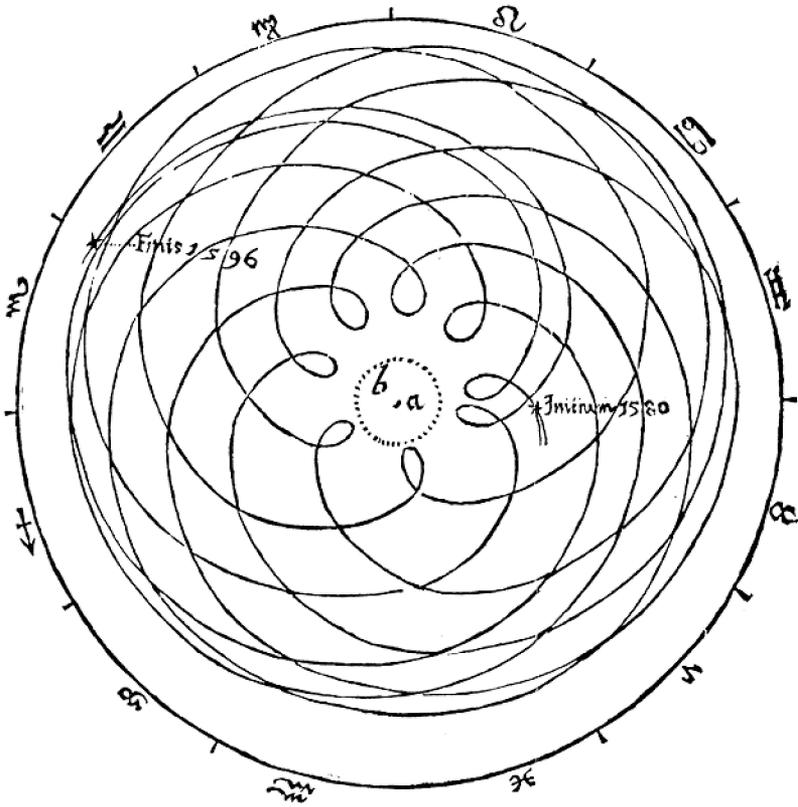


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Cover: Kepler's plot of the geocentric motion of Mars from 1580 to 1596, as it was printed in the 1609 edition of his *Astronomia Nova*.

THE BIBLICAL ASTRONOMER

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EDITORIAL

This issue follows on the heels of the previous issue and gets the *Biblical Astronomer* back on schedule, more or less. We welcome new readers who joined us for a trial subscription during the North American Christian Convention in Louisville this summer.

The New World Order

In this issue we present an article which was started more than twenty-five years ago. Entitled “Entropy and the New World Order,” the article examines current efforts to institute a rigorous new order on the world through the United Nations. Components of this NWO include the military, police, education, and economics. The article shows that the rigorousness and inflexibility of the NWO is so great, that it will fracture under its own rigor. Unfortunately, not without great destruction to the world. In effect the article shows under what conditions such destruction is unavoidable, and under what conditions destruction of the system is avoidable.

The inconstancy of the speed of light

The next article examines physical evidence for the speed of light changing over time. Some evidence exists to suggest that the speed of light wasn't always 186,000 miles per second in the past. At times it was very much greater. As a result, the stars would seem thousands of times older than they are, and radiometric dates are rendered meaningless. We also look at the effects and history of the inflationary model of the universe.

At the end of the article, we have a special report on the recent and much publicized report that scientists have teased light into moving 310 times its normal speed. We note that this is an example of phase velocity, which is a precursor to the light wave and has long been known to travel faster than light, but that this is the first instance in which the phase velocity has been tricked into communicating information.

ICR's position on geocentricity

The next article examines an email sent by Dr. Henry Morris, Director Emeritus of the Institute for Creation Research. We discover that officially there is no position but that unofficially, that is, in practice, the official position is antigeocentric.

Marshall Hall retracts eclipse claim

In the last issue, we presented an analysis showing that the shadow of the moon during an eclipse of the sun will move west-to-east regardless of whether one assumes a geocentric or heliocentric universe. After considering the eclipse from the perspective that the moon starts on the same side of the sun in both models, Marshall Hall concludes that indeed the shadow goes in the same direction in both cases.

Marshall wrote us a letter and asked us to "print the enclosed acknowledgement in the next BA *as is*." I have done so in respect to his courage to admit the error. But that presents a problem. Marshall is big on conspiracy theories, and in my opinion, sees more conspiracy than there is. Heaven knows that there are conspiracies, but as a pre-millennialist and dispensationalist, I know that I became those from reading the Holy Bible from cover-to-cover, not from anything anyone taught me, nor from reading commentaries or end-time books. How do I know? Because I read the Bible before them.

Because of such rabid accusations against what is clearly a Bible-based doctrine, I've since studied it in detail. I have never found a scripture which changed my perspective. God does change the times and the seasons, after all (Daniel 2:21). I've also found that those who claim to have researched the matter and concluded these views to be recent ideas, are liars. I've traced them back to the first and second centuries. The fundamental premise appears to be the Roman Catholic claim that God is finished with the Jews (a dispensational point of view if ever there was one). This view passed into Protestantism and feeds anti-Semitic themes in both Catholicism (Hitler, Goering, etc.) and Protestant (Kittel: father and son, Luther, etc.) circles. But no one can answer Romans 11, Esther, Job, Genesis 37, Lot, and David's restoration as king of Israel.

Marshall claims that geocentricity, the big bang, millennialism, dispensationalism, and even $E=mc^2$ are Zionist conspiracies, based on the *Kabbala*. Actually, the big bang is equally akin to the Hindu model. Both the *Kabbala* and the Hindus have the universe reincarnate. The former says we are now in the seventh and last incarnation. This time, they think, God will get it right.

Marshall draws from a paper by Gerald Schroeder. The interested reader will find the paper at the web URL:

http://aish.com/issues/sciencenature/Age_of_the_Universe.asp.

(Continued on page 36.)

ENTROPY AND THE NEW WORLD ORDER

Gerardus D. Bouw, Ph.D.

This paper was drafted back in 1975. For years, I've been hoping to finish it, but the Lord has kept me from it. Perhaps this warning is not meant for the eyes of the world. Nevertheless, I have permission to print what I have here. It may seem disjointed but that is because it's made up of loose notes and two overlapping papers.

Essentially this paper is the third in a series on entropy. The first installment appeared under the title "The Waves of Sin"¹ and the second was entitled "Entropy and the Human Situation."² These examined the effects of a rise in entropy produced by the great increase in sin over the last decades. Accompanying the increase in sin, the world has witnessed a shift towards a one-world government, called "the New World Order" by the Georges Bush. The New World Order is nothing more than an occult, pagan totalitarian system designed to usurp absolute control over all the world's resources, including its peoples. This paper attempts to show that such absolute control cannot be maintained and must result in the destruction of a third of the world. The reader is reminded that the term *world* means **the order of man in the earth**. In particular, *world* does not mean the earth's ecosystem.

The myth of overpopulation

Throughout history, most people lived under the notion that they did not believe in myths. In the 1970s, for example, psychologists lamented that modern society lacks myths. Unwittingly, these people had swallowed every myth we have. One of the most pervasive and tragic myths of the twentieth century is the myth of overpopulation.

Consider the analysis. Suppose that an average person, i , requires f_i amount of food in a unit of time, t , (such as per day). The same person requires m_i in materials in the same time, mostly for shelter. Now suppose that the total amount of food produced in time t is F and that the total amount of material produced in that time is M . Then the maximum population which can be supported in time t , N_T , is:

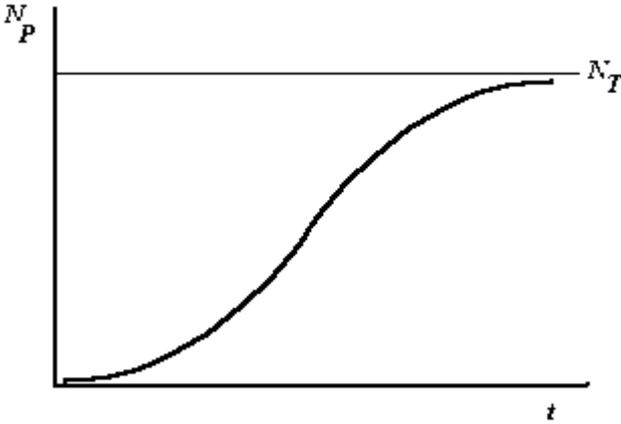
$$N_T = \min\{F/f_i, M/m_i\}.$$

¹ Bouw, G.D., 1998. "The Waves of Sin," *Biblical Astronomer*, 8(85):28.

