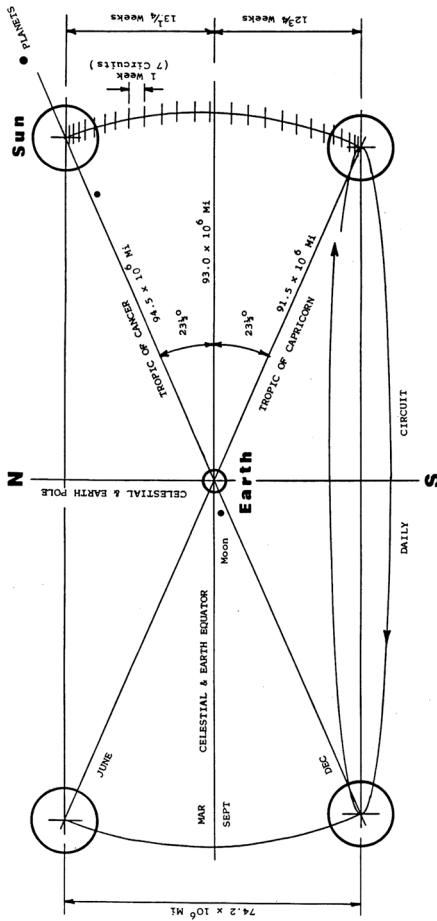


THE BIBLICAL ASTRONOMER

SPRING 2000

De Labore Solis

The Motion Of The Sun In The Geocentric Model



PITTSBURGH CREATION SOCIETY
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R. G. ELMENDORF
20 May 1998

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Cover: The motion of the sun in the geocentric model. See Richard Elmendorf's article entitled "The Labor of the Sun."

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TABLE OF CONTENTS

<i>Editorial</i>	3
<i>Spatial Measurement and Science: Part II</i>	5
<i>Is the Moon's Shadow Proof of Geocentricity?</i>	8
<i>Panorama</i>	10
<i>The Labor of the Sun</i> Dick Elmendorf	19
<i>When Planets Align</i> G. Bouw	30
<i>The Flat Cosmos</i>	35

EDITORIAL

Although this edition is late to press, there are some good reasons for that. Oh, sure, work at the College and at church “interferes” with the production of the *Biblical Astronomer*, but occasionally some geocentric projects do, too. This was one of those occasions.

Video project

The Biblical Astronomer has undertaken a new project. We have been given some seed money to develop a geocentric video, focusing on the motions of the sun and planets about the earth, the seasons, eclipses (see “Is the Shadow of the Moon Proof of Geocentricity” elsewhere in this issue), retrograde motions, etc. Furthermore, Pastor Paul Norwalt, who was a machinist before answering his call to the pastorate, independently planned to construct a geocentric orrery (a working model) based on the model presented as Figure 45 (page 342) in *Geocentricity*. He plans to have the model driven electronically, so we need an electronic engineer for that. With “cheap” CCDs readily available on a board, we could mount them at strategic points on the orrery to illustrate the aforementioned phenomena. We also have enlisted the aid of a mathematician proficient in Mathematica to construct animations using that software. Ultimately we shall need a scriptwriter and a narrator, so if any of you can help, we would appreciate it very much.

Size of the cosmos

We continue our look at the size of the cosmos in this issue by printing David Lifschultz’s reply to “Spatial Measurement and Modern Science: Reply” which appeared on page 10 of issue number 91 of the *Biblical Astronomer*. In that article we examined the nature of parallax and the various geocentric models which may account for it. In the next installment we shall, D.V., look at the construction of the modern distance scale. The key assumptions hinge on whether or not the annual motions involve the stars or not. If the stars are centered on the earth, as in the Ptolemaic model, then parallax as a geometric phenomenon can only be due to the diameter of the earth. That places Alpha Centauri, the star with the largest known parallax, about 12 astronomical units¹ away which is a bit further out than Saturn but not

¹ An astronomical unit is the earth-sun distance which is about 93 million miles or 150 million kilometers. Twelve a.u. from the sun lies beyond Saturn.

nearly as far away as Uranus, let alone Pluto. If this were true, then the whole space program, not to mention astronomy, must be a vast conspiracy! Now I am no great fan of conspiracy theories. I do not believe that there is a vast right-wing conspiracy to “get” the “most moral” couple in America, William Jefferson and Hillary Rodham Clinton, for example. No, not a word of it. It’s conspiracy advocates such as the Clinton apologists that will force me to vote for Howard Philips this fall. So I certainly don’t believe in a giant astronomical conspiracy.

If parallax is not geometric, then other explanations may come into play. Jim Hanson investigated one recently and concluded that all the stars would have to be exactly the same distance from earth. Hopefully he will report on his findings on the pages of this journal in the not-too-distant future.

The labor of the sun

In this issue we also present a paper submitted by Dick Elmendorf. In true Elmendorffian fashion, he tackles the motions of the sun about the earth with text and figures. If you have trouble visualizing what the motion of the sun and planets are, then this article is for you.

I disagree with two things in the paper. First, that the mass of the sun is so grossly uncertain with the veiled suggestion that the sun may be hollow. Second, I take issue with the low view of the King James translators work on Ecclesiastes 1:5-6. I will not comment other than to answer the question “why the translators used the word ‘wind’ instead of ‘spirit.’” Both the Hebrew-English diglots (two-language parallel Bibles) I’ve consulted use “wind” and put a period after verse 5 so that wind is the subject of verse 6. Since the King James translators had a man on the committee who could read the unpointed Hebrew at age five, and since all Europe was involved in reconstructing the Hebrew and Greek texts, I see no reason to doubt their accuracy. By using spirit and combining it with the masculine “his,” the Douay-Rheims makes the abominable error of equating the spirit with a devil. Throughout both testaments, the human spirit and God’s Spirit are neuter whereas evil and unclean spirits are masculine unless a man is possessed with the spirit.²

² For more, including the Holy Ghost versus the holy Spirit in the King James Bible, see Bouw, G.D., 1997. *The Book of Bible Problems*, (Assoc. for Biblical Astronomy: Cleveland, Ohio U.S.A.), pp. 219-226. (See back cover for order information.)

SPATIAL MEASUREMENT AND MODERN SCIENCE: PART TWO

David Lifschultz

In a reply to my paper previously published in the *Biblical Astronomer*,¹ Dr. Bouw writes that “it is doubtful from the start that the size of the universe can be accurately determined,”² and that was the main point I was making. Nevertheless, to reinforce that point, I will make a number of comments on Dr. Bouw’s piece.

Genesis 1:16 tells us that at first God created the two great lights, the sun and the moon, and thereafter, it appears, the stars and the planets with their moons. It is very possible that Dr. Bouw’s contention that lights refer to the brightness in relation to the earth, that is they are brighter than stars and planets, is true, but it does not necessarily mean that the sun is smaller than the stars. I could say, however, that if the sun and moon were created first, then they were the greatest lights then, and thereafter when the stars, and planets with their moons were created, the moon was smaller in physical size than other heavenly bodies. These are matters of interpretation and Dr. Bouw’s is a good one. It opens up as a corollary that the sun could be smaller than the stars, as the moon is of the planets, but the Bible does not tell us this.

Dr. Bouw talks about the fact that very sophisticated photographic techniques are used with a telescope to measure the angle of the star in relation to the earth, and that this angular measurement repeats itself in every photograph. I accept that. But even though it repeats itself, our contention is that it could merely be repeating the error of the previous measurements because the margin of error at such a distance is great, and the distance is otherwise unverifiable. But in any event, from a geocentric sense, the measurement is useless, because the line of the triangle used can only be the longest distance measured in a straight line on the earth, and no one says that this small distance is sufficient to accurately shoot the star. (See figure 1.)

The heliocentrists maintain the unprovable assumption that the earth revolves around the sun and then uses a line the distance of the earth to the sun doubled, or about 186 million miles. Astronomers

¹ Lifschultz, David, 1999. “Spatial Measurement and Modern Science,” *Biblical Astronomer*, 9(90):5.

² Bouw, Gerardus D., 2000. “Spatial Measurement and Science: A Reply,” *Ibid.*, 10(91):6.

believe that angles shot by the telescope are sufficient to measure the stellar distance of the nearest stars. But as I have said, the operating premise of the heliocentrists is unprovable, that the earth revolves around the sun, and the angular measurements at the end of a line drawn on the earth are not wide enough apart to accurately shoot the star.

