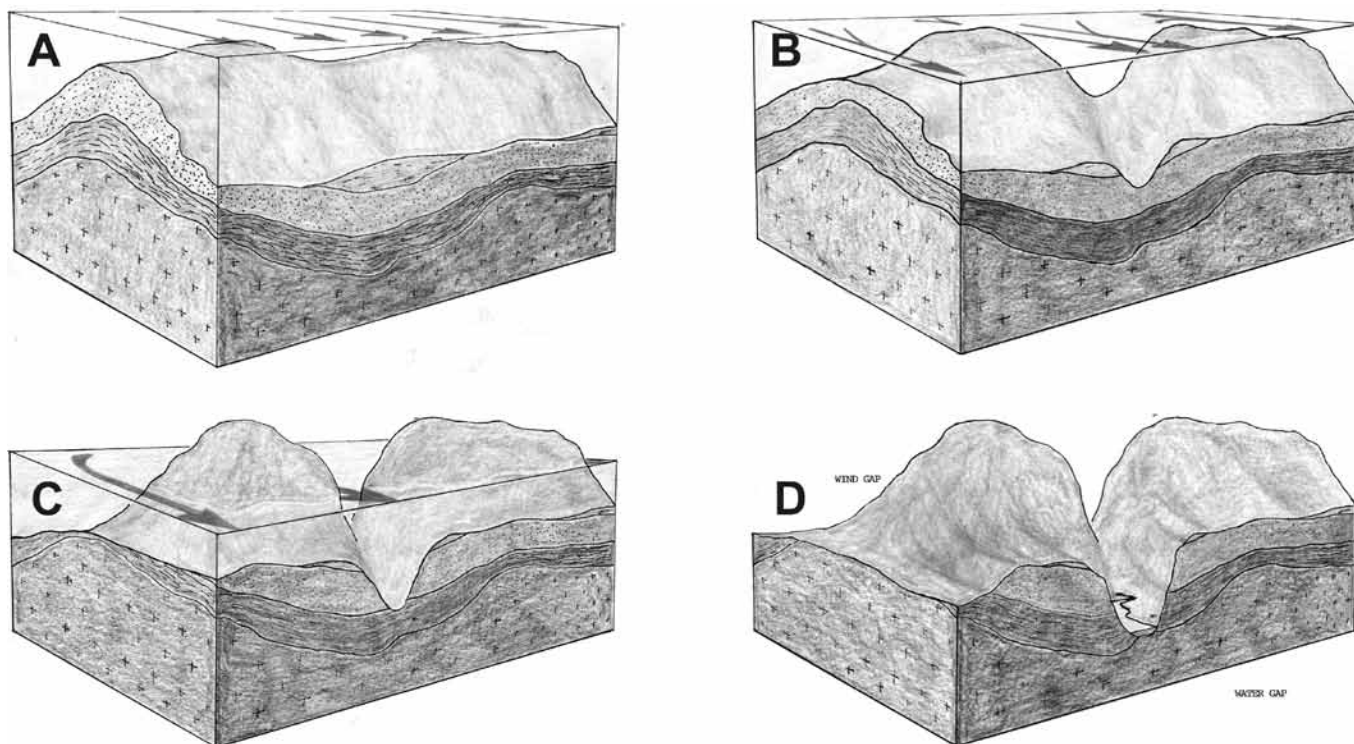


Figure 9. Schematic showing the formation of water and wind gaps. (A) Water flowing perpendicular to a transverse ridge forms shallow notches on the ridge. (B) Notches erode deeper as the water level drops below the top of the ridge. (C) Floodwater continues to drain as notches deepen. (D) Floodwaters are completely drained with a river running through the lowest notch, the water gap. Erosion ceased too early through the other notch, leaving a wind gap. (Drawn by Peter Kleverberg)

topped a barrier as the lakes filled. It has been applied to Grand Canyon by both secular geomorphologists and Flood geologists, despite numerous problems described by Oard (2014).

The Grand Canyon cuts a series of plateaus; the Kaibab Plateau being the easternmost, the highest, and the first one to be transected. But the Kaibab was breached at about 2,250 m elevation, rather than lower points that exist both to the north and south of the current canyon. These lower elevations are 1,725 m to the north and 1,900 m to the south. One would expect a lake to breach low points, not high ones. Also, there is little evidence of the supposed lake or lakes east of the Kaibab Plateau. There are no shorelines

and no lake-bottom sediments. Glacial Lake Missoula and the many lakes of the southwest United States Ice Age left abundant evidence (Oard, 2004). Some claim that the Bidahochi Formation in the northeast part of the Little Colorado River drainage includes lake-bottom sediments, but they are sited high up the sides of the drainage basin. The minor parts of the formation that might be considered lacustrine are claimed to be from a small, dried-up lake (Dickinson, 2013). Finally, when the flow breached the Kaibab Plateau, the canyon did *not* form down the topographic slope as should be expected but was cut with meanders along *the same altitude* over a downstream distance of 70 km along the southwest edge of the Kaibab Pla-

teau. That is why I join practically all secular scientists in rejecting the idea (Dickinson, 2013).

Little If Any Evidence for Uniformitarian Hypotheses

In summary, no uniformitarian hypothesis adequately explains water gaps. Most uniformitarian geologists simply invoke one of the inadequate mechanisms routinely, without comment or evidence. Some invoke two or more at the same time, as if multiplying improbability will somehow make something probable. Oberlander (1985, p. 155) expressed dismay at the lack of evidence for the origin of water gaps:

Large streams transverse to deformational structures are conspicuous



Figure 10. Narrow-walled, meandering Palouse Canyon downstream from Palouse Falls, Washington.



Figure 11. Jefferson Canyon water gap runs through a ridge 640 meters above the Jefferson River and wind gap to the south (view southeast). The water should have easily flowed around the higher mountains through the present-day wind gap.

geomorphic elements in orogens [mountain ranges] of *all ages*. Each such stream and each breached structure presents a geomorphic problem. However, the *apparent absence of empirical evidence* for the origin of such drainage generally limits comment upon it. (Emphasis mine)

John Douglass (2005, p. 20, 40) added:

Despite more than two centuries of study, our understanding of transverse drainage development [origin of water gaps] remains very much in its infancy ... No general theory building has allowed transverse drainage research to move beyond a

compilation of empirical data with *intuitive explanations being the norm*. (Emphasis mine)

Water and Wind Gaps Easily Formed during Flood Runoff

Most water and wind gaps, especially the deep ones, provide clear, powerful evidence for the channelized flow phase of the Flood (Oard, 2008, 2013). It is a sufficient mechanism because large volumes of water were flowing over, then through, barriers as the Floodwaters drained from the continents (Figure 9). The best present analog is the Lake Missoula Flood, which rapidly cut large water and wind gaps in eastern Washington (Oard, 2004). For example, Palouse Canyon is a 150-m deep water gap carved when the Lake Missoula Flood overtopped a ridge (Figure 10).

Water and Wind Gaps of Southwest Montana

Water and wind gaps are common across the continents of the earth. There are about a dozen significant water gaps in Southwest Montana but only a few wind gaps of note.

The Perplexing Jefferson Canyon Water and Wind Gap

One of the most obvious water gaps is Jefferson Canyon (Figure 11, left arrow). The Jefferson River cut hard limestone, about 640 m above the current river, when it could have easily gone south a short distance around the barrier, where the potential channel is only 150 m above the river (Figure 11, right arrow), which can be considered a wind gap. Figure 12 is a Google Earth cross section across the resulting water and wind gaps.

David Alt (1984, p. 7), retired professor of geology at the University of Montana in Missoula, finds this water gap perplexing and writes:

The very existence of Jefferson Canyon is an interesting puzzle.

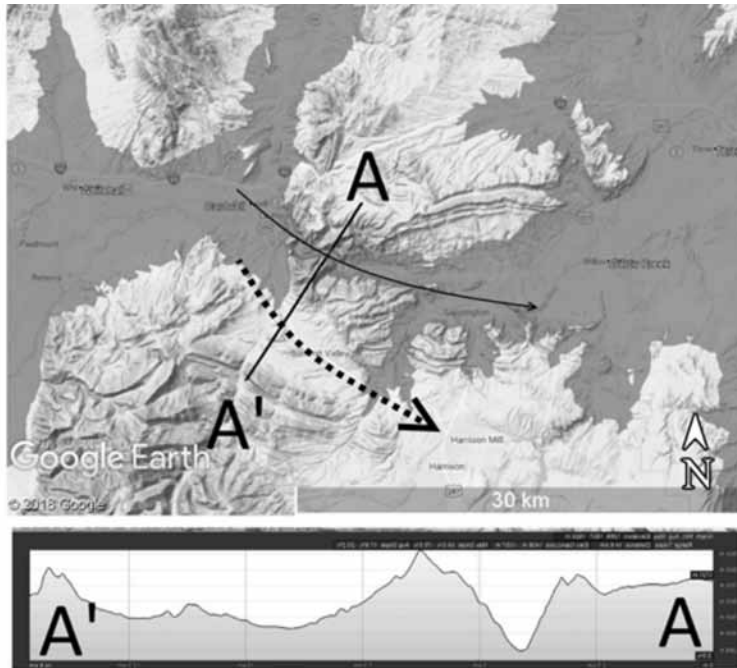


Figure 12. Map and cross section through the water (solid arrow) and wind (dashed arrow) gaps at the Jefferson River near Cardwell, Montana. Shaded area shows a hypothetical water level of about 1,400 m asl. River flows left to right. (Image courtesy of Google Earth)

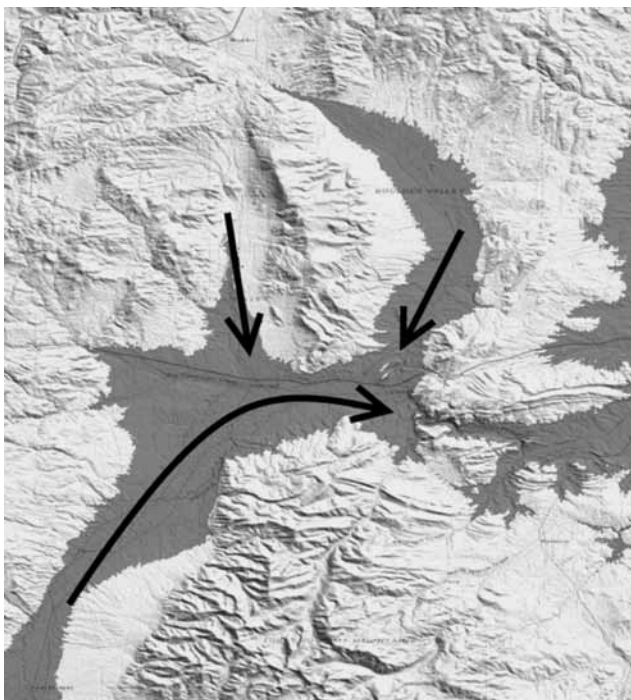


Figure 13. Late Flood channelized currents could have formed the Jefferson River water gap. Shading shows currents (arrows) when the water level would have been about 1,450 m (asl). Energy from the converging currents carved the canyon at the end of the long arrow. (Courtesy of Google Earth)

Why should a river flowing through a broad valley floored with soft sediment that offers no real obstacle to its passage suddenly enter a narrow canyon where it has to saw its way through hard bedrock?

He assumes the river carved the canyon. Alt goes on to say that such water gaps are numerous in Montana:

Numerous other Montana rivers do exactly the same sort of thing: the Missouri River at Gates of the Mountains, for example, and the Madison River where it abruptly turns east just north of Ennis and slices a narrow gorge right through the Madison Range. (Alt, 1984, p. 7)

He later exclaims:

It is one thing to understand that rivers can erode bedrock and quite another to figure out how they can cut a deep canyon right through a range of mountains. Why didn't the river detour around the mountains instead of cutting a canyon through them? How did running water manage to cut right through a formidable range of mountains that would appear to have been an obstacle in its path before the canyon was cut? We can be quite sure that river didn't attack the mountains by flowing up one side and then down the other because rivers can't run uphill, not even a little bit. (Alt, 1984, p. 65)

The case of the water gap at the Gates of the Mountains, near the Missouri River's exit onto the edge of the High Plains (see Part I, Figure 10c and d, north of Helena), is described by Alt (1984, p. 146):

What explanation is there for the Missouri River eroding its canyon right through the middle of the Adel Mountains, instead of going around the edge of the volcanic pile?

A better explanation for the Jefferson Canyon water gap is that it was carved by a receding Flood channel, running rapidly down the Jefferson River Valley, forming pediments (Part II), and then



Figure 14. Madison River water gap is separated from a wind gap by a broad, rounded ridge.

forced east. This turn is a gentle bend that points toward Jefferson Canyon (Figure 13). Perhaps the momentum of the large, fast current prevented it from making the sharp turn southeast through the wind gap, and it instead eroded a water gap in this location.

An alternative explanation is that water can breach a transverse barrier at more than one point, but with time the water flows faster through one, rapidly deepening the one at the expense of the others. So, the main one becomes a water gap and the others wind gaps. This was shown in a modeling experiment by Douglass and Schmeckle (2007) with both the water and wind gaps formed at the same time. This was shown by the Lake Missoula flood as the water crossed a ridge in south central Washington and breached the ridge at four locations, but with time, the water deepened what is now Palouse Canyon the most (Figure 10).

Some small hills lie just to the west (Figure 11 and 13), which could be due to a lack of erosion caused by the convergence with another Flood current flowing south down the Boulder River Valley.

The Madison River Water and Wind Gap

All alluded to the Madison River water gap, which cuts the northwest side of

the Madison Range (Figure 14). There is a low wind gap west of the water gap (Figure 14). This gneiss ridge blocks the exit of the Madison Valley. The uniformitarian model suggests that when the sediments were higher in Madison Valley, the Madison River should have cut the water gap where the wind gap is now located, since the wind gap is lower than the tops of the mountains surrounding the water gap (Figure 14). This is a puzzle to secular scientists.

I suggest that a Flood current flowed north down the Madison River Valley, and initially overtopped and rounded the gneiss ridge (Figure 15). As it exited the Madison Valley, it carried a large amount of quartzite clasts, which were subsequently deposited on a dissected planation surface about 25 km north (Part II, Figures 13 and 14). This planation surface is located at the tip of the arrow in the top panel of Figure 15. As the Floodwater fell, the strongest flow was diverted to the east side of the valley, possibly by the convergence of a current flowing out of North Meadow Creek (Figure 15).

