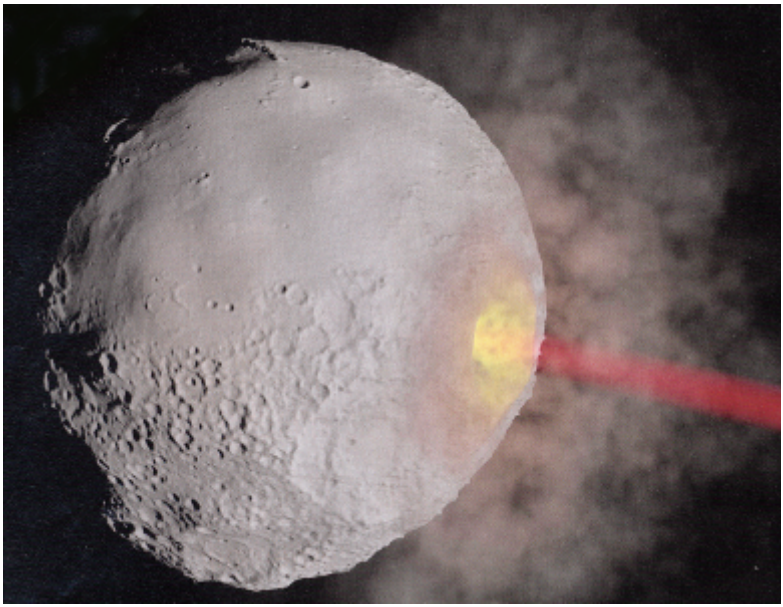
VOLUME 23 NUMBER 146

THE BIBLICAL ASTRONOMER

FALL 2014



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Front Cover: A laser blasts the surface of an asteroid to deflect it from earth. The amount of material ejected is exaggerated for clarification.

THE
BIBLICAL ASTRONOMER

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EDITORIAL

First of all, I want to thank all of you for your continued support, both financial of, and prayer for, the Association for Biblical Astronomy. One associate pastor of a church, which has a Bible institute, shall serve as a counter example. He is a long-time geocentrist and teaches it in said institution. When asked by a third party (not yurs truly) to carry *Geocentricity: Christianity in the Woodshed* in the church's bookstore, he refused because: "There are more important issues" to promote. Now that may well be true, but the bookstore sells items that he would consider less important than geocentricity. Now this church and its staff are also "KJV-1611 only and I commend them for it, even though the pastor cannot make himself believe that God is able to hold together a daily-spinning universe, regardless of what Scripture says. Their highest priority is apparently not the teaching of sound doctrine, which is the highest priority for the giving of scripture by inspiration of God (II Timothy 3:16), but evangelism. They cannot perceive that heliocentrism is a direct attack against the resurrection and without the resurrection our faith is in vain as we are still in our sins (I Corinthians 15:4). So, I thank God for your graciousness to us.

Every experiment designed to measure the speed of the earth has returned a speed of zero. It is a conundrum supposedly solved by the theories of relativity, but despite that, their solution is problematic since relativity does not apply to systems that are accelerating, such as what happens when you "peel rubber" with your automobile. Insofar as relativity is successful, Einstein relied on the work of Ernst Mach (heard of Mach-1, the speed of sound? same man). In this issue we present a paper by Charles Lucas, Jr., a creationist and co-discoverer of the most complete theory of matter today. Of course, this is a highly technical article with lots of delicious equations. Dr. Lucas shows that mass is actually a property of electromagnetic phenomena involving neutral "dipoles." At the risk of gross oversimplification, he shows that without each positively charged particle being paired with a negatively charged particle, there is no such thing as mass. Indeed, it is the pairing that we call mass and so, in a real sense, we can say that there is no such thing as mass.

The next article is by Prof. Jim Hanson. In the article he argues that since every time the sun is typified with Christ, the sun is moving. When associated with a bride, the sun moves to claim the bride; the bride does not go to the sun. Jim's point is that said description requires the sun to be moving or it is not a true type of Christ.

The third article deals with Olbers' paradox, or why is the night sky dark? The simple answer is that the night sky is dark because the universe is finite. I also examine modern attempts to keep the universe infinite and yet dark. This, of course, is the problem God had to solve to protect us from his bright, all-consuming presence. God solved it by bottling up his "presence" into the firmament from which no radiation (or heat) can escape, at least for the present time.

In "Panorama" we report on the observation that claimed to have discovered the gravitational waves of the early big bang inflationary stage. It turns out that the accolades were premature; that the observations equally support a much easier, more local, not to say, more likely explanation: namely that the phenomenon arises from interactions between starlight and dust in the Milky Way.

In the "Readers' Forum" of this issue we learn more about effects of earth's central location in the universe. We were asked about perfect and imperfect frame dragging. The question was answered by Martin Selbrede and it strongly supports the theory of geocentricity.

Finally, there is a brief article by yours truly that looks at the efforts under way to protect the earth from impacts from asteroids and other large rocky or icy objects. The article points out that one of the motivations for said efforts is to try and prevent the events in Revelation chapters eight and nine from happening. Bear in mind that there are many satanists, who are humanists and know very well that these events must and will happen. They know that they and their master are in real danger and will see to it that these projects will make them as secure as possible. Now, I'm not saying that the people named in the article are satanists: I'm only claiming that satanists have a vested interested in seeing that the projects are put into production.

As for the "Book of Revelation of Jesus Christ," it is not hard to understand so much as it is hard to believe. A shallow Bible reader or a modern version advocate will never have the necessary doctrinal truths and typology to open their understanding of Revelation. I've studied the Bible for 39 years and I still need to ask the Lord for insight and wisdom on these maters (James 1:5[1]).

As the perilous times (II Timothy 3:1) come upon us, my prayer is that our light will not be extinguished and that the Lord preserve us from the evil to come by shielding us with his hand.

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[1] **James 1:5**—If any of you lack wisdom, let him ask of God, that giveth to all men liberally, and upbraideth not; and it shall be given him.

MACH'S PRINCIPLE AND THE CONCEPT OF MASS

Charles W. Lucas, Jr., Ph.D. [1]

Abstract.

Mach's principle is shown to originate in the electromagnetic force involving vibrating neutral electric dipoles. *From the universal electrodynamic force derivation of the forces of inertia and gravity, mass is not a fundamental entity* [emphasis added]. What was called mass in the past represents a grouping of nearly constant electrodynamic parameters associated with vibrating neutral electric dipoles. The energy of these vibrating neutral electric dipoles is decaying by giving off radiation.

The resulting radiation has been identified with the cosmic microwave background radiation which has been found to be distributed throughout the universe in a pattern corresponding to the matter distribution. The value of inertial mass changes with distance from the center of the universe in accordance with Mach's Principle. Local asymmetries also cause inertial mass to change with distance from the center of spiral galaxies, with distance from a star to a planet, and with distance from a planet to a moon. Unlike the Standard Model of Cosmology based on General Relativity theory and quantum mechanics, the universal electrodynamic force approach does not need to invent dark matter and dark energy to explain the higher than expected constant velocities of the spiral arms of spiral galaxies and the expansion of the universe. These phenomena, for which a halo of dark matter and energy were invented to rescue General Relativity Theory, are explained directly from the universal electrodynamic force law and Mach's Principle. Thus the key assumptions that the universe is homogeneous and isotropic, that gravitational and inertial mass are

[1] Dr. Lucas' Ph.D. is in physics. Address: 29045 Livingston Drive, Mechanicsville, MD 20659. Skype Phone: (bill.lucas0011 or 1-240-249-5589. Email: Bill.Lucas001@gmail.com. This article was first published on May 6, 2013, in Chapter 10 of *The Universal Force Volume 1—Derived From A More Perfect Union of the Axiomatic and Empirical Scientific Methods.* Published by CreateSpace.com, an Amazon.com company.
https://www.createspace.com/simplesitesarch.search.do?sitesearch_query=the+universal+force+volume+1&sitesearch_type=STORE Taken with permission from *Foundations of Science*, **16**(3):1, August 2013.

equivalent, and that dark matter and energy comprise about 95% of the universe are shown to be invalid by this work.[2]

Introduction

In theoretical physics, especially in inertial and gravitational theories, Mach's Principle is the name given by Einstein to a general principle credited to the physicist and philosopher Ernst Mach. A very general statement of Mach's Principle is:

> Local laws are determined by the large-scale structure of the universe.[3]

This basic idea also appeared before Mach's time in the writings of George Berkeley.[4] The book, *Absolute or Relative Motion?* (1896) by Benedict Friedlander and his brother Immanuel contained ideas similar to Mach's Principle.

In Mach's own words, the principle is expressed as follows:

> [The] investigator must feel the need of …knowledge of the immediate connections, say, of the masses of the universe. There will hover before him as an ideal insight into the principles of the whole matter, from which accelerated and inertial motions will result in the same way.[4]

Einstein seemed to view Mach's Principle as something along the lines of "…inertia originates in a kind of interaction between bodies."[5]

In some sense Mach's Principle is related to philosophical holism. It appears to require that inertial and gravitational theories should be relational theories depending on relative coordinates. In his book, *The Science of Mechanics*[4] Mach criticized Newton's idea of absolute space based on his bucket argument.

In his book, *Philosophiae Naturalis Principia Mathe-matica,*[6] (Latin for Mathematical Principles of Natural Philosophy), Newton

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[2] Einstein, A. 1923. In a letter to Ernst Mach, Zurich, 25 June reported in Misner, Charles, Kip S. Thorne, and J.A. Wheeler, 1973. *Gravitation.* (San Francisco: W. H. Freeman).

[3] Mach, Ernst, 1960. *The Science of Mechanics; a Critical and Historical Account of its Development.* LaSalle, IL: Open Court Pub. Co.

[4] Berkeley, G., 1726. *The Principles of Human Knowledge*. See paragraphs 111-117, 1710.

[5] Hawking, S. W., & Geo. F. R. Ellis, 1973. *The large Scale Structure of Space-Time*. (Cambridge Univ. Press). Pg. 1.

[6] Newton, I., 1726. *Philosophiae Naturalis Prncipia Mathematica: Third Edition with Variant Readings.* Assembled and ed. By Alexandre Koyré and I Bernard Cohen with

tried to demonstrate that one can always decide if one is rotating with respect to absolute space by measuring the apparent forces that arise only when an absolute rotation is performed. If a bucket is filled with water, and made to rotate, initially the water remains still, but then, gradually, the walls of the bucket communicate their motion to the water making it curve and climb up the sides of the bucket, because of the centrifugal forces produced by the rotation. Newton says that this experiment demonstrates that the centrifugal forces arise only when the water is in rotation with respect to he absolute space (represented here by the earth's reference frame of the distant stars.).