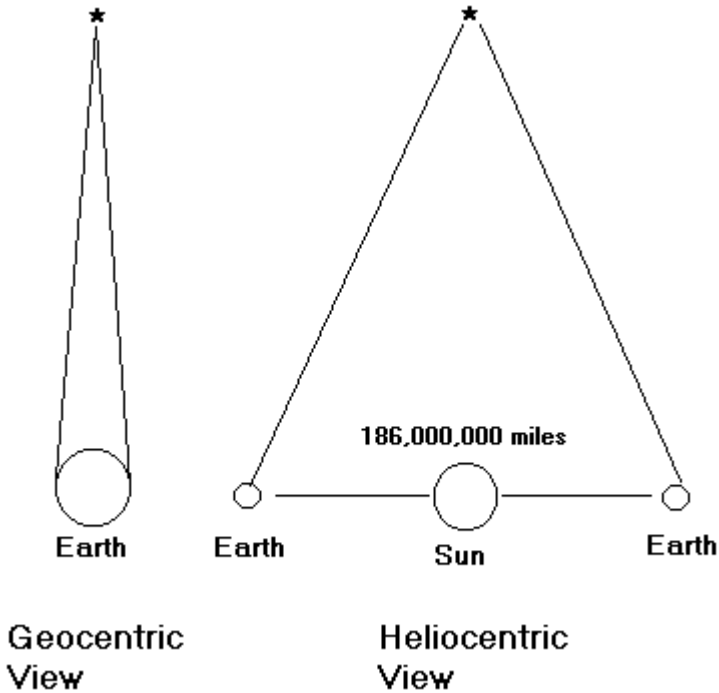


Figure 1

As I pointed out in my earlier article, it is the trigonometric technique of measuring the closer stars that provides the foundation for making measurements to the stars too far away to measure trigonometrically. The technique used for these farther stars is to establish relationships between the absolute magnitude of the nearest stars' luminosity in relation to its apparent magnitude, and its distance as measured trigonometrically, and those same magnitudes for those more distant that still can be measured trigonometrically. Now, if these relationships in magnitude were constant, then you could determine distances to those stars that you could not measure trigonometrically

but whose absolute and apparent luminosities could be measured. See the previous article for a lengthier description of this process. But, how can we be sure each star's apparent and absolute magnitudes are equal or constant? We can't, so this technique of measurement is arbitrary also.

One of the points I made in the last article was that most modern ideas in science, especially where they are unprovable, are not really modern as the high school text books make you think, but were drawn from antiquity. The mentioned oedipal complex came from the play by Sophocles entitled "Oedipus Tyrannus," where Oedipus unknowingly fulfils a curse by killing his father and marrying his mother. It was the bizarre interpretation of Sigmund Freud to assert that this was an unconscious paradigm for all humanity which thought is as unique as it is monstrous. The equality of result in material goods was not originated by Karl Marx but found earlier in Plato's "Republic."

I also would like to point out in another area of my piece that the calculus of Sir Isaac Newton, which through its use of infinity is logically absurd, was no more accurate than Euclidean geometry but symbolically more complex. It is a fact that Sir Isaac used Euclidean geometry in his projections of the heavenly bodies and not the calculus he invented.

Once again, the point of these papers is to demonstrate that the size of the universe is unprovable, and it could be small as well as large. And the weight of Scriptural references to the sun as the chief heavenly light (Ps. 84:11³) could be both in size as well as brightness.

³ Psalm 84:11 — "For the LORD God *is* a sun and shield: the LORD will give grace and glory: no good *thing* will he withhold from them that walk uprightly."

IS THE MOON'S SHADOW PROOF OF GEOCENTRICITY?

Gerardus D. Bouw, Ph.D.

From time to time, readers requests information about the direction of the moon's shadow on the surface of the earth during an eclipse of the sun. The question arises from Marshall Hall's vision that the shadow of the moon conceals a proof for geocentricity. He argues that the shadow should move from west to east (as observed) in a geocentric system but from east to west in an heliocentric model. Unfortunately, that just isn't so. This paper illustrates why.

There is no difference between the geocentric and heliocentric models insofar as eclipses are concerned. Suppose for a moment that the moon and sun stood still in the sky, that is, the moon is always at new moon. It looks like this:

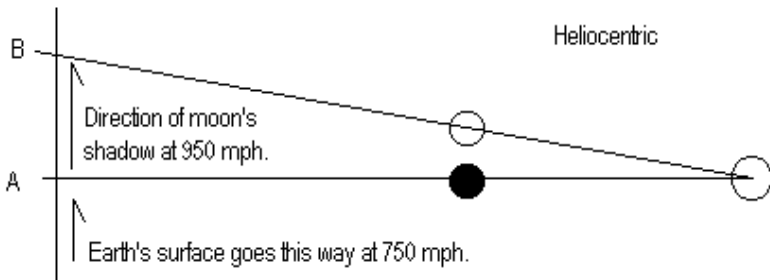


(Here east is at top, west at bottom, and north is coming out of the page.) According to the heliocentric view, the point A (Atlanta, Georgia?) is moving to the east **up** the page) at, say, 750 miles per hour (mph). According to the geocentric view, the sun-moon-earth line is moving **down** the page (to the west) at 750 mph. In either case, ten minutes later A will appear above the line.

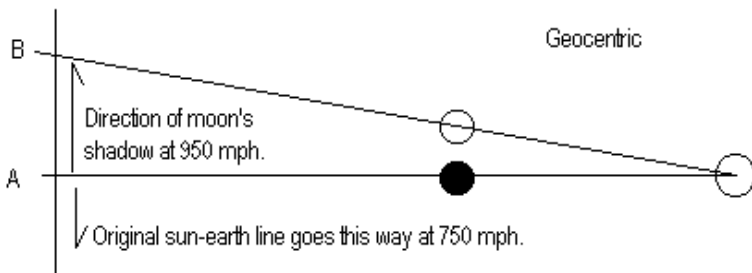
However, we know that the moon is not fixed at new but goes through phases, that is, the moon moves “up” the page, away from the line, such that whereas sunrise to sunrise is 24 hours, moonrise to moonrise is 23 hours and 8 minutes. So let’s take it that the shadow of the moon falls at A during an eclipse and let’s start the moon moving up the page so that its shadow on the earth moves up the page and away from the original sun-moon-earth line at 950 miles per hour. It is crucial to remember that the 950 miles per hour is measured from our original line, not from point A!

Now let’s look at the situation an hour later (the two figures on the next page). You’ll note that in the heliocentric view point A runs up the page at 750 mph while the moon’s shadow goes up the page at 950 mph. After an hour, then, the shadow will be 200 miles east

(above in the figure) at point B. So the shadow moves west-to-east, relative to its original position.



Next, consider the geocentric case (below). Here, too, the moon's shadow travels eastward, away from the original sun-moon-earth line at 950 miles per hour. However, the original A-moon-sun line, along with the later sun-moon-B line, travel to the west, (down the page) at 750 miles per hour. After an hour, the line falls 750 miles west of (below) point A. The shadow traveled 950 miles eastward from that point and so is 200 miles east (above) point A.



What Marshall fails to grasp is that the moon orbits the center of the earth, not the surface point A. The original line is actually a sun-moon-earth's centerline. The sun-moon-B line does not go through the earth's center.

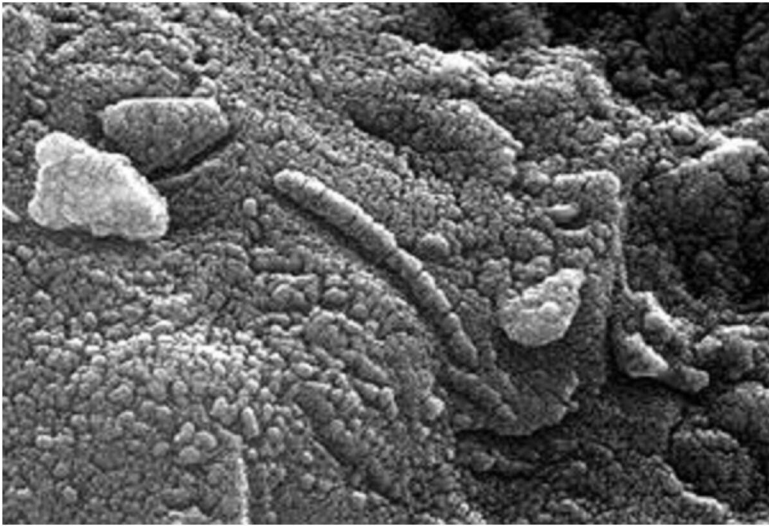
So, in both models the shadow of the moon travels from west to east, as observed.