² Bouw, G.D., 1999. "Entropy and the Human Situation," *Biblical Astronomer*, 9(89):16.

In any case, the population cannot exceed N_T . If the food supply is radically increased relative to the material supply, then some may succumb to the elements, depending on the climate of the affected area. If material goods increase suddenly over the food supply, no decrease in population is expected. A decrease in material production may or may not effect the population, depending on climate. A decrease in total food supply may reduce the population.

In general, the number of people alive at any given time, N_P , will



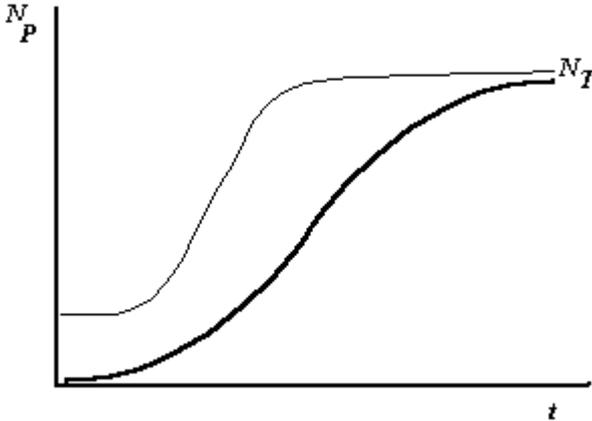
fall in the range

$$0 \leq N_P \leq N_T.$$

Thus the population growth curve in time will level off asymptotically to N_T , as shown in the first figure. Such a curve is sometimes called a *Salk Curve*.

Herein can be seen the myth of overpopulation. For centuries mankind's population increased while keeping pace with the increase in food production, shelter being less of a limit to population numbers. (That is, the raw materials outpaced population growth.) As the population increased (at the bottom left of the figure), it eventually reached the level where the "mean free path" between new inventions and the implementation of these new inventions (technology) was less than the average life span. These new inventions increased both the food and the material production rates. Indeed, the food production rate has kept ahead of the population rate. For example, between 1964 and 1974 the population increased by about 23% while the world's food

supply increased by 32%.³ In the figure above, that means that not only is the population going up what looks like an exponential slope, but the ceiling, the line marked N_T is also going up at a faster rate than is the population line. In other words, the true situation looks not as in the figure above, but as in the figure below.



So far, the material resources have not figured greatly into the population limits. We mentioned that shelter is a limiting factor, and that is especially true in cold climates; but is there an effect which man has overlooked? It could be that for the first time in history the limiting ceiling, N_T , is shifting from food dominance to material dominance.

The Holy Bible suggests such an effect at times, particularly in Deuteronomy 8:11-14.⁴ Given this, it is not surprising that we now encounter shifting social values in those nations that channel the most power and control and which have the greatest material wealth. There is a law of economics, similar to the law of gravity, in which large aggregates amass more than small aggregates (Mat. 13:12⁵). We say that it takes money to make money. This process is characteristic of all examples of "local entropy reversal," of which planetary and stellar bodies, financial and informational wealth, intelligence and life are just

³ *Time*, 11 November, 1974, pg. 75.

⁴ Deuteronomy 8:11 Beware that thou forget not the LORD thy God, in not keeping his commandments, and his judgments, and his statutes, which I command thee this day:

¹² Lest *when* thou hast eaten and art full, and hast built goodly houses, and dwelt *therein*;

¹³ And *when* thy herds and thy flocks multiply, and thy silver and thy gold is multiplied, and all that thou hast is multiplied;

¹⁴ Then thine heart be lifted up, and thou forget the LORD thy God, which brought thee forth out of the land of Egypt, from the house of bondage.

⁵ Matthew 13:12 For whosoever hath, to him shall be given, and he shall have more abundance: but whosoever hath not, from him shall be taken away even that he hath.

a few. Since such amassment centers are local, there is a point beyond which growth goes unchecked and the aggregation becomes unstable. For example, unchecked growth in life is called "Cancer." In terms of entropy, this state is called "Degeneracy."

How can we be certain that the Salk curve describes population growth? First, it's observed in laboratory experiments on overcrowding. The Germans and Russians have seen it work in their concentration camps and gulags. Second, there is reason. A woman doesn't give birth to a full-grown man. It takes twenty years or so to make an adult. That's twenty years to adjust to the increased consumption. So there is no reason to butcher babies in the name of "family planning." The more people there are in earth, the higher N_T rises, and the more inventions, simplifications, technologies, and the more degrees of freedom are possible.

Entropy and economics

In statistical thermodynamics, a complete specification of the state of a system, at a particular time, calls for a statement of the position and velocity of each of its component particles. In other words, one needs to specify the position of and the rate of flow for each particle in the system. The particles can be molecules, dollars, automobiles, daily requirements of food and shelter, or what-have-you.

For example, suppose one had $\$_i$ amount of money in the i^{th} account, then the rate of change or rate of flow per unit time is given by the differential $d\$_i/dt$ which, for notational brevity we shall write by $\$'_i$. If we suppose that we have n accounts, we now have a $2n$ -dimensional phase space with elements

$$\$_1, \$_2, \dots, \$_n, \$'_1, \$'_2, \dots, \$'_n.$$

The differentials $\$'_i$ are small compared with the dimensions of the system and the range of flow rates of the particles, but large enough so that each cell contains a large number of representative points. The volume of the cell, H , is the product:

$$H = \$_1 \cdot \$_2 \dots \cdot \$_n \cdot \$'_1 \cdot \$'_2 \dots \cdot \$'_n$$

Each particle in the system has its representative point in phase space and for brevity we speak of these as phase points. Imagine the cells to be numbered 1, 2, 3, ..., i , ..., n and let $N_1, N_2, \dots, N_i, \dots, N_n$ stand for the number of phase points in the corresponding cells. The number of phase points per unit volume, or the density in phase space, ρ , is then:

$$\rho = N_i/H$$

where the subscript i is the number of some arbitrary cell. The density ρ will be some function of the $2n$ -coordinates of the i^{th} cell and we wish to determine this function.

Microstates and macrostates

A complete specification of the $2n$ -coordinates of each particle of a system, within the limits of the dimension of the cell in which the particle lies, is said to define a "microstate" of the system. Such specifies where each particle is and how fast and in which direction it is moving. This detailed description is usually unachievable, and it is also not necessary to determine the observable properties of the system. For example, in our money case above, for most practical purposes it usually doesn't matter which dollar bill (i.e., its serial number) finds itself in any particular cell. The observable properties depend only on how many phase points lie in each cell of phase space. A specification of the number of phase points in each cell of phase space, that is, knowledge of the number N_i , is said to define a "macrostate" of the system.

Now usually all macrostates are equally probable, that is, over a long period any one microstate occurs as often as any other. At first, this may not seem reasonable. For example, if one flips a coin 10 times, how likely is it that the macrostate, ten heads, occurs? This is a rare occurrence, but any other specific combination of heads and tails is equally unlikely. Take another example. The state of Ohio uses the lottery to siphon money from the state's poorest people. In order to win you need to guess six numbers out of roughly 45. Now I've asked my students "Would you pick the numbers 1, 2, 3, 4, 5, 6?" The answer is always a resounding "No!" I then say, "Well, then you shouldn't play the lottery, because any other combination of six numbers you select has just as much chance of winning as that one." That is, all microstates are equally possible.

"But," someone objects, "somebody wins the lottery!" True, there's about a 50% chance each week that someone will win, but that's the difference between specifying the macrostate versus the microstate. That someone will win is a statement about the macrostate. It doesn't specify which are the winning numbers. Specifying the winning numbers is to specify the microstate.

It is easily seen that many different microstates correspond to the same macrostate. Any shift of the phase points in phase space that does

not change the number of points in each volume element leaves unaltered the macrostate of the system and its observable properties. As time goes on, and the microstates of the system continually change (if they do), the macrostate that occurs most frequently will be that for which there are the largest number of microstates. Hence the population growth, why inflation occurs in a dynamic economy, etc. If, as turns out to be the case, there is one particular macrostate for which there are more microstates than any other, that macrostate will practically be the only one that is observed. Other macrostates will be observed occasionally, and these rare occurrences are responsible for, among other things, the scattering of blue light in the earth's atmosphere, i.e., why the sky is blue.