The Six Water Gaps Associated with Sixteenmile Creek

Sixteenmile Creek flows eastward into the Missouri River near Toston, Montana (Figure 16). It flows through six significant water gaps, if we include the

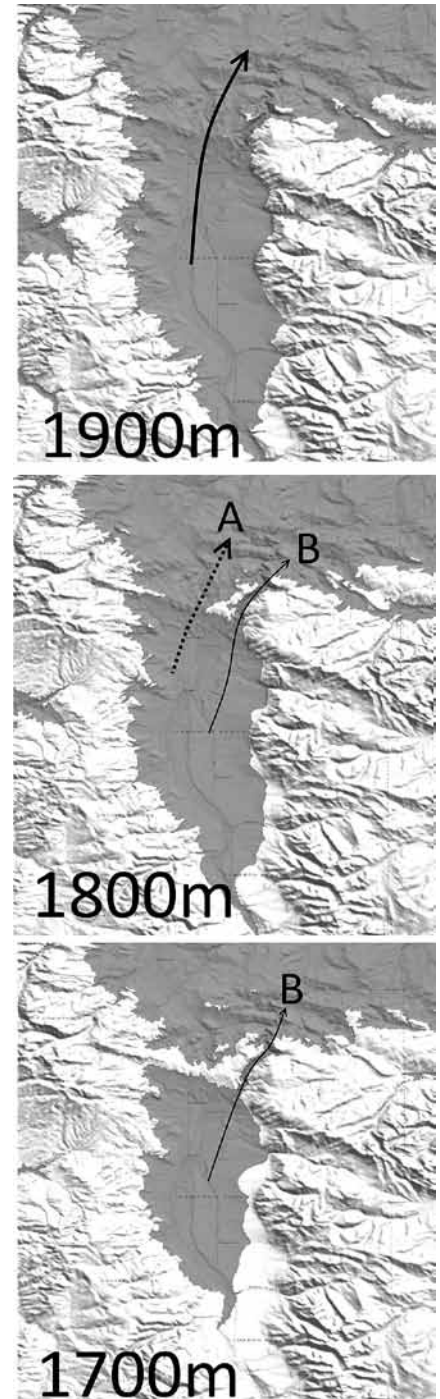


Figure 15. As late Flood channels diminished from about 1,900 m asl (top) to about 1,700 m asl (bottom), the Madison River water gap was eroded. Note flow (middle) over both future wind (dotted line A) and water (solid line B) gaps. At 1,700 m asl, flow has ceased over the wind gap and exits through narrow, eroding water gap. (Courtesy of ESRI)

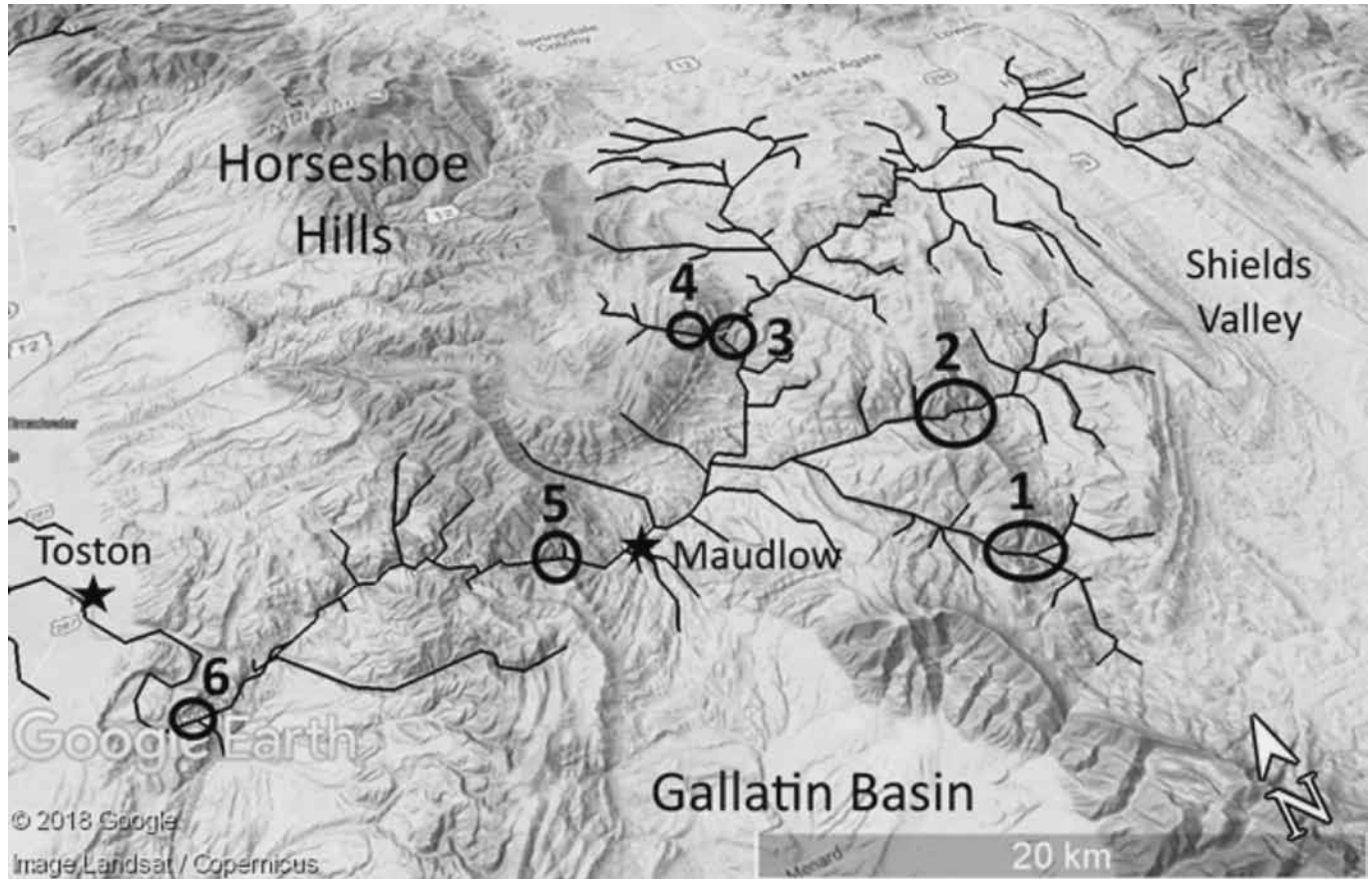


Figure 16. Drainage of Sixteenmile Creek showing water gaps (courtesy of Google Earth). The path of the North Fork that starts in the Crazy Mountains (upper right) flows across the broad north-south Shields valley and through a 600-m deep water gap (3).



Figure 17. North Fork of Sixteenmile Creek flowing west through Ringling and heading for the foothills and mountains in the distance. Why did it not divert around them?

gap just southeast of Toston (Figure 16). The North Fork of Sixteenmile Creek originates in the Crazy Mountains and flows west, perpendicular to a broad north-south valley (Figure 17). How can such a small creek keep flowing west through high mountains and not be diverted either north or south down the wide valley? The South, Middle and North Forks of Sixteenmile Creek all pass through 600-m-deep water gaps (Figures 18 to 20, numbers 1 to 3 respectively on Figure 16).

Figures 21 and 22 show the water gap of the Middle Fork. Figure 23 shows a view northwest of the South Fork water gap through the northern edge of the Bridger Mountains. Absent the water

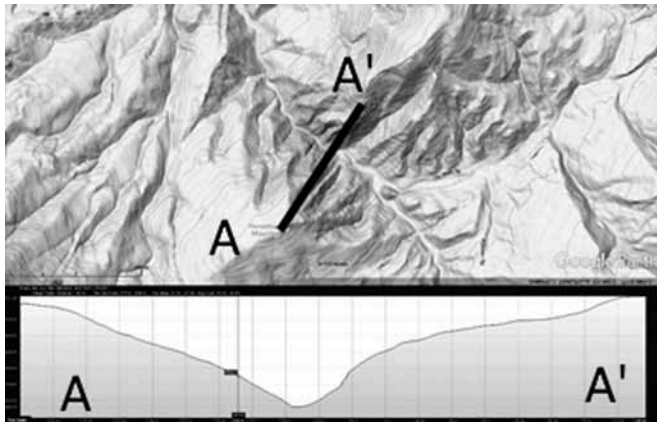


Figure 18. Cross section through the South Fork of Sixteenmile Creek (number 1 on Figure 16; courtesy of Google Earth).



Figure 21. Middle fork of Sixteenmile water gap (number 2 on Figure 16; view west from east side of the gap).

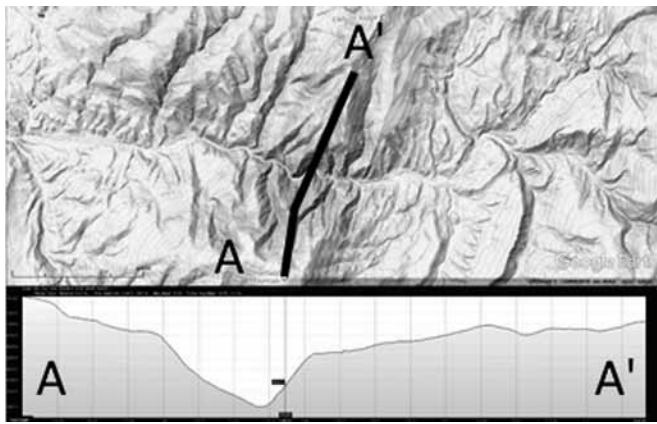


Figure 19. Cross section through the Middle Fork of Sixteenmile Creek (number 2 on Figure 16; courtesy of Google Earth).



Figure 22. Middle fork of Sixteenmile water gap (number 2 on Figure 16; view east through the heart of the gap).

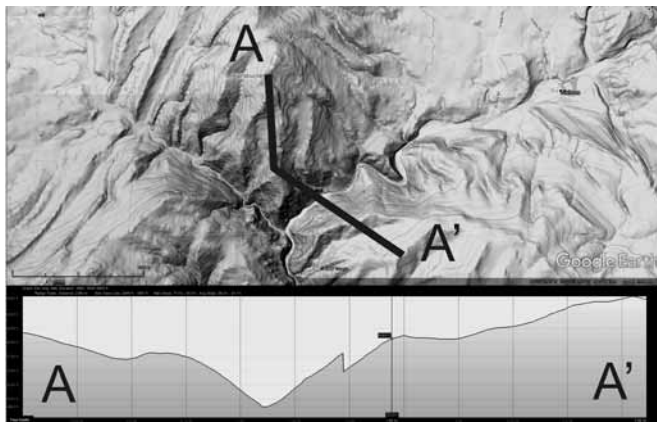


Figure 20. Cross section through the North Fork of Sixteenmile Creek (number 3 on figure 16; courtesy of Google Earth).



Figure 23. South Fork of Sixteenmile water gap (number 1 on Figure 16; view northwest from western foothills of the Shields River Valley).

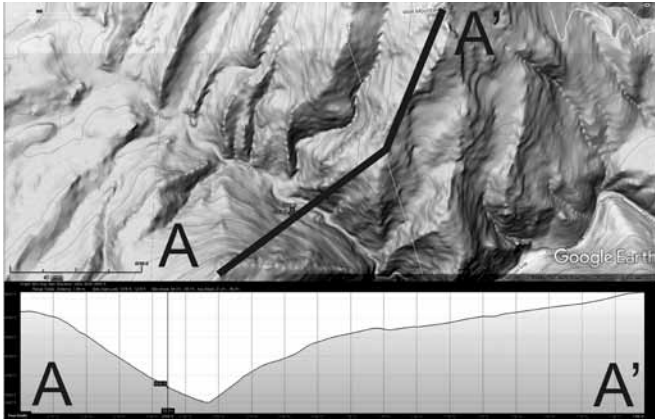


Figure 24. Cross section through water gap north of the North Fork of Sixteenmile Creek (courtesy of Google Earth).



Figure 25. Sixteenmile Creek just east of Maudlow (view west in direction of the flow).

gaps, all three forks should have flowed east from the crest of the mountains, becoming tributaries of the Shields River (South and Middle Fork) and the South Fork of the Smith River (North Fork). Instead, they flow west through significant water gaps. This does not conform with uniformitarian principles.

The fourth water gap, (number 4 on Figure 16) seen just to the left of the cross section through the North Fork water gap (number 3 on Figure 16), is a 425-m-deep gorge through the mountains to the north of the North Fork (Figure 24). Water from the valley to the north should have passed to the east through a lower area and out into the South Fork of the Smith River.

The three forks of Sixteenmile Creek converge just east of Maudlow, Montana (Figure 16). The creek is good size at this point (Figure 25). When the Flood currents were higher, the flow probably first flowed over the Horseshoe Hills, where it

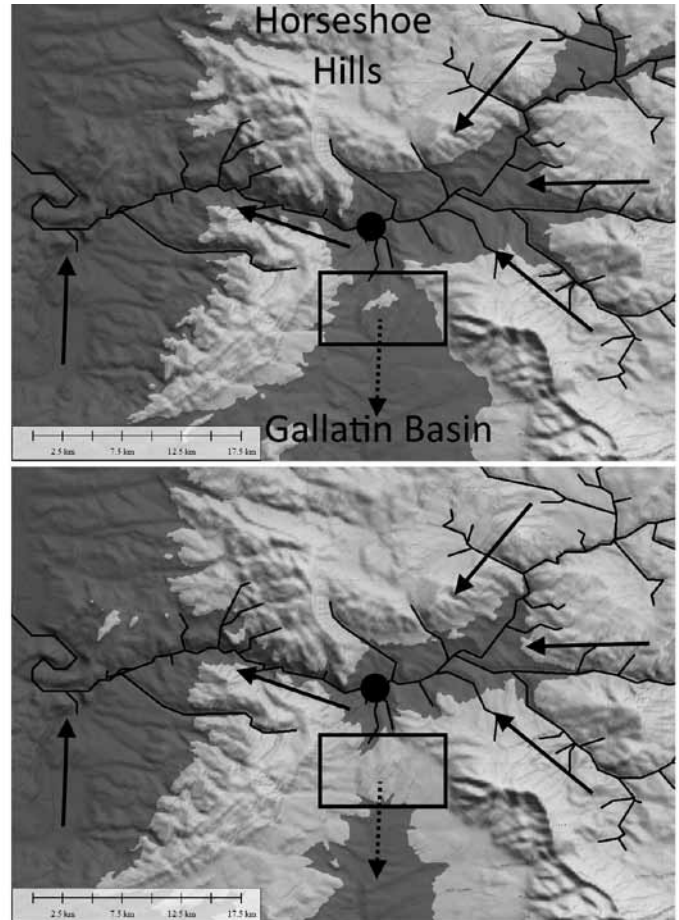


Figure 26. Arrows show converging water flow east of Maudlow (black dot) with flow continuing west through the northern Horseshoe Hills and south into the Gallatin Basin. Top: Draining Flood channels at 1,630 m asl. Note the light patch within the box indicating rising land as flow splits into western and southern components. Bottom: At a water level of 1,530 m asl, flow to the south is blocked and becomes a wind gap. Flow continues west, cutting a water gap through the northern Horseshoe Hills. (Imagery courtesy of ESRI)

converged with another current flowing northwest through the eastern Gallatin Valley. The Horseshoe Hills are well rounded, as if well scoured by powerful currents. As the Floodwater fell, the southern and central Horseshoe Hills became exposed (Figure 26, top), and a water gap began to form through the northern Horseshoe Hills, west of the converging Sixteenmile Creek currents. The increase in volume and velocity cut the water gap. A slower current was likely flowing south from the Maudlow area (Figure 26, top), between the exposed Horseshoe Hills and Bridger Mountains, before that route was cut off (Figure 26, bottom).