Note: in the above discussion, I used a value of 950 miles per hour for the speed of the moon's shadow. The actual speed is much greater, easily amounting to 2,000 miles per hour or more. The figure was not meant to be accurate, just illustrative.

PANORAMA

Martian “life” not dead yet¹

Back in 1996 NASA announced that it found a rock in Antarctica which rock came from Mars and contained microscopic fossils.² One of the early and persistent objections against the biological origin of the microfossils was their size. They were about a tenth the size of known life forms.



At the time Robert Folk of the University of Texas objected that he had found many such “nanobacteria” in rock strata and even thought that these nanobacteria were the origin of travertine and other mineral deposits. Indeed, it turns out, few researchers had ever looked for any life forms smaller than 200 nanometers (nm, billionths of a meter or yard). Folk’s claim forced others to look for these nanobacteria; and they found them!

The nanobacteria are the size of viruses and occur about everywhere. They range in size from 30 to 180 nm. Not only are they found in plaque, blood, food, and drinks, but they also love sulfurous hot springs, underwater volcanic vents, and Antarctic ice. The fossils in ALH84001 are almost

¹ Jeuneman, F. 2000. “Life Size,” *Research and Development*, 21, February.

² 1996. “Bacterial Life on Mars?” *Panorama, Biblical Astronomer*, 6(78):30-32.

identical to living samples found in the Columbia River Basin. They live in deep wells and caves, too.³

Some of the newly discovered nanobacteria exhibit antibiotic and anti-carcinogenic properties to which numerous diseases easily fall prey. This may be why sulfurous hot springs have a reputation for having healing properties. Consequently, pharmaceutical companies are mum about their research into the DNA structures of these nanobacteria.

Consequently, the "nanofossils" found in the so-called Martian rock, may actually be of terrestrial origin, particularly, Antarctic nanobacteria. It would be interesting to examine the moon rocks returned by the Apollo program. Do they, too, show these nanofossils? I doubt it, but don't hold your breath waiting for the suggestion to be performed. Today science's role is indoctrination, not a quest for truth and facts. Even more than that, today's science falsely so called (1 Timothy 6:20) is commissioned to prepare the world for the "inevitability" of communism, which Marx called "Democracy." (The reader will note that the United Nations police actions (wars) are all to "make the world safe for democracy." But as Jefferson said and the founding fathers of the United States echoed, democracy is the worst form of government ever conceived by man.)

The arrow of time points one way

Back in the mid-sixties physicists discovered that if time were to flow backwards, it would not look like a movie played in reverse as seen in a mirror. They noted that neutral particles called kaons sometimes decayed in a way that violated CP symmetry. Now CP symmetry is part of a package called CPT (for charge, parity, and time reversal) symmetry. That says that if one swaps antimatter for matter, and view the universe in a mirror and reverse the direction of time (arrow of time), then experiments should work as they do in this present world. The CPT theorem, now demonstrated valid to 18 decimal places, means that time-reversal symmetry could hold if charge-parity (CP) symmetry holds. The 1964 experiments, which cast doubt upon CP symmetry, meant that CPT symmetry could be saved only if when time flowed backwards, things adjusted in a way that cancelled out the CP symmetry violation.

Late in 1998 two groups, one from CERN and the other from Fermilab, reported observations that suggested that the rate of a particle's decay is different from the rate of the same process done in reverse time. The former team found that the rate for antikaons transforming into kaons was

³ Taylor, M. R., 1999. *Dark Life*, (Scribner).

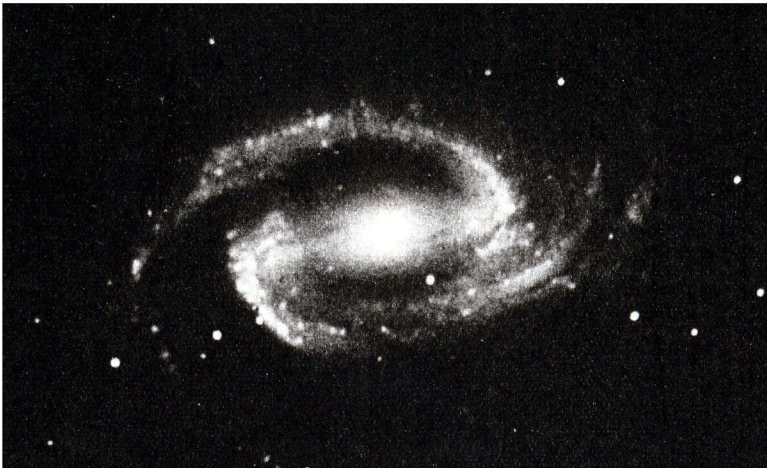
a bit higher than for what would be the case in the time-reversed process, that is, kaons becoming antikaons.

The other group looked for a very rare, one-in-ten-million, decay of a single kaon into pairs of electrons and pions. In this case, time asymmetry reveals itself in a subtler way. Because reversing time also reverses a particle's momentum, the team looked for time asymmetries by comparing the rates of some decays to others where the direction of the emerging particles looked as they would if time had been reversed. The rates differ by about 13%.

Both experiments record time asymmetry at about what is needed to compensate for the CP asymmetry. In other words, the CPT theorem still stands and time travel is still sheer fantasy.

The sun is near the corotation circle

We've all seen the Milky Way in its brightness during a dark summer night away from city lights. Some readers know that the Milky Way is a galaxy. In particular, it is a barred spiral though its bar is not as pronounced as that of NGC 1300 which is pictured below.



Models and observations of spiral galaxies show that supernovae, interstellar clouds that launch intense cosmic rays and other life-threatening phenomena are concentrated in spiral arms. This is one argument that has been used against evolutionists who admit that the sun and the earth have passed through several deadly spiral arms in their fabled evolutionary history. Accordingly, the earth can expect one lethal super-

nova explosion near it every couple of hundred million years. So why does life persist on earth?

Unfortunately for the creationist argument, two Russian astronomers have now provided evolutionists with an "out." Yuri N. Mishorov and I. A. Zenina published an article entitled "Yes, the Sun is located near the corotation circle."⁴ Their abstract reads as follows:

The total component field of Cepheids was analyzed in terms of a disk model perturbed by spiral density waves. The main result is: the Sun is situated very close to the corotation resonance where the rotation velocities of the disk and of the spiral pattern coincide. The displacement ΔR of the Sun from the corotation circle is $\Delta R \approx 0.1$ kpc.

In other words, the earth is situated to within one part in 300 in exactly the right position to avoid ever entering a spiral arm. Just like a surfer skimming along the bore of a breaking wave, without danger of running into the wave or having the wave collapse upon him, so the sun "rides" the density waves which are the spiral arms. Of course, in a geocentric perspective, the Milky Way does the "riding," but the effect is the same.

The biblical impact is this: the earth was created for man, and God created it so that man could live upon it eternally without cosmic disasters. More specifically, this is just another example of the *anthropic principle*: that the testimony of the universe is that it was created for man.

The sun's magnetic field has a good memory

By compiling all the solar wind data gathered in the space age, NASA scientists have concluded that even though the solar magnetic field is constantly changing, it always returns to its original shape and position.

"We now know that the Sun's magnetic field has a memory and returns to approximately the same configuration in each 11-year solar cycle," said Dr. Marcia Neugebauer, a Distinguished Visiting Scientist at NASA's Jet Propulsion Laboratory in Pasadena, California. "Current theories imply that the field is generated by random, churning motions within the Sun and should have no long-term memory. Despite this expectation, the underlying magnetic structure remains fixed at the same solar longitude."

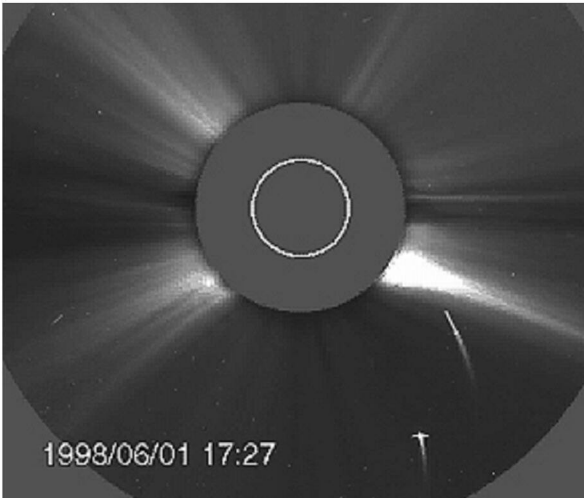
⁴ Mishurov, Yu. N., & I. A. Zenina, 1999. "Yes, the Sun is located near the corotation circle," *Astronomy and Astrophysics*, **341**:81-85.