Thermodynamic probability

We now set ourselves to the problem of determining how many microstates correspond to a given macrostate, and if there is any particular macrostate for which this number is a maximum. The number of microstates corresponding to any given macrostate is called the "Thermodynamic probability" of the macrostate and is represented by W . In general, W is a very large number.

Let us take a simple example. Suppose there are just two cells in phase space, namely 1 and 2; and that there are four phase points, a, b, c, and d. Let N_1 and N_2 represent the number of phase points in their respective cell. The possible macrostates are:

N_1	4	3	2	1	0
N_2	0	1	2	3	4

and we see that there are five macrostates all together. To each of these macrostates there corresponds a different number of microstates. The microstates corresponding to the macrostate $N_1 = 3$ and $N_2 = 1$, is:

cell 1	bcd	cda	dab	abc
cell 2	a	b	c	d

We see that there are four microstates for this particular macrostate, so that $W = 4$.

Changing the order of the phase points (a, b, c, d) within a particular cell is not considered a change in microstate, just like it doesn't matter in which order one hands over bills of a particular denomination to a bank teller.

The number of macrostates corresponding to a given macrostate can be computed by noting that the number of different ways in which N things can be arranged is $N!$. There are N choices for the first, $(N-1)$ for the second, $(N-2)$ for the third, and so on down to 1 for the last. Now the number of permutations of our four letters a, b, c, and d, is $4!$ which is 24. This does not give the number of microstates in the above example, however, because it includes all the possible permutations of the three points in cell 1, of which there are $3! = 6$. We must divide the total number of permutations, 24, by those that only permute the points within cell 1, which gives $24/6 = 4$, in agreement with the result obtained by counting.

In the general case of N phase points, and where permutations within more than one cell are possible, the number of microstates corresponding to a given macrostate is:

$$W = N! / \prod N_i!$$

where Π represents the product of all factorials from $i=1 \dots n$.

Now, for the above example, the five macrostates can, by use of this formula, be seen to have probability values of:

$N1$	4	3	2	1	0
$N2$	0	1	2	3	4
W	1	4	6	4	1

There are, all together, sixteen possible microstates corresponding to the five macrostates. If the phase points a, b, c, and d are continuously shifting around so that one microstate after the other turns up, and all microstates turn up with equal frequency, the first and fifth macrostates will each be observed $1/16^{\text{th}}$ of the time, the second and fourth each $1/4^{\text{th}}$ of the time, and the third $3/8^{\text{th}}$ of the time.

We now return to the problem of evaluating W for a system, where the number N and all the N_i s as well are large. The factorial of a large number can be found with sufficient precision from Stirling's approximation:

$$\ln(x!) = x \ln x - x + 1.$$

Thus the equation for W above becomes:

$$\begin{aligned} \ln W &= \ln(N!) - \sum \ln(N_i!) \\ &= N \ln N - N - \sum N_i \ln N_i + \sum N_i \end{aligned}$$

$$= N \ln N - \sum N_i \ln N_i$$

since $\sum N_i = N$.

Entropy

In the equilibrium state of the system, both the entropy and the thermodynamic probability have their maximum values, which leads us to suspect some correlation between them. The relationship happens to be logarithmic instead of linear, so that the entropy S is given by:

$$S = k \ln W$$

where k is the constant of proportionality or a scaling factor, called Boltzmann's constant—the smallest unit or quantum of entropy.

We can interpret the increase of entropy in a system as the trend of a system to go from a less probable state to a more probable state. It is helpful to think of the concept of thermodynamic probability in terms of disorder. The greater the disorder, the greater the thermodynamic probability and the greater the entropy. The greatest degree of order in phase space results if all are in a single cell, that is, if all are in a very small volume of phase space.

We can rewrite the above equation in statistical terms as:

$$S/k = \ln W = N \ln N - \sum (N_i \ln N_i).$$

Entropy and the New World Order

In order to have a stable system, S , the entropy, must be a maximum, the flow of S , $dS/dt = 0$. We may also need d^2S/dt^2 , the rate of change in the flow.

From the above formula, we can derive these rates of change. We notationally replace the population of a cell, N_i by the cell's statistical weight, $p_i = N_i/N$, and assuming no change in N the number of states. For simplicity, we will bring Boltzmann's constant, k , to the left.

$$k^{-1} dS/dt = -\sum [(\ln p_i + 1) dp_i/dt] \quad (1)$$

and

$$k^{-1} d^2S/dt^2 = -\sum (\ln p_i + 1) d^2 p_i/dt^2 - \sum (1/p_i) (dp_i/dt)^2.$$

The entropy S has an absolute maximum if the p_i s are all equal. In economic terms, this means that each man has equal resources. This

is, of course, not the goal of the New World Order (NWO). Their goal is to minimize the p_i s but to have a selected few have control over all the resources. In other words, the ultimate goal is to concentrate the economic power in the hands of a few and to enslave the masses. This means that most of the cells (i.e., people) will have their probabilities go to zero, that is, they'll die: they'll be killed either by violence or by starvation. Effectively this reduces the total number of states, N but leaves the form of the equations unchanged.

Consider the expression:

$$S/k = - \sum (p_i \ln p_i). \quad (2)$$

If all the probabilities (outcomes) but one are forcibly disallowed, then there is only one term and that term's $p = 1$. That makes $S/k = 0$, which is a perfectly ordered, state, full of absolute truth and nothing hidden (*occulted*). This is a state only God can achieve.

The other extreme is where all the probabilities, p_i , are the same, namely, $1/N$. In that case the above expression becomes:

$$\begin{aligned} S/k &= - (1/N) \sum \ln (1/N) \\ &= \ln N. \end{aligned}$$

This is the maximum entropy in the system.

Now consider equation (1) above. It expresses the rate of change in entropy in time. Rearranging terms and dropping time gives:

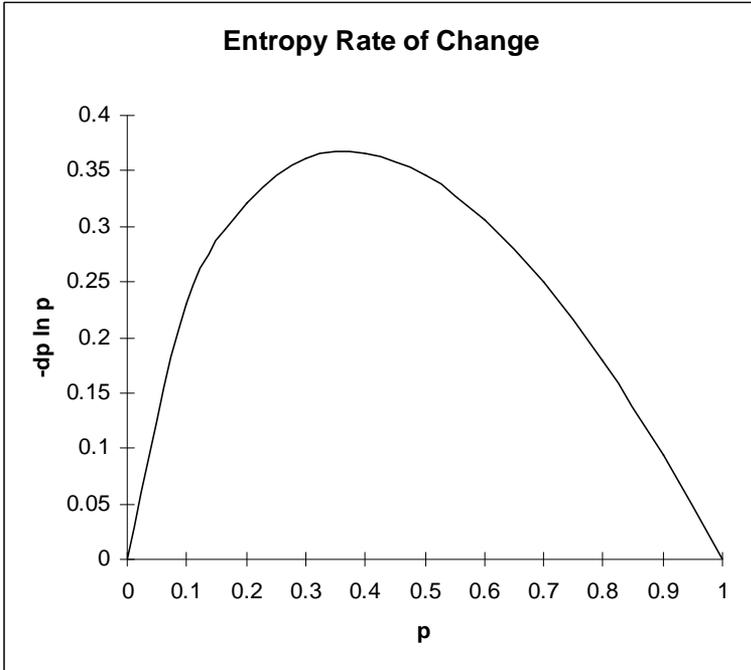
$$k^{-1}dS = - \sum [(\ln p_i + 1)dp_i]$$

or

$$dS/k = - \sum dp_i \ln p_i - \sum dp_i.$$

Now suppose that by some "glorious jihad" or "the peoples' struggle for liberation" the average rate of change per cell approached the cell's value. That is, $dp_i \approx p_i$. This is the case where war breaks out and wealth and power are transferred from a great many people. The rightmost term will then sum close to 1 and the first term can be rewritten in the form of equation (2). (I assume this because the Bible principle that if a man has little, he'll receive little while those with much will receive much.)

The result appears in the figure below. This figure is equivalent to the entropy distribution for a single cell, as in "one world order."



Notice that the maximum occurs at $p \approx 0.37$. At that point the $\ln(p) = -1$ and the value of dp is also ≈ 0.37 . This says that the maximum entropy for such a rigorous system occurs at this value. Now the number of states can only be an integer (quantum), so the smallest number of cells to which one can assign a probability close to 0.37 is three. Each cell then receives a value $p_i = 1/3$.

Conclusion

What does this mean? It means that in a rigorous, oppressive system, in which degrees of freedom are severely limited, the system – the one world order society in this case – will collapse under its own weight destroying a third of the world with it. It's similar to developing an extremely rigid alloy, one that absolutely cannot bend. If one hits it with a feather, it will shatter. The above analysis suggests that most likely a third of that bar will crumble to shivers.