Figure 27. Gravel bar on south side of the valley just east of Maudlow (arrows) and west of converging currents from the Middle and North Fork of Sixteenmile Creek.



Figure 28. Rounded to subangular rocks in the bar in Figure 27.



Figure 29. Gravel bar forming a 60-meter high terrace on the north side of the valley (arrows).

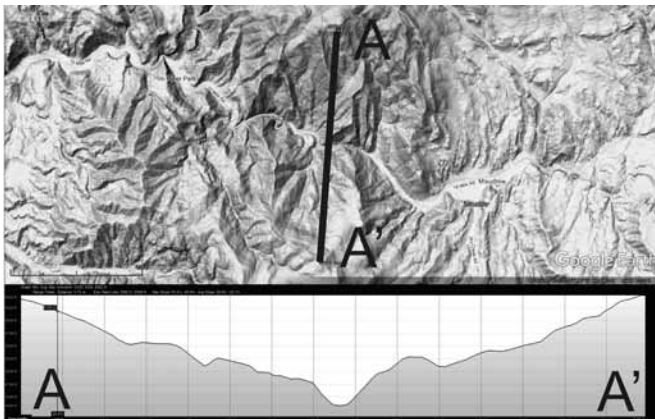


Figure 30. Cross section through northern Horseshoe Hills water gap, which is over 600 m deep (number 5 on figure 16; courtesy of Google Earth).

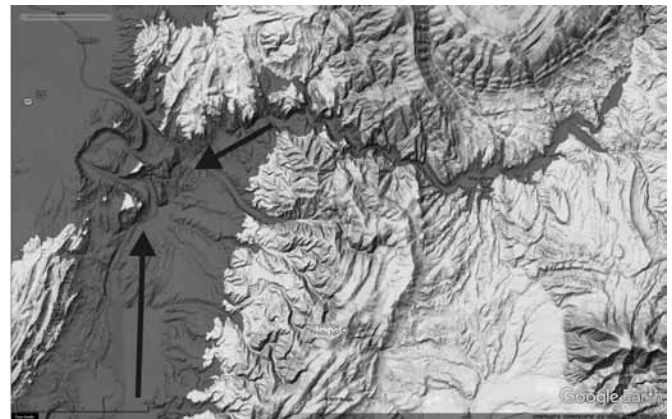


Figure 31. Convergence of two currents southeast of Toston, Montana, when water level would have been about 1,400 m asl (courtesy of Google Earth).

As the waters continued to drop, a slackwater area would have formed around Maudlow (Figure 26, bottom), creating slackwater gravel bars near the convergence of the three forks. There is a 60-m-high gravel bar on the south side (Figures 27 and 28) and a 60-m terrace of coarse gravel on the north side (Figure 29). It is highly unlikely that these gravel bars could have formed under present conditions over long periods of time by these small streams, since the converging flows passed

through water gaps only about 10 km away and the area was not glaciated during the Ice Age. These gravel bars mirror those created by the Lake Missoula Flood in eastern Washington (Oard, 2004).

As the Floodwater drained from the area, a deep-water gap was cut through the northern Horseshoe Hills, leaving behind a wind gap south of Maudlow, between the Horseshoe Hills and the Bridger Mountains (Figure 26, bottom). Water drained



Figure 32. Portion of a 60-meter high eddy bar west of the Horseshoe Hills water gap.



Figure 33. In-situ coarse gravel within the eddy bar west of the Horseshoe Hills water gap (rock hammer for scale).



Figure 34. The top of the dissected eddy bar west of the Horseshoe Hills water gap.



Figure 35. The entrance of the Missouri River into the water gap through a north-south ridge about 245 m high southeast of Toston, Montana (view northwest).

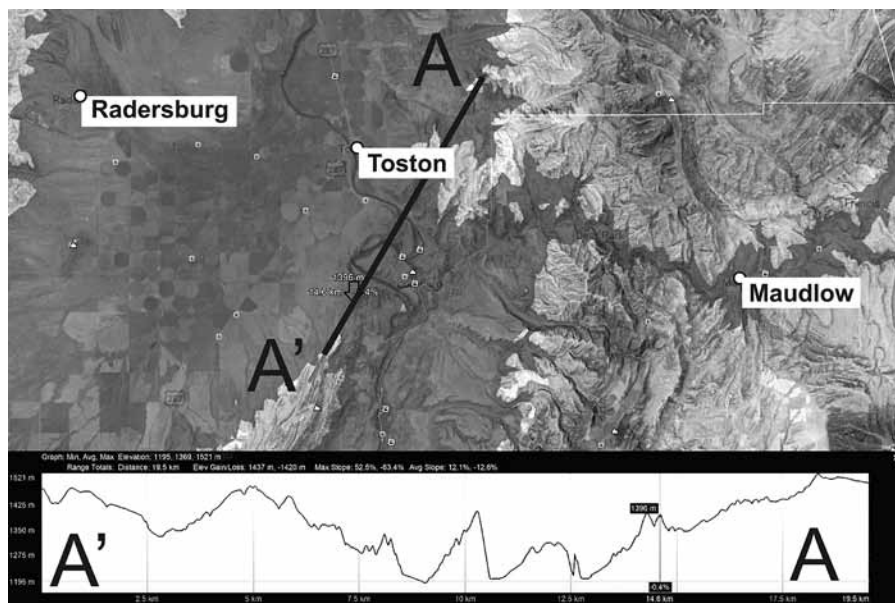


Figure 36. Cross-section through water gap (number 6 on figure 16) meandering through a ridge, showing water level about 1,400 m asl (courtesy of Google Earth).

through the northern Horseshoe Hills water gap (Figure 30) and converged with another current moving north, before crossing a 250-m-high north-south ridge (Figure 31). Figure 36 is a cross-section through the water gap (number 6 on figure 16) meandering through a ridge, showing water level about 1,400 m asl (courtesy of Google Earth).

This convergence produced another bar about 60 m high (Figures 32 to 34) west of the water gap through the Horseshoe Hills, similar to eddy bars that formed during the Lake Missoula flood when currents joined.

These converging currents carved a 250-m-deep water gap through a ridge (Figure 35), which is number 6 on figure 16. The water gap is a meander cut into the top of the ridge (Figure 36), some-

thing not explicable by slow, gradual processes. In that case, the Missouri River should have passed west of this ridge through a low area in the southern Townsend Valley. Instead, another mysterious water gap was carved. It is possible that the meander in the water gap was formed by an eddy caused by the converging currents.

Conclusions

Water and wind gaps are difficult to explain by uniformitarian theory but make sense in the recessive stage Flood framework, as illustrated by eight water gaps and three wind gaps in Southwest Montana. This model is reinforced by the presence of large gravel bars, up to 60 m in height, associated with slack-water areas along Sixteenmile Creek. These bear remarkable similarity to those formed during the catastrophic Lake Missoula Flood in Eastern Washington.

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Classic Reprints

Editor's Introduction: In this issue we bring you another classic article from early issues of the Creation Research Society Quarterly. This article, by one of our founding members, appeared in the January, 1966 issue (volume 2, number 4) on pages 5–8. In the article, Dr. Thomas Barnes of Texas Western College (now University of Texas at El Paso) discussed a foundation for the creation model as an alternative to evolution. He argued that three fundamental laws of nature are more consistent with creation than with evolution.

A Scientific Alternative to Evolution

Dr. Thomas C. Barnes*

Introduction

One of my colleagues, a Ph.D. in philosophy who has been reluctant to speak out publicly against evolution, privately expressed his concern. He said, “Evolution is a *dogma* and not a science.” This is a very serious charge because there are a great many disciples of Darwin in the scientific community. I believe, however, that a critical analysis of the literature on evolution justifies his statement.

A scientific fallacy in evolution may be seen by noting that its whole superstructure is built upon *extralogical* considerations. Extralogical considerations are the *extensions* of a proposition beyond the scope of true logic. *In evolution, an extralogical error occurs when phenomena with observable limits are cited as evidence in support of an unbounded proposition.*

A recent speaker on our campus defined evolution as “change.” He then

said, “Change is fact; therefore evolution is fact.” It soon became evident that the evolution he adheres to is far more than an observable change. He committed the extralogical error of defining evolution as observable and employing it as an unlimited process. Fabrications upon that kind of premise are nothing more than figments of imagination.

The failure to give an adequate definition of evolution is a common failing among evolutionists; definitions implying observables are employed to frame speculative propositions. It is not uncommon, however, to find these same adherents of evolution charging that the remaining scientific community ignores the observable evidence.

No scientist questions the validity of *variety, change, and development within groups of living things.* The works of Luther Burbank, Walter Lammerts, and others in California have made it obvi-

ous that it is possible to breed new forms differing from parent forms. But it is also observable that this type of breeding is limited and invariably shows bounds beyond which it cannot go. One would say in mathematics that the curves of these real processes have asymptotes which never cross finite boundaries. Evolutionists ignore those asymptotes.

After more than a hundred years of research in biology, evolution remains without a solid foundation. Dr. G. A. Kerkut (1960, p. 157) states it this way: “The evidence that supports it [general evolution] is not sufficiently strong to allow us to consider it anything more than a working hypothesis.”

It is amazing that after all these decades of toil by scientists in numerous disciplines that evolution is still a mere hypothesis and not a law!

By now it should be clear that the evolutionary hypothesis is neither

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necessary nor sufficient. There are scientific laws that are much more successful in specifying the processes of nature. These laws can be checked by experiment and may profitably be employed as guides to invention and progress.

I therefore invite your attention to a *scientific alternative to evolution*, an alternative that has present processes that follow the basic laws of science.

Three Basic Laws

Let us consider three of the great laws of science *which are included in the present processes of the alternative to evolution*. These laws are the *first law of thermodynamics*, the *law of biogenesis*, and the *second law of thermodynamics*.

The first law of thermodynamics is also known as the law of conservation of mass-energy. It states that energy may have different forms (including mass) and that it is possible to change from one form to another, but the total energy remains constant.

The law of biogenesis states that *life comes from life*. Every living organism came from some other living organism.

The second law of thermodynamics states that there is an irreversible tendency for processes in a self-contained system to go toward lower order. This means an increase in randomness, disorder, and decay if the whole system is taken into account. That is to say, systems run downhill, not uphill. They don't wind themselves up; they tend to run down. Biologist Harold Blum (Blum, 1962, p. 5) says, "One way of stating this law is to say that all real processes tend to go toward a condition of greater probability."

Please remember his statement of this law (that real processes tend to go toward a condition of greater probability) because he is an evolutionist and we shall see later he points out the improbability of major evolutionary events.

Validity of the Three Basic Laws

No laws of science are more firmly established than these three laws. They hold priority over all other laws of science. There are no known violations of these laws.

There was a 300-year debate on the law of biogenesis. During this period, maggots were claimed to be products of *spontaneous generation* of life, but that was disapproved. Then, after the invention of the microscope, microorganisms were claimed to be evidence of spontaneous generation of life. In a series of masterful experiments, Louis Pasteur showed that there is no such thing as spontaneous generation of life.

Pasteur's sealed vessels, which contain a yeast infusion and pure air from the top of the Alps, can be seen even now in the Pasteur Institute Archives in Paris as a testimonial to that conclusion. After more than a century, no life has appeared out of the inanimate. The law of biogenesis is accepted today by all reputable scientists.

Again, I quote the aforementioned Dr. Blum in regard to the validity of the second law of thermodynamics. He states (Blum, 1962, p. 6): "The Second Law is in a sense an empirical and pragmatic law which owes its acceptance to the fact that it has worked whenever it has been put to test."

Dr. Blum is one of the most scholarly evolutionists, and as you see, he agrees that there are no known violations of this law.

How do Evolutionists Handle These Three Laws (Particularly the Last Two)?

1. They are a real problem to an evolutionist.
2. Most evolutionists evade the critical issues exposed by these laws.
3. Some admit that evolution violates some phase of these laws.

4. Others make rhetorical claims of consistency.

The following admission by Professor George Wald (Wald, 1962, p. 187) illustrates the evasive rhetoric of evolutionists:

As for spontaneous generation, it continued to find acceptance until finally disposed of by the work of Louis Pasteur—it is a curious thing that until quite recently professors of biology habitually told this story as part of their introduction of students to biology. They would finish this account glowing with the conviction that they had given a telling demonstration of the overthrow of a mystical notion by clean, scientific experimentation. Their students were usually so bemused as to forget to ask the professor how he accounted for the origin of life. This would have been an embarrassing question, because there are *only two possibilities: Either life arose by spontaneous generation, which the professor had just refuted: or it arose by supernatural creation, which he probably regarded as antiscientific.*

For my part, I think the only tenable scientific view is that life originally *did* arise by spontaneous generation. What the history we have just reviewed demonstrated is that spontaneous generation no longer occurs. (Emphasis added)

So you see, he only uses rhetoric—he has no scientific evidence to support his opinion. The law of biogenesis stands in his way.

Dr. Blum attempts to show that evolution is consistent with this law, but when he gets down to cases such as the origin of life, he sees real trouble. I shall quote two of his statements (Blum, 1962, p. 170) to illustrate:

I do not see, for example, how proteins could have leapt suddenly into being. Yet both Heterotrophic and Autotrophic Metabolism are, in

modern organisms, strictly dependent upon the existence of proteins in the form of catalysts. The riddle seems to be: *How, when no life existed, did substances come into being which today are absolutely essential to living systems yet which can only be formed by those systems?* It seems begging the question to suggest that first protein molecules were formed by some more primitive 'nonprotein living system,' for it still remains to define and account for the origin of that system.

After mentioning an extension of Oparin's hypothesis by Horowitz, he further states:

I must point out that Horowitz's hypothesis still leaves a seemingly unbridged gap in the story of the origin of life, for does not the invoking of natural selection postulate the prior existence of that for which the origin is sought? Natural selection itself seems only possible in systems having a complexity corresponding to at least that of the proteins. . . . Who would venture much more than to suggest that time's arrow played an important role? (Blum, 1962, p. 171)

By time's arrow he means the second law of thermodynamics, which can point in only one direction—and as we previously noted, Blum himself specifies that direction as the direction of greater probability.

But it should be obvious that evolutionists will gain nothing by invoking the second law because it actually points downhill, not uphill—toward the probable, not toward the improbable.

I maintain that Blum is attempting to reverse the direction of time's arrow. Blum is a scholar, and I do not mean to imply dishonesty. He continually admits his perplexing difficulty. For example, he states in an addendum to chapter X of his book (Blum, 1962, p. 178A):

The more we study living systems the more we marvel at their beautifully ordered complexity; and we may estimate that the forming of such system (or even much simpler ones) by a single chance act would have an improbability of the order of a miracle, that could have happened only once in our universe.