"It's interesting that the solar magnetic field varies in strength and direction, but not in longitude," said Dr. Edward Smith, senior research scientist at JPL.

Fluids conducting electricity under the Sun's surface generate the magnetic field, Neugebauer explained, and the field's apparent memory is most likely caused by a structure and process occurring deeper inside the Sun than previously believed. "There may be something asymmetric about the Sun's interior, perhaps a deep-seated lump of old magnetic field," she said.

SOHO and the sun-grazing comets

In four years of operation, the Solar and Heliospheric Observatory (SOHO) spacecraft has found 102 comets, making it by far the most successful comet-hunter in history. Calculations have shown that the latest comets discovered with SOHO are previously unknown (undiscovered) comets. SOHO has revolutionized solar science. It also revealed an amazing number of suicidal comets plunging into the solar atmosphere.



Two comets head for a collision with the sun in this photo taken by SOHO. Comets which come close to the sun like these two are called "sun grazers."

Like nearly all of SOHO's comet discoveries, the latest comet showed up in images from the Large Angle and Spectrometric Coronagraph (LASCO) instrument. This is a set of coronagraphs that view the space around the Sun out to 12.5 million miles, while blotting out the bright solar disk with masks. LASCO watches for ejections of electrically charged gas from the Sun that threaten to disturb the Earth's space envi-

ronment. As a bonus of unanticipated size, it also proved ideal for capturing objects falling to the Sun. Still pictures and movies from LASCO are freely available on the Internet, and even amateur astronomers have used them to discover comets.

Ten comets discovered by SOHO, including SOHO numbers 100, 101 and 102, passed the Sun at a safe distance. However, the rest of the SOHO comets vaporized in the solar atmosphere. Near misses are well known, and 100 years ago Heinrich Kreutz in Kiel, Germany, realized that several comets seen buzzing the Sun seemed to have a common origin, because they came from the same direction among the stars. These comets are now called the Kreutz sungrazers, and the 92 vanishing SOHO comets belong to that class.

"SOHO is seeing fragments from the gradual breakup of a great comet, perhaps the one that the Greek astronomer Ephorus saw in 372 BC," said Dr. Brian Marsden of the Center for Astrophysics in Cambridge, MA. "Ephorus reported that the comet split in two. This fits with my calculation that two comets on similar orbits revisited the Sun around AD 1100. They split again and again, producing the sungrazer family, all still coming from the same direction." Their ancestor must have been enormous by cometary standards.

"The rate at which we've discovered comets with LASCO is beyond anything we ever expected," said Biesecker. "We've increased the number of known sungrazing comets by a factor of four. This implies that there could be as many as 20,000 fragments."

Life is perilous for a sungrazer. The mixture of ice and dust that makes up a comet's nucleus is super heated, and it can survive its visit to the Sun only if it is quite large. What's more, the strong tidal effect of the Sun's gravity can tear the loosely glued nucleus apart. The history of splitting gives clues to the strength of comets, which will be of practical importance if ever a comet seems likely to hit the Earth. Also, the fragments seen as SOHO comets reveal the internal composition of comets, freshly exposed, in contrast to the much-altered surfaces of objects like Halley's Comet that have visited the Sun many times.

Transient lunar phenomena and the Leonids

Throughout the centuries, particularly since the invention of the telescope, observers have reported flashes, clouds, and sudden color changes on the moon. Most astronomers have, *officially*, been skeptical of these

reports;⁵ but the latest series cannot be denied. During the night of 17-18 November of 1999, Dr. David Dunham, renowned for his work on occultations (where stars are eclipsed by the moon or planet), constantly monitored the dark side of the moon with photometric equipment. Observers around the world watched at the same time, looking for flashes of light caused by the impact of Leonid meteors hitting the moon. As reports came in, Dunham checked his data for confirmation and so was able to compile a preliminary list of six events. One surprise so far: the amount of impact energy converted into light far surpassed theoretical expectations; so far so, indeed, that some speculate that a piezoelectric effect may be the cause. (When certain crystals are struck, they emit electric current or light. This is the piezoelectric effect.) The brightest of the six flashes was of third magnitude, visible to the naked eye even through the night lights of a small city.

It's a young earth after all...⁶

One of the most vexing evidences for a young earth is that if the earth were more than a few tens of thousands of years old, all the topsoil would have washed into the seas. But such evidence does not stand alone. Over great regions of the earth, and particularly in Australia, the land is flat, and in those regions, the index fossil "dating" system says that the surface is tens of millions of years old. Is this a problem for evolutionists? Most assuredly, for these regions should be deeply gouged into ravines by streams if they were all that old. Evolutionists have still not come up with a plausible explanation. Still they say that there is no evidence against them. Such blind, Kierkegardian faith!

Astronomers and UFOs

"Professional astronomers never see UFOs," say the skeptics. Oh, really? When I was a graduate student at Case-Western Reserve University in the late 1960s, perhaps no professor was more dead-set against UFOs than was C. Bruce Stephenson. Since the astronomy program at Case was observational, we were regularly scheduled to observe with either of the two telescopes then in use at Case. One of these was a Schmidt-Cassegrain which was located east of Chardon, Ohio. (The loca-

⁵ For example, see a contribution by D. Barbiero, 2000. "Lunar Surface Change: A False Alarm," *Sky and Telescope*, **99**(3):22.

⁶ Oard, M. J., 2000. "Antiquity of Landforms: Objective evidence that dating methods are wrong," *CEN Technical Journal*, **14**:35.

tion now houses the Cassegrain which was in East Cleveland when I was there.) A popular tale among the graduate students involved Dr. Stephenson and a student who had graduated a year or so before I arrived.

The story goes that after a night of observing the two spotted something at the end of the night. Rumor had it that it was a UFO, but Dr. Stephenson swore the grad student to secrecy and never revealed just what they saw. However, the graduate student was able to say they had seen something "strange."

Now we have a report of a sighting by another professional astronomer.⁷ This time it was Clyde Tombaugh, the discoverer of Pluto. Tombaugh wrote in his journal:

I saw the object about eleven o'clock on night in August, 1949, from the backyard of my home in Las Cruces, New Mexico. I happened to be looking at zenith, admiring the beautiful transparent sky of stars, when I suddenly spied a geometrical group of faint bluish-green rectangels of light similar to the "Lubbock lights." My wife and her mother were sitting in the yard with me and they saw them also. The group moved south-southeasterly, the individual rectangles became foreshortened, their space of formation smaller, (at first about one degree across) and their intensity duller, fading from view at about 35 degrees above the horizon. Total time of visibility was about three seconds. I was too flabbergasted to count the number of rectangles of light, or to note some other features I wondered about later. There was no sound. I have done thousands of hours of night sky watching, but never saw a sight as strange as this. The rectangles of light were of low luminosity; had there been a full moon in the sky, I am sure they would not have been visible. (Signed August 7, 1957.)

Near-earth asteroid population decrease reported⁸

NASA scientists taking a census of large asteroids in our solar system neighborhood have cut their estimate in half.

The revised calculation comes from data gathered by NASA's Near-Earth Asteroid Tracking System (NEAT) and published in the January 13 issue of the journal *Nature*. Until now, the population estimate of large, near-earth asteroids ranged between 1,000 and 2,000. The new observa-

⁷ Swords, Michael D., 1999. "Clyde Tombaugh, Mars, and UFOs," *Journal of Scientific Exploration*, 13:685.

⁸ From a 12 January 2000 NASA press release.

tions have reduced that figure to between 500 and 1,000 near-Earth asteroids larger than half a mile (one kilometer) in diameter.

The researchers used the computerized technology of the NEAT camera, which has been tracking near-earth asteroids and comets in 1995. (The new estimate is based on observations recorded between 1995 and 1998.) NEAT uses a charge-coupled device camera mounted on a 1-meter (39-inch) telescope atop Mount Haleakala on Maui, Hawaii. NASA's stated goal for NEAT is to find 90-percent of all large, near-earth asteroids by 2010. Presently the count stands at 322 large, near-earth asteroids. None of the asteroids observed thus far will hit earth anytime in the near future.

The past estimate relied on humans poring over photographic plates of the nighttime sky. The problem with that is humans can't be sure of how many asteroids they were missing, because they can't see faint objects. People's eyes tire, water-up, and so tend to overlook some objects.

THE LABOR OF THE SUN

R. G. Elmendorf¹

While the earth remaineth, seedtime and harvest, and cold and heat, and summer and winter, and day and night shall not cease.