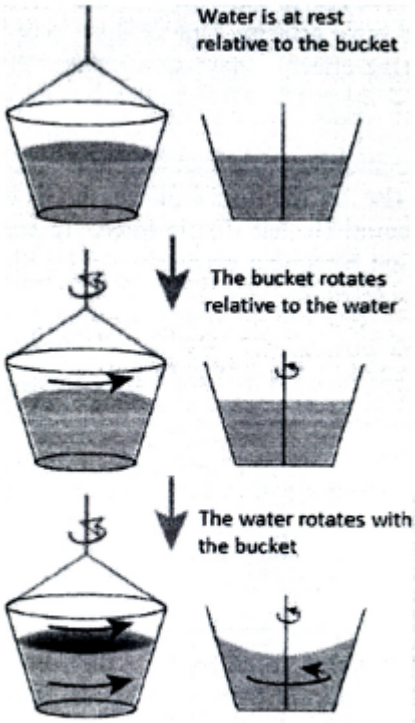

Figure 1.
Newton's Bucket Experiment

Mach says in his book that the bucket experiment only demonstrates that when the water is in rotation with respect to the bucket no centrifugal forces are produced, and that we cannot know how the water would behave if in the experiment the bucket's walls were greatly increased in dept and width.

In Mach's approach the concept of absolute motion should be substituted with a total relativism in which every motion, uniform or accelerated, has sense only in reference to other bodies. Thus one cannot simply say that the water is rotating, but must specify if it is rotating with respect to the vessel or to the earth or something more massive. Furthermore, one should take into account the particular asymmetry that exists in our local reference frame between the small

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the assistance of Anne Whitman (Cambridge, MA., 1972, Harvard U.P.). Note, the book is in Latin.

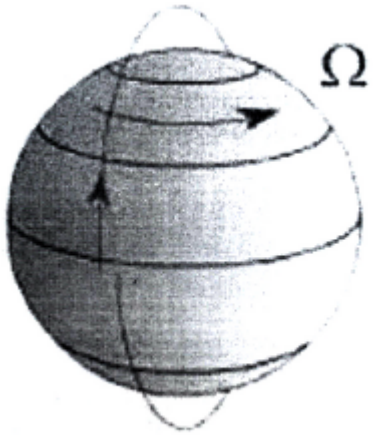


Figure 2. Lense-Thirring Effect

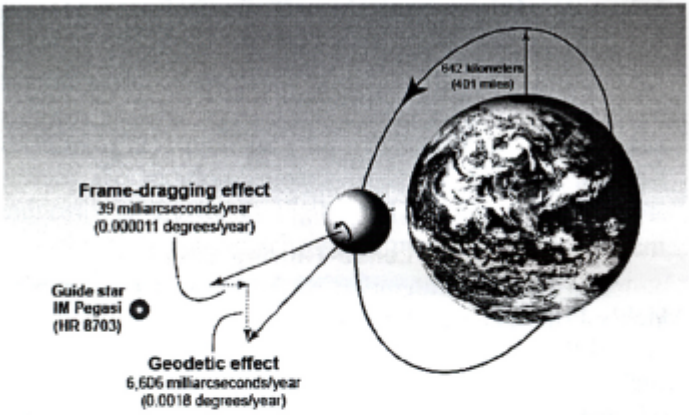
bodies (like buckets) and the bodies like the earth and distant stars that are overwhelmingly bigger and more massive.

Mach's Principle was never developed into a quantitative physical theory that could explain a kind of interaction by which stars can have such an effect. Although Einstein was intrigued and inspired by Mach's Principle, his formulation of he principle is not based on some kind of interaction force. However, before completing his development of the General theory of Relativity, Einstein found an effect which he interpreted as being evidence of Mach's Principle. In a thought experiment Einstein considered a fixed background of the stars for conceptual simplicity and constructed a large spherical shell of mass, and set it spinning in that background. According to Mach's Principle the reference frames in the interior of the mass shell will precess with respect to he fixed background. This effect has been measured and is known as the Lense-Thirring effect. Einstein was so satisfied with this manifestation of Mach's Principle that the wrote a letter to Mach saying:

> It…turns out that inertia originates in a kind of interaction between bodies, quite in the sense of your considerations on Newton's pail experiment…. If one rotates [a heavy shell of matter] relative to the fixed stars about an axis in the interior of the shell; that is, the plane of the Foucault pendulum is dragged around (with a practically immeasurably small angular velocity. [2]

Another form of the Lense-Thirring effect is the Schiff precession or spin-spin precession known as the Lense-Thirring precession of an orbiting spinning gyroscope. It is caused by the $\mathbf{R}\times(\mathbf{R}\times\mathbf{A})$ effect of the second term of the electrodynamic force of inertia of [1, Equation (8-24)] on a gyroscope orbiting a spinning body. See Figure 3. Two effects— $\mathbf{R}\times(\mathbf{R}\times\mathbf{A})$ (frame dragging in relativity theory) and the local variations in mass with $\mathbf{R}$ [Ref. 1, equation (8-11)] (geodetic effect in relativity theory)—were expected to cause a precession (at ninety degree angles with respect to one another) of the gyroscopes aboard the

Gravity Probe B satellite. The Gravity Probe B was designed by NASA and Stanford University to measure these two key predictions of Einstein's General Theory of Relativity by monitoring the orientations of ultra-sensitive gyroscopes relative to a distant guide star.



	Measured	Predicted
Geodetic precession (mas)	6602 ± 18	6606
Frame-dragging (mas)	37.2 ± 7.2	39.2

Figure 3.
Schiff Spin-Spin Precession and Gravity Probe B

In this paper the concepts of inertial and gravitational mass, as defined by the universal electrodynamic force law, will be developed for he first time into a quantitative theory to support or prove Mach's Principle.

Inertial Mass

The inertial mass *m*, of a single vibrating neutral electric dipole consisting of an atomic electron and a nuclear proton was derived to be in *The Universal Force Volume 1* [1, Equation (8-11)]

$$m_i = \left(\frac{2e^2}{3pRc^2}\right)\left(\frac{A^2w^2}{c^2}\right) \tag{1}$$

Or in terms of a lump of some element containing N atoms each having Z protons and electrons the more general result is:

$$m_i = NZ\left(\frac{2e^2}{3pRc^2}\right)\left(\frac{A^2w^2}{c^2}\right) \tag{2}$$

Now this result is different from what one might expect, because it contains the 1/*R* term in it. However, from the perspective of Mach's Principle, it appears to have great significance.

According to Mach's Principle the inertial mass of a lump or piece of matter should depend on the structure and matter distribution of the universe. In [Ref. 1, Chapter 9] evidenced was presented that the universe has a combination of spherical and chiral symmetric toroidal shells with quantized radii following Stanley Dermott's modern version of Bode's Law. If one averages the inertial mass from all the charges in all the atoms of the universe which has spherical symmetry, the inertial mass of a lump of matter on a very large grand scale will have a value depending on the effective average radius *R* from the center of the universe. This *R* will be the average distance of all the charges interacting with the vibrating neutral electric dipoles in the inertial lump of mass.

On a more local scale the presence of a massive body nearby can give rise to local asymmetric effects in addition to the grand scale effects. One of these type effects is the Lense-Thirring or spin-spin effect. This effect was confirmed by NASA's Gravity Probe B data.

Thus the interaction force that Einstein referred to above that gives rise to the force of inertia is the charge to vibrating neutral electric dipole force. In the next section the interaction force that gives rise to the force of gravity will be considered.

$$\begin{aligned}\vec{F}_G &= -\left(\frac{2}{5p}\right)\frac{e^2}{R^2}\left(\frac{A_1{}^2w_1{}^2}{c^2}\right)\left(\frac{A_2{}^2w_2{}^2}{c^2}\right)\hat{R} = G\frac{m_{g1}m_{g2}}{R^2}\hat{R} \\ &= -\frac{9pc^4}{10e^2}\left\{\frac{2e^2}{3pRc^2}\frac{A_1{}^2w_1{}^2}{c^2}\right\}\left\{\frac{2e^2}{3pRc^2}\frac{A_2{}^2w_2{}^2}{c^2}\right\}\hat{R} \\ &= \frac{9pc^4}{10e^2}m_{i1}m_{i2}\hat{R}.\end{aligned} \tag{3}$$

Note that the force of gravity has been defined in the past as a $1/R^2$ attractive force using a different definition of mass than the inertial mass. However, if one writes the equation for the force of gravity in terms of the inertial mass as shown in the braces, (i.e., the { }) of the second line of Equation (3), one sees that the force of gravity on the grand large scale is a constant attractive force throughout the universe. On the other hand, on the local scale where asymmetry exists, the force of gravity empirically appears to be a $1/R^2$ attractive force between two bodies.

In a large spiral galaxy the asymmetric force of gravity dominates near the center of the galaxy, but far out from the center it gets very weak such that the constant force of gravity on the grand scale predominates. Since that force does not diminish with distance, but remains constant except for decaying over time allowing expansion, the velocity v_s of the rotation of the outer spiral arms remains constant beyond the distance that the asymmetric gravitational force dominates.