Let me summarize this point. Dr. Harold Blum has failed to account for evolutionary processes, including the origin of life by means of the second law of thermodynamics. A careful reading of his book will reveal that he really admits that he hasn't proved the case. He stated that second law processes go irreversibly in the direction of greater probability. Then he identified some of the major evolutionary events as extremely improbable. As further example he states that the probability of evolution of the human brain is so small that it "occurred" only once. But if it is that improbable, surely the second law of thermodynamics shows that it could not happen while that law is valid.

Constraints Imposed by the Three Laws

It is well to enumerate the constraints that are imposed by these laws. They are as follows:

1. *Matter and Energy cannot be created, while the first law of thermodynamics is valid.*
2. *Life cannot be created out of the inanimate, while the law of biogenesis is valid.*
3. *An increase in ordered-complexity cannot happen (in a self-acting system), while the second law of thermodynamics is valid.*

These constraints are not mysterious. They are observable, and common sense tells us to expect them. They remind us that you cannot get something for nothing. Extralogical considerations

cannot override the cold facts of nature. Nature's basic laws spell out these specific constraints.

Mankind has always had its would-be inventors of perpetual motion machines, but each one of them has had to eventually face fact: The observable constraint of the first law of thermodynamics.

Mankind has always had its advocates of spontaneous generation, and today there are those who make bold claims that scientists will fabricate life itself within the next ten years. May I recommend that you not buy any stock in their proposed life factory. They must face fact: the observable constraint of the law of biogenesis.

The validity of these three laws is observable beyond any doubt today. One might ask, then, how anything got started if these constraints prevent such beginnings. That leads us to inquire about the time sequence of the origin of these laws.

Logical Time Sequence of the Laws

A logical time sequence of the origin of these laws is self-evident. It is as follows:

1. *The first law of thermodynamics began after the origin of mass and energy.*
2. *The law of biogenesis began after the origin of life.*
3. *The second law of thermodynamics began after the existence of a fully wound-up system with living maturity.*

It is foolish for one to claim that our present laws can be employed to explain the beginnings of the physical universe, or living matter, or man himself. These laws specify their own limitations and make it obvious that their origins are indeterminate by science *per se*.

It is difficult for me to see how one can question the logic of the above-mentioned time sequence of the beginnings

of these laws. That sequence must hold for the laws to be self-consistent.

Evolutionists make the mistake of trying to invoke present natural phenomena to “explain” the winding-up processes and the beginning of life and even man himself.

There is another interesting inconsistency in evolutionary logic. Evolutionists try to date a hypothetical winding-up process by a running-down radioactive clock. Time’s arrow cannot point in *both* directions.

The question then arises, Is there a scientific alternative to evolution that is consistent with the time sequence of the origin of these laws?

Special Creation Makes the Time Sequence of These Three Laws Consistent

It is clear that the processes involved in any of these origins lies outside the realm of science. Indeterminacy principles are commonplace in science; true scientists always acknowledge the limitations of science. Postulates at any beginning stage are of necessity arbitrary ones. There is nothing unscientific, then, about postulating special creation for the beginnings. The scientific virtue lies in the consistency that can be shown to follow after we get into the time frame represented by present laws.

The postulates of special creation make the time sequence of the three laws consistent. That time sequence runs as follows:

1. The creation of the physical universe preceded the first law of thermodynamics.
2. The creation of life preceded the law of biogenesis.
3. A fully wound-up biophysical world preceded the second law of thermodynamics.

All of the present observable processes are consistent with that type of

beginning. This makes a strong scientific base. Everything runs toward the probable.

Perspective of This Alternative to Evolution

The perspective of this alternative to evolution is as follows:

1. *The domain in which science is indeterminate is satisfied by special creation.* To be sure, that is miraculous, but any other beginning must lie in the realm of metaphysics. There is certainly no more logic in beginning with the metaphysical hypotheses of a “materialist” than to begin with the postulate of a God of creation. This is particularly true when one realizes that present scientific processes are more consistent with a system that begins with special creation.
2. *Present processes obey the established laws of science.* These processes behave as if a full-blown system was initiated, a system such as provided by special creation. No new matter and energy are being created nor are they needed. Life does come from life. There is a need for conservation because of the tendency for processes to go toward disorder and decay.

The Fruits of This Alternative to Evolution

This alternative to evolution leads to *progress with confidence* because it deals with present processes that are founded on the *laws of science*. There is no danger of being hoodwinked by artifacts. Whereas evolution is based on extralogical considerations that can only be supported by unreliable evidence. For example, the Piltdown Man was exhibited in the British Museum as basic evidence of evolution. But the famous Piltdown Man was really the

fabrication of a clever trickster who had fitted an ape’s jaw to a chemically aged human cranium. Yet it took 45 years to expose this fraud.

The *realistic laws of genetics* can be credited to this alternative. They give no comfort to total evolution. Dr. Walter Lammerts (1961) states that evolutionists are misled in plant breeding because they are accustomed to thinking that immense time may get results, whereas the process can be accomplished in a limited number of generations or not at all.

Finally, preventive medicine developed out of the alternative to evolution. In reality, Louis Pasteur laid the foundation of preventive medicine when he established the law of biogenesis by empirical means. He demonstrated that bacteria come from other bacteria and that bacteria pass from one individual to another. His effort to arrest this inexorable downgrading process in living systems can be attributed in part to the importance he placed on the *tendency toward disorder*, that is to say, the principle embodied in the second law of thermodynamics.

This alternative to evolution has always been sound, and it will continue to produce fruit because it is based upon a foundation that will not fail.

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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.

A Critical First Reply to Faulkner's "Thoughts on the *raqia*'"

The outdoor air we need to breathe constitutes a cosmically, preciously thin envelope that does not extend even as far as the moon. Therefore, the concept that that is what that air constitutes is a concept that is a *properly basic* part of a knowledge of God's cosmos. But Faulkner (2016) proposes that '*raqia*' in Genesis 1:8 is outer space, a proposal that leaves Genesis 1 with no proper basic indication of this crucial fact about that air.

Faulkner's proposition is based ultimately on his claim that the Bible makes no commitments about whether or not the air around us is a cosmically thin sheet. This claim, in turn, is based on his implied assertion that until "modern" times, with its sophisticated instrumentation and orbital rocketry, humans could not naturally have had the "concept" that the air above us even *might* be cosmically thin and precious.

This assertion assumes a number of doubtful things. All of these things are implied in one three-option question:

- Were the pagan scientists of ancient times, overall, either
 - (a) more objective than,
 - (b) equally as objective as, or
 - (c) less objective than, secularistic scientists of today.

More to the point, there also is a triad of severe problems with the idea that without at least direct testing of air density at various very high altitudes, humans have no empirical means even to suspect that the air above us is cosmically thin:

1. The most obvious problem with that idea is that it assumes what it has not, in fact, established.
2. The more fundamental problem with that idea is the reason why it makes that kind of assumption: a less-or-more strict modern-centrism on everyday human neuro-perceptual and neuro-cognitive capacity. Adam and Eve's everyday capacities thereto surely would have significantly exceeded that of all of those who were born after the Flood, and thus even more yet than all of us today.
3. The most crucial problem with the idea is that it implies that God designed those two uniquely prototypical humans with some kind of lack in terms of this particular part of complete basic knowledge of God's cosmos. This is the most crucial problem because it implies that God designed those two humans to be fundamentally flawed in terms of their efforts in empirical inquiry. Specifically, it implies a basic lack as to the proper basic set of presuppositions for doing such inquiry in the first place.

These three problems are based on the effective, if not witting, assumption that such inquiry must be objective in the sense of having no presuppositions, especially that of presupposing that the cosmos is designed for life on Earth. The Scriptures throughout clearly make that presupposition. Yet, according to seemingly all modern full-time defenders of

biblical Creation, such inquiry properly is neutral even in that regard.

This commitment to a conception of science as being neutral to life is seen throughout the biblical Creation literature, especially in the efforts to point out the crucial distinction between operational science and historical "science." As Man states (Tay, 2017), "It's important for students not to confuse science with evolution." This is because both "theists and atheists" "use science to explore and understand the universe," which shows that "science" itself "is neutral." Man goes on to seemingly reduce the issue to the competing "presuppositions" *as to origins*. Such a reduction overlooks the strictly life-centric terms of the only portion of Genesis 1 that specifies the luminaries (vv. 14–18). Tellingly, this portion is the account's central textual portion. It also comprises one-sixth of the account's number of words, whether in the Hebrew original or in the typical English translation.

But Genesis 1 is the foundational account, and this for two general reasons. One, it centrally involves the formation of what at least we moderns know as the planet Earth and its habitability, and this within the planet's own normal wider context: *hashamayim*, or "the heavens." Two, this account ends in the creation of a creature who is the creaturely practical image and likeness of God. The account itself normally is seen to begin by mentioning God's initial creation of that earthly realm (the far wide "down here") and the realm of the luminaries

(the far wide “up there”): *et haš-šā-mayim ve-et ha-arets*.

This is a binary theme of a general-to-special relation—that is, it is a driving effort from context to subject, so as to focus on the subject. The account most naturally is seen to be comprised of that drive for the special subject. In fact, only in that way can the account be seen to apply this binary theme multiple times, unto its only-thereby predictable conclusion in Genesis 2:23 (how the man seems clearly to have already known the material source from which the woman is made).

Some prefer to think that Genesis 1 does not begin with either the actual planet or its wider context. DeRemer et al (2007) might be the epitome of this preference. But no literal, and primary-level, reading can deny that the text at least describes the binary surface feature of the terrestrial world (Genesis 1:9–10). This surface pair is one of several basic dynamic sets of the geophysical half of Earth’s water cycle, that cycle having been initially induced by the introduction of light energy in verse 3. And the Old Testament Scriptures are admitted even by those with that preference to have knowledge of the water cycle.

So the Genesis 1 account most biblically is seen to be related to the dynamics that are involved in Earth’s habitability. Faulkner (2015) even notes the account’s occasional clear use of para-providential terminology (e.g., *Let the Earth bring forth*). Such terminology suggests that God, by way of a non-arbitrary fashion, is putting new members of the soon-completed ecology into an already-functioning proto-ecology that was established in the previous days in God’s Creation Workweek. God, of course, has the power to just “genie” anything into existence in any place or time. But such an arbitrary manner is clearly unprecedented both in Scripture and in biblical theology. It also normally would require additional arbitrary prevention of the natural, adverse

ecological results of displacing the air at such an incredibly sudden rate. And, at the very least, the Bible elsewhere always shows that God acts in relation to His human companions, not simply in terms of His full miraculous power. This is why an account of His Creation work not only exists, but also why He created in a number of the most generally life-centric units of time (terrestrial days), rather than all of everything in a single durationless, “genie-like puff.” Finally, the account itself indisputably sees Earth not as just any place within, or apart from, *hashamayim*, but, rather, as having been formed specifically to provide a proper home for life—including, finally, that of humans.

So a knowledge of the cosmic preciousness of Earth’s vital atmosphere is essential to a complete basic understanding of God’s cosmos. Why would God not care to have this knowledge presented in the Bible? Indeed, why would He have created the dynamic phenomenon of the sky such that it *lacked* sufficient visible information by which the normal human, under a life-centric presupposition, readily could deduce this cosmically thin preciousness? God did not create Adam and Eve inside a nearly windowless, non-rotating spaceship in interstellar space. He created them on a planet, and a completed one in terms of life support, and this in the then-daytime side of the planet.

So, if God designed those two humans to be fundamentally flawed in terms of their efforts in empirical inquiry, then Faulkner’s argument would imply that this flaw was that of a presupposition that all humans from Adam and Eve to “premodern” times were utterly insensible to the possibility that the air above their heads outdoors was a cosmically thin layer that extends far short even of the moon. This, in turn, would mean that if the Bible says nothing to that possibility, then every last ancient believer from Adam onwards would have taken for granted that their historically

respective portion of what we today call the Old Testament at least assumed, and therefore at least implicitly taught, that the air *extends indifferently into all the luminary realm*. There is plenty in the Psalms to strongly suggest otherwise, if only the *shamayim* of Genesis 1:8 is not reduced to the *hashamayim* of verses 1, 9, 14, 17, 21, 26, and 28. Genesis 2:4 uses both terms, and in a kind of symmetry so that there seems to be a critical distinction being made in the Hebrew between these two terms.

But the modern space-age conception of cosmology readily assumes that Psalm 19, despite this psalm’s most naturally being seen to go on to imply the atmospheric sky in verses 5 and 6, begins with a synonymy for the celestial realm in verse 1. This does not deny that the psalm centers on the mystery of the celestial realm. It simply is to say that it does so only in terms of the terrestrial and the human, just as Genesis 1:14–18 undeniably does. Indeed, as in Psalm 19:1, what in Genesis 1 is God’s handiwork if not humans and the six-day process of forming the Earth’s ecology? Did God obviously spend that much care on the lifeless and inhospitable wider cosmos?

Of course, humans are not caged pets. But that is why we so wonder at the stars when the sun goes down. Adam and Eve did not first see that starry realm until the sun went down on their own first day. So, it is clear that God is not anything like a Carl Sagan wannabe and that He does not want us to be anything like that either. Is not the earth and its surface the best possible place from which humans can have a full, objective sense of the cosmos?

God may well have created the spatial dimension, matter, and energy, first. But are such obvious and trivial things what the first parts of the ideal, short-and-sweet account of the Creation Week *explicitly* about? Not if God cares most for life, for humans, and for our best and most objective empirical inquiry.

There is nothing neutral about metaphysics. So how can there be anything neutral about *objective* empirical sensibility? Never mind “science” as that of a closely measured empirical inquiry. There first must be empirical sense and intuition, so as to know where to go, empirically, from there. Otherwise, it would be impossible to theorize even so much as to be wrong. The cosmos was *designed* to be studied and learned of, mainly in terms of life. So, this includes—and more so, centers on—Earth as our proper life-support system.

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Worldview, Bahnsen, and Finiteness

In one section of Steven Chisham’s recent paper (Chisham, 2018), he lists one of the “Philosophical Errors Caused by Misunderstanding the Nature and/or Limitations of Worldview” as Forgetting we are finite. His comments on this need to be challenged for adequacy and for his misrepresentation of Greg Bahnsen.

Chisham could not have picked a worse example than Greg Bahnsen as someone “forgetting (he) is finite.” The core of Bahnsen’s writings, lectures, and debates (including the debate referenced here: Bahnsen and Sproul, 1977) is not an appeal to his finite abilities, or the finite limitations of arguments from natural theology, or the finite limitations of evidence, or to his own autonomy, but an appeal to the basic presupposition of Christian faith: Scripture.

In the debate with Sproul, Bahnsen explains that natural theology cannot provide proof but results in probability. This assertion is based on Bahnsen’s conviction of the finite nature and limits of human thought: “Natural theology says that on autonomous grounds, that

is, without ANY commitment to there being God or not, taking the neutral perspective, we can take some fact about the universe ... [and] we can reason to there being a god” (Bahnsen and Sproul, 1977).