—Genesis 8:22

How do we explain the earth's seasons and day-night cycle in the geocentric system? The Bible tells us that these phenomena, experienced universally by mankind all over the world, will continue dependably "while the earth remaineth." So we order our everyday lives and make our plans with the confidence that temperatures will vary cyclically and the sun will keep coming up reliably. It's been that way for a long time—since the Genesis Flood. Civilization as we know it would be shut down in a hurry if it were not so.²

Most of us, having been thoroughly brainwashed from our earliest days in the Copernican world view, are familiar with the standard heliocentric explanation of these phenomena: the earth rotates daily on an axis tilted with respect to the ecliptic plane, in which the earth circles the sun annually. This explanation is almost universally accepted by everyone, and is certainly plausible, at least on the surface, given the assumptions that the sun is the "fixed" center of the solar system and the earth moves.

But what if the earth is fixed instead and the sun moves, **as the Bible says**?³ If we want to adopt the Bible's earth-centered scenario, are we stuck for a physical explanation of the seasonal and day-night variations that we observe during the year? Do we have to phenomenize everything the Bible says about the matter, lest is, and we, become a laughing stock in the educated world? We certainly don't want to come up with a theology that is not compatible with real world phenomena, do we?

Many people believe that the geocentric system is a historical embarrassment to Bible believers, a pre-scientific myth that went out with the flat earth and the dark ages, thanks to the efforts of Galileo, Kepler, Newton, and other illustrious figures. They are downright in-

¹ Elmendorf, Inc., Bairdford, Pennsylvania 15006, U.S.A.

² Note that the verse does not say "forever," but "while the earth remaineth." We are living on borrowed time, so to speak.

³ There is no doubt that the Bible is overtly geocentric. Anyone can confirm this for themselves with a little honest investigation.

credulous when someone tries to suggest that the question of the earth's motion is not "all settled" as they had been taught, but that the earth might after all be fixed on center stage of the universe.⁴

One thing geocentrists had better do if we want to survive this kind of skepticism is to develop an explanation for the various observable phenomena in a geocentric framework. Of course, we can't just go back to Aristotle. We have to bring current empirical discoveries and data into the picture as well, and little by little we have to understand the whole geocentric layout in some detail. That's quite an ambitious project, I admit, but I'm encouraged by the fact that conventional astronomers have been working on the Copernican system for more than 300 years and haven't got it figured out yet, so we are no worse off than they. I hope that folks can bear with us for a while.

What I am trying to do here is to answer a limited question: How does the sun move with respect to the earth in the geocentric model, and how does this motion cause the day-night cycle and the quarterly seasons?

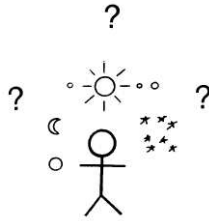
It has been said that scientific progress consists of three steps:

1. "It can't possibly be true!"
2. "What if it is true?"
3. "We knew it all along."

I'm working on step #2—the "explain this, explain that" phase of the modern resurgence of geocentricity. I don't claim to have all the answers by any means, but I have a few of them, and since I'm sort of the resident mechanic in the geocentric camp, I feel a responsibility to get to these explanations one at a time, as long as I am able. The larger project will undoubtedly extend beyond the lifetimes of most of those now working on it.

This paper should be considered a first-cut at the problem, and not an "official" geocentric model, which does presently exist except in its most rudimentary form. Suggestions, comments, and criticisms of the concepts presented from readers are certainly welcome. I'm sure that geocentricity has a great future, so the time others and I spend on this should be very worthwhile.

⁴ Geocentricity involves both a non-rotating and a non-orbiting earth. Some would-be geocentrists allow for a centrally located but still rotating earth. I believe this unscriptural compromise is entirely unnecessary.

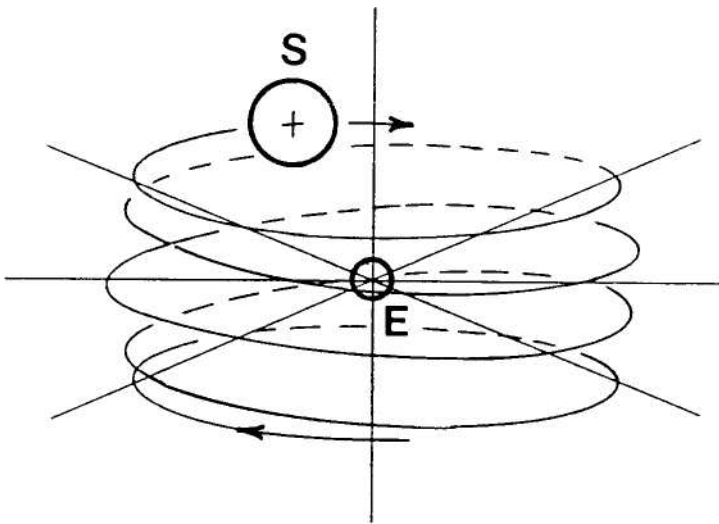


Solar Kinematics.

The accompanying diagram shows the path of the moving sun around the fixed earth in the geocentric model.

In the model, the sun follows a double-helix path, shaped something like a short, fat, slinky spring, reversing itself in the north-south direction at each end, and repeating approximately the same pattern annually. The helix is barrel-shaped, with the top head slightly larger than the bottom head.

The sun travels completely around the earth each day in a clock-



wise direction (as viewed from above the north pole). Gradually it works its way up and down the helix during the course of a year, reaching the bottom in December and the top in June, taking six months to travel each way.

The axis of the helix is the same as the prime axis of the universe, with the earth fixed on this axis and in the center of the helix.⁵ The celestial and earth's equatorial plane cuts the helix in two with respect to its northern and southern ends.

The distance of the sun from the earth varies during the year from 91.5 to 94.5 million miles because of the shape of the helix, equivalent to the elliptical path of the earth's orbit in the heliocentric model.

The seasons are caused by the varying positions of the sun on the helix, crossing the equatorial plane at the spring and fall equinoxes in March and September and reaching the ends of the helix at the summer and winter solstices in June and December. Of course, the northern hemisphere has "summer" in June and "winter" in December, while the southern hemisphere experiences the reverse.

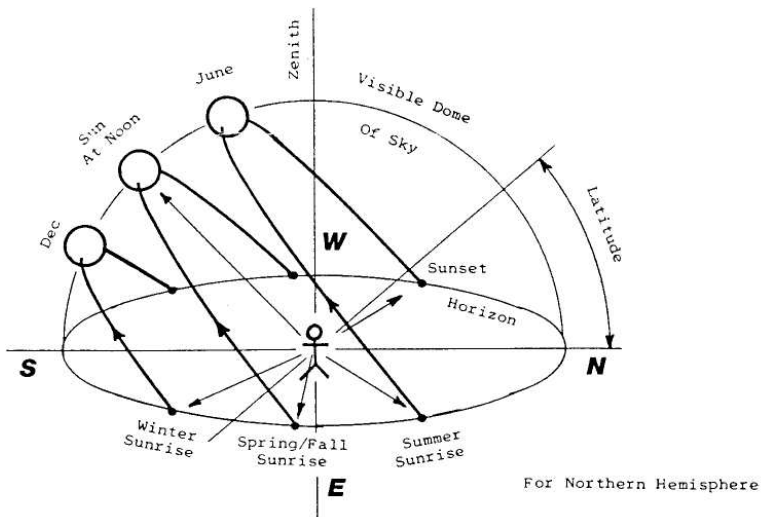
The sun spends a week longer in the northern half of the helix than in the southern half, because the pitch of the helix is finer there. As a result, the sun makes seven more daily circuits while it is above the equatorial plane. This gives the earth's northern hemisphere a slightly longer summer and shorter winter than the southern hemisphere. (Eat your heart out, Aussies!)

The helical pattern is not exactly recursive (i.e. repeating path) from year to year. It wobbles slightly over about a 26,000-year cycle (the precession of the equinoxes), and experiences other small variations, which I haven't looked into. The sun also rotates on its own axis, which is tilted with respect to the axis of the helix, on about a 27-day cycle.

To get around the earth each day, the sun covers about 584 million miles in 24 hours, or about 6800 miles per second. Over the course of a year, it has made about 365 circuits and traveled almost 214 billion miles. That's some *De Labore Solis!*

As we observe the sun from our place on earth, we are viewing only a portion of the helix from inside of it and at an angle to its axis which depends on our latitude on the earth. Our viewing horizon cuts off all but the daily arc of the sun's travel along that portion of the helix:

⁵ One might wonder where the earth is located absolutely, and what holds it stationary in this model. Job 26:7 suggests a possible answer to this: "He stretcheth out the north over the empty place, and hangeth the earth upon nothing." Thus the earth may fill some kind of special "empty place" set aside for it below the line of "north" in the original created universe, and it is held in place by "no-thing," or supernaturally. Far-out idea, huh?