Local Asymmetry and Grand Symmetry of the Universe

Consider the forces of inertia and gravity for a lump of matter m in the outer spiral arm of a spiral galaxy of mass M_s. There are two terms in the force of inertia. The first term represents the force of inertia due to acceleration, a_s with respect to the center of the spiral galaxy of mass M_s in direction R. See Equation (4).

$$\vec{F}_1 = m\vec{a} = ma_s\hat{r} + ma_0\hat{R} \tag{4}$$

where the magnitude of the observed acceleration a when $a_s < a_o$ is

$$a = \sqrt{\left(\vec{a}_s{}^2 + \vec{a}_0{}^2\right)} = a_0\sqrt{\left(1+\frac{a_s{}^2}{a_0{}^2}\right)} = a_0\left(1+\frac{1}{2}\frac{a_s{}^2}{a_0{}^2}+...\right) \tag{5}$$
$$= a_0 + \frac{1}{2}\frac{a_s{}^2}{a_0}$$

There are two terms for the force of gravity. The first term represents the force of gravity with respect to the center of the spiral galaxy of mass M_s. The second term represents the force of gravity with respect to the mass of the entire universe M_U. See Equation (6).

$$\vec{F}_G = -\frac{GmM_s}{r^2}\hat{r} - \frac{GmM_U}{R^2}\hat{R} \tag{6}$$

For stability the forces of inertia must be in equilibrium with the forces of gravity.

$$\begin{aligned}\vec{F}_1 &= m\left(a_0 + \frac{1}{2}\frac{a_s^{\,2}}{a_0} + \ldots\right) = -\vec{F}_G \\ &= \frac{GmM_U}{R^2}\hat{R} + \frac{GmM_s}{r^2}\hat{r}\end{aligned} \tag{7}$$

Now in equation (7) (bottom line) the first term for the large scale force of inertia is equal to the first term for the large scale force of gravity. Subtracting an equal term from each side of the equation causes it to reduce to:

$$m\frac{1}{2}\frac{a_s^{\,2}}{a_0} = \frac{GmM_s}{r^2} \tag{8}$$

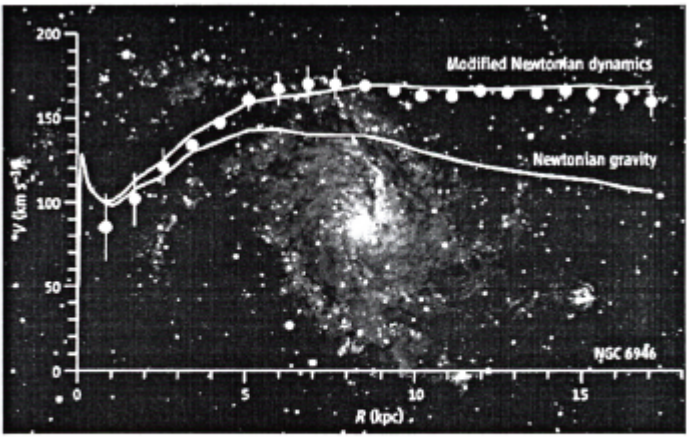


Figure 4.
NGC 6946 Spiral Galaxy Graph of Rotational Velocity vs. Distance from Center

Solving for the acceleration of the lump of mass *m* about the center of he spiral galaxy obtains

$$a_s = \frac{\sqrt{2GM_s a_0}}{r} \tag{9}$$

Now using the relationship for the acceleration in terms of the velocity for circular orbits gives

$$a_s = \frac{{v_s}^2}{r} = \frac{\sqrt{2GM_s a_0}}{r} \tag{10}$$

Solving for v_s obtain

$$v_s = \sqrt[4]{2GM_s a_0} \tag{11}$$

and

$$M_s \propto {v_s}^4 \tag{12}$$

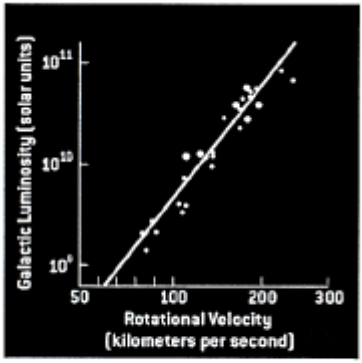


Figure 5.
Relationship between Rotational Velocity

Note that equation (11) gives a constant value for the velocity when a_s becomes smaller than a_0. Equation (11) also allows one to

calculate a_0 from the observed v_s. Milgrom[7] calculated a value of a_0=6.0 $\times 10^{-11}$ m/sec^2 that fits the spiral rotational velocity as shown in Figure 4. (Note that the picture of the galaxy is not centered at the origin of the graph.)

Equation (12) predicts the Tully-Fisher relationship between rotation velocity in spiral galaxies and the luminosity as shown in Figure 5.[8] The luminosity is proportional to the spiral galaxy mass M_s in agreement with $M_s \propto v_s^4$.

Since the vibrating neutral electric dipoles included in the mass definitions of Equation (3) are decaying, the constant gravitational force is slowly decaying. This causes the universe to expand on the grand scale. Even on the local asymmetric scale the force of gravity between the moon and the earth is decaying over time. This results in the moon moving further away from the earth in its orbit. The decay rate was probably greater in the past than the present decay rate.

Conclusions

Mach's Principle appears to originate in the electromagnetic force involving vibrating neutral electric dipoles. This force was not noticed by experimenters in the past because the dipole-dipole force is a $(v/c)^4$ effect that is 10^{-39} weaker than the electrostatic Coulomb force.

When Newton was deriving his force of inertia and force of gravitation, the mass in those equations appeared to be fundamental constants of those apparently different fundamental forces. When Newton was questioned about what mass is, he said toward the end of his life that he did not know. Also Newton said that he did not know what caused the force of inertia or the force of gravity. However, Newton did specify a process to combine the axiomatic scientific method with the empirical scientific method that would decrease the number of independent fundamental forces in the course of scientific investigation and hopefully to allow the logic of induction to discover the one universal force and proper set of terms. That has happened in our time as explained in *The Universal Force Volume 1*.[1]

Thus from the very successful universal electrodynamic force derivations of the force of inertia and the force of gravity, mass is not a

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[7] Milgrom, M., 1983. "A Modification of the Newtonian dynamics as a possible alternative to the hidden mass hypothesis." *ApJ* **270**: 365-370.
Also Milgrim, M., 1983. "A Modification of the Newtonian Dynamics—Implications for Galaxies," *Ibid*, pp. 371-389.

[8] Tully, R. B., and J. R. Fisher, 1977. "A New Method of Determining Distances to Galaxies," *Astron. & Asp*. **54**:661-673.

fundamental entity. What was called mass in the past represents a grouping of nearly constant electrodynamic parameters associated with vibrating neutral electric dipoles. The energy of these vibrating neutral electric dipoles is decaying by giving off radiation. The resulting radiation has been identified with the cosmic microwave background radiation. This radiation has been measured and found to be distributed throughout the universe in a pattern corresponding to the matter distribution as shown in Figure 6. This Figure shows the distribution of the red and blue Doppler shifts in the cosmic microwave background radiation about the center of the universe according to the Doppler pattern.

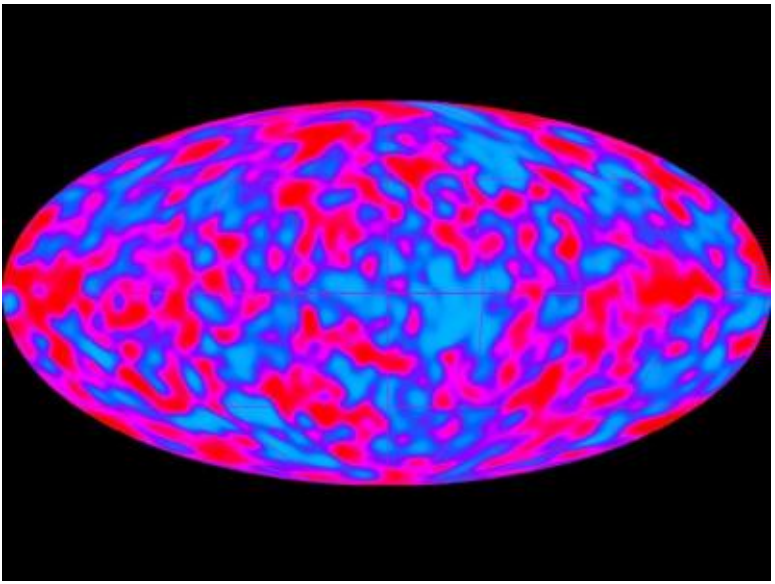

Figure 6.
COBE Microwave Background Radiation Red & Blue Doppler Shift Data

We now know that what was called the mass in the past is not really constant. It is decaying over time. The value of the inertial mass changes universally with distance from the center of the universe. Local asymmetries also cause mass to change with distance from the center of spiral galaxies, with distance from a star to a planet, and distance from a planet to a moon. Unlike the Standard Model of Cosmology based on General Relativity Theory and quantum mechanics, the universal electrodynamic force approach does not need

to invent dark matter and dark energy to explain the higher than expected constant velocities of the spiral arms of spiral galaxies and the expansion of the universe. These phenomena, for which a halo of dark matter and energy were invented, are explained directly from the universal electrodynamic force law which is in agreement with Mach's Principle.

General Relativity Theory assumes that the universe is homogeneous and isotropic. The cosmic microwave data shows that the universe has a center with spherical symmetry invalidating this assumption.

Mach's Principle reveals that Einstein's *Principle of Equivalence* in General Relativity theory is also invalid, because gravitational and inertial mass are not equal. This can be seen from Einstein's statement of the equivalence principle below.

> A little reflection will show that the law of the equality of the inertial and gravitational mass is equivalent to the assertion that the acceleration imparted to a body by a gravitational field is independent of the nature of the body. For Newton's equation of motion in a gravitational field, written out in full, it is:
>
> (Inertial mass) × (Acceleration) = (intensity of he gravitational field) × (Gravitational mass).
>
> It is only when there is numerical equality between the inertial and gravitational mass that the acceleration is independent of the nature of the body.[9]

General Relativity Theory's imperfections are further revealed in the necessity of dark matter and dark energy. Thus a proper understanding of Mach's Principle and the concept of mass allows a simple explanation of many phenomena in terms of a universal electrodynamic force.

[9] Einstein, A., 2005. "How I constructed the Theory of relativity." Translated by Masahiro Moriawa from the text recorded in Japanese th Jun Ishiwara, *Assoc. of Asia Pacific Physical Societies Bulletin*, **15**(2):17-19. Einstein recalls events of 1907 in talk in Japan on 14 December 1922.

THE BIBLICAL TYPOLOGY OF THE SUN NECESSITATES ITS LITERAL MOTION

Prof. James N. Hanson

It is amply clear from Scripture that the sun is a type of Christ. This fact is so well supported by a vast number of Bible commentators that we need not take time to rehearse it here. However, since Scripture admonished us, "In the mouth of two or three witnesses shall every word be established" (II Corinthians 13:16), we shall cite three witnesses to establish our opening statement. They are as follows:

1. Psalm 19:4-5 — the sun is here referred to as a "bridegroom" and Christ is the Bridegroom of his Church (Ephesians 5:25-32).
2. Psalm 84:11 — Here the Lord God is said to be "a sun."
3. Malachi 4:2 — The "Sun of Righteousness here is clearly the Lord Jesus (see Luke 1:78; Ephesians 5:14; II Peter 1:19; revelation 2:28).

In his book, *Preaching from the Types and Metaphors of the Bible*, Benjamin Keach, gives 34 ways in which the sun is used to typify Christ. The reader is referred to this highly instructive volume for details.