Rather, he asserts that the transcendental argument can provide proof. This is not an appeal to human certainty but the “transcendental,” who is God Himself (Carpenter, 2014, p. 108). Apparently, Chisham has a problem with this and does not believe it should be asserted with certainty since this is borne out of Bahnsen’s faith (which, by the way, is embedded in his worldview). However, it is the transcendental argument that forces those with opposing worldviews to be confronted with their basic presuppositions.

In the debate, Bahnsen explains that the transcendental argument “would say nobody is autonomous and nobody is neutral and in fact, while we all pretend to be autonomous and neutral ... we couldn’t even do predication ... if we didn’t already depend upon

the knowledge of God” (Bahnsen and Sproul, 1977).

This argument has been applied in creation science. In his book, *The Ultimate Proof*, Jason Lisle uses this argument to support the core premise of the book: “The ultimate proof of biblical creation is that without it we could not know anything” (Lisle, 2009, p. 64). Lisle does not make this assertion blindly but after careful consideration of Scripture and a proper understanding of mankind’s finitude.

For the Christian there is an absolute standard for reasoning; we are to pattern our thoughts after God’s. And we know (in a finite, limited way) how God thinks because He has revealed some of His thoughts through His Word ... Clearly, our thoughts are not as “high” as God’s, for we are finite and He is infinite. Nonetheless, we are made in God’s image, and therefore have a limited capacity to reason logically—to “think God’s thoughts after Him.” (Lisle, 2009, p. 52, 65).

Chisham criticizes the following quote from Greg Bahnsen taken from the debate:

I maintain it is wrong to think that certainty in epistemological matters is limited to formal logic and mathematics. Certainty, full certainty, full confidence without doubt, without yielding, without qualification, pertains to matters of Christian faith. (Bahnsen and Sproul, 1977)

Chisham's criticism rests in Bahnsen's assertion of epistemological certainty as if it were autonomously derived. This statement by Bahnsen in the debate comes at the end of comments he made supporting it. These comments were centered on no less than fourteen references to Scripture supporting this claim and discussion of them. Yet Chisham characterizes this as "overconfidence in human certainty." The certainty Bahnsen asserts is only "human certainty" in the respect that it is that which God not only gives the believer but demands of the believer. Bahnsen is right in saying that in this "full assurance ... full conviction ... full certainty ... we surpass human probabilities" (Bahnsen and Sproul, 1977).

That certainty pertains to matters of faith and does not mean it is separate from reason. Rather, only the Christian faith provides the preconditions of intelligibility to make reason possible. Just because it is a faith position does not mean it is not reasonable. Just like the little boy who tries in vain to keep his peas out of his mashed potatoes, Christians cannot separate faith and reason. All reasoning rests on some kind of faith, and unaided human reason cannot prove anything.

This is a matter of authority. Where does the warrant come from for the epistemological claims our worldview holds? It comes from the self-attesting Scripture, not unaided human reason. If a police officer enters someone's house with a warrant, he is doing so under an authority greater than himself. The

authority asserted by Bahnsen's claim of epistemological certainty is the opposite of "forgetting we are finite"; it is acknowledging the Creator/creature distinction that Bahnsen and his mentor, Cornelius Van Til, often talked and wrote about. In Bahnsen's book, *Van Til's Apologetic*, he quotes Van Til:

Man, who cannot control or know anything in the ultimate comprehensive sense of the term, can nevertheless be assured that his knowledge is true.

To say therefore that the human mind can know even one proposition in its minimal significance with the same depth of meaning with which God knows that proposition is an attack on the Creator-creature relationship and therewith an attack on the heart of Christianity. (Bahnsen, 1998, p. 242)

Therefore, it is not overconfidence in human certainty that Bahnsen taught but only the full confidence every believer should have in the veracity of Scripture and the Almighty God of creation.

Chisham is concerned with "positional blindness and relational dysfunction relative to one's skeptics." I am also. But our "position" is that of children of God and His ambassadors, and we need to relate to skeptics with that authority given to us (Galatians 3:26; 2 Corinthians 5:20). Anything less is disobedience.

Chisham further illustrates his naïve view of Bahnsen's teaching by stating, "Bahnsen [is, in his debate] essentially claiming, 'If you would simply adopt my worldview, you would come to my conclusion.'" Rather, what Bahnsen is "essentially saying" is what he is actually saying in the debate:

God has given a clear revelation which can be defended because it is the only foundation for knowing anything whatsoever and that ... clear revelation in conjunction with the internal testimony of the Holy Spirit gives us an infallible as-

urance of our faith. (Bahnsen and Sproul, 1977)

Chisham concludes, "Objectivity is not generated by cloning worldview constructs but comes out of actual shared reality." This statement assumes that facts are "brute facts." This is not covered by Bahnsen in this debate but is a common teaching of his. "If a fact is what it is as a result of God's activity, it will never be given a true interpretation unless understood in terms of the Creator and His plan" (Bahnsen, 2008, p. 277). Chisham would be right if facts were value free in "actual shared reality," but they are not. However, "facts (evidence) cannot be neutral because then the best we could hope for is an apologetic that pointed to an indeterminate God" (Carpenter, 2014, p. 107).

Cornelius Van Til explains:

The mere assumption of a brute fact is a denial of the creation doctrine. ... Taking brute facts for granted, scientists must also take for granted the ultimacy of the human mind. (Van Til, 1975, p. 84)

Bahnsen clarifies this:

Every fact of the universe and history is preinterpreted by the sovereign Creator; it is what it is in virtue of His plan and knowledge. Hence to understand the world correctly one must subordinate his thinking to the revelation of God, thinking His thoughts after Him in a receptively reconstructive fashion. Meaning is not attached to brute facts by man's mind, but all facts bear the meaning that God assigns and must be known as such. (Bahnsen 2008, p. 227)

Chisham continues:

Demanding epistemological certainty in matters of faith requires knowledge beyond the natural human senses, which is a prelude to epistemological failure, demanding more of rationality than it can deliver. (Chisham, 2018, p. 249)

If rationality were the ultimate point of appeal for epistemological certainty,

this statement would mean something, but it is not. So, of course, certainty in matters of faith demand more of rationality than it can deliver because it is not intended to sit in judgment.

When self-evident rational principles are elevated to sit in judgment over God's revelation, that revelation is bound to lose its authoritative character in deference to man's unquestioned use of logic. Instead of faith in God's Word leading to understanding of reason and science, understanding is taken to lead to faith (Bahnsen, 2008, p. 153).

Adding Chisham's criticism of asserting epistemic certainty in matters of faith to his claim that objectivity can only come out of actual shared reality to his demand (on behalf of rationality and the empirical) for certainty equals a disturbing conclusion for creation science. If creation science must bow to the rational and the empirical while at the same time sacrificing the objectivity of faith, then it has lost its starting point and reduced it to the subjectivism and arbitrariness of the empiricists and rationalists. Although Immanuel Kant would be proud of this, creation science cannot follow this path.

The creation scientist might easily be tempted to follow this path to honor the demands of the zeitgeist of this age; namely, that asserting anything boldly

might violate the rights of others or claiming certainty given to him by his sovereign God might somehow violate someone else's freedom of thought. Let us be clear, creation scientists are on the frontlines of this worldview battle. The Bible tells us who it is who is opposed to our epistemological certainty. They are enemies of God, deceiving and being deceived, against God, desperately wicked, and suppressing truth.

Arguing for a young-earth creation is useless if the ultimate point of appeal is "the evidence, the rational, or the empirical." It is the Christian's duty in science to proclaim the superiority of the sovereign God and Scripture in science. Only by acknowledging that all reasoning is not neutral but rests on ultimate worldview commitments and that the Christian worldview is the only one that provides authority can the empirical and rational make sense.

Greg Bahnsen sums it up well:

One either begins ... with the God who comprehends all things and who delivers apprehensible revelation, or he begins with an incomprehensible and inapprehensible world. If the world is to be known, we must consult the Creator. (Bahnsen, 2008, p. 278)

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A Response to Tom Carpenter

In responding to Tom Carpenter's objections to my recent article "Getting Worldview Wrong: Philosophical Mistakes in Understanding Worldview" and particularly the section *Forgetting we are finite* (Chisham, 2018, pp. 248–249), I first want to sincerely thank Mr. Carpenter for engaging and voicing his opinion. Challenging viewpoints must be welcomed when defining worldview,

for removing or at least accounting for one's own worldview is surely one of the most difficult aspects about it.

Second, it should be noted that this and previous articles have taken issue with many well-known worldview commentators, including Francis Schaeffer (Chisham, 2014, p. 142), Chuck Colson and Nancy Pearcey (Chisham, 2014, pp. 143–144), David Naugle (Chisham,

2014, pp. 142–143), David Noebel (Chisham, 2018, p. 183), and others, including non-Christian thinkers. (The unbalanced representation of Reformed thinkers above is simply because, to their credit, the Reformed tradition with its European roots has attempted to engage the subject in print more than most. In fact, finding definitive non-Christian worldview commentary has proven quite

challenging, suggesting its apologetic significance and importance in properly understanding it.) Indeed, the Colson/Pearcey error was my original inspiration for investigating worldview, specifically *because* of my deep respect for Mr. Colson and desire to understand how such an undeniably great mind could make what seemed such a basic mistake. So, the intent has never been to disparage any authors or diminish their many invaluable contributions. Rather, the intent has been to foster dialog, using the best examples available and, hopefully, promote greater understanding of and dialog about this important subject. Mr. Carpenter's commentary, at least, is evidence of success in that regard.

Third, while not intending to pick a fight with the presuppositional apologetics camp, certainly I was aware that exposing this particular shortcoming could do that, given that, if successful, the argument seems to undermine a key presuppositional premise. (Indeed, every case study mentioned is bound to find opponents, and their very statement raises the specter of offending adherents.) Certainly, Mr. Carpenter has done a fine job of articulating the presuppositional position. And, while Mr. Carpenter alleges I "could not have picked a worse example" than Greg Bahnsen, I contend I could not have picked better, given the fact that one would be hard-pressed to find a more articulate contender for the presuppositional position than Dr. Bahnsen. Moreover, comparing Bahnsen's view to Sproul's (Bahnsen and Sproul, 1977) contrasts views within the same general thought group (i.e., Reformed theology), which, as a point of disclosure, is not a view I share.

Regarding the late Dr. Bahnsen, whether one agrees with him or not, clearly he was a brilliant theologian of significance who held a lightning fast wit, which he demonstrated formidably in his many debates. Listening to and reading his presuppositional worldview apologetics, one gains a clear sense of

why he always appeared fearless in public debate. Of relevance here, however, is not what gave Greg Bahnsen confidence in his message but, rather, what method of argumentation might move his "opponents" to legitimately reevaluate the security of their own worldview, without respect to who might have appeared to "win" the debate.

Having prefaced my response with the above, before engaging Mr. Carpenter's concerns, let me repeat that I am not a subscriber to the Reformed tradition or an adherent to its subset, presuppositional apologetics. Therefore, I disagree with Mr. Carpenter's disparagement of natural theology (as did Sproul), the value he bestows on the "transcendental argument," and the meaning he imports into ideas like "autonomous thinking," the "self-attesting word of God," "brute facts," and possibly other things. Thus, while Carpenter alleges his view "appeal(s) to the *basic* presupposition of Christian faith, Scripture" (emphasis added), clearly he is appealing to far more. Likewise, since presuppositionalism is a *subset* of Reformed theology (as the Bahnsen/Sproul debate illustrates), it should be pointed out that Mr. Carpenter's presuppositional nuances are likely not shared by many *CRSQ's* readers and conservative Christianity in general. Regardless, it was and is not my intent to start a broader conflict with Reformed theologians and presuppositionalists, in particular, so we will adopt Mr. Carpenter's view for the sake of argument in order to get at the problem.

Every sincere Christian reading this, including Mr. Carpenter, hopes to find effective apologetic methods with the best possible chance of moving non-Christians toward a Christian view of truth. This obviously means we desire somehow to recommend the non-Christian exchange his currently held paradigm for what we have become convinced better represents reality. It is not that Christians of certain traditions care about the lost and others really just

want sinners to go to hell; it is that each of us struggles to find effective ways to communicate the truth evident in the gospel "once for all delivered to the saints" (Jude 1:3), which is that God, as revealed in the Old Testament, is our eternal Creator and has mercifully condescended to us in the person of Jesus of Nazareth, who is the prophesied Anointed One (Hebrew: *Messiah*; Greek: *Christ*) and has physically risen from the dead (i.e., orthodox Christianity), proving His authority over death, hell, and the grave, providing atonement for our sins, and facilitating eternal reconciliation with God. Furthermore, *CRSQ* regularly engages in presenting evidence of God's creative authority. Moreover, Jesus' resurrection is well evidenced and available for all to see and consider (cf. *Cold Case Christianity* by Wallace, *The Case for the Resurrection of Jesus* by Habermas, and many others).

The question with evangelism, similar in many ways to other decision-influencing activities (e.g., sales, debate, career counseling, lobbying for which restaurant the family should patronize for dinner, etc.), is what actions are more likely to result in convincing others to reconsider their position, hopefully in favor of what you believe to be correct. For this purpose, what informs our certainty is only relevant if they share our sympathies; otherwise our argumentation must defer to things they might find convincing. Certainly, spiritual activities are important here (e.g., engaging God in prayer, submission to His direction, etc.), but we cannot control God's activities; we must *trust Him* to do those things only He can do. The question is, What part can we, as humans, contribute that is helpful in addressing another's emotional readiness, sense of duty, and rational disposition (heart, soul, and mind; Matt. 22:37) to make an important decision? How can we address an individual holistically to help him with what Lee Strobel described as "spiritual sticking points" (Murashko, 2012)?

That being the case, briefly review what a worldview is: a worldview is a finite being's (limited) model or understanding of how his environment actually works on every level—including the spiritual—which he will use to predict consequences of his actions in order to make informed decisions he will use to define his actions. Human knowledge at the global level is not actual reality; it is a finite being's grasp of actual reality, which he uses for situational awareness. We must never forget God has no need of a worldview; He has a perfect view (conclusion 10 in Chisham, 2015, p. 16 and Sproul's point in the Bahnsen and Sproul debate, 1977). Humans, however, communicate out of their finite worldview and into others, parts of which are not shared, and communication requires finding points of commonality. Therefore, we must promote truth (not our human surrogate) the same way the New Testament writers did, by presenting evidence substantiating our claims (e.g., Luke 1:4; John 20:30–31; 1 John 5:13; 1 Cor. 15:3–8; 2 Pet. 1:16–21). Others will insist we point to facts in support of our worldview, not vice versa!