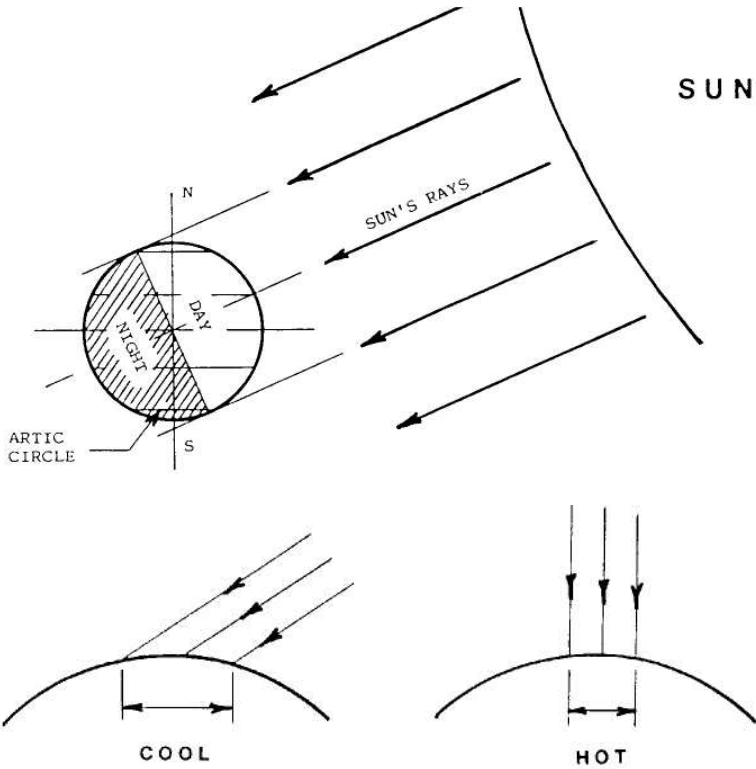
Sunrise and sunset occur at the ends of that visible arc, and at a varying angle to the horizon, which at the equator is 90° . This angle is the same at a particular latitude for all seasons (except for the variation in pitch of the helix), but as the observer sees it, the angle varies because of his different perspective to the arc at different times of the year.

Sunrise is always in the east and sunset always in the west all over the earth because of the clockwise direction of the sun's travel around the helix, a mentioned earlier. Daytime is longer in summer than in winter because we see the sun in a higher and therefore longer arc of the helix. This reaches an extreme beyond the arctic circles (latitude $66\frac{1}{2}^\circ$), where near the solstices the sun never rises or never sets and continuous daylight or darkness prevails (see figure at the top of the next page).

The local climate in summer is warmer than in winter because of the higher angle of incidence of the sunlight, not because the sun is closer. (It is actually closer to the earth in the northern hemisphere's winter than in summer.) The contribution of the difference in distance is minor compared to the effect of the sun's angle in the sky.

Similarly, the greatest radiation received from the sun during the day occurs when the sun is at its highest point in the sky, not at sunrise or sunset (see second figure on the next page). In both cases the hottest part of the day and year occur somewhat later because of the "heat sink" effect of the earth's oceans, atmosphere, and land areas.

An interesting description of the cause of seasonal variations in the geocentric system is found in Galileo's *Dialogues*, where he wrote in a section concerning the moon:



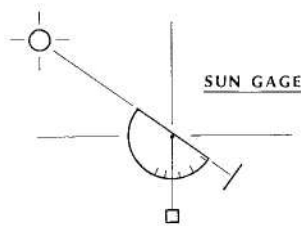
The annual sinking and rising by which the sun causes the various seasons and the inequalities of day and night are finished for the moon in a month.⁶

I assume the lack of criticism of geocentricity in the immediate context was an oversight on Galileo's part. In any case, he got the observation right and understood the cause of the seasons and length of days in the geocentric model.

If the reader wants to follow the position of the sun in the sky during the changing seasons for himself, he can do so by using the "Sun Gauge," available from the author without charge in kit form for this purpose. This simple device will enable him to confirm among other things that the sun really is at the equator on the vernal and autumnal equinoxes, and at the ends of the helix on the solstices. He

⁶ Galilei, Galileo, 1967. *Dialogues Concerning the Two Chief World Systems*, (Berkeley: Univ. of Calif. Press), 2nd edition, p. 100.

will then have “ocular proof” that the sun is where it is supposed to be, and gain a better understanding of the motion of the sun in the geocentric model:



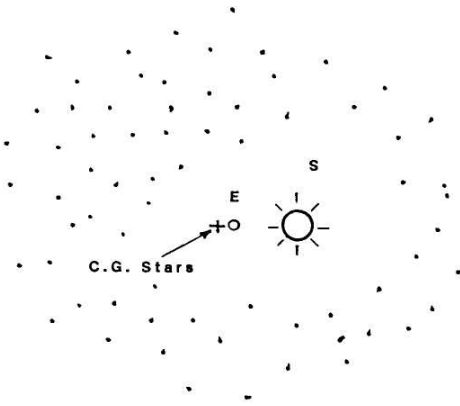
A common objection to the geocentric arrangement of things is expressed in the question, “What furnishes the gravitational balance to keep a ‘big’ sun going around the ‘little’ earth, rather than vice-versa?” The idea is that in the heliocentric model the large, heavy sun is in the center of the solar system and doesn’t move (much), while the small, light earth and other planets run around that center, held by the gravitational pull of the sun. That is certainly a persuasive argument, assuming the validity of Newtonian gravitational principles, but it doesn’t constitute conclusive proof if valid alternate explanations based on the geocentric arrangement are available. They are not hard to come by.

In the first place, nobody really knows what the mass of the sun is. All current statements about that are based on arbitrary, unconfirmed assumptions about the physical structure of the sun and a lot of other unknown factors. For all we know, the sun may be a giant “gas bag,” filled mostly with hydrogen and helium, very light elements, and not even having a particularly dense core. Detailed photographs of sunspots look to me (and, incidentally, looked to Galileo) like holes in the bag, revealing a black (and thus cooler) interior, the composition of which is not known with certainty.

The fact that different latitudes (and possibly different layers) of the sun rotate at different rates is evidence that the sun is not solid and does not even have a solid surface. For that matter, the sun may not be a nuclear-fusion star at all, but a very different kind of object. It shivers all the time and loses mass at a phenomenal rate to radiation and the solar wind, so how can anybody reliably calculate its mass? The point is that even though the sun is big (over 100 earth diameters) it is not necessarily as massive as we have been led to believe.

Apart from this consideration, the heliocentric scenario leaves out the mass of the whole rest of the universe, made up of billions of stars and other objects beyond the solar system. This is no trivial omission.

If we were to extend our geocentric diagram to include the stars, the center of gravity of this enormous mass could be offset from the prime axis by a small amount (say six inches—who knows?), so that it would easily balance the puny mass of the sun, no matter how that is calculated. In the geocentric model, the function of the earth is primarily to furnish a small gravitational stabilizing influence to the rest of the universe, not to generate the physical forces of orbital mechanics for everything else. Here again, the earth is truly unique. I just don't see a problem with this "balance" argument. With geocentricity, you just have to "think big," that's all:



It might be useful to add a few preliminary words about the moon and planets here, although they are not the subject of this paper.

The moon orbits the earth daily and follows a double-helix path somewhat similar to the sun's but in a monthly rather than a yearly cycle, as Galileo noted, exhibiting its various phases, positions,

and timing depending on where the sun, earth, and moon are relative to one another. An analysis of the moon's motion promises to be much simpler than in the heliocentric model, because it is orbiting a fixed earth instead of following an earth which is itself performing various complicated motions as it goes around the sun. Newton himself became frustrated in trying to figure out the moon's motion in that system, and finally gave up.⁷ I think we will have a lot easier job of it with the geocentric arrangement.