In light of the Christological typology of the sun it is proposed herein that only a literally-moving sun can adequately fulfill this typology. (By "literally-moving" we mean to imply a motion in which the sun is in a daily path around a fixed, central earth.) In support of the aforementioned proposition we will once again appeal to a three-fold witness which will consist of Psalm 19:4-6; Ecclesiastes 1:5; and Matthew 5:45.

Psalm 19:4-6

In this passage we find the sun being likened to a "bridegroom" and "a strong man." We have previously cited this passage as an important link in establishing the typology of the sun and Christ. We now go beyond this primary link to show why *actual solar motion* is an absolute necessity in the typology.

First of all, it will be noted in verse 5 that the bridegroom is "coming out of his chamber." This describes motion in no uncertain terms. Why is that significant? To answer this question we must refer

to Jewish marriage customs. These customs are mentioned in Joel 2:16 and Matthew 25:1-13. These passages make us aware that on the wedding day, the bridegroom comes out of his chamber (home) to claim his bride. These customs are elaborated upon in various Bible reference books to give a fuller picture of al the events involved. One such book is *Manners and Customs of Bible Lands* by Fred H. Wright in which the author provides details of the wedding on pages 131-132:

"Going of the Groom to Get the Bride

"Sometimes the bride's relations would conduct her from her father's house to the house of her fiancé, where her new home was to be. But more often, as was the case of the Ten Virgins in Christ's parable, the bridegroom himself went in person to bring her to his home for the wedding festivities to take place there. Before leaving the house that had been her home, she would receive the blessing of her relatives. Thus Rebekah's relatives sent her away with a typical Oriental marriage blessing, 'Thou art our sister, be thou the mother of thousands of millions and let thy seed possess the gate of those which hate them' (Genesis 24:60). The bride left her father's house adorned and perfumed, and with a crown on her head. Ezekiel's description of the bride is very appropriate, 'I decked thee also with ornaments, and I put bracelets upon thy hands, and a chain on thy neck. And I put a jewel on thy forehead, and earrings in thine ears, and a beautiful crown upon thine head' (Ezekiel 16:11, 12).

The Wedding Procession

"The bridegroom set out with the bride from the house of her parents, and there followed a grand procession all the way to his house. The streets of Asiatic cities were dark, and it was necessary that anybody venturing forth at night should carry a lamp or torch (cf. Psalm 119:105). Those invited guests, who did not go to the bride's home were allowed to join the procession along the way, and go with the whole group to the marriage feast. Without a torch or lamp they couldn't join the procession, or enter the bridegroom's house.

"The Ten Virgins waited for the procession to arrive at the point where they were waiting; and five wise ones were able to proceed because they had a reserve supply of oil for their lamps; but the foolish virgins lacked the oil and so, not being ready, they were barred from the wedding feast (Matthew 25:1-13)."

Thus, the bridegroom literally left his chamber and traveled to the dwelling place of his bride. This is exactly what Christ, the Bridegroom, will do when he leaves his heavenly chamber and travels to claim his earth-dwelling bride, the Church. If the sun is to accurately portray Christ, the coming bridegroom, it must have literal motion.

Secondly, Psalm 19:5 portrays the sun as "a strong man to run a race." This clearly typifies Christ as our "strong man" running the race leading to the goal of our redemption. (See Psalm 80:17; Isaiah 50:7; Luke 9:51; I Corinthians 9:24-25; and Hebrews 12:1-2.) Running obviously implies motion and Christ literally moved through his earthly ministry as he accomplished all things necessary for man's salvation. Thus, if the sun is to properly typify Christ as he moved through his earthly ministry, it must have a literal motion.

Ecclesiastes 1:5

This verse, along with the two verses which follow it discuss three scientific disciplines within the physical creation: astronomy, meteorology, and hydrology. In verse 6 we are given scientific information concerning wind currents, and in verse 7 we have a concise description of the hydrologic (water) cycle. Both of these involve literal motion. — The air is in motion to produce wind and water is in motion during the hydrologic cycle. Since both verses 6 and 7 must be interpreted in terms of literal motion, it is only reasonable to likewise interpret verse 5 to signify literal motion. So much important Christological information is presented in verse 5! Note the following:

1. "The sun also ariseth." Christ is risen from the dead and is ascended into heaven.
2. "The sun goeth down," Christ will return to earth.
3. "hasteth to the place where he arose," Christ's return will be to the very place from whence he ascended (Acts 1:10-11).

In the literal rising and going down of the sun we have a constant daily reminder of Christ's resurrection and ascension and his soon return for his won. Once again, *literal motion* of the sun is necessary to accurately typify these important aspects of Christ's redemptive ministry.

It is interesting to note that the three hour darkening of the sun during the crucifixion, which relates to Christ's three days in the tomb. Add to this the going down of the sun and he arose at the rising of the sun and we have a striking series of events relating solar behaviour to the ministry of the Saviour.

Matthew 5:45

In this passage we have the very words of the Lord Jesus as he makes us aware of our responsibilities toward those around us. These responsibilities are summarized in verse 44, "…Love your enemies, bless them that curse you, do good to them that hate you, and pray for them which despitefully use you and persecute you. Proper obedience to these commands will make us, "…the children of your Father which is in heaven. The example of the Father is given in the words, "[F]or he maketh his sun to rise on the evil and the good, and sendeth rain on the just and on the unjust.

Note that Jesus does not say, "He maketh the earth to rotate to gain sunlight for the evil and for the good"; but rather, "He maketh *sun to rise* on the evil and the good.

Since the sun symbolizes Christ we also see and important connection between the Father and Christ's resurrection. According to Romans 6:4 and Galatians 1:1, we learn that the Father played an important role in the resurrection of Christ and we know from passages such as Romans 5:6-10 that this was done for his sinful enemies. What love, mercy, and grace God has bestowed upon unworthy sinners!

Conclusion

From Matthew 5:45 we learn that the Father does not move mankind (as on an allegedly rotating earth) into a condition where we are worthy of his grace, but, rather, he brings his grace to us (by moving the sun) while we are yet in an unworthy state. Thus, a literally-moving sun is deemed necessary to properly signify the Father's grace manifest to sinful and unworthy mankind. "O the depth of the riches both of the wisdom and knowledge of God!

OLBER'S PARADOX:
WHY IS THE NIGHT SKY DARK?

Gerardus D. Bouw, Ph.D.

Introduction

Have you ever wondered why the night sky is dark? It may seem like a silly question, but the question has never been answered to the total satisfaction of science. At its base, there are some very fundamental issues at stake.

For many years after the Copernican revolution it was assumed that the universe was infinite in extent. Prior to Copernicanism, there had been the defendants of the infinite universe, but Christian scientists reasoned that since God *finished* the creation of the universe, the universe must be finite. An infinite universe would never be finished they reasoned. Regardless of whether or not their perspective was logical, it was in the Copernicans' best interest to vie for an infinite universe. After all, an infinite universe would render the geocentric model less credible than a finite universe. It seems absurd that an infinite universe could be said to rotate in any sense. And so it was that the politics of the Copernican Revolution gave new life to the infinite universe.

After some centuries of belief in the infinite universe, in 1823 a German astronomer named Heinrich Wilhelm Olbers (1758-1840) noticed a serious flaw in the infinite universe model.[1] Olbers reasoned that if the universe is infinite in extent, and if it is populated by an infinite number of stars, then every line of sight out into space should end at the surface of a star. This means that the entire sky, both daytime and nighttime, should be as bright as the face of the sun. Please understand, this does not mean as bright as daylight. On the contrary, it means that the entire face of the sky should everywhere look as bright as the disk of the sun; as if there were hundreds of suns in the sky, overlapping each other to the point that there was no unlit area between them. But it was obvious to all that the night sky is dark. So the infinite universe advocate is left with a problem: how can the night sky be dark if the universe is infinite? The problem thus posed by Olbers is commonly called *Olbers' paradox.*

Now the obvious solution is that the universe is finite, but many otherwise sane and educated men chose to avoid the obvious and have attempted to explain Olbers' paradox by reason and science. Still oth-

[1] For a reprint of Olbers' original paper, in German, see: S. L. Jaki, 1969. *The Paradox of Olbers' Paradox,* (New York City: Herder and Herder).

ers have tried to redefine the paradox. In any case, the implications of Olbers' paradox go deeper than meet the eye.

Olbers' Paradox in the Light of Distance

One proposed solution to Olbers' paradox is this. The more distant stars and galaxies are, the fainter they appear. Eventually, we could reason, they would fade into insignificance. Now the reason that objects get fainter with distance is that we effectively see a smaller fraction of the star's surface. That is, the more distant an object, the smaller it gets: the smaller the area of the sky that it occupies. This does not solve the problem, however, since an infinite number of stars should still mean that we would see another one apparently placed right next to it in the sky. By the time we look out about 10^{17} light years, all the sky should be full of these tiny disks, each appearing to touch its neighbors.

Still, one could assume that the surface brightness of such a conglomeration of extremely distant stars would be undetectably faint. To see that this is not so, we need to realize that regardless of the distance, the amount of light per unit area of the star is constant. That is to say, if a distant star appears to be a trillionth the area (size) of the sun as seen from earth, the amount of light the star emits, assuming the sun to be a typical star, is the same as if we looked at one trillionth the area of the sun. Clearly, a trillion such stars would add up to the brightness of the sun. That this is so has been known at least since the days of Olbers.

Related to the idea that distance can account for Olbers' paradox is the idea that the expansion of the universe can fade starlight into oblivion. Such is still commonly reported in introductory astronomy textbooks, but it is totally erroneous. First, it assumes that the light dissipates without energy loss. In other words, it assumes that if we go out far enough, we do not see starlight because all the light has lost its energy. The question is, where does this energy go? Since the first law of thermodynamics says that energy can neither be created nor destroyed in the present universe, that explanation violates the first law. Thus ultimately the energy must still reach the observer. The effect of the expansion is thus minimal.[2]

[2] This has most recently be confirmed by Paul S. Wesson of the University of Waterloo in Ontario, Canada. His article appeared in the February 1, 1991 issue of the *Astrophysical Journal*.

How About Intervening Dust?

Among proposed solutions to Olbers' paradox was one that postulated that the light is absorbed by intervening matter and is stopped from ever reaching the earth. If the light from these very distant stars is obscured, then wouldn't the night sky still be dark? And one way to intercept the light is to place some dark material between the stars and us. The best candidate for such dark matter is dust.