Although the United Nations believes that a one-world order can be made a reality, it looks like the actual result will be quite different. The Holy Bible nine times mentions that a third part of something will be destroyed. These are in Revelation chapters 8, 9, and 12. Three more times such destruction is mentioned in the Old Testament

(Ezekiel 5:2, 12; and Zechariah 13:9). True, the Lord initiates these acts; but it seems that the potential is built into the very fabric of creation. Just as entropy says that salvation by works is impossible, so entropy also says that a rigorous totalitarian system won't last long.

The question will arise in the mind of some that during the millennium Jesus will rule with a rod of iron. Isn't that the same situation?

No, not really. Observe that the state of minimum entropy (that is, absolute order) is metastable. This means that it is stable as long as nothing "jolts" the system. The rule by the "rod of iron" of the antichrist is one that restricts freedom and liberty. It is a rod of iron built for death. The rod of iron by which the Lord Jesus Christ shall rule is one of liberty. It is the opposite, a rod of iron built for life. One can see even today that governments are becoming the enemies of freedom: particularly they are enemies of the Truth (the Lord Jesus), the Way (the Lord Jesus), and even the Life (again the Lord Jesus as per John 14:6). They do this by enforced abortions, propaganda and control of the publishing media, and passing "tolerance" laws or "hate" laws which ban the truth that Jesus is the only mediator between man and God (1 Timothy 2:5).

During the rule with the rod of iron by the Lord Jesus, the lion shall lie down with the fatling and eat straw (Isaiah 11:6-9; 65:25).⁶ Christ set the captives free and gave us liberty (2 Corinthians 3:17). His rod is directed against those who would sin and do evil; against those who would hurt and betray the innocent. This is a far cry from the new world order, and one-world, and one religion demons. Even so, come Lord Jesus.

⁶ **Isaiah 11:6-9** – The wolf also shall dwell with the lamb, and the leopard shall lie down with the kid; and the calf and the young lion and the fatling together; and a little child shall lead them.

⁷ And the cow and the bear shall feed; their young ones shall lie down together: and the lion shall eat straw like the ox.

⁸ And the sucking child shall play on the hole of the asp, and the weaned child shall put his hand on the cockatrice' den.

⁹ They shall not hurt nor destroy in all my holy mountain: for the earth shall be full of the knowledge of the LORD, as the waters cover the sea.

Isaiah 65:25 – The wolf and the lamb shall feed together, and the lion shall eat straw like the bullock: and dust *shall be* the serpent's meat. They shall not hurt nor destroy in all my holy mountain, saith the LORD.

HAS THE SPEED OF LIGHT ALWAYS BEEN THE SAME?

Gerardus D. Bouw, Ph.D.

Introduction

Most people take it for granted that the speed of light has always had the same value, namely, about 186,272 miles per second (299,792 kilometers per second). About twenty years ago, a creationist, Barry Setterfield, reported that God audibly challenged that assumption. With that, Setterfield set out to examine the consequences of an inconstant speed of light and published a paper in the Australian creationist publication *Ex Nihilo*. Setterfield's proposal was immediately assailed, primarily by American creationists, who (correctly) challenged his use of statistics. Several years later the work was redone and published in the United States with Lambert Dolphin as co-author. During the controversy, the hypothesis received the nickname "cdk," standing for c-decay where "c" is the symbol usually used to denote the speed of light in formulae. Even with the corrected statistics, the creationist community has not warmed to Setterfield's theory. Why is a mystery, for Setterfield's model not only answers the problem of how light could traverse a billions of light-years in diameter universe in less than 6,000 years, but also why stars and radioactive elements appear billions of years old yet are only 6,000 years old.

Coincidentally, in 1982 the secular astronomical community came up with its own version of cdk. That model is called the "inflationary universe." In the inflationary model of creation, the speed of light, and the expansion rate of the early universe, briefly increase by many orders of magnitude.¹ This solves several problems inherent in the standard big bang model of the origin of the universe. Although the creationist community has rallied around the model promoted by Humphries, there are some who, as yours truly, regard the inflationary model as the best model to apply during the creation week.² In this

¹ An order of magnitude is a power of ten. Thus the number 10 is of order one, since it is 10^1 , 100 is of order 2, being 10^2 , etc.

² Bouw, Gerardus D., 1997. "Creation of the universe," *Biblical Astronomer*, 7(79):10. Also see the video *A Creationist Scenario for the Creation*. A copy of the above paper may be found in *The Geocentric Papers*. (See the back cover of this issue for availability of the book and videotape.)

paper, we examine the consequences of a variable speed of light over time, focusing first on the secular model, the big bang theory.

The horizon problem

According to standard cosmology, the universe is fifteen billion years old. In that time, light has been able to travel only 15 billion light years. Therefore, the furthest out we can "see" is 15 billion light years (about 30 quintillion miles) and with each passing second we see about 186,000 miles further out. That most distant light ray just arriving is said to be coming in from the *event horizon*.

That is the wisdom of the world on the matter. However, the universe seems more coordinated than it should be if that wisdom is the case. The universe has a very uniform temperature and density, and its physical laws are hard to explain if the universe exploded from a tiny ball 15 billion years ago.

Consider the temperature and density properties for a moment. According to the big bang theory, a ray of light just arriving from the event horizon, and which has been en route for 15 billion years, was beyond the event horizon 15 billion years ago, too, when the universe was only a fraction of a second old and only a few inches in diameter. Since there was no time to smooth out the temperature and density differences between here and there, we should see those differences, which today would be about a degree. Instead, we find that the temperature differs no more than a few parts in a hundred thousandth of a degree. This is called the "horizon problem."

The flatness problem

Related to the horizon problem is another, the flatness problem. It seems that the mass and energy in the universe has values close to the "critical mass." The critical mass is a feature of the big bang in which the universe expands forever but expands ever more slowly. If the mass is more than the critical mass, gravity will overwhelm it and the universe will fall back in upon itself, back into the "big crunch," or "gnab gib" (big bang spelled backwards). If the mass of the universe is less than the critical mass, the universe will expand forever until the very distance between two adjacent hydrogen atoms becomes infinite. For this to be so, the distribution of mass at the time the universe started expanding must have been miraculously close to today's. In other words, where we now have concentrations of galaxies, as in galaxy clusters, the same concentration must have existed and persisted during the history of the big bang. This is called the "flatness prob-

lem," because it requires the geometry of space to be flat instead of curved.

The lambda problem

When Einstein first derived his theory of gravitation (in General Relativity), he had two components or terms making up gravity. The first and dominant component was the attraction between two bodies, a phenomenon we experience every day as gravity holds us down to earth. The second component, which he represented by the Greek capital letter lambda (Λ), represented a repulsive force which increased directly with distance. He introduced it for the reason that the universe should have collapsed into itself over billions of years, but there is no evidence for that collapse. The term says that two galaxies more than a certain (vast) distance apart will repel each other instead of attracting one another. Einstein's theory is very vague on this term, so that only upper limits on its value can be determined from observation.

According to quantum theory, such a repulsive component should appear naturally as a remnant of the early expansion of the universe. Their derived value, however, is 10^{120} times larger than what astronomical observations allow. This is called the "Lambda problem."

Addressing the horizon and flatness problems

Around 1972, as a graduate student in astronomy at Case Western Reserve University, I heard about a new theory for the origin of the universe. The theory, called the inflationary theory, held that several times during its expansion, the speed of light increased dramatically, allowing the matter in the universe to expand at tremendous speeds. The theory met many objections against the big bang model, but it was regarded an oddity because the universe would have achieved its present size in less than 100,000 years. In that form, it was rejected because, after all, everyone "knows" that 100,000 years is not enough time for evolution to occur. It was not until 1981 that the evolutionary time scale was achieved, and the theory was reintroduced with the required 10 to 20 billion years and only one inflationary event.

Because of its rapid expansion, the inflationary theory allows the universe we see, and the universe yet beyond our "horizon," to have expanded from a much smaller region than in the standard big bang model. In this way, there is more time for radiation to smooth out from place to place and so the inflationary model solves the horizon problem.

Similarly, the expansion during the brief inflationary period drove the universe to a "size" close to the critical mass. To see this, note that the curve of the surface of a balloon is obvious; we have no trouble seeing it. If that balloon were blown up to the size of the earth, its curvature is much less visible; it looks flat. This is how the inflationary model solves the flatness problem.