In the geocentric model, the planets (less the earth) can still be considered to be a conventional gravitational system orbiting the sun and carried around the earth each day, the fixed earth furnishing the stabilizing influence for all this, which is now so lacking as the solar is

⁷ Newton recalled bitterly that "his head never ached but with his studies on the moon." The irony here is that the heliocentric system has departed considerably from the original Copernican model, and the supposedly "fixed" sun is now moving again, rotating with the Milky Way galaxy and shifting its position within it. The galaxy itself is also moving with respect to other galaxies, and the whole thing without any true center or basis of stability left, *à la* Einstein. This sad state of affairs *really* would have given Newton a headache.

conceived heliocentrically. This important matter of stability and the earth's unique function as the anchor of the universe will be covered in a future article.

In the geocentric system, the so-called "ecliptic plane," more or less encompassing the path of the planets, is not fixed but moves and tilts with the sun as it travels in a celestial band from $23\frac{1}{2}^{\circ}$ north latitude to $23\frac{1}{2}^{\circ}$ south latitude. The planets never experience true "retrograde" motion in the geocentric arrangement, as the stars themselves circle the earth daily. The planets as seen from the earth will speed up and slow down some, and be on the sun side or opposite side of the heavens, depending on their orbital positions around the sun, but they are always moving forward, never backwards, and their daily motion is substantially geocentric, *a là* Ptolemy.

Solar Scripture

As an example of the many Bible verses which refer in one way or another to the sun, there is a wonderful description of the sun's daily and annual journey around the helix in Ecclesiastes 1:5-6. The Catholic Douay Old Testament version⁸ (taken from the Septuagint via the Vulgate) translates these verses as:

[5] The sun riseth and goeth down, and returneth to his place; and there rising again, [6] maketh his round by the south and turneth again to the north. The spirit goeth forward surveying all places round about, and returneth in its circuits it returneth.

The Thompson⁹ translation of the Septuagint has it this way:

[5] The sun riseth and the sun setteth and cometh round to his place. [6] Rising there he marcheth southward, then wheeleth about to the north. The wind wheeleth in circuits, and in its circuits it returneth.

Now if "wind" or "spirit" refers to the *solar wind* (the powerful supersonic stream of charged particles flowing into space from the sun's corona) instead of to an earthbound meteorological wind, the sixth verse becomes eerily more significant. The solar wind could even be

⁸ New Catholic Edition, (Catholic Book Publishing Co.: New York), 1949-1950.

⁹ 1954. Thompson was secretary of the U.S. Continental Congress from 1774 to 1789. (Falcon's Wing Press: Indian Hills, CO). Zondervan's translation of the LXX is similar to this.

considered to be the “spirit” of the sun, and thought of as a type of the holy spirit, just as the sun itself is often considered to be a type of Christ.¹⁰ The solar wind certainly exhibits physical characteristics which are compatible with this idea.

Looked at this way, even the King James (sourced from Jewish Masoretic texts) takes on new significance:

[5] The sun also ariseth and the sun goeth down, and hasteth to his place where he arose, [6] The wind goeth toward the south, and turneth about unto the north; it whirleth about continually, and the wind returneth again according to his circuits.

The translators of the King James, however providentially preserved and excellent their work is generally, apparently chose to relocate the word “wind” to the beginning of verse 6 instead of using the word “it” there to refer back to the sun in the previous verse and leaving wind in the middle of verse 6 to be the subject of the following sentence as the Hebrew text has it. I wonder also why the translators used the word “wind” instead of the word “spirit,” since it is exactly the same word in the Hebrew. The earth-bound wind is never referred to as “his” in the Bible.

I hope King James fans won’t get all bent out of shape when I mention these ideas. I’m no Bible scholar, so I can’t get into arguments about the relative merits of the various translations. In any case, **all** of the translations of verse 5 at a minimum describe the motion of the sun going around the earth in geocentric fashion. They certainly do not refer to a fixed sun and a moving earth, at least not if taken literally and not brushed off as a pre-scientific mistake by the author of the Bible. There is no way to turn verse 5 into a heliocentric description of the solar system. It is geocentric, period.

So what?

This brings me to a point that I think is very important. The Bible tells us a lot about the physical universe. It was not written just for spiritual purposes as many people believe. Every worldview is founded on a physical scenario of the cosmos, which forms the stage on which the drama of human existence is presented and explained. And everybody has a world view, whether conscious of it or not, which deter-

¹⁰ Unfortunately, there are many pantheistic references to the wind as spirit, able to “illuminate the soul,” etc. And plenty of sun-worshipping connections to occult mystery religions of various types, so I don’t want to push this angle too far.

mines their attitude toward the world and their actions in everyday living, so it's important to get the world picture straight. I can't think of a better place to check out a world view than the Bible. The natural world as we view it and the written word of the creator of that world had better be compatible, or one or the other is seriously out of whack. I am convinced that it is modern science and not the Bible that is out of whack.

When the Copernican Revolution upset the geocentric view of the cosmos which had reigned for thousands of years, it had a profound effect on a lot of things, not the least of which was that the Bible was seen to be in error about the earth's place in the cosmic scheme of things, and had to be relegated to second-class status as far as its authority in every other area was concerned. Many people logically and understandably concluded that if scripture wasn't reliable in telling us "how the heavens go," it couldn't be trusted when it tells us "how to go to heaven." And that had profound consequences.

The philosophical consequences of the geocentric/heliocentric controversy are plain enough that even Bible skeptics understand that if the earth is not fixed on center stage of the universe, then life on earth and man himself are essentially meaningless. John Donne expressed his concern over the new world view with the lament: "'Tis all in pieces, all coherence gone!" That's so true.

I think it is shameful that many otherwise sound Bible believers have allowed themselves to be faked out or a fully scriptural commitment on this issue and cannot summon the courage to accept what God says concerning the special place of the earth in the physical universe. Creationists in particular should not be pussy-footing around on this matter, and as a long-time windmill-tilter in the creation/evolution controversy, I'm plenty disappointed in many of them. I wish they would stop acting like their brains were made of reinforced political concrete.

The Bible **is** geocentric, there is no doubt about it. After all, what was the earth doing when it was first created in Genesis 1:1—orbiting and being gravitationally held by a sun which was not even present until three days later? There is no logical, scriptural or scientific reason for believers to consider the earth as anything but what the Bible says it is, the physical as well as the philosophical centerpiece of the universe.

Here's a parting shot: In 1630 Galileo added a note to the preliminary leaves of his own copy of the *Dialogues* which reads as follows:

Take note, theologians, that in your desire to make matters of faith out of propositions related to the fixity of the sun and earth you run the risk of eventually having to condemn as heretics those who would declare the earth to stand still and the sun to change

position—eventually, I say, at such a time as it might be physically or logically proven that the earth moves and the sun stands still.

The Catholic Church, recognizing the seriousness of Galileo's challenge to the Bible, did condemn Galileo as "vehemently suspect of heresy." Now, almost 400 years later, we are still waiting for the physical or logical proof that the earth moves and the sun stands still. I have offered a substantial reward¹¹ for such proof if it exists, and haven't seen anything remotely resembling what I seek in almost two decades since the offer was first made. I'm sure it is not out there.

So take note, theologians. Take note, scientists. Take note, Galileo. And quit bluffing. Geocentricity is coming back, and there isn't a thing you can do to stop it. It offers tremendous advantages over the reigning Copernican model, both scientifically and scripturally. I can just hear you guys saying a few years from now: "We knew it all along."

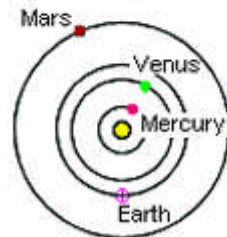
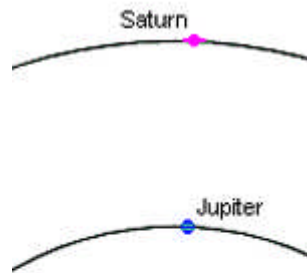
¹¹ The \$1000 Reward offer asks for scientific proof-positive (not hearsay, popular opinion, "expert" testimony, majority vote, personal conviction, organizational ruling, conventional usage, superficial analogy, appeal to "simplicity," or other indirect means of persuasion) that the earth moves. I have recently increased the offer to \$10,000. Still no takers. Copies of the reward offer are available from the author.

WHEN PLANETS ALIGN

Gerardus D. Bouw, Ph.D.

It looks like this issue is going to be very late, so this will be old news. There was a planetary alignment May 5-6 of this year. Again, the world was supposed to end. Of course, it didn't, but there were those astrologers and occultists who thought it surely would. Do you recall the 1982 alignment, when all the planets were on the same side of the sun? Books were written (*The Jupiter Effect*, for example) predicting giant tides in the sun which would alter the earth's weather. As a result, the scientists speculated, changes in wind pressure on the mountains of California would trigger great earthquakes which were going to shake California into the ocean. Even decent Christians succumbed to that one. Of course, California is still with us, much to the chagrin of many. And do you recall the alignment of 1962? On February 4 of that year, the sun, moon, and all the planets from Mercury to Saturn were clustered within a 17-degree area of the sky. Worse yet: it was new moon and there was a total eclipse of the sun — a sure portend of doom. But again the earthquakes did not materialize and the world didn't miss a beat.