There is a legitimate internal-facing aspect of apologetics for establishing our own faith and encouraging like-minded believers. The question regarding non-believers, however, is not what might give Mr. Bahnsen or Mr. Carpenter confidence. Let us grant they may be absolutely right about what gives them confidence. The skeptic, however, may be as, or even more, confident in his view, as the rebellious defiance of a Richard Dawkins demonstrates. Furthermore, if the engagement becomes a battle over confidence, escalation into full-blown war is inevitable, which only divides individuals and ends discussions! Both have faith as described in Hebrews 11:1; both are convinced by what they believe to be true. Because the believer is asking the skeptic to move, he must have the humility to meet the skeptic on his level. The skeptic is not going

to make a decision for Christ based on what makes someone else confident; if he does make a decision for Christ, it will only be because he becomes convinced a new paradigm must be true. True belief cannot be forced down another's throat—although bullying has been exploited by probably every viewpoint. A rational individual must be convinced of the need to release his own view in favor of a better explanation for truth—to make a particular *decision*. So, when Mr. Bahnsen (Bahnsen and Sproul, 1977) proclaims,

A presuppositionalist says, “Answer not a fool according to his elementary principles of learning because you'll become like him. Rather, answer him according to *your own* presuppositions, those which are according to Christ” [Emphasis added to show the intended source of information and self-presumption of perfect Christlike knowledge.]

or Mr. Carpenter says,

Where does the warrant come from for the epistemological claims *our* worldview holds? It comes from the self-attesting Scripture, not unaided human reason. [Emphasis added to show the author's focus on himself.]

and

Our “position” is that of children of God and his ambassadors and we need to relate to skeptics with that authority given to us (Galatians 3:26; 2 Corinthians 5:20). Anything less is disobedience. [Emphasis again added to show the author's self-focus.]

they generically regard all non-believers as fools and insist on the superiority of their presuppositional authority and viewpoint over the nonbeliever, rather than treating their interlocutor with gentleness and respect (1 Pet. 3:15). Their words betray their focus, though they may wish to deny that. To be sure, these attitudes come out. In fact, it comes out against anyone demurring the presuppositionalist view, which is what

brought out Sproul's comment about Bahnsen's “cheap criticism.”

So, does Bahnsen's convictions regarding the “self-attesting Word of God” really yield more warrant than Sproul has with, say, the resurrection of Jesus? Bahnsen claims his view is superior because he is epistemically able to arrive at “perfect” certainty, whereas Sproul only arrives at probabilities. But, how does Bahnsen know the Word of God is “self-attesting” or, for that matter, the Word of God? First, like every other child (e.g., Sproul), Bahnsen's rationality was facilitated by acquiring language from his parents, subliminally absorbing worldview cues from them and others he knew and respected. He then studied under men like Dr. Van Til, who likewise had their own biases, becoming convinced the world should be interpreted a certain way. In short, since meaning is interpreted by language in a finite context, he cannot be *perfectly certain* his doctrinal understanding and interpretations are correct in any way other than by faith because his logic cannot avoid buried presumptions used to interpret Scripture (or even believe its truth), which is why Sproul kept pressing Bahnsen to specify *how* he could have perfect philosophical certainty about any truth, including his doctrinal convictions. (Unfortunately, about that point in the debate, the tape apparently ran out and there is a gap in the recording, so part of that exchange on this point is missing.) What Sproul labeled “cheap criticism” (Bahnsen and Sproul, 1977) was exactly that because, whether Bahnsen was willing to admit it or not, he was subject to the same limitations as everyone else, including Sproul—or a nonbeliever. Bahnsen forgot his epistemic ability to *know anything*, including that the Word of God is “self-attesting,” is finite. *Perfect* philosophical (modern term: scientific) certainty, as Sproul pointed out, belongs only to God, who alone possess perfect knowledge (cf. Prov. 15.3; Acts 15:18; Heb. 4:13).

Granted, the truth of any faith position is only as valid as the object of its faith. So, if the Word of God is “self-attesting” (which I think misses the Bible’s true value as an unparalleled historical evidential record and prophetic testimony), then regardless of anyone’s belief, the consequences Bahnsen insists on could be true. However, Bahnsen’s *faith* in that can be no more epistemically/philosophically certain than Sproul’s confidence in the resurrection of Jesus, and the first is a presuppositional construct while the latter is evidenced by many substantial historical corroborating evidences.

Bahnsen then insists non-Christians should willingly abandon their worldview presuppositions in favor of his—because his are better. Again, even if true, does that seem like something individuals from other viewpoints would find reasonable or convincing? The point is not whether his are better; it is whether his are true—and finite humans must argue truth using standard forensic methods based in logical demonstration and evidential reconciliation. Every apologist is keenly aware one may win a battle and consequently lose the war, for the “opponent” always has the option to simply walk away unmoved, revealing a lost opportunity. Considering the apologetic value of Bahnsen’s arguments in the other person’s eyes puts the shoe on the opposite foot, focusing on how our words might move others to act rather than what makes us feel confident and right in our mind. For example, Bahnsen’s extensive use of “the impossibility of the contrary” as proof God exists may have given him (and members of his camp) a clear sense of warrant, explaining in part his well-played confidence in debates, but one is hard-pressed to find a single opponent who either understood or accepted its implications. Certainly Sproul, who was not only sympathetic to many of Bahnsen’s views but also equally qualified, did not—how much more a skeptic? Even if Bahnsen

were right, as an argument it generally failed to communicate to anyone holding even a slightly different worldview. (Moreover, the fact that Aristotle, whom Bahnsen attributes for the original form of the argument [Bahnsen and Sproul, 1977], did not use Bahnsen’s version as proof of the immovable mover is at least interesting.)

To say it again, Bahnsen and Carpenter are ultimately saying, “If the skeptic would simply adopt *my* (finite) worldview, he would perceive actual truth,” which is no different than the skeptic confidently proclaiming, “I believe in science but you believe in (mere) religion.” It should be obvious that rather than attempting to overpower and control another’s worldview, the more convincing approach would be to help the other person reason from his own worldview to any logical fallacy or conclusion that might follow. Only then can you suggest a better alternative. As Francis Schaeffer often put it, we need to show others their view is “un-livable,” which initially requires more listening and less talk. The presuppositionalist has the right idea in that before one can engage a skeptic meaningfully, one must often educate the skeptic on the nature of his worldview presumptions because (like most people) he quite often has not critically evaluated his own. Unfortunately, this is often equally true of Christians.

Van Till admits the presuppositional approach is circular, which inevitably results in both sides talking past each other. Bahnsen would not release his view that the Bible is self-authenticating any more than a confident skeptic would be disposed to giving up insisting empirical science is the only possible rational source of truth. Moreover, it would run epistemically counter to reason to expect either to just concede without compelling evidence. Hence, *rational* discussions always return to reviewing real evidence, reviewing the presumptions of both sides, and trying to build

a compelling case. (In reality, anyone familiar with Dr. Bahnsen knows he was actually quite capable of evidential demonstration. He preferred presuppositional methods but used others quite skillfully.)

Contrary to Bahnsen, however, Sproul was pointing out that finitude dictates all humans are epistemically on a level playing field. He also listed several different ways the term *certainty* was used, trying to make clear that *human certainty* about unobserved events inevitably requires faith. That we can confidently navigate reality without mathematical (or philosophical) certainty is obvious because humans determine truth every day using this method, whether we are a police detective or just a parent. Faith need not be irrational but must remain vigilant regarding the reasonableness of one’s assumptions. Finite beings cannot escape using assumptions, utilizing “proof beyond doubt” instead to determine truth for all sorts of things. In fact, brilliance is generally tied to how effectively we sort through facts and posit consequences using deductions and probabilities to predict truth in everyday circumstances.

Most importantly, God specifically tells what evidence the skeptic *is* accountable for, and the list does not include “the self-authenticating word of God” or biblical caricaturizing of unbelievers as fools (similar to Job’s counselors who caricatured all who suffer as cursed); rather, the list is fairly short: God’s (a) eternal power and (b) divine nature (Rom. 1:19–20). As Francis Schaeffer (1990, p. 145) put it, “In the first place, Christian faith turns on the reality of God’s existence, His being there.” The fact God specifies what the unbeliever *is* accountable for directly implies a path we should follow in proclaiming truths *God* says are self-evident. Rather than offering deniable truths, we should focus on the undeniable. Everyone looks their biggest miracle in the face

each morning, as well as faces of their loved ones. Without God, man cannot explain the ultimate source of energy his biology constantly requires, nor its necessary organization. The materialist's own worldview must claim energy ultimately came from nowhere and acquired purposeful organization for no reason (though he will surely try the unevincenced claim that random mutation and "survival of the fittest" are the sources of innovation). Our claim is that energy came from *Someone* and was organized by Reason. Though humans cannot possess perfect knowledge, God says every individual has *sufficient* knowledge to deduce a theistic Creator. Once that connection is successfully made, the next focus is on Christ's resurrection (1 Cor. 2:2).

The apologetic recommendation here is not cowering from truth but simply changing focus toward what the other individual *needs* to make a very

important life decision. It should be pointed out that my response to Mr. Carpenter exemplifies the type of apologetics I am recommending: starting from his viewpoint, I have endeavored to argue for a better conclusion, which tends to promote civility in response to criticism and helps facilitate better dialog and understanding regarding disagreements. Again, I wish to thank Mr. Carpenter for the opportunity to engage him in dialog.

I would dare speak on behalf of both Mr. Carpenter and myself in saying, regardless of the outcome of this exchange, *Soli Deo Gloria!*

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Toledots and Creationist Positions

I refer to the paper, "A Critical Evaluation of the Tablet Model: Considerations on the Origin of the Book of Genesis" by Lee Anderson Jr. in the Summer 2017 *CRSQ* (54:5–26).

The argument against the *toledots* as colophons is well made. But the research on various creationist positions is very poor. I will speak for my organization, CMI [Creation Ministries International], as the other creationist organizations can speak for themselves.

Anderson cites CMI articles that are over 20 years old at the time of the paper's submission. However, my book *The Genesis Account: A Theological, Historical, and Scientific Commentary on Genesis 1–11* was published in 2015. This is always on CMI book tables at our events and so would be considered a "core resource" of the ministry, not an obscure title. And on page 19, I have a section called, "Why the *Toledots* are *not* endings or

colophons," citing some of the same authorities, such as Jason DeRouchie.

It is incumbent on a critic of a ministry's position to make sure that it is their position! This must mean citing current works by that ministry that are widely known by followers of that ministry, not those which are decades old.

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Head Scientist, CMI–USA

Response to Sarfati: Omission of Source Deliberate

In response to criticisms advanced against my article by Dr. Sarfati, I find it necessary to present several crucial observations.

First, he argues that my “research on various creationist positions is very poor.” He faults me particularly for failing to reference his own work, *The Genesis Account*, wherein he gives a cursory treatment of the function of the *tôlédôt* statements in Genesis. However, the reader will note that my article is not about “various creationist positions”; it is about the historical development of the tablet model and about the many shortcomings of that position with respect to the compositional history of Genesis. As Dr. Sarfati’s discussion does not present evidence in favor of the tablet model, it would not have been appropriate to mention it in either section II (“History of the Tablet Model”) or section III (“Evaluation of the Tablet Model”) of my paper. Furthermore, as none of Dr. Sarfati’s arguments in the relevant portion of his commentary are original to him (indeed, the discussion of the *tôlédôt* statements on pages 19–22 is

comprised almost entirely of quoted material, with no unique arguments in favor of the statements as transitional headings), there was no need to cite his work in section IV of my paper (“Problems with the Tablet Model”).

Second, Dr. Sarfati implies that his publication represents the position of his ministry, *Creation Ministries International* (CMI). Regardless of his work’s present impact, the fact remains that CMI has previously published multiple articles supporting the tablet model—articles which remain today on the ministry’s website and thus still exert an influence on CMI’s readership. Dr. Sarfati has made a laudable effort to present a correct understanding of the issue, but it does not follow that his treatment now represents a view unilaterally projected by his ministry (or, for that matter, by CMI’s followers within the broader creationist movement).

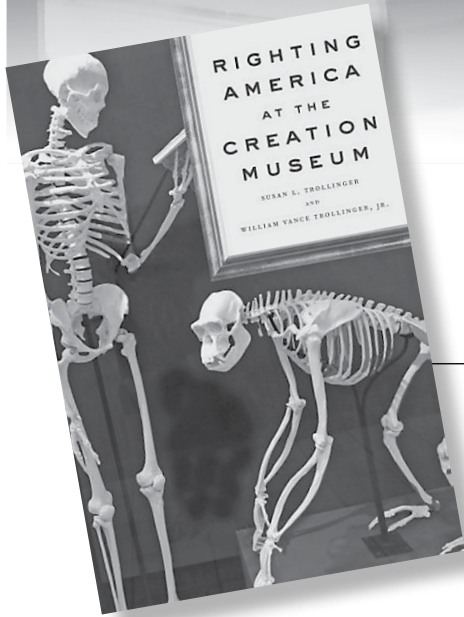
Third, if Dr. Sarfati is willing to maintain that the omission of *one source* (a secondary source—if that), qualifies as “very poor” research, what is to be made of the *many* glaring omissions in

his own work to which he directs me?¹ Because of this double standard, Dr. Sarfati’s accusation fails, I believe, to make a constructive point.

Lee Anderson, Jr.

¹ *The Genesis Account* contains an extensive bibliography, absent which, nevertheless, are many sources of great importance to Genesis scholarship. First, a couple of minor things: Dr. Sarfati cites Gleason Archer’s 1964 work, but omits the expanded treatment in Archer’s 2007 revision. Dr. Sarfati references Steven Boyd’s research in Don DeYoung’s work *Thousands . . . Not Billions*, but does not engage with the technical treatment produced by Boyd himself in *RATE II*. Why were these sources not attended to? More significant, though, is the complete omission of important works such as Duane Garrett’s *Rethinking Genesis* (a magisterial treatment on Genesis’ authorship), Eugene H. Merrill’s, “A Theology of the Pentateuch” (which views Genesis 1:26–28 as the theological center), and Barry Bandstra’s *Genesis 1–11: A Handbook of the Hebrew Text* (which is arguably the most comprehensive textual analysis of Genesis 1–11 published to date). Similarly, notable commentaries by Robert Alter, Allen P. Ross, E. A. Speiser, and others are neglected. I doubt Dr. Sarfati can argue that interaction with these sources would not have enhanced his commentary.

Media Reviews



Righting America at the Creation Museum

by Susan L. Trollinger
and William Vance
Trollinger Jr.

Johns Hopkins University Press,
Baltimore, 2016, 327 pages,
\$26.95

This book is primarily a history of the modern creation movement from about 1980, focusing on Answers in Genesis (AIG). The opening chapters take a neutral tone, describing the museum as though the authors were taking a leisurely walk through it. Every exhibit and many plaque is examined in detail. Readers will soon realize, however, that the book is far from objective.

Since the authors teach at a Catholic college, one might assume they would be sympathetic with the basic worldview the museum presents, but this is not the case. The discussions and detailed critiques of each museum display are all said to have been proven false by science.