Intervening dust is not really an answer, either. When light hits a piece of dust, some of its energy does go into heating the dust; but overall, the light ray is mostly scattered. The latter means that it has lost its sense of direction. A light ray that was originally headed for earth can be deflected so as not to hit the earth. On the other hand, for each such light ray that is deflected to some particular direction away from earth, there will be another light ray that is reflected by some other piece of dust from its original path and will now be headed to earth. All in all, the net result is that the amount of light reaching the earth is the same as if there were no intervening dust. This is the kind of thing we see on a cloud-covered day were we cannot tell exactly where the sun is, but the clouds scatter the sunlight so that they appear to be about uniform in brightness. The reason it gets darker with thicker clouds is that there is no source of light from the earth to make up for the light reflected from the clouds back into outer space. But in the infinite universe model of Olbers, stars are all around.

Still, one could argue that a portion of the light ray went into heating the dust and so a portion of that energy does not reach the earth. True enough. But the dust will only get to be so hot and then it will release the captured energy in the form of infrared light waves. So the energy will still reach the earth, even though it may no longer be the same wavelength. The star light will go into heating up the intervening dust, and then the energy will still make its way to earth and we will still have to deal with Olbers' paradox. Dust obscuration does not save us from the paradox.

But Stars Don't Live To 10^{17} Years!

Stars are born, they shine for 10 to 30 billion years, and then they die. The resulting light trains average out to be about 25 billion light years long. That means that the light from an individual star would only traverse one part in 10^7 of the distance, that is one ten-millionth of the distance needed to flood the sky with light.[3]

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[3]E. R. Harrison, 1977. *American Journal of Physics*, **45**(2):119-124.

Although such a proposal would seem to work on the surface, remember that the problem arises because we assume that the universe is infinite. This means that there have been an infinite number of generations of stars, and we are back with our original question of why the night sky is dark.

Olbers' Paradox and Evolution

Although the above arguments have been considered in the course of the debate on Olbers' paradox, none has survived the test of time. In some cases the explanation for the paradox is nonsense, in others, the rebuttal is nonsense; and in still others, both proposal and rebuttal are nonsense.

Still, there is one thing that is made clear in the above discussion: there is an intimate connection between an infinite universe and evolution. This symbiotic relationship between the infinite universe and evolution is one-sided. The infinite universe does not require evolution, but evolution does require the infinite universe. This is so because random strings of molecules are extremely unlikely to combine and produce viable, reproducing molecules such as RNA and DNA. Now evolutionists in general and advocates of the big-bang in particular, may claim that the combinations are not random but are ordered by some mysterious "law" of nature called *natural selection*, but that does not solve their dilemma.

On the surface, the idea that the structure of the universe can somehow affect the unlikely to become likely, given enough time, sounds good; but there is a critical problem. If the universe came about by chance, then so did that "law" or structure. Claiming that the structure of the universe affects probabilities pushes the unlikelihood back one level, from random encounters between molecules to selective encounters. Now that "law" or structure that governs the selective encounters has, itself, some degree of order: it has some knowledge, some awareness, some structure, or specifically, some intelligence[4] about its environment—namely, the universe. If it did not, it could not "select" one particular outcome over another. It has been shown that such "intelligence" has *entropy*. Entropy is a measure of the available energy to do work, and entropy is always increasing. (This means that as the universe ages, it tends towards a uniform temperature. Once all matter is at the same temperature, then it is impossible to transfer any energy from one part of the universe to another and the universe will then

[4] I use the word *intelligence* here in the sense of being able to react to environmental factors, to the universe-at-large; I do not use it in the sense of having any brains.

reach the state which physicists call *heat death*.) In turn, entropy can be defined in terms of probabilities. So we are back to square one: the shift that the structure of the universe can make the unlikely more likely simply moves the "unlikelihood" to the structure. In other words, if it is unlikely that a DNA molecule can be formed by chance, then it is just as unlikely that a natural law, which makes the formation of DNA more likely, can come about by chance. In fact, the law is itself more unlikely than is the DNA molecule.

We are now in a position to appreciate why evolution needs an infinite universe. Estimates for the time required to evolve man by random encounters of molecules ranges from 10^{300} years up to $10^{3,000}$ or more. Clearly, if the big bang age of 10^{10} is true, then the universe should be at least 10^{30} times as old as old as evolutionists think it is for life to have evolved by chance. For evolution to survive, we need to postulate a universe made up of countless "big bangs" of which we find ourselves in one of the unlikely ones where life has evolved. This is indeed the kind of cosmological model that cosmologists are seriously considering; and for this very reason: that evolution is virtually impossible in a big bang universe because our universe is way, way too small.

The Role of Entropy

Having looked at some of the ideas that have historically been proposed to account for Olbers' paradox, and having identified the motives behind the persistent attempts to solve the paradox, we now turn to the most lucid and correct proposals. The ideas expressed below I developed in the late 1960s. I mentioned them in some correspondence with creationists in the mid-seventies, but I did not see them proposed by anyone else until an article by Paul Davies in a 1986 *Sky and Telescope* magazine.[5] According to Davies, Olbers' paradox reduces to the question of "why is space colder than the stars?" My way of phrasing it was "if the universe is infinite, why has the universe not suffered heat death?" Both questions are the same.

There is a fatal flaw in many of the problems and resolutions proposed for Olbers' paradox in the past. All of the problems hinge on the assumption that generations upon generations of stars each contribute to the light flooding the universe and that eventually the universe should be uniformly flooded with light. Actually, there is an upper limit on how much light can be created before the entire universe is light. If all of the energy in the universe is in the form of light (radiation) then there will be no more matter from which to form more stars.

[5] P. Davies, 1986. "The Arrow of Time," *Sky and Telescope*, **72**(3):239-242.

This follows from the definition of the heat death: when the energy is uniformly spread about the universe so that no part of the universe has more energy than any other part.[6] The fatal flaw in most of the proposed resolutions is the idea that because an infinite universe has infinite energy, that then the local energy should also be infinite. This is not observed.

When it comes to "local energy," the amount of energy that can be converted into radiation is equal to the density of the universe. The average density of the universe seems to be of the order of 10^{-29} gm/cm^3. Using Einstein's famous $E=mc^2$, we see that in converting all of that mass into light, we would reach a heat death at an energy density of 10^{-9} ergs/cm^3. This is about 1/1,000th the amount of sunlight reaching the surface of the earth: a far cry from having the entire sky lit up as bright as the face of the sun.

It would seem that Olbers' paradox is thus resolved by the fact that the universe is not very dense. True enough, this would save us from Olbers' paradox; but it also presents us with another problem. Since an infinite universe should be infinitely old (especially from an atheistic point of view), then why hasn't all the matter been converted into heat by the infinite generations of stars? This brings up the real problem with an infinite universe: in an infinite universe, the entropic heat death would have occurred an eternity ago. Indeed, it seems that the heat death is characteristic of an infinite universe with a finite density. One could argue that by chance all the light of a region could radiate outward, away from the center of the region, and that darkness could result and that some of the light could be transformed into matter on its way out; but the concept of chance has inherent in it the idea that there is a beginning and an end: an idea that is foreign to such an infinite, eternal universe. So it turns out that Olbers' paradox is identical to asking why has the universe not suffered a heat death? Why are there stars, galaxies, and people?

Conclusion

The question of why the night sky is dark is part of an infinite universe. The problems raised by that question, known as Olbers' paradox, are not easily dismissed. Proposals that claim that stars don't

[6] Note an interesting parallel. Many political liberals, socialists, and communists propose that all people should have the same, fixed income. When that happens there will be no motivation left to do mundane, boring, repetitive tasks and society will suffer its own peculiar form of "heat death." We've seen this effect as a chief contributor to the decline of the Soviet economy.

live long enough to flood the sky with light are equivalent to saying that there is not enough energy in the universe to do so. The penultimate question reduces to one of the second law of thermodynamics: why has the universe not suffered heat death? The simplest and most likely resolution is that the universe is not infinite but was created a finite time ago. The reason such is not accepted by modern science is that evolution is not consistent with such a young, created universe. There will thus be further attempts to resolve Olbers' paradox in a way that is consistent with the second law and yet makes for a plausible explanation for evolution. As long as science insists on an infinite universe at finite density there will be no "satisfactory" resolution of Olbers' paradox.

QUOTE

Thus, even now, three and a half centuries after Galileo's condemnation by the Inquisition, it is still remarkably difficult to say categorically whether the earth moves, and, if so, in what precise sense.

—Julian Barbour
Absolute or Relative Motion
Cambridge University Press, 1989, p. 226.

READERS' FORUM

Recently, I received this email from geocentrist, Robert Sungenis who has been using the derivation of the geocentric equations that was published in *Biblical Astronomer* a few issues ago.[1] The paper was first printed in *Geocentricity: Christianity in the Woodshed* as Appendix E. Apparently, the derivation has run into some criticism, as Robert Sungenis notes in his email to your editor:

Gerry,

A Ph.D. in physics was hired by some "Catholic" opponents of mine to discredit geocentrism (geocentricity). I've handled his prose arguments, but he also attacked the paper you wrote on vector analysis of a rotating universe.

I need your help on this, and this would be good for you to answer this challenge for Biblical Astronomer. Would you mind taking a look at this and getting back to me ASAP?

Bob Sungenis
PS: I've attached it as well.

The Attachment

Below is the hired critique of the approach used in issue 142. If the anonymous critic makes a statement that warrants comment, I've bolded the statement and the comment follows in brackets. The equations mentioned in the critique did not survive translation into MS-Word so I've had to guess in a couple of instances. The title of the critiqued paper, which title leads off the critique, is not mine, but it must be based on my relevant paper since equation (12), mentioned in the critique is so numbered in my paper.

Now the critique:

Paper 3: "Additional Kinematical/Vector Analysis of a Rotating Universe"

This paper seems to be written by Gerardus Bouw or by Sungenis in collaboration with him, and is not published. Remarkably, it takes four pages of **extremely tedious and elementary derivation to get to**

[1] Bouw, G.D. 2013. "Derivation Of The Geocentric Equations For A Daily-Rotating Universe," *B. A.* **22**(142):85.

the trivial and wrong conclusion [If it had not been a detailed derivation I would be accused of a cursory, sketchy, and incomplete derivation. Even as it is, I skipped the details of the scalar and cross products. —GDB] that in a geocentric universe the total force required to accelerate a star at distance R from the polar axis, declination δ, revolving once per day around the Earth's polar axis is:

$$F = ma = -mw^2\left(R - D\hat{w}\sin(d)\right)$$

(Bouw's or Sungenis' equation (12) which is wrong)

The reason this is wrong is the inclusion of the term which has the form of a Coriolis acceleration acting on the star in the direction of the polar axis; the term should not be there. Bouw or Sungenis, or whoever derived this, has confused the velocity of the revolving star in the Earth frame, $v = w \times R$ with the velocity used to calculate the Coriolis acceleration, which is also commonly designated as v (let us call it *v'*) and which is referenced to the rotating frame: $C_{\text{oriolis}} = -2w \times v'$.