Although the inflationary model solves these two problems, there are, in turn, two problems with it. First, it does not address the lambda problem, and second, the mechanism for the expansion is uncertain.

The usual explanation for the mechanism for the inflationary expansion is that in the early stages of the big bang, strange forms of matter existed. This matter reversed or overcame the force of gravity causing the universe to rapidly expand for a brief time. The nature of the strange matter is sheer speculation at this point. According to the Bible's view, the material is a form or property of light.

Solving the lambda problem

About a year ago astronomers reported on new observations from distant exploding stars called supernovae. These most distant supernovae appeared about 20% dimmer than expected, implying that the lambda (repulsion) force is increasing the expansion rate (or at least slowing its deceleration) today. Although the observations are inconclusive, (the dimness could be due to intervening dust,) they make the lambda problem worse. The lambda repulsion effect seems to be about the same magnitude as the force of gravity attraction. But lambda and gravity change at different rates, so it seems a curious "coincidence" that we are observing them for that brief time that they are the same value.

A couple of years ago a team of researchers looked into the idea that the speed of light may not always have been constant. Such was first allegedly proposed by John Moffat of the University of Toronto. Two scenarios were examined: first, that the speed of light changed suddenly; and second, that the speed of light changed slowly.

The team found what Setterfield discovered earlier. *If light once moved much faster than it does today, the all three cosmological problems are solved.* Furthermore, all aspects of the lambda problem are solved, too. This, because there is a range of light-slowness rates. You see, the deceleration of the universe's expansion, and the lambda term, are both related to the square of the speed of light, c^2 , that is, to the energy of the universe.

Effects of the firmament

The details of the "new" analysis can be related to the firmament, the superdense medium which pervades all the creation and which was created on the second day, apparently derived from light. The properties of the firmament dictate the gravitational constant, the speed of light, the charge on an electron, Planck's constant, and the unit of entropy called Boltzmann's constant. Recently, theorists in quantum gravity and superstrings (granules making up the firmament) theory have decided that these constants need not be as constant as heretofore believed. If the extra dimensions required by the two theories exist, then changes in the extra dimensions will change the values of the constants.

Are there any observations that support the variation in the speed of light? A major one is the cosmic red shift but, of course, conventional astronomy is totally committed to the expanding universe model so that observation is dismissed out of hand. The observation stems from one of the tests applied by modern cosmologists. By observing the spectra of carbon monoxide (CO) molecules and hydrogen atoms in gas clouds, scientists can effectively examine a feature known as "the fine structure constant," which relates to how electrons can share the same shell ("orbit"). The CO observations show that in the nearest galaxies the fine structure constant is the same as on earth within five parts in a million.

Now, looking at atomic transition frequencies between iron and magnesium in the spectra of thirty quasars, a change *was* found in the fine structure constant. It was found that for the closest and furthest quasars the current fine structure value was as at present, but in between the values fell in a narrow range consistent with a shift in the value of the fine structure constant. The results are inconclusive, not only because of the small sample size, but also because line blending (where two or more spectra lines blend to form what appears to be a single line) can confound the measurements.

Conclusion

In this paper we looked at observations which support the idea that the speed of light might not always have had the same value as it does today. Consequences of different, especially higher values for the speed of light, include a rapid aging of stars and radiometric elements (ones which are used in dating rocks and relics). So a side effect of higher values for the speed of light, especially inflationary or expansion driven models, is that a 6,000-year old universe can be made to look

billions of years old. We observed that there is some physical evidence to indicate that the speed of light may well once have been higher.

Addendum

After this article was written, the journal *Nature* published a letter from researchers claiming to have caused light to propagate at a speed 310 times its usual speed of 186,000 miles per second (300,000 km/sec). The experiment involved light entering a special chamber filled with atomic cesium gas. As the wave started into the gas, the gas transmitted the light wave's signal through itself and caused a ray of light to come out the other end. The ray which came out was not the same ray which came in, however. It was a totally different ray.

Although that had been done before, what made this experiment different was that the ray that came out was the same form as what went in. Previously, an unrelated or scrambled signal came out.

There is not any new physics involved here. For decades, physicists have known that something called the phase-velocity can travel faster than the speed of light. The phase velocity can be viewed as a special wave, which sets up the medium to receive and pass on the light wave (photon). It is generally assumed that the phase wave cannot communicate any information. What is new in this experiment is that the phase velocity **did** carry information through the gas at superluminal (faster than the speed of light) speed.

The announcement carried by Associated Press elaborated on the article that appeared in *Nature*.³

"This effect cannot be used to send information back in time," said Lijun Wang, a researcher with the private NEC Institute, "However, our experiment does show that the generally held misconception that 'nothing can travel faster than the speed of light' is wrong.

"The laser pulse in the NEC experiment exits the chamber with almost exactly the same shape, but with less intensity," [due to Doppler broadening –*Ed.*] Wang said, "The pulse may look like a straight beam but actually behaves like waves of light particles. The light can leave the chamber before it has finished entering because the cesium atoms trade energy with the leading edge of the waves as they pass through. This produces an almost identical light pulse that exits the chamber and travels about 60 feet before the main part of the laser pulse finishes entering the chamber."

³ Wang, L.J., A. Kuzmich & A. Dogariu, 2000. "Gain-assisted superluminal light propagation," *Nature*, **406**:277-279, 20 July, "Letters to Nature."

Wang said the effect is possible only because light has no mass; the same thing cannot be done with physical objects. ...

According to the special theory of relativity, the speed of particles of light in a vacuum, such as outer space, is the only absolute measurement in the universe. The speed of everything else—rockets or inchworms—is relative to the observer, Einstein and others explained. ...

The Princeton experiment and others change these circumstances by using devices such as the cesium chamber rather than a vacuum. ...

Aephraim Steinberg, a physicist at the University of Toronto, said the light particles coming out of the cesium chamber may not have been the same ones that entered, so he questions whether the speed of light was broken. Still, the work is important, he said: "The interesting thing is how did they manage to produce light that looks exactly like something that didn't get there yet?"

Quote

T'was mercy brought me from my pagan land,
 Taught my benighted soul to understand,
 That there's a God, that there's a saviour, too,
 Once I redemption neither sought nor knew.

Some view our sable race with scornful eye,
 Their color is a diabolical dye.
 Remember, Christians, Negroes black as Cain,
 May be refined and join the angelic train.

– Phyllis Wheatley⁴

⁴ Phyllis Wheatley was an African woman, captured in Africa, brought to the United States, sold into slavery, and became America's first poetess. For decades her poems were reprinted, until the modern racist slavery mythology started becoming popular.

ICR's OFFICIAL UNOFFICIAL POSITION ON GEOCENTRICITY

A year or two ago, creationism's most visible organization, the Institute for Creation Research, published in its monthly publication, *Impact*, an article by Dr. Gerald Aardsma critical of geocentricity. I, like many others, thought it was an official position paper since no criticisms or rebuttals had been requested from the geocentric community. However, it now appears that ICR's official position is that they have no official position.

The following is an email sent in reply to one from Bert Savage, asking about the Aardsma paper.

We have your email note to the effect that you are assuming that Dr. Aardsma's *Impact* article on Geocentricity represents ICR's position. However, please understand we do not have an official position on this subject. We felt that Dr. Aardsma's article was worth publishing but that is all. We do not consider the issue as one that is essential to Biblical creationism, which is the essence of our ministry.

Furthermore, in my own personal judgment, I don't think one can say officially what his belief is on geocentricity since the Bible does not take such a position. The earth indeed is the center of God's interest in the universe because here is where Christ died and rose again and where He will reign forever when the earth is made new at His second coming. However, so far as we can judge the universe is boundless and it is not even possible to define the center of infinite space.

Therefore, we have to always use the concept of relative motion when we talk about motions of the heavenly bodies. It is reasonable and universally practiced by surveyors, navigators and others to assume that the earth is fixed and the sun, moon and stars are moving with respect to it. But, that does not mean that the earth is not also moving, nor the sun or the galaxy for that matter. I don't think it is necessary at all to take an official position on this subject and therefore we don't. I trust you understand.

Yours in Christ,

Henry M. Morris
President Emeritus

In other words, when the Bible says that the sun rises, one need not take it literally. Drs. Aardsma and Morris know this because science says so, and science is more reliable than the Bible when it comes to how the heavens go. So let's examine this official lack of stance.