The authors describe how and why the museum uses dioramas to create an interpretation of the ancient past. For example, displaying a dinosaur and a human in the same scene depicts what the authors stress could not possibly be true.

By using all of the exhibits that visitors expect in a museum, the Creation Museum attempts to give legitimacy to

what the Trollingers call “non-scientific theories.” The analysis of each aspect of the museum is not an easy read for some. One reviewer even calls the book a boring hatchet job. The book’s main target is Ken Ham, condemned on nearly every other page.

One section lists many books carried in the museum bookstore. The Trollingers reference this reviewer five times, but it is obvious that they have not read the material. For example, they note that the placard text accompanying the Nazi paraphernalia exhibit is taken from the book *Darwin’s Plantation*, which includes the following words:

“Perhaps the most infamous application of evolution to justify racism was Adolf Hitler’s Nazi regime, which promoted a master race and sought to exterminate so-called inferior races.” According to [museum director Ken] Ham, there are “vast amounts of material that show the connection between evolutionary thinking and Hitler’s genocidal slaughter of innocent beings.” Ham’s Darwin-to-Hitler narrative is standard fare within creation. (p. 182)

The close link between Darwinism and the Holocaust is well-documented in the mainline scholarly literature. This exhibit’s main point is less to discredit Darwinian theory than to show that Darwinism has had, and still has today, major

nefarious social implications. The Trollingers add that Nazi-Darwin “linkages” were “a staple in the writings of Henry Morris,” the “founder of the Institute for Creation Research. As Morris proclaimed in *The Long War Against God*, ‘Hitler himself became the supreme evolutionist, and Nazism the ultimate fruit of the evolutionary tree’” (p. 182).

The Trollingers write, “Then there’s ... Jerry Bergman, armed with a PhD in measurement and evaluation from Wayne State University,” who, they add, is also “featured on the AiG website” and is “a prolific contributor to the Darwin-Hitler genre, including books such as *The Dark Side of Charles Darwin* (2011) and *Hitler and the Nazi Darwinian Worldview* (2012)” (p. 182). The authors then, inadvertently giving credibility to me, add that California State University historian “Richard Weikart has produced two books making the Darwinism-to-Nazism argument, *From Darwin to Hitler: Evolutionary Ethics, Eugenics, and Racism in Germany* (2004), and *Hitler’s Ethic: The Nazi Pursuit of Evolutionary Progress* (2009)” (p. 182). The authors respond to these Darwin-Hitler claims by writing that the “problem with neatly linking Darwin and Hitler has to do with the fact that ‘Darwin’s and Hitler’s actual views on evolution and race were poles apart,’ as ‘Darwin had variable views on race ... and did not focus exclusively

on the annihilatory struggle in nature” (pp. 182–183).

The claim that the views of Darwin and Hitler “were poles apart” is a gross distortion. Although differences existed, the fact that the basic eugenics idea was a central view of both is well-documented. In fact, the Darwin-Galton family was for decades a central leader in the worldwide eugenics movement that taught controlled breeding in humans could produce a superior race. The Darwin family zealously propagated their view that Aryans were a superior race for generations, a view that was reflected in their “obsession” with racial hierarchies (Blaney, 2011).

The Trollingers write that German Darwinism was “best exemplified by the biologist Ernst Haeckel,” who was a leading disciple of Darwin, and “perhaps the most important critique of the Darwin-to-Hitler trope is that Nazi ideology drew upon a great variety of sources, including anti-Semitism, fascism, nationalism, racism, and the *völkisch* movement.” They then add:

The Anti-Defamation League has vigorously critiqued the Darwin-to-Hitler trope, pointing out that such an argument, usually “offered by those who wish to score political points in the debate over the teaching of intelligent design,” neatly erase the multiple factors that led to the Holocaust, including a Christian anti-Semitism that long preceded Charles Darwin. (p. 183)

They next quote science historian Robert Richards, who claims that

Weikart and other historians who have made the Darwin-to-Hitler argument “have not ... properly weighed the significance of the many other causal lines that led to Hitler’s behavior” and thus “have produced a mono-causal analysis which quite distorts the historical picture.”

They even quote ex-young-earth creationist Karl Giberson to support this point. Giberson mockingly wrote:

“Aryan Germans were not happily playing soccer and eating bagels with Jewish Germans until Darwin convinced them that this was a bad idea.” Put more directly, the “Holocaust would have happened with or without Darwin,” but social Darwinism sometimes provided the Nazis with “*rhetoric and rationalization*” for their murderous crusade against Jews. (p. 18, emphasis in original)

This claim ignores the fact that the Nazi eugenic movement was firmly based on Darwinism, and went far beyond the elimination of Jews, including the elimination of all non-Aryans (Slavic peoples, black Africans, and Romani). Darwinian eugenics was not the only factor but was a *central* motivator in Nazism and lebensraum that pushed the war into the East in the drive to subjugate, and eventually eliminate, Slavic and all other putative “inferior” races. Up until the Nazi era, Jews experienced Germany to be one of the most tolerant nations in Europe, and for this reason large numbers of Jews immigrated into Germany.

Another example the Trollingers provide to negate the critical influence of Darwin on Nazi Germany is Martin Luther’s venomous words in “On the Jews and Their Lies,” which does not explain Hitler’s goal of eliminating Slavic peoples, Romani, or other groups. Hitler’s second book clearly documents that Hitler’s central goal was the application of Darwinian eugenics to government, first by forcing non-Aryans to become slaves to the Aryan race and eventually to eliminate all inferior races including all non-Aryans (Weinberg, 2003). This conclusion was also the theme of the documentary titled *Hitler’s Lost Plan*, produced by the History Channel in 2004, which was based on *Hitler’s Second Book*.

The authors cover in detail the problems some professors have in Christian colleges as a result of accepting some form of Darwinism. A major problem is the spread of Darwinism and liberal-

ism, especially among the Bible faculty, which seems a greater problem than exists in the science faculty (p. 215). They document this problem at Bryan College, Cedarville University, and, especially, most of the Nazarene colleges. The authors cite polls that find a strong majority of Nazarene faculty hold to theistic evolution, or atheism with a veneer of theism, to show that AIG holds a minority position, even at Christian colleges (p. 216).

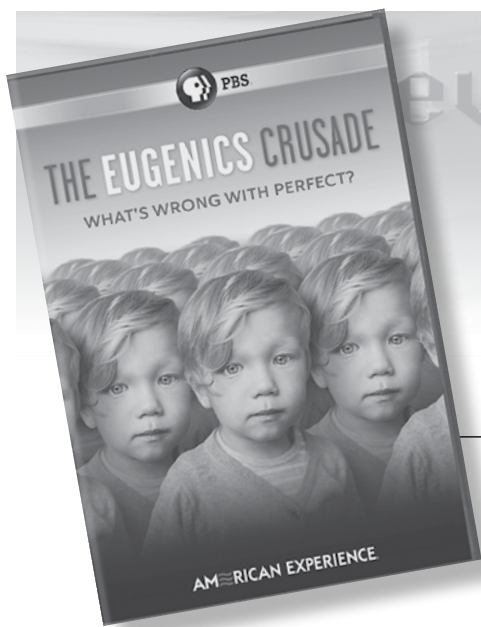
Based on my evaluation of the book’s discussion of Darwin and Nazism and other topics such as slavery (in which the authors argue that the American version of slavery was supported by both Christianity and the Bible, pp. 184–187), I question the accuracy of the entire book. It is grossly void of objective investigative journalism. Rather, the authors begin with a dogmatic opinion and spend the rest of the book attempting to convince readers why their position is correct, often by distortion and selective quotations.

In the last chapter before the epilogue, the authors stress the importance of Christian love and helping the poor, implying the Creation Museum ignores this greatest commandment (pp. 226–227). They ignore the fact that Darwinism is the doorway to atheism, and the main reason that many people give for their belief in God is the evidence from creation. The book closes by speculating on the demise of creation and what will replace it, concluding, “Perhaps geocentricity will replace young-Earth creationism as the necessary corollary of reading the Bible literally” (p. 235).

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American Experience: The Eugenics Crusade

DVD, written by Michael Ferrari and edited by George O'Donnell

PBS, 2018, 114 minutes, \$15.00

This DVD documents eugenics that began with Darwin, who inspired his cousin, Francis Galton. Galton spent his life developing eugenics science with the hope that this tool would make better people and a better society. The belief was that all types of positive talents, as well as crime, pauperism, promiscuity, alcoholism, and most other societal problems were genetic in nature.

Harvard graduate Charles Davenport (1886–1944), absorbed in the study of evolution, journeyed to England to learn directly from Galton. Davenport concluded that mankind “could take charge of evolution” for the betterment of humanity. Soon the American eugenics movement began to blossom. One indication of this was the San Francisco Exposition, which drew 18 million visitors. *The Race Betterment Exhibit*, part of the exposition, directed by John Kellogg, of Kellogg cereal fame, drew over 10,000 people.

Davenport also appealed to Mary Williamson Harriman, a wealthy philanthropist, for support. He told her that she either could help the poor for decades, or support eugenics to stem the increase of poor people. Eugenics, he argued, could permanently and drastically reduce the feeble-minded

population. Heredity, not environment, was the problem.

Harriman’s deceased husband’s hobby, horse breeding, influenced her to accept Davenport’s reasoning. Instead of giving to the poor, she funded the Eugenics Record Office in 1910 to study eugenics. The office records were completed by elite school college graduates trained to do interviews at a six-week-long summer program. They were paid 75 dollars monthly to collect data for a year before beginning their careers as teachers or other professionals. Millions of hours and dollars were spent on producing the enormous amount of data collected. In the end, the thousands of records were declared useless because they were based on very subjective evaluations of criteria collected from personal interviews and unverified family histories.

America was rapidly saturated with the eugenics idea, advocated with religious fervor. Soon over 350 colleges taught eugenics classes. People were even judged at eugenics fairs to see how close they were to the ideal Nordic race. “Fitter Families” contests were established that rated the members and gave ribbons for those families who bred the best children as determined by evaluations that took as long as three hours. According to the Eugenics Sterilization Act of 1913, 15 million Americans needed to be sterilized.

Henry H. Goddard, Director of Research at the Vineland Training School for Feeble-Minded Girls and Boys, was also inspired by Davenport. The result was his now infamous 1912 work *The Kallikak Family: A Study in the Heredity of Feeble-Mindedness*, often quoted in American textbooks, including the one used by John Scopes, the teacher at the center of the 1925 Scopes Trial. It was also relied on in Nazi Germany to support their policies. Goddard concluded that the cause of 75% of all social problems was hereditary. The solution was state control of reproduction.

Goddard was a major advocate for the use of intelligence testing in hospitals, schools, the legal system, and the military. He was also the first to translate the *Binet Intelligence Test* from French into English. The revised version, the Stanford Binet, became a critical test for feeble-mindedness that is still used today for school placement purposes.

The testing fad resulted in the Army alpha test for literate and the beta test for illiterate persons, to evaluate draft inductees and help in task assignment of the three million men drafted in WWI. Of the 1.7 million who took the test, fully half were classified as morons, many whom had never held a pencil in their lives. Ironically, morons, according to Goddard, should be removed from

society, either through institutionalization, sterilization, or both. This was one of many issues that eventually created problems for both the testing and the eugenics movements.

Madison Grant, a wealthy American lawyer and eugenicist, wrote *The Passing of the Great Race: or, The Racial Basis of European History*, published in 1916. Among those who embraced the book and its message was Adolf Hitler, who wrote to Grant to personally thank him for writing his book, even referring to it as “my Bible” (from the film; also see Ryback, 2011). Grant’s own experiences centered around his concerns over the growing numbers of immigrants to America from non-Nordic Europe (Poland, Russia, and other Eastern European countries) and especially Jews. Grant believed the Nordic race was intellectually superior to all of these other peoples and concluded that Western Europeans were being out-bred by “inferior” immigrant racial stocks.

Grant later persuaded Congressman Albert Johnson and Senator David Reed to sponsor a law, The Johnson–Reed Act, the final version of which was passed in 1924. This law blocked about 97% of immigrants from Eastern Europe compared to previously admitted numbers, while it did not affect immigrants from Central or South America. The law was supported by many influential Americans, including Margaret Sanger, Teddy Roosevelt, and Alexander Graham Bell.

This closed the door to most Jews, including the well-known diarist Anne Frank and her family, preventing them from escaping Nazi Germany. At the Nuremberg court that tried Nazi war criminals, the lawyers defending the Nazis cited the Johnson–Reed Act, as well as the U.S. Supreme court case of *Bell v. Buck* to justify their Nazi eugenics programs.

The eugenics movement was even taken up by black Americans, including W. E. B. Du Bois, the founder of the NAACP in 1909, and

others who concluded one solution to discrimination was to breed blacks for intelligence, beauty, music talent, and other desirable traits.

A factor in eugenics decline was the progress in genetics and the realization that heredity was far more complex than Mendel’s simple ratios based on his dominant and recessive trait theory. Most traits are not the result of a feebleminded gene, or a pauper gene, or a sexuality-promiscuity gene, or an alcoholic gene, but the result of many genes, some codominant, others semidominant, and others with incomplete penetrance. Very few traits result from one gene; even simple traits like eye color involve many genes.

Furthermore, as is obvious today, poverty is not primarily biological, but environmental, as documented by the great depression of 1929, when thousands of well-educated, successful professionals and businessmen lost everything. It is also not primarily biological, as proven by the correlation of poverty and early social associations, and the commonality of crime by the non-poor such as by professionals.

This DVD also documents the final blow to the eugenics movement, an increasing awareness of the horrors of concentration camps.

Among the case histories included in the DVD is that of Ann Cooper Hewitt, who defied almost every eugenic assumption. She was born in Paris from an extramarital affair, the illegitimate child of Peter Cooper Hewitt (1861–1921), a Columbia University educated electrical engineer with many inventions, including the mercury-vapor lamp, the mercury rectifier, a radio receiver, and the vacuum tube amplifier. Meanwhile, Peter married Ann’s mother and formally adopted Ann. Before his death, he established a trust fund for Ann and her mother, which left an inheritance to both women and to Ann’s offspring unless Ann died childless, in which case Ann’s mother would receive

most of the fund. After legal wrangling, the estate remained under the control of Ann’s often-married mother.

Since the rise of the eugenics movement, sterilization of people deemed “genetically unfit” was legal in most U.S. States and most European countries. While Ann was still a minor (under twenty-one), she required emergency surgery. Unbeknownst to Ann, her mother authorized that at the same time of the surgery, Ann be sterilized. The doctors later insisted that they had examined Ann before the surgery and found her to be feebleminded with a mental age of an 11-year-old child. This finding was based on a battery of intelligence tests Ann underwent at her mother’s urging, though Ann had no idea why she was being tested shortly before her surgery. The questions she thought purposeless, such as details about automobile engines, and she did not take the test seriously.