In this paper, the universe is assumed to be rotating with constant angular velocity around the Earth's polar axis. The velocity of the star with respect to that rotating universe (the rotating frame) is zero. In fact, Sungenis and Bouw say exactly this, "we will use a single star since its co-ordinates are fixed in the sphere of the universe which carries the star."

Therefore, and so the second term above reduces to zero. The correct expression for the force required to accelerate the revolving star in its orbit is very simple:

$$F = -mw^2R$$

and the acceleration is $a = -w^2R$.

These are simply the centripetal force and acceleration required to keep the star revolving once a day about the Earth's polar axis. It is remarkable that someone who claims to have a "scientific background" as Sungenis does can endorse such an elementary mistake.

And now that we've corrected the new geocentrists' maths, we still need to ask how this helps them make their case? In short, it doesn't. Let's calculate what that force and acceleration might be for a solar mass star located at, say, redshift z=0.1 away from the Earth's polar axis and revolving around it. The co-moving distance of the star from the polar axis is 1.3 x 10^9 light years, which is 1.23 x 10^{25} metres. The angular velocity is 2π radians per day or 7.3 x10^{-5} radians per second. The centripetal acceleration required is then 6.6 x 10^{16} ms^{-2} or 6.7

thousand trillion times the acceleration due to gravity at the Earth's surface. The centripetal force required to accelerate a solar mass star of 1.98×10^{30}kg thus would be 1.3×10^{47} Newtons which is a truly stupendous force. Bouw (or Sungenis) claims that "every celestial object is held in place by this equation" (actually the incorrect one above, [eqn. 12]; but in any case it doesn't matter.) The statement is quite nonsensical. What he or they would have calculated if they hadn't got the rather simple maths wrong, is the enormous centripetal acceleration and hence the vast centripetal force that would be required to maintain a celestial object in a circular diurnal orbit. The equation shows what would be required but does not propose a source for these enormous forces. The paper is riddled with error, is utterly trivial, and fails completely to achieve its aims.

My reply:

Bob,

A couple of rebuttals to begin with: There is nothing wrong with my equation (12). It is a result of vector summation and its effect is to keep the star at it proper latitude so it will not "fall" to earth's equatorial plane.

Secondly, the standard Coriolis force is not overlooked but is included in equation (7) where it is expressed as:

$$2\omega \times dR/dt.$$

Although I used the word, universe, in the title of the appendix, I use firmament to represent the rotating medium. The firmament is THE inertial field and is anchored to the center of the earth.

This means that the star is not "revolving" or orbiting around the axis of rotation. Indeed, the rotation of the universe (vacuum space) with respect to the firmament amounts to roughly one rotation per 20 billion years.[2] Thus all the force and acceleration analysis of a solar mass star at $z = 0.1$ is meaningless since the inertial field is "omnipresent" as far as the firmament is concerned.

I did not formally publish my approach because others have done so previously. E.g,

http://www.spiritus-temporis.com/coriolis-effect/applied-to-earth.html

[2] A guestimate from memory based on three published results.

Even Wikipedia.org has a derivation similar but not identical with what we've published.

Sungenis' response:

Gerry,

You got me thinking here. Does your description below have anything to do with Gravity Probe B and frame dragging? Is the "20 billion years" akin to an imperfect frame dragging in GRT?

Bob

My reply:

Not that I'm aware of.

The rotation I referred to— and my stated period is very approximate— is akin to that first mentioned by Godell in 1949. His expression is as follows for the angular velocity, Ω:

$$\Omega = 2\sqrt{2pGr}$$

where G is the gravitational constant and ρ is the mean density of the universe. .

Another rotation of vacuum space within the firmament was presented in 1995, M. Surdin wrote a paper entitled "The Rotation of the Universe,"[3]

Still another analysis appeared in *Nature* vol. 298:451-454 entitled, "Is the Universe Rotating?" by P. Birch. His angular velocity is 10^{-13} radians/yr. See *Bulletin of the Tychonian Society* no.39, 1985 for details. His period is about 10^{14} years.

Regards,
Gerry

Selbrede's Answer to Frame-dragging Question

FYI, questions about perfect vs. imperfect frame-dragging have already been answered by Grøn & Eriksen (1989) and by Bondi (1994). The former make clear that for the Earth-Moon system, taken at rest,

[3] Surdin, M., 1995. "The Rotation of the Universe," *Physics Essays*, **8**(3):282-284.

the rotation of the cosmos induces perfect frame dragging and sets up the forces to prevent the Moon and Earth from slamming into each other. This gives the lie to the critic who claims the Earth would fall into the Sun and that we have a two-body problem and nothing more. Perfect frame-dragging prevents that from happening.[4] The critic was using a static case and omitting frame dragging and/or raising suspicions about it, or (worse) using the measured value in the Earth's vicinity of frame dragging due to the puny Earth's mass and assuming the universe's isn't significantly larger — forgetting what Bondi wrote about the corrected mass when tangential velocities exceed c.

Albert Einstein On Astronomical Motions

This is a note from David Lifschultz that he sent some time ago.

Werner Heisenberg wrote in his *Physics And Philosophy* that "The repetition of the Michelson's experiment by Morley and Miller in 1887 was the first definite evidence for the impossibility of detecting the translational motion of the earth..." All physics and modern science, which was based on the earth moving, collapsed. Heliocentrism had raised science above the Bible as a form of humanistic superiority on the heliocentric principles outlined in the Hellenism of the Greek astronomers, Aristarchus, Philolaus and others of the Pythagorean School.

The ideas were not original to Galileo or Copernicus. The best that Einstein could do in the end to save appearances was to say, "The struggle, so violent in the early days of science, between the views of Ptolemy and Copernicus would then be quite meaningless. Either coordinate system could be used with equal justification. The two sentences, 'the sun is at rest and the earth moves,' or 'the sun moves and the earth is at rest,' would simply mean two different conventions concerning two different coordinate systems." At the very least this demonstrated that the Bible had not been disproved.

The interferometer experiment of Albert Abraham Michelson sought to measure the interference or ether wind that a moving body such as the earth or other objects would register as it passed through space. Light was used as the moving substance in the interferometer and it proved impossible to measure the resistance as every which way the instrument was pointed whether vertically upward or horizon-

[4] For months now I've been working on as general a derivation as I can for finding the Lagrangian points. One of the sidelights is that it, too, predicts that the moon will only recede from the earth so far and no further. Technically, the speed of the moon would have to be imaginary to recede any further.

tal in the direction of the earth's alleged motion, or in reverse, registered zero resistance.

Physicists were initially struck dumb as this teaching that the earth moved had destroyed belief in the Bible for the masses over time and constituted the foundation humanism in its various forms. It had paved the way for Darwin. In other words, the foundation of all science was destroyed. All the Biblical moral laws had been overthrown by this humanism, as were the laws against sodomy, for instance. It was also responsible for the explosion in learning as massive efforts were made to search empirical evidence to develop new theories such as Copernicus discovered from Aristarchus. Copernicus, in his book *De Revolutionibus*, even gave credit to the Greeks for all his ideas in this rebirth of their learning that would counter the Bible and raise humanism in its place.

The basis for this was that if you could prove the Pentateuch to be scientifically inaccurate, then the Bible and the creator were not true, and all the laws meaningless. In that sense, Einstein followed that tradition in believing that the creator of the universe was the universe itself as Spinoza did for which reason he did not like the uncertainty of Heisenberg's views. The Bible said that sun moved (see Joshua 10:13 and Gen. 15:12 as in "when the sun was going down"). Disprove that the earth is stationary and the Bible becomes just another ancient myth. Man becomes supreme.

Humanism then sought natural laws, which was a Greek way of making nature a substitute for the Creator.

It is interesting as in the case of the transubstantiation of monetary value to paper, scientists tried to similarly use faith to rework science in believing what they could not see. Essentially, this new science followed Socrates in the cave metaphor in the "Republic." It was only the shadows that could be seen but not the actual truth, and this became the source of inferential logic. Instead of deducing from what you see as Aristotle when he said man was born for eternity and from eternity in that there was always a man and woman to bear a man and a woman. That is what he saw to deduce from as he saw nothing else. Anaximander never saw man evolve from animals as his disciple Darwin never did, but they saw shadows without proof. Actually, Bertrand Russell thought the idea of natural selection came from the ideas of economic competition of Jeremy Bentham, who had no scientific basis. Freud developed his ideas from the shadows of the unconscious that by its very definition are not known to the conscious mind. Thus, anything can be believed as paper money has value.

In physics the cave shadows were brought forth by George Francis Fitzgerald when he said that the reason that there was no measure-

ment of the ether was that the instrument contracted in the same proportion as the ether wind had on the effect of the light so there was no measurable difference though you could not see it. *Here we are asked to believe in what we cannot see as we cannot visibly see the contraction of the instrument.* The mathematical work in the formulation of these equations was done by Hendrik Antoon Lorentz in his Lorentz Transformation.

As if this were not enough, Einstein unilaterally declared that space was empty of emptiness, and ether was dispensed with in its entirety. How could you measure it if it was not there? That was something Fitzgerald could not have conceived of, having studied Sir Isaac Newton who taught "that gravity should be innately inherent and essential to matter so that one body may act upon another at a distance through a vacuum (as you cannot talk in a vacuum as the air has to be there to carry the words) without the mediation of any thing else by and through which their action or force may be conveyed from one to another is to me so great an absurdity that I believe no man who has in philosophical matters any competent faculty of thinking can ever fall into it." This meant that without the luminous ether it was the opinion of Newton that light could not travel in a vacuum from the sun to the earth. That was a founding principle in physics.

Bogus Credentials?

This email was received by my email handler on 30 July 2014 at 6:47 PM. It came from an individual whom I shall call MKR. Note off the bat here, that his email was not blocked. He given his spelling record (see below), he probably mistyped the email address. The subject was "Your internet document." All text is sic.