Dr. Morris's first argument is that: "We do not consider the issue as one that is essential to Biblical creationism, which is the essence of our ministry." Several in the atheistic community disagree with that statement. It is reported that both Karl Marx and Darwin admitted that without the Copernican Revolution, their subterfuge would never have seen the light of day. The Copernican Revolution was when Copernicus, Kepler, and Galileo "discredited" the Bible by discrediting geocentrism and replacing it with heliocentrism. This they did without a single shred of evidence in the heliocentrists' favor. Indeed, the lack of parallax actually *avored* the geocentric model! Since Marx, Darwin, and historians of science agree that without heliocentrism there would be no evolution, we conclude that Dr. Morris is "talking through his hat" when he says that geocentricity is not an essential issue to creationism. Wishful thinking is all it is.

Next, Dr. Morris argues that the "Bible does not take such a [geocentric] position." True, the Bible nowhere says "geocentricity is an official doctrine," but neither does it say "iron is solid." Yet the immobility of the earth is assumed throughout the Bible every bit as much as the solidity of iron. Let's consider the consequences of Dr. Morris's claim.

The ministry of Biblical creationism hinges on whether or not the days of the first chapter of Genesis are literal, 24-hour days. Drs. Morris and Aardsma say, and correctly so, that these are literal days. They defend their stance biblically by invoking the rules of Hebrew grammar and sense. Their "Christian" critics, evolutionists such as Hugh Ross, invoke the Bible, too, to defend their stance. Many invoke arguments such as when in Genesis 1:2, the Bible says "And the earth *was* without form and void," that under certain conditions the Hebrew could be translated as "And the earth *became* formless and void."¹ Some Seventh Day Adventists even go so far as to claim that Isaiah 24 describes the "war" which made the earth formless and void in Genesis 1:2.² Others invoke Psalm 90:4 and 2 Peter 3:8 to claim that if a day can be a thousand years, then it could just as well mean two billion

¹ In the past, when I've asked them for examples of where this happens in the Bible, they always use this passage, Gen. 1:2, as the prime example for the "become" case; thus invoking a circular definition.

² David J. Smith, *Newswatch Magazine* broadcast on WWCRCR short-wave 8/17/1998.

years, or any amount of time one wants. (A similar argument is used by some creationists against taking the thousand years of Revelation 20:2 literally.) So isn't claiming that the Bible means it when it says that God created all that is in six days and then turning around to claim that the Bible doesn't mean it when it says that the sun rises and sets, isn't that self-contradicting?

We can take a more subtle slant on this. Consider Malachi 4:2 which says: "But unto you that fear my name shall the Sun of righteousness arise with healing in his wings." How can a Christian claim that the Bible means "arise" when it refers to the arising of the "Sun" here (the resurrection of the Lord Jesus Christ, and his return), but doesn't mean it when "arise" refers to the sun? Most people in the world hold that the Bible doesn't mean it in both cases. A sheer minority hold that the Bible means it in both cases. Dr. Morris straddles the fence, siding with most Christians who've never given it a second thought.

Dr. Morris gives the impression that geocentricity is confined only to the position of the earth in the universe. This is not at all the case. Indeed, the Bible requires only that the earth be at the center of rest, the dynamic center of the universe. For all we know the sun could well be at the geometric center. Indeed, this is suggested by the words "midst" in Joshua 10:13, for example. The essential issue is that of the motions of the earth, or lack thereof. The Bible denies the rotation of the earth and it denies its revolution about the sun. Of earth's position, the Bible says nothing. So to concede that the earth is at the center of God's interest because of the work of Christ is to concede nothing. The key doctrine is the lack of motion of the earth.

Is the universe infinite? Dr. Morris seems to think so. He writes: "However, so far as we can judge the universe is boundless and it is not even possible to define the center of infinite space." Actually, according to the Bible, the universe, that is the firmament, is finite. It has an edge and there is water beyond its edge (Genesis 1:7). That makes it finite. Now the third heaven, that's open to question, but we cannot see the third heaven. Apparently Dr. Morris thinks that the third heaven is identical to the starry heaven, commonly called the universe.

"I don't think it is necessary at all to take an official position on this subject and therefore we don't," writes Dr. Morris. That would be fine if it ended right there. Unfortunately for Dr. Morris, claiming no official position and practicing no official position are two different things. About ten years ago Dr. Don de Young wrote an antigeocentric article in the Australian publication, *Ex Nihilo*. He made several accusations and gave the usual antigeocentric arguments. I wrote a

letter to the editor and, after a bit of run-around, I wasn't even given the courtesy of a rebuttal in the form of a letter to the editor.

Now I can understand, then as now, that my rebuttal would have made a fool of de Young. He claimed that the fact that astronauts on the moon saw the earth rotating proved that the earth rotates. That's like riding a horse on a merry go round, rotating about the central engine, and claiming that because you can see all sides of the engine, that it proves that the engine rotates and that the horse stands still. Granted, *Ex Nihilo* is not ICR, but their argument was Dr. Morris's.

I have in my possession a copy of a letter from the late Dr. George Mulfinger. The letter was written in the late 1970s, urging the board of the Creation Research Society and its editor, the late Harold Armstrong, to ban geocentric papers, no matter how indirect. There has never been an overtly geocentric paper published by the *Creation Research Society Quarterly*, but a few comments were made that certain problems in astronomy would disappear if the geocentric model were assumed. Editor Armstrong ignored George Mulfinger's recommendation, and he got into trouble because of it, and Dr. Morris was on the CRS editorial board at the time.

And here we have a final case. ICR decided to print the antigocentric article by Dr. Aardsma. If ICR was not going to take an official position on geocentricity, it should print no articles pro or con; just as it prints no articles pro or con about the Roman Catholic church. ICR did not say that Dr. Aardsma's paper was not an official stance; they did not say they would like to cover both sides. I know that ICR received rebuttals against the Aardsma article, but they neither mentioned nor printed any of them. So in the final analysis, Dr. Morris's claim that ICR takes on stance on geocentricity falls short of the truth. Based on what they do, and not what they say, their stance is "We'll take an antigocentric stance, and since we don't want to deal with the hard facts, if any one calls us on it we'll say we take no stance. Typical of most scientific creationists, who are scientists first and biblicists later.

Yes, you can trust us, we understand.

ECLIPSE SHADOW ERROR¹

Marshall Hall

My premise in the matter of geocentricity vs. heliocentricity is that both models cannot be true. One model is true and one is an astonishingly good counterfeit. Counterfeits have flaws. Discovery of a flaw in one of these models will expose the counterfeit and certify the true model. End of contest.

Though all aspects of cosmological mechanics are fair game in a search for one or more flaws, the wealth of verifiable data about the interactions of the earth, moon, and sun, appealed to me as the place for an amateur to prayerfully begin. Accordingly, I became quite excited when a seemingly manageable fact out of a sea of information presented itself. The fact was that both solar and lunar eclipses not only had been predicted with remarkable accuracy even in ancient times (long before Copernicus or even Aristarchus) but, even more pertinent, the basis for those accurate calculations has continued to be a fixed earth right up to the present.

Why, I wondered, would modern cosmological science still use a fixed earth to derive eclipse calculations which will permit no error?? Is it because it is easier to base the calculations on a stationary earth, but that the same results could be and possibly have been derived using the heliocentric model?? Or—mindful of the incredible bluffs used by evolutionists—could this seemingly unimportant little encyclopedia footnote (stating that eclipse calculations are based on a fixed earth) be the key to uncovering a flaw that would torpedo Copernicanism amidst and dramatically restore Bible credibility overnight?! Excitedly, I jumped on my virtual horse and rode off in all four directions at once!

The geocentric moon—going clockwise east to west around a stationary earth with the sun catching up and passing behind it—cannot produce the same ecliptic results as the heliocentric moon, I reasoned. The moon in that model must go counterclockwise west to east around a west-to-east counterclockwise rotating earth which itself is orbiting the allegedly stationary sun counterclockwise. Something in these antithetical motions would reveal a flaw that could not be reconciled with one of the models and that model would be instantly and forever kaput.

¹ The reader is hereby placed on notice that the editor does not agree some of the opinions expressed in this paper. At the request of Marshall Hall, the entire paper is presented, warts and all. For specifics, see the Editorial in this issue.

In my file there was a newspaper clipping with a regional map showing what the ecliptic shadow's direction be the next day (5/31/84) during a solar eclipse. The predictions were precise down to the minute: near New Orleans, 12:02 PM; Selma, AL, 12:15 PM; Atlanta, 12:23 PM; Chesapeake Bay, 12:46 PM... . Living nearby, I viewed the eclipse and confirmed the accuracy of the previous day's report. Something big seemed to be adding up. But, the next year my wife died and other concerns prevented work on this for about five years.