Ann’s lawyers responded with an affidavit from a New Jersey psychiatrist who had been close to Ann her entire life and verified that she was bright. Not only was Ann fluent in three languages (French, English and Spanish), but she was also well-read and articulate. In the end, Ann sued her mother, two doctors, and the State Health Department psychiatrist for being part of a scheme to seize control of her estate by having her declared mentally incompetent. In the trial her mother claimed that Ann was not mentally incompetent but “oversexed” and would not make a good mother because of her infatuation with men.

Even though the eugenics arguments originally used to justify sterilization were ended due to the gruesome revelations of Nazi war crimes, thousands of people would continue to be sterilized well into the 1960s, many with no knowledge of what had been done to them. Eugenics science was based on extensive research and data and therefore appeared eminently reasonable, but as evidence

accumulated, it turned out to be horribly wrong. The eugenics sterilization mania only ended in the 1970s after more than 60,000 Americans were sterilized after being judged “mentally deficient.”

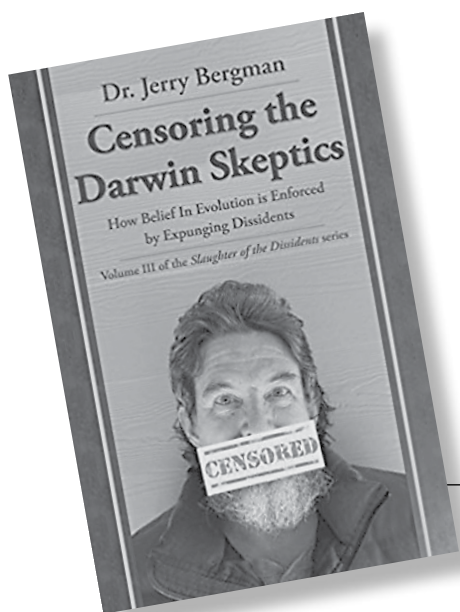
Along the way, the DVD documentary covers abuses of IQ tests and racism, and also shows how people

uncritically relied on science to justify acts that were made with the best of intentions but had horrendous effects, including the Holocaust. Could the same problem be true with Darwinism today? Although almost two hours long, the DVD was worth every second of watching.

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Censoring the Darwin Skeptics, Volume III of the Slaughter of the Dissidents series

by Jerry Bergman

Leafcutter Press, 2018,
510 pages, \$25.00

As the subject of chapter 17 in this book, I commend Jerry Bergman for providing the fullest account in print of what happened to me at NASA/JPL. In short, after 14 years with good reviews, I lost my job over giving DVDs about intelligent design to coworkers. The colleagues who got me in trouble refused to look at the scientific evidence in my nonreligious material. For doubting Darwinism, I was expelled. This book contains far more than just my story.

Bergman documents how libraries and bookstores refuse to display scientific books on intelligent design, or else they are placed in the religion section while Darwinist material is prominently displayed in the science area. Bergman documents censorship of ID material

in school curricula, in the media, and in academia. It is no wonder that few people hear alternatives to Darwinism.

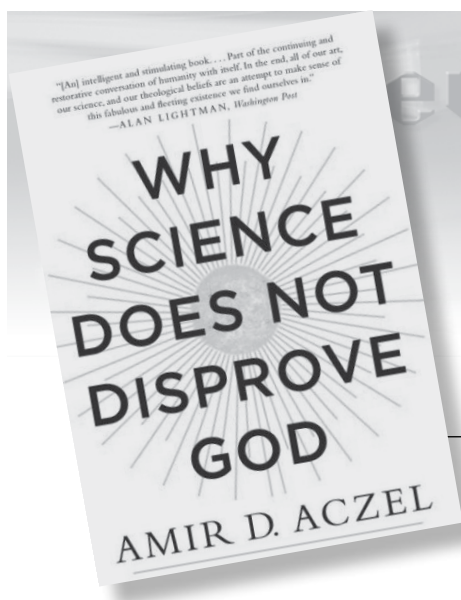
Also discussed is censorship in research grants and peer review. This is behind the mockery that creationists never publish. Bergman shows cases where any verbiage related to design or purpose is summarily erased from articles, papers, and books, while vacuous statements like “it evolved” get a pass. Darwin’s totalitarian dictatorship reminds me of Orwell’s *1984*, where the “ministry of truth” rewrites history. Big Science and Big Media systematically sanitize science of anything that might challenge Darwinism with scientific evidence, no matter how scholarly the source. Challenging Darwin’s reign can be a career-ending move, as the book’s personal stories show, in addition to my own. Several eminent PhDs have felt the wrath of Darwinians, including an

internationally acclaimed anthropologist and linguist, a Smithsonian director, a paleontologist and museum curator, an astronomer, a science reporter, and a physicist.

In my case, you will find almost no mention on JPL or NASA websites that I was ever employed there, after 14 years of honorable computer work, including 9 years as a team lead.

Bergman has done an outstanding job in documenting this egregious problem in this book and in the prior two volumes of his *Slaughter of the Dissidents* series. Each volume is unique and stands on its own. The work is fully referenced. *Censoring the Darwin Skeptics* may make you angry, but sometimes righteous indignation is a necessary step to understanding an intolerable situation

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Why Science Does Not Disprove God

by Amir Aczel

William Morrow/Harper-Collins, New York, 2015, 294 pages, \$15.00

This readable book takes aim at recent arguments put forth by a number of atheists who argue that science proves God does not exist. Author Aczel generally accepts other mainline evolutionary thinking—biological evolution of living things over time, the big bang, and the nonexistence of miracles. His argument is that one cannot disprove the notion of God by arguing directly from science. How does he support this idea? By taking three broad pieces of evidence.

First, even biological evolution (as understood by most secular scientists) cannot explain everything about why nature has significant beauty and wonder: Does the peacock *really* need such an extraordinarily large tail to survive? Human conscience and the ability to think abstractly and create art are a second problem that evolution does not explain. Finally, it has been proven that some facts in mathematics and physics are unknowable; they are beyond our reach to prove or disprove. Aczel uses these ideas to argue that it is impossible in our current state of knowledge to rule God out as a possibility, and he cites evidence from the fine-tuning of the universe and human conscience to suggest from science that there may in fact be a God. He shows that many scientists throughout history believed in

God, as do many today, and therefore it is inaccurate to say that science has disproved the existence of God.

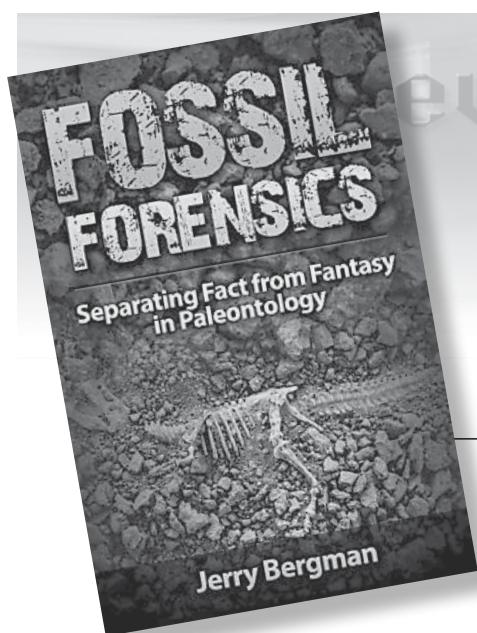
This book is at the same time easy and difficult to read. It is well-written, but there are numerous comments regarding the “fallacy” of young-earth creation that are out of place and overstate the claims of evolution. In the early chapters of the book, the author propagates erroneous ideas about religion and spiritual ideas, such as monotheism evolving through time, and he makes several factual errors regarding the finds of biblical archaeology. One example is from chapter 2, on “Why Archaeology Does Not Disprove the Bible,” where Aczel erroneously states that Hazael, king of Syria, is not mentioned in the Bible (p. 56; Hazael is named in 1, 2 Kings and in Amos). In spite of these problems, the book does present an interesting perspective on the limits of scientific investigation and human knowledge.

One comment in chapter 12 on the “Limits of Evolution” is particularly of note. Aczel, trained in mathematics, points out the stark contrast between physics-based theories such as quantum mechanics and biological evolution. Biological evolution as a theory is completely descriptive, not predictive. One cannot predict using biological principles what species might arise on earth in the future. Male peacocks with larger tail feathers may have a better chance to mate and pass on their genes, but that does not explain why peacocks

have big tails in the first place; clearly, many other birds do not and survive just fine. Thus, according to Aczel, biological evolution can explain why certain traits might be useful in the present but cannot say anything about what traits will arise in the future. In contrast, physics-based theories such as quantum mechanics make concrete, often mathematical predictions that can be tested through observations or experiments. For Aczel, evolution is a true hypothesis that still cannot explain all the relevant data. For the young-earth creationist, his argument is a reminder that biological evolution can be made to explain just about anything (at least regarding features at the macro level), and so has very little usefulness at all as a theory.

This book is useful for the creationist in that it provides arguments that can be made for intelligent design, the existence of God, and the limits of science, even if one grants, for sake of the argument, all the mainline scientific hypotheses about the age of the universe and evolution. In discussions with nonbelieving friends, one could use an “Even if everything you believe about the universe is true” approach to discussing some of these issues. This could then potentially be contrasted with the implications of direct creation of life, a young earth, and so on.

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Macroevolution is an extremely slow process by random mutations and natural selection. It would take many millions of years for a small number of traits to have evolved, if even possible. Therefore, we should see abundant evidence for evolution in the fossil record if evolution is true. However, the fossil record is composed of universal gaps, one of the best evidences for creation and also burial in the Flood.

In past years Duane Gish documented this fossil conclusion. *Fossil Forensics* is not only an update of Gish's work but also an expansion of the evidence in detail. Bergman delves into the lack of fossil evidence for the evolution of various invertebrate phylum and classes, including the largest animal group in the world, the arthropods. Insect evolution still remains a major mystery of evolutionary science. The same situation applies to the fossil vertebrates, including fish, amphibians, dinosaurs, and birds.

Bergman also has chapters on the lack of fossil evidence for the evolu-

by Jerry Bergman

Bartlett Publishing, 2017,
344 pages, \$15.00

tion of bats and their echolocation, the lack of evolution of teeth that are very abundant as fossils, and the evolution of feathers. He also deals with alleged transitional fossils. For example, despite the widely believed evolutionist "just-so" story of the evolution of the whale from a terrestrial mammal, Bergman analyzes this supposed sequence and finds it incomplete. This book will be a benefit for creationists and should be one of the most powerful challenges to evolution.

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Instructions to Authors

Submission

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*.

8. Figures. All figures cited in the text should be individually placed in numerical order, and placed after the tables. Do

not embed figures in the text. Each figure should contain a legend that provides sufficient description to enable the reader to understand the basic concepts of the figure without needing to refer to the text. Legends should be on a separate page from the figure. All figures and drawings should be of high quality (hand-drawn illustrations and lettering should be professionally done). Images are to be a minimum resolution of 300 dpi at 100% size. Patterns, not shading, should be used to distinguish areas within graphs or other figures. Unacceptable illustrations will result in rejection of the manuscript. Authors are also strongly encouraged to submit an electronic version (.cdr, .cpt, .gif, .jpg, and .tif formats) of all figures in individual files that are separate from the electronic file containing the text and tables.

Special Sections

Letters to the Editor:

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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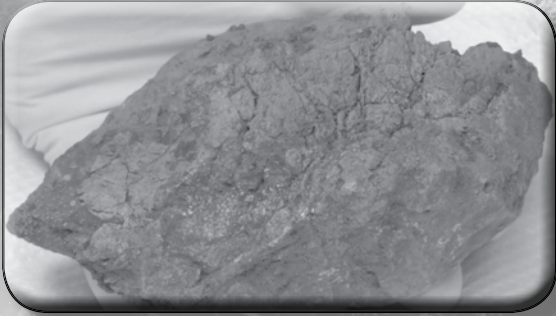
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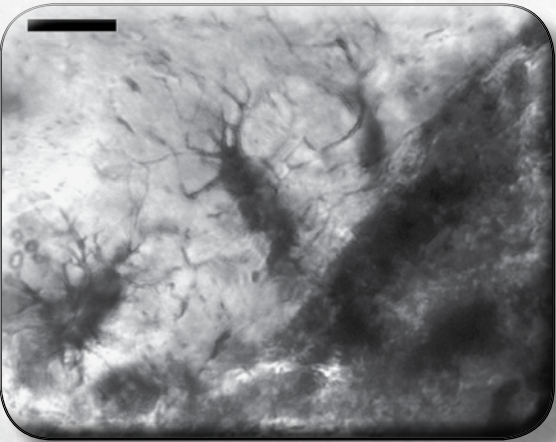
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iDINO II

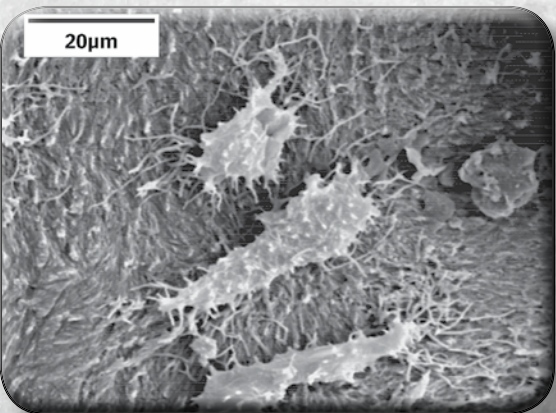
Investigation of Dinosaur Intact Natural Osteo-tissue



A fragment of the *Triceratops* brow horn. Fragments, such as this one, still contain tissue and cells.



Microscopic examination of tissue extracted from a *Triceratops* horn reveals bone cells still present.



Electron microscope picture of intact bone cells still in tissue extracted from a *Triceratops* horn.

How can pliable, stretchable tissue survive inside dinosaur fossils for over 65 million years?

How can this tissue still contain intact cells and even dinosaur proteins?

How can this fragile biological material survive for so long?

The answer to these questions directly challenges the current, evolutionary-biased, geologic timescale.

The Creation Research Society began its iDINO research initiative for the purpose of studying soft tissue in dinosaur fossils. The first phase of the project detected pliable, unfossilized tissue in a brow horn of a *Triceratops*. Within this tissue were intact osteocytes (bone cells). Some results from the iDINO project have been published in a technical microscopy journal and presented at an international microscopy conference. The Spring 2015 issue of the *Creation Research Society Quarterly* also features a special report of the iDINO project. Plus, to further spread the important information about soft tissue, the Society is developing a video (Echoes of the Jurassic).

The **second phase** of the project (iDINO II) will look more extensively at the process of tissue preservation. Evolutionists have offered various theories of how this tissue could survive for millions of years. iDINO II will methodically investigate these preservation claims, assessing their plausibility.

The iDINO results have already provided a strong challenge to the evolutionary worldview. More extensive and detailed examination may provide even stronger evidence that the age of dinosaur fossils is far less than 65 million years. To this end, the Society continues to seek those willing to fund this project with either one-time gifts or monthly donations.

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

Also visit <http://tinyurl.com/nphm2c4> for project updates and details.