MKR

31/7/2014

Not even the courtesy of a reply 'Dr' Bouw????

I see that emails to your 'official' website are being returned by the mail handler. Divine providence has already been at work silencing your lies no doubt.

You have certainly deceived many including me who was sucked in by your bogus credentials (as one of your college students told me).

What dsies it profit yiou MR Bouw?

I surfed into your internet document 'The Great Liar' in which you write "I agree that the earth does not revolve". What do you mean by "revolve"? Do you mean that the earth does nor revolve round the sun?. Or do you mean that the earth does nor revolve daily in its axis?

Whichever it is that you are referring to I would also appreciate your explanation as I am led to believe by nasa that the earth both revolves around the sun and also daily revolves or turns in its axis. I am non technical as far as astronomy goes, so an explanation for 'layman' would be appreciated

Looking forward to receiving your reply and explanation as I would like to believe that my eyes are not deceiving me contrary to what nasa says.

Appreciate

MKR

Dr. Bouw Replies

My credentials are real. The sodomites, evolutionists, liberals, and Mohammedans at the University spread innumerable lies about me over the years, trying to get rid of me because they could not answer my defense of Scripture.

Don't believe me? Contact the University of Rochester, Rochester NY and ask if I earned a B.S. in astrophysics in 1967. Then contact Case Western Reserve University and ask them if I was awarded a Ph.D. in astronomy in 1973.

Because they have done their homework insofar as my credentials are concerned, the atheist and humanist organizations never challenge my credentials. And do you think that Baldwin Wallace University wouldn't have gotten rid of me if my credentials were bogus?

I don't know why my email handler returns your emails. I've not banned any individuals. There have been times when my URL has been hijacked—in Asia. But if I'm a charlatan, why bother to ban me?

Hmm I must be more dangerous than I thought. But I do this for posterity, not for money because the Lord Jesus certainly knows the truth has no value to modern man.

Revolve means to orbit. So, if the earth does not revolve it means that it does not orbit the sun. Only those ignorant of the technical definitions would ever think that revolve and rotation are synonymous.

Attached is a derivation of the geocentric equations of motion based on first principles. If you check with NASA you'll find that the beginning formulas are identical to what NASA uses.

Dr. Bouw

That email is typical of the hate mail I would receive from time to time at BWU. Praise mostly came from accidental meeting of a graduate who was working in the field of data processing and who, with a few years' experience under their belt, "got it" when they understood that I was preparing them for the real-world data processing environment where grades mean nothing; and not for the academic, ivory-tower college classroom environment.

PANORAMA

Big Bang Blunder Bursts Multiverse Bubble

Back in March of this year (2014), a team of cosmologists announced that their Antarctic-based equipment had detected gravitational waves generated in the first instants of the big bang.[1] The reported discovery created a worldwide sensation in the scientific community, the media, and the public at large. Nobel prizes were predicted and scores of new theoretical models spawned. The announcement also influenced scores of decisions about academic appointments and the rejections of papers and grants. It even played a role in governmental planning of large-scale projects.

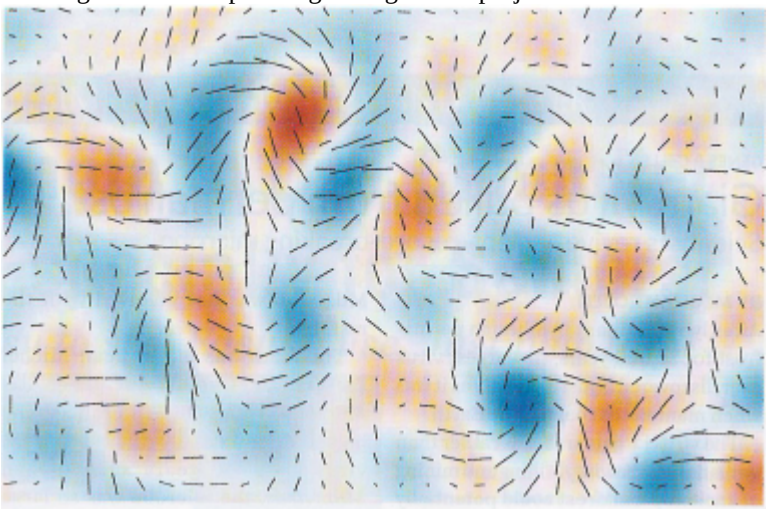

Figure 1: *Original Caption, which is now in doubt:*

Gravitational waves generated during a period of cosmic inflation twirl light from the cosmic microwave background, as seen in the 25° by 100° sky map from the BICEP2 telescope. The lines trace the alignment, or polarization, of photons released after the Big Bang; the line lengths show the light's intensity. The colors indicate how strongly twisted the polarization is, both clockwise (red) and counterclockwise (blue).

According to the original press release by the team at the BICEP2 South Pole telescope, the detection is at the 5-7 standard deviations level, meaning there is less than one chance in two million of it being a random occurrence. The results were hailed as proof of the big bang

[1] 2014. *Nature*, **507**:281-283.

inflationary theory and its progeny, the multiverse.[2] The hoopla grew and grew, devouring paper and electrons as the news spread. But it was mere vanity all around. In the 5 June issue of *Nature*, in its "World View" page, appeared a letter from Princeton University's professor of physics, Paul Steinhardt. The letter cast disparaging doubt upon the veracity of the March announcement.

Dr. Steinhardt wrote:

> The BICEP2 team identified a twisty (B-mode) pattern in its maps of polarization of the cosmic microwave background , concluding that this was a detection of primordial gravitational waves. Now, serious flaws in the analysis have been revealed that transform the sure detection into no detection. The search for gravitational waves must begin anew. The problem is that other effects, including light scattering from dust and the synchrotron radiation generated by electrons moving around galactic magnetic fields within our own Galaxy, can also produce these twists.
>
> The BICEP2 instrument detects radiation at only one frequency, so cannot distinguish the cosmic contribution from other sources. To do so, the BICEP2 team used measurements of galactic dust collected by the Wilkinson Microwave Anisotropy Probe and Planck satellites, each of which operates over a range of frequencies. When the BICEP2 team did its analysis, the Planck dust map had not yet been published, so the team extracted data from a preliminary map that had been presented several months earlier. Now a careful reanalysis …concluded that the BICEP2 B-mode pattern could be the result mostly or entirely of foreground effects without any contribution from gravitational waves.

There was an additional side effect of the BICEP2 fiasco: it revealed a little-known truth about the inflationary cosmology theory. The common view is that inflation theory is a highly predictive theory; but it is not so. If the original BICEP2 results had been correct, it would have greatly strengthened the inflationary model, but now that the detection of gravitational waves stays in limbo, some of the advocates of inflation who celebrated the BICEP2 "results" already insist that their theory is equally valid whether gravitational waves are detected or not.

How is that possible? The answer is revealing and reminds me that when the theories of relativity were introduced they could neither be proved nor disproved, regardless of whether its predictions are

[2] The multiverse is popularly known as the "parallel universe" theory.

verified or not. Some of the inflationary universe supporters claim that the inflationary paradigm is so flexible that it is immune to experimental and observational tests.

First, they claim, inflation is driven by a hypothetical scalar field, namely, the inflation, which has properties that can be adjusted to produce effectively any outcome. Second, inflation does not end with a universe with uniform properties, but inevitably leads to a multiverse with an infinite number of bubbles, in which the cosmic and physical properties vary from bubble to bubble.

The problem is that the big bang is made of an extremely small amount of the substance of the firmament That God created the second day, not the first day or before the first day of creation. When God stretched out the second heaven (presumably on the forth day of creation), the expansion started rapidly but the firmament slowed down the expansion due to electromagnetic feedback such as advocated by Thomas Barnes, Charles Lucas, and David Bergman, and others.

An Old Tract

Recently, while sifting through my files, I found an old tract put out by the late Walter Lang's Bible Science Association.[3] The tract is entitled, "Easter, and Accident?" I shall not reproduce it here; but shall only quote the first two paragraphs.

> Writing in *Science* (Dec. 5, 1948) a scientist named Bernatowics made the following statement: "We are not to say that hydrogen and oxygen combined **to** form water, but rather we should say that hydrogen and oxygen combined **and** formed water." This is how he hoped to eliminate "purpose" from the combination. Along with the British publication *Nature*, *Science* is regarded worldwide as a respected scientific publication. Students in Bernatowics' class whose test papers indicated purpose in nature might have received non-passing grades.
>
> Because of the prominence of the theory of evolution we are living in an age of "chance." According to this theory, everything—including life itself—evolved through time, aided by the environment. If this were true, would there be a need for God, or for death and resurrection of his Son? When we consider the events of that first Easter in connection with the science disciplines, are we guilty of combining that which ought not be combined?

[3] For information on Walter Lang see "In Memoriam: Walter Lang," B.A., **14**(110):105, 2004.

Hubble Trouble

From the appearance of the red shift of distant galaxies, astronomers have concluded that the universe is expanding. Of course, since the redshift appears to increase the same in all directions of space, it is itself one of the key evidences for the central location of earth in the universe.

The expansion was first discovered by Edwin Hubble who, in 1929, measured an expansion speed of 500 kilometers per second per megaparsec. Now one megaparsec is a million parsecs, and one parsec is 3.26 light-years or 18.6 trillion miles (31 trillion kilometers). The name, *parsec* stands for "parallax second," which means that it is the distance from earth at which the diameter of the sun's yearly path about the earth would subtend one second of arc (there are 3600 seconds of arc in one degree). Thus a value for the Hubble constant of 500 km/sec/Mpc means that for each 3.26 million light years from earth, the galaxies would recede from earth some 500 km/sec faster.

When Hubble measured that value, the evolutionary age of the earth was close to the expansion rate divided by the alleged size of the universe. However, at that time, the evolutionary "ages" of the universe and the earth were doubling every ten years, which meant that by 1970, the universe was 16 times as old as it was in 1929, the year that Hubble discovered the redshift's dependence on distance from earth. Indeed, by the end of the 1960s, the *Hubble constant*, as the expansion rate per megaparsec was called, seemed to hover between 50 to 100 km/sec/Mpc. One journal, *The Astrophysical Journal*, head quartered in the mob city of Chicago refused to publish any cosmological paper unless its author used a value of 50 km/sec/Mpc. The reason? The evolutionary age of the universe had to be increased because some stars, aged 13 billion years, were, even at 50 km/sec/Mpc, older than the universe.