Returning to the whole geocentricity subject, I began to put about twelve years of notes together in book form. When I got to the eclipse phenomena, it seemed to me that the shadow from a solar eclipse would have to go in opposite directions as a result of the moon going in opposite directions in the two models. I presented that idea as forcefully as I could for seven and a half pages in a 328-page book.

Alas, I was wrong. As Dr. Bouw points out in the Spring 2000 *Biblical Astronomer*,² the shadow goes the same way in both models. I thought he handled the correction in a mild, Christian way, and I appreciate that. After reading Dr. Bouw's explanation, I was able to confirm his conclusion by another approach which I should have used, but didn't. Since the occultation begins in the same position on the moon's disc in both models—instead of on opposite sides as I wrongly surmised—it appears that the shadow's direction would be the same in either case.

Nevertheless, the original premise still stands. Both models can't be true; one is a counterfeit; counterfeits have one or more flaws. While apparently no such flaw is to be found in the heliocentric model relating to the direction of the shadow during a solar eclipse, as I had proposed, it is also true that no flaw was found in the geocentric model, a comforting plus, I believe, and a good point to make to those considering the geocentric model and the Scriptures behind it for the first time. Indeed, the evidences I've seen over the years and have written about, leave absolutely no doubt in my mind that Copernican heliocentrism is a Satanic counterfeit of the geocentric reality given in Scripture. Others, seeing the same evidences, will—if Truth be important to them—be drawn to the same conclusion.

As for that elusive flaw, something that very much involves the Geo/Helio controversy, (yet something that goes much further in specifically addressing the entire anti-Bible foundations of modern cosmology,) came to my attention on the Net about January of 2000. While this is not the place to detail those findings and their main ramifications—including the heliocentric assumption—I will direct any

² Bouw, G. 2000. "Is the Moon's Shadow Proof of Geocentricity?" *Biblical Astronomer*, 10(92):8-9.

interested Internet user to a dozen or so links to be found at www.fixedearth.com and give only a skeletal overview here.

The elusive flaw, it turns out, involves a totally spiritual matter which has handcuffed itself to modern cosmological science and which purports to be "science" while concealing its spiritual roots. This "science" front—which constitutes the backbone of modern cosmology—includes the following: the Big Bang, an expanding universe, and Einstein's $E=mc^2$ and his Relativity hypothesis.

Question: What is this highly esoteric and deliberately well-concealed source of Spiritual motivation which undergirds and empowers this "science" front??

Answer: The spiritual blueprint which gives a plain description of the Big Bang with its attendant expanding universe and application of Einstein's pseudo-science can be found in the mystic *Kabbala* (*Cabala*). Physicist Dr. Gerald Schroeder—formerly at MIT, lately lecturing in Jerusalem—demonstrates that the 13th century writings of Rabbi Ben Nachman in the *Kabbala* spell out the Big Bang cosmology in all the essentials found in today's paradigm. Astonishing?! Most assuredly! Inconceivable?? Check it out yourself! A *flaw* capable of exposing and destroying modern cosmology's claim of being "science"?! Well, if the ACLU mantra: "If it is 'religion,' it is not science," is employed—as it must be—the charade is over... .

The most current application of this pseudo-scientific Kabbalistic cosmology is to be found in the Space Program run by NASA. Here—with the Big Bang paradigm unabashedly undergirding all their efforts, and their whole Bible-bashing program thrust into orbit by Sagan's work and Goldin's passionate push to "prove" evolution by "discovering" extra-terrestrials—NASA's multi-billion dollar "Origins Program" is all set to pull it off with Virtual Reality technology. Check links under "Seeing Is Believing; Or Is It?!" Decide for yourself.

Perhaps even more astonishing, the influence of this Rabbi's 750-year old revelations extend beyond the control of modern Bible-bashing "science" into the control of key political and religious matters. Incredibly, this Rabbi Nachman also gave the blueprint for Zionism! Furthermore, he outlined two false eschatological doctrines which would align Christians with Zionists, and then use them to further the Talmud/Kabbala goal of a One World Government controlled from Jerusalem. The counterfeit "end time" doctrines outlined by the Rabbi now virtually control Christian preaching on the subject. Those doctrines are Dispensationalism and Millennialism. (New links on the above mentioned web site give the details.)

So, all this boils down this way: The Copernican lie is indispensable to Satan's goal of being "worshipped like the most high"

(Is. 14:14), a goal which our Omniscient God (Acts 15:18) has written will come to pass (Rev. 13:4, 8; 17:12, 14-15, 18). Historically, it is easy to demonstrate that Copernicanism paved the way for Darwinism, Freudianism, Einsteinism, Saganism in all their Bible-bashing disguises. Without the ever-increasing great stretches of time required by the Copernican concept in the physical sciences, none of the others—all the way up to and including the Big Bang paradigm—would have ever gotten off the ground.

Thus the "flaw" in the Copernican model and the whole Satanic design that it birthed and now upholds is this: Copernicanism has nothing to do with real science; it has everything to do with fulfilling centuries-old "religious" plans to destroy Christianity by destroying the credibility of the Bible upon which Christianity stands or falls. Expose the Kabbalist source of modern cosmology and the Copernican root will die with the branches... . It is written: Babylon *will* fall.... Jesus was "manifested to destroy the works of the Devil (1 Jn. 3:8), "one hour" after a NWO sets up shop (Rev. 17:12-13) in "the war the Lamb wins" (v. 14). *Tempus figit!*

Quote

Owing to the pressure of an ever-increasing number of subjects introduced into the curriculum of a school, it is only too possible for men to be held to be educated and intelligent without ever having seriously tested their intelligence upon, say, the Book of Job, or upon the Epistle of Paul to the Romans. No doubt there are very good excuses for this lack of discipline. Many forward-thinking men will tell you that the Bible is not worth serious attention, that it is simple, trivial, and out-of-date; and so, even though you may hear the Bible read, read it yourselves, or even study it, the tension of your energy may be relaxed -- subtly relaxed. But it is quite certain that a widespread relaxation of the tension of Biblical interpretation has disastrous effects. For there is no corruption that threatens a country so surely as the corruption or sentimentalizing of its religion; and there is no corruption of the Christian religion so swift as that which sets in when the Church loses its strict Biblical discipline.

– E. C. Hoskyns (1884-1937)

PANORAMA

Charlemagne

God gave us the sun, moon, planets, and stars for signs and for seasons. The ancients thought that comets were portends of disaster and eclipses of the sun were greatly feared. Well, there were some "signs" before Karl der Grosse's (Charlemagne the Great, he was called great because he was about seven feet tall, not because he was a great human being or great champion even of the Roman church) death. Significantly, these "signs" condemned his work.

The following text describes those signs, several of which are astronomical, which Charlemagne dismissed but which warned him that his work in uniting Europe for the papacy was a great abomination before God. Although Karl discounted them, many of his subjects did not.¹

Very many omens had portended his approaching end, a fact that he had recognized as well as others. Eclipses both of the sun and moon were very frequent during the last three years of his life, and a black spot was visible on the sun² for the space of seven days. The gallery between the basilica and the palace, which he had built at great pains and labor, fell in sudden ruin to the ground on the day of the Ascension of our Lord. The wooden bridge over the Rhine at Mayence, which he had caused to be constructed with admirable skill, at the cost of ten years' hard work, so that it seemed as if it might last forever, was so completely consumed in three hours by an accidental fire that not a single splinter of it was left, except what was under water. Moreover, one day in his last campaign into Saxony against Godfred, King of the Danes, Charles himself saw a ball of fire fall suddenly from the heavens with a great light, just as he was leaving camp before sunrise to set out on the march.³ It rushed across the clear sky from right to left, and everybody was wondering what was the meaning of the sign, when the horse which he was riding gave a sudden plunge, head foremost, and fell, and threw him to the ground so heavily that his cloak buckle was broken and his sword belt shattered; and after his servants had hastened to him and relieved him of his arms, he could

¹ The source for the text is: Einhard, *The Life of Charlemagne*, translated by Samuel Epes Turner, (New York: Harper & Brothers, 1880). In 1960, the University of Michigan Press reprinted this translation. The explanatory footnotes are mine, -Ed.

² A sunspot, signifying that the time was near sunspot maximum. The last time that I can recall a sunspot visible to the naked eye was in 1956 or 1957. One normally sees these at sunrise or sunset, or through clouds.