To save embarrassment and escape criticism from creationists, the age of the universe remained at the loose figure of "10 to 20 billion years. But in the early part of the 21st century, the estimated became fixed at 13.8 billion years. At that value, the Hubble constant has a value of 73.8 ± 2.4 km/sec/Mpc, which value is based on supernovas and stars. The value of 73 was "confirmed" when the margins of error for the stars and supernovas Hubble value overlapped the 70 value deduced by the WMAP satellite (the one that discovered the axis of evil as covered in issue 137.

With the "best value" for the Hubble constant of 72 km/sec/Mpc, the universe would be somewhere between 12 and 14 billion years "old." Given that the "oldest" stars in globular clusters range from 11

to 18 billion years "old," it is clear that the oldest stars are significantly older than the universe. Scripture says God stretched out the heavens; this opens the possibility that a brief inflation of the universe at its creation 6,000 years ago could make it look billions of years old.

Global Warming Is Playing Hide And Seek With Its Supporters

The last clear global warming year happened at the last solar maximum when sunspots were abundant and heated up the solar system everywhere except on earth. According to the earth creatures, the sun had no significant contribution to the increased heating of the earth. The majority of the heating is blamed on the burning of coal, oil, and gasoline. Yet the current solar maximum has been, for all global warming concerns, a dud. Of course, if we are to ignore the sun's role in warming the earth, we are still burning fossil fuels and we should still experience global warming. (After all, if the sun didn't play any role in the warming trend 11 or 12 years ago, today's weaker sunlight certainly cannot play a role in the weather now so we should still be experiencing a rise in global temperatures.

Unfortunately for the solar-caused global warming nay sayers, the evidence for global warming exists only in their imaginations. Where is the global warming boogeyman hiding? Why, in strong winds, of course. High winds have hijacked global warming just as blowing on your soup causes it to cool.

Yes, according to an article reported by *Science News*, "unusually strong winds whooshing over the Pacific may explain the ocean's cool temperatures and a recent hiatus in the rise of global temperatures."[4]

The idea is that the Trade Winds have pushed warmer waters deeper into the ocean, creating an inversion layer (a layer of air or water where colder air or water lies atop hotter air or water).

According to Susan Solomon of MIT, clouding the search for the missing heat, is the fact that climate patterns change (in saner times we used to call that "weather") and naturally fluctuating weather patterns affect each other. Her cautious statement: "It's very unclear at this point where the chicken is and where the egg is."[5]

Thinking is Hard to Do

I remember reading the results of a study that researched what percentage of people think vs. those that don't. The results, as I recall,

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[4] Mole, Beth, 2014. "Strong Winds may have waylaid global warming," *Science News*, 22 March, p. 12.

[5] Susan Solomon alluding to the old evolutionists' question, "Which came first, the chicken or the egg?" The logical answer clearly is, "Two chickens: a hen and a rooster."

said that 20% of the population think, whereas 80% do not. Furthermore, the study discovered that as long as the non-thinkers trusted the thinkers to do the thinking for them, society remained stable. Once the 80% lost their confidence in the thinking 20%, society rapidly decayed. The study also said that the thinkers tended to use the word "think" in various contexts such as "I think this or that." Or "What do you think about this or that?" The non-thinkers, on the other hand, used words such as, "How do you feel about this or that?" or, "I feel we should do this or that."

Now a paper that appeared in the 4 July *Science* (2014) concludes that most people prefer to do just about anything, including giving themselves electric shocks, to avoid thinking quietly for a mere 6 to 15 minutes. It's as if most people find it hard to think, even though daydreams are actually a form of thinking. (Something I discovered when I reviewed the subjects and controls I exercised on said day dreams. I could, for instance, play a scene forward and then reverse it.)

Of course, the article has to offer a sizeable amount of time to the god of evolution, which is an emotional subject, not a scientific one since it cannot be falsified.

This is also why most people insist on playing the radio or the television all day. They are afraid to spend time by themselves. Indeed, Timothy Wilson of the University of Virginia in Charlottesville finds that for many people, being left alone with their thoughts is a most undesirable activity.

In six experiments 146 college students handed over their cell phones and sat alone for 6 to 15 minutes. Most said that they found it hard to concentrate and that their minds had wandered. The researchers also tested 61 adults, ages 18-77 at a farmer's market and a church and found similar results.

In another study participants said that, if given $5, they would pay some or al of it to avoid another shock. However, when these previously shocked people were asked to spend 15 minutes in solitary thought, 12 of 18 men and 6 of 24 women voluntarily gave themselves at least one shock rather than think quietly.

Solitary thought helps people to make sense of past and anticipated experiences, a vital but difficult exercise that may explain the discomfort that people felt. Widespread use of smart phones and computers to deal with boredom may be undermining the capacity for self-reflection. So now you know why the entire world regards Americans as the most naïve people in the world. Beware, lest Naïveté changes to stupidity.

SHIELDING EARTH FROM REVELATION

Gerardus D. Bouw, Ph.D.

Back in 2007 I wrote an article about the star Wormwood,[1] whose fall to earth is foretold in Revelation 8:11. In the article, we assumed that Wormwood is a small comet that will hit the earth and poison a third part of the fresh water on earth. We also looked at preparations then under way to prepare for the near miss of another asteroid in the mid 2030s. In this article, however, we look at current efforts designed to protect earth from colliding with asteroids and comets such as Wormwood.

Many stars fall to earth in the book of the Revelation, but only three are singled out: the great burning mountain, Wormwood, and the one that opened the bottomless pit. These are related in Revelation 8:8-11 and 9:1—

> 8 And the second angel sounded, and as it were a great mountain burning with fire was cast into the sea: and the third part of the sea became blood;
> 9 And the third part of the creatures which were in the sea, and had life, died; and the third part of the ships were destroyed.
> 10 And the third angel sounded, and there fell a great star from heaven, burning as it were a lamp, and it fell upon the third part of the rivers, and upon the fountains of waters;
> 11 And the name of the star is called Wormwood: and the third part of the waters became wormwood; and many men died of the waters, because they were made bitter.
> 9:1 And the fifth angel sounded, and I saw a star fall from heaven unto the earth: and to him was given the key of the bottomless pit.

On the clear morning of February 15, 2013, a large fireball streaked across the sky over central Russia injuring over a thousand people, most by flying glass when the shock wave reached them. The appearance of that meteor very much resembles the description of the "Great mountain burning with fire" mentioned in verse 8 of the above text. Of course, I do not believe that the Russian meteor was the fulfillment of that prophecy. After all, it crashed into a small lake, not the sea. Personally, I do not expect the fulfillment of Revelation chapters 4-20 until about A.D. 2026 or so.

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[1] Bouw, G. D., 2007. "Wormwood," *B.A.*, **17**(119):20.

On the same day as the Russian meteor, the world witnessed a near miss of another astral body, 2012 DA 14, which missed the earth by a mere 17,100 miles (27,600 km). It came closer to earth than the geostatic orbits of our communications satellites. We had clear warning of the latter body, but the former meteor hit the earth without any warning. The two events caused some anxious moments for NASA spokesmen who were bombarded with questions by not a few reporters.

The idea that earth might be hit by a large asteroid or comet was not new to NASA. Nor was the unexpected arrival of a large body novel, as related in previous *Biblical Astronomers.* By the end of 2013 NASA had beefed up some of its interceptor programs to defend the earth against a major collision. Projects such as LightForce and DE-STAR are in the making. Both of these involve the use of lasers rivaling the death rays of science fiction itself. But underlying the creation of these programs is the goal to destroy the stars of Revelation before they can reach the surface of the earth.

About 100 tons of meteoritic material hit earth every day. Mostly this debris consists of small bits that burn to dust in the atmosphere, but about once a year a large body hits earth and causes damage. Most of these bodies fall into the oceans since the oceans cover three times as much of earth's surface area than does the dry land.

Among the laser projects is that of Philip Lubin, a physicist at the University of California, Santa Barbara. Their system is called DE-STAR, which stands for Directed Energy Solar Targeting of Asteroids and exploRadiation). DE-STAR will use a focused laser to raise the surface-spot temperature of an asteroid to 3,000K, allowing direct evaporation of all known substances. The obliteration of the surface would eject enough material fast enough to slow down the speed of the asteroid, thus changing its orbital trajectory. (See front cover.)

DE-STAR would orbit the earth. In that capacity it can also protect spacecraft from collision with space junk. Earth's environment is strewn with defunct satellites, spent booster rockets, telescopes, and spy satellites that could not be force to crash. Estimates for the number of space debris items range from 11,000 objects more than a foot in diameter (30 cm), to 100,000 objects between a foot and 4 inches (30-10 cm) in diameter. Smaller objects than 4 inches (10 cm) can number into the millions.

This is where the LightForce project comes into play. LightForce is a system of lasers that are earthbound and can be pointed upwards to vaporize any piece of space junk that is threatening a current project.

Needless to say, these things may protect earth from asteroids and comets, and even from space debris, but who or what would keep a warring nation from vaporizing an enemy from space using DE-STAR or vaporizing defense satellites from earth with LightForce? I'll take my chances without either of these "defensive" installations, thank you.

CREDO

The Biblical Astronomer was founded in 1971 as the Tychonian Society. It is based on the premise that the only absolutely trustworthy information about the origin and purpose of all that exists and happens is given by God, our Creator and Redeemer, in his infallible, preserved word, the Holy Bible commonly called the King James Bible. Any scientific endeavor which does not accept this revelation from on high without any reservations, literary, philosophical or whatever, we reject as already condemned in its unfounded first assumptions.

We believe that the creation was completed in six twenty-four hour days and that the world is not older than about six thousand years. We maintain that the Bible teaches us of an earth that neither rotates daily nor revolves yearly about the sun; that it is at rest with respect to the throne of him who called it into existence; and that hence it is absolutely at rest in the universe.

We affirm that no man is righteous and so all are in need of salvation, which is the free gift of God, given by the grace of God, and not to be obtained through any merit or works of our own. We affirm that salvation is available only through faith in the shed blood and finished work of our risen LORD and saviour, Jesus Christ.

Lastly, the reason why we deem a return to a geocentric astronomy a first apologetic necessity is that its rejection at the beginning of our Modern Age constitutes one very important, if not the most important, cause of the historical development of Bible criticism, now resulting in an increasingly anti-Christian world in which atheistic existentialism preaches a life that is really meaningless.

If you agree with the Credo, please consider becoming a member. Membership dues are $35 per year.

To the law and to the testimony: if they speak not according to this word, it is because there is no light in them.

– Isaiah 8:20

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