³ Evidently a bright meteor, also called a fireball or *bolide*.

not rise without their assistance. He happened to have a javelin in his hand when he was thrown, and this was struck from his grasp with such force that it was found lying at a distance of twenty feet or more from the spot. Again, the palace at Aix-la-Chapelle frequently trembled, the roofs of whatever buildings he tarried in kept up a continual crackling noise, the basilica in which he was afterwards buried was struck by lightning, and the gilded ball that adorned the pinnacle of the roof was shattered by the thunderbolt and hurled upon the bishop's house adjoining. In this same basilica, on the margin of the cornice that ran around the interior, between the upper and lower tiers of arches, a legend was inscribed in red letters, stating who was the builder of the temple, the last words of which were *Karolus Princeps*. The year that he died it was remarked by some, a few months before his decease, that the letters of the word *Princeps* were so effaced as to be no longer decipherable. But Charles despised, or affected to despise, all these omens, as having no reference whatever to him.

Physics degree exam

The following question appeared on a physics degree exam at the University of Copenhagen:

Describe how to determine the height of a skyscraper with a barometer.

One student replied: "You tie a long piece of string to the neck of the barometer, then lower the barometer from the roof of the skyscraper to the ground. The length of the string plus the length of the barometer will equal the height of the building."

This highly original answer so incensed the examiner that the student was failed immediately. The student appealed on the grounds that his answer was indisputably correct, and the university appointed an independent arbiter to decide the case. The arbiter judged that the answer was indeed correct, but did not display any noticeable knowledge of physics. To resolve the problem it was decided to call the student in and allow him six minutes in which to provide a verbal answer, which showed at least a minimal familiarity with the basic principles of physics.

For five minutes the student sat in silence, forehead creased in thought. The arbiter reminded him that time was running out, to which the student replied that he had several extremely relevant answers, but couldn't make up his mind which to use. On being advised to hurry up the student replied as follows:

Firstly, you could take the barometer up to the roof of the skyscraper, drop it over the edge, and measure the time it takes to reach the ground. The height of the building can then be worked out from the formula $H = 0.5g \times t^2$. But bad luck on the barometer.

Or if the sun is shining you could measure the height of the barometer, then set it on end and measure the length of its shadow. Then you measure the length of the skyscraper's shadow, and thereafter it is a simple matter of proportional arithmetic to work out the height of the skyscraper.

But if you wanted to be highly scientific about it, you could tie a short piece of string to the barometer and swing it like a pendulum, first at ground level and then on the roof of the skyscraper. The height is worked out by the difference in the gravitational restoring force $T = 2 \pi \sqrt{l/g}$.

Or if the skyscraper has an outside emergency staircase, it would be easier to walk up it and mark off the height of the skyscraper in barometer lengths, then add them up.

If you merely wanted to be boring and orthodox about it, of course, you could use the barometer to measure the air pressure on the roof of the skyscraper and on the ground, and convert the difference in millibars into feet to give the height of the building.

But since we are constantly being exhorted to exercise independence of mind and apply scientific methods, undoubtedly the best way would be to knock on the janitor's door and say to him, "If you would like a nice new barometer, I will give you this one if you tell me the height of this skyscraper."

The student was Niels Bohr, the only Dane to win the Nobel Prize for Physics.

Chandler wobble: a mystery solved?⁴

The century-old mystery of Earth's "Chandler wobble" has been solved by a scientist at NASA's Jet Propulsion Laboratory in Pasadena, Calif. The Chandler wobble, named for its 1891 discoverer, Seth Carlo Chandler, Jr., an American businessman turned astronomer, is one of several wobbling motions exhibited by Earth as it rotates on its axis, much as a top wobbles as it spins.

⁴ Sullivant, Rosemary, 2000. "A mystery of Earth's Wobble Solved: It's the Ocean." JPL/NASA press release #2000-066, 7/17/00. Quoted in full.

Scientists have been particularly intrigued by the Chandler Wobble, since its cause has remained a mystery even though it has been under observation for over a century. Its period is only around 433 days, or just 1.2 years, meaning that it takes that amount of time to complete one wobble. The wobble amounts to about 20 feet at the North Pole. It has been calculated that the Chandler wobble would be damped down, or reduced to zero, in just 68 years, unless some force were constantly acting to reinvigorate it.

But what is that force, or excitation mechanism? Over the years, various hypotheses have been put forward, such as atmospheric phenomena, continental water storage (changes in snow cover, river runoff, lake levels, or reservoir capacities), interaction at the boundary of Earth's core and its surrounding mantle, and earthquakes.

Writing in the August 1 issue of *Geophysical Research Letters*, Richard Gross, a JPL geophysicist, reports that the principal cause of the Chandler wobble is fluctuating pressure on the bottom of the ocean, caused by temperature and salinity changes and wind-driven changes in the circulation of the oceans. He determined this by applying numerical models of the oceans, which have only recently become available through the work of other researchers, to data on the Chandler wobble obtained during the years 1985-1995. Gross calculated that two-thirds of the Chandler wobble is caused by ocean-bottom pressure changes and the remaining one-third by fluctuations in atmospheric pressure. He says that the effect of atmospheric winds and ocean currents on the wobble was minor.

Gross credits the wide distribution of the data that underlay his calculations to the creation in 1988 of the International Earth Rotation Service, which is based in Paris, France. Through its various bureaus, he writes, the service enables the kind of interdisciplinary research that led to his solution of the Chandler wobble mystery. Gross's research was supported by NASA's Office of Earth Science, Washington, D.C.

Pioneer 10 & 11's deceleration

A couple of years ago, NASA announced that the two most distant space craft, Pioneers 10 and 11, seemed to be slowing at an unexpected rate in their motion away from earth. The acceleration towards the sun has a value of 8.5×10^{-8} cm/sec². This is roughly an hundredth of the normal slowing at that distance. In other words, the spacecraft are slowing too fast.

Recently I receive a paper entitled "Review of the Anomalous Doppler Data from Pioneer 10 and 11."⁵ It was written in 1998 by Curtis Renshaw and William Kallfelz. In their abstract they conclude, "Gravitometric models and systematic problems fail to explain this discrepancy. The anomalous signals seem to indicate an error in the relativistic Doppler equations rather than any new physics."

In their derivation, they transpose the center of motion to the barycenter of the solar system (the point about which the sun and planets all revolve as seen from the stars). They then find that the discrepancy from expected slowing enters when the observers apply the relativistic Doppler expression as determined from the two spacecraft velocities. Their result is independent of the distance to the craft, as reflected in the observations. In short, they make a good point. The relativistic Doppler shift is hard to derive correctly, for one has to take into consideration not only the velocity along the line of sight, but to be rigorous, also the velocity perpendicular to the line of sight.

⁵ I have no better reference than that. However, Renshaw's email address is given in the paper as crenshaw@teleinc.com.

(Continued from page 4.)

Schroeder was the first to suggest that the six days of creation were due to the gravitational potential of the universe. In 15 billion years, he reasoned, only six days would have elapsed at the edge of the universe. This is similar to the position taken by Russell Humphries in his book *Starlight and Time*.

I read Schroeder's paper. He claims as his authority the "Bible (3700 years ago)," the Torah, translated into Aramaic by Onkelos in A.D. 100, the Talmud of A.D. 500, and three commentators: Rashi (11th century France), Maimonides (12th century Egypt), and Nachmanides (13th century Spain). The latter is the earliest of the Kabbalists. Today, the *Kaballa* is acknowledged as authoritative by the church of Rome. Not all Jews deem it so. A student of history will recognize these three places, particularly France and Spain, as hotbeds of the "synagogue of Satan" (Revelation 3:9, a confederacy of apostate Jews and the Babylonian Inquisition). As for Egypt, the school at Alexandria was a hotbed of apostate Jews and Christians who integrated Greek and Babylonian philosophies with the Bible, by accommodating the Bible to those pagan philosophies.

Thus we see the cosmic egg myth, the evolution myth, the day-age myth (Origen etc.) all incorporated into the Kabbalist Ramban's (Nachmanides) writings. But the covering is still over the eyes of the Jews and a veil over the nations (Isaiah 25:7).

So were all these things foretold by Ramban, as Marshall and Schroeder claim. Well, coupling the Babylonian cosmic egg with the stretching out of the heaven could, I suppose, presage the big bang, but it's a stretch. $E=mc^2$ is a far stretch and isn't claimed by Schroeder who reads energy into the cosmic egg (which isn't called that, but that'd be too obvious). In short, Schroeder's "finds" read more like Greek mysticism than they read like the Bible.

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. All 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 above, please consider becoming a member. Membership dues are \$20 per year. Members receive a 20% discount on all items offered for sale by the *Biblical Astronomer*.

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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