Now the scripture does say that the sun, moon, and planets are for signs and for seasons, and that is not in dispute. In the star of Bethlehem paper that appeared in the Fall 1998 issue of the *Biblical Astronomer*, we documented the signs which led up to the birth of the Lord Jesus Christ. But instead of signs for the return of Jesus, the pundits see them as the end of the world. This illustrates a common fallacy. Why does one automatically assume that such signs are negative, that is, bad? Astrology and new-age superstitions have



May 5, 2000

thrived on such disaster-prognostication for planetary alignments since the alignment of 300 B.C.¹

There are some conjunctions associated with the 5 May event. The first conjunction of the series happened on 15 March when Mercury and Venus were $2^{\circ}.1$ apart. At the time Mars, Jupiter, and Saturn spanned 20° in the evening sky.

On 6 April Mars and Jupiter were about 1° apart, with Saturn 6° away. The crescent moon made this a pretty sight. On 15 April Mars is $2^{\circ}.2$ from Saturn and moves away so that the sun and the five planets span 39° on 20 April.

On 28 April Mercury came to within $0^{\circ}.3$ from Venus but this was too close to the sun to see by eye. The sun and planets now fell within 30° of each other. On 5 May the sun, moon, and the five planets all fall within $25^{\circ}.9$ of each other (see figure on the previous page which shows the alignment as it appears from the pole of the ecliptic).

Still too close to the sun to be seen, these events happen: Jupiter passes through superior conjunction (earth-sun-Jupiter alignment). Mercury passes Jupiter and comes to superior conjunction. Next Saturn goes through superior conjunction and then Venus passes Jupiter. At that point it is 17 May and the planets and the sun span an area of $19^{\circ}.4$. All the planets are still too close to the sun to be seen.

The most notable event in the sequence is on that date; Venus and Jupiter are separated by only 42 seconds of arc ($0^{\circ}.01$). Venus almost occults (passes in front of) Jupiter. This rivals the 2 B.C. conjunction of the same two planets, which conjunction figured in the sequence leading up to Jesus' birth later that year.

Several conjunctions remain. Mercury passes Mars within $1^{\circ}.1$ on 19 May; Jupiter passes Saturn with the same separation on 27 May. Venus, after passing directly behind the sun on 11 June, passes $0^{\circ}.2$ from Mars on 21 June.

The final massing of sun, moon, and five planets happens on July 1 and 2 when, for 11 hours, all fit within a circle 8° in diameter! Unfortunately, it is too close to the sun to see.

Within about 3000 years either side of A.D. 2000, the closest clustering of the five naked-eye planets happened on 27 February, 1953

¹ A fairly recent example of such an occasion was the August 1987 new-age Harmonic Convergence. At that time new-age occultists gathered on Mt. Shasta and at other so-called "galacto-magnetic vortices" sites around the world (at pyramids, etc.). While Mercury, Venus, and Mars coalesced near the sun, the faithful gathered to establish a "field of trust" via a "bio-electromagnetic battery and sense-field matrix" around the world. The practitioners thought that, among other things, the ancient Mayans, who had departed in UFOs, would return to usher in a new age of "galactic synchronization."

B.C. when Mercury, Venus, Mars, Jupiter, and Saturn all fell within a $4^{\circ}.3$ circle. The next close grouping (within 25°) will occur on 8 September, 2040.

When it comes to groupings of all seven bodies, that is the five planets and the sun and moon, the last time they were close was in 1962 when they were within $15^{\circ}.8$ of each other. May 5 of this year they are within $25^{\circ}.9$ of one another, and the next grouping of all seven is set for 20 March, 2675 when they will fall within $22^{\circ}.6$ of each other.

Of Earthquakes

Will earthquakes accompany such planetary massings and alignments? To answer that we need to look at the gravitational contributions of the planets as felt here on earth.

In a paper designed to evaluate the Jupiter effect of 1982,² Thompson tabulated the relative contributions to the tide for the sun, moon, and planets. He set the sun's contribution at 1 and came up with the table below.

moon	2.1
sun	1.00
Venus	0.000 113
Jupiter	0.000 013 1
Mars	0.000 002 3
Mercury	0.000 000 7
Saturn	0.000 000 5
Uranus	0.000 000 001
Neptune	0.000 000 000 2
Pluto	0.000 000 000 000 1

As you can see, all the planets combined contribute only about one ten-thousandth what the sun contributes to the tides, and the moon's contribution is more than twice as strong as that of the sun.

What is particularly interesting about the 5 May alignment is that the gravitational strengths of the planets are at a minimum. Since they are all at the far side of the sun, their contributions are minimized. The gravitational strength contributing to the tide height falls off with the cube of the distance. That means that if the moon were twice as far away, the tide would be an eighth what it now is. Three times as far away and the tide would be $1/27^{\text{th}}$ as high. So, far from contributing to

² Thompson, L.G., 1981. "On the Trail of the Jupiter Effect," *Sky and Telescope*, p. 220, September.

a high tide, the planets actually contribute less to the height of the tide than they normally do. And of the planets, the major contributor to the height of the tide is Venus, which is on the far side of the sun. It may surprise to learn that Jupiter, the largest of the planets, contributes less than Venus, but that's what an inverse cube effect will do.

Now the claim of Gribbin and Plagemann, authors of *The Jupiter Effect*, was that the effect was on the sun, not on the earth. As we can see from the table, the contributions are not great, but Ip has checked for a connection between earthquakes and planetary alignments.³ Of 11 earthquakes of eight or higher on the Richter scale since A.D. 1000, none coincide with a heliocentric planetary alignment.

A 1975 Chinese paper by Yu Shen (cited by Ip), looked at alignments and earthquakes since 780 B.C. During that time there have been 15 or 16 heliocentric alignments of the type used by Gribbin and Plagemann, and in that time there were 125 earthquakes in northern China of strength six or higher on the Richter scale. Only the 1624 earthquake happened close to a planetary alignment. The conclusion is that there seems to be no correlation between alignments and earthquakes.

³ Ip, W.-H., 1976. "Chinese Records on the Correlation of Heliocentric Planetary Alignments and Earthquake Activities," *Icarus*, **29**:435-436.

THE FLAT COSMOS

“An international team of cosmologists has released the first detailed images of the universe in its infancy” says a NASA press release on its web page. “The images reveal the structure that existed in the universe when it was a tiny fraction of its current age and 1,000 times smaller and hotter than it is today. Detailed analysis is already shedding light on some of cosmology’s outstanding mysteries—the nature of the matter and energy that dominate intergalactic space and whether space is ‘curved’ or ‘flat.’

“The project, dubbed BOOMERANG (Balloon Observations of Millimetric Extragalactic Radiation and Geophysics), obtained the images using an extremely sensitive telescope suspended from a balloon that circumnavigated the Antarctic in late 1998. The balloon carried the telescope at an altitude of almost 120,000 feet (37 kilometers) for 10½ days. The results [were] published in the April 27, 2000 issue of *Nature*.

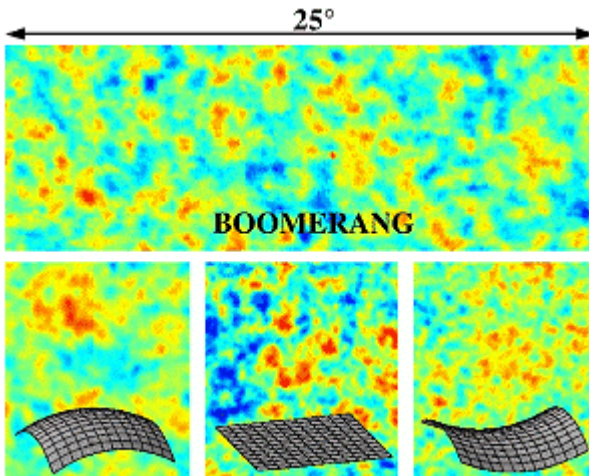
“Today, the universe is filled with galaxies and clusters of galaxies. But 12 to 15 billion years ago, following the Big Bang, the universe was very smooth, incredibly hot and dense. The intense heat that filled the embryonic universe is still detectable today as a faint glow of microwave radiation visible in all directions. This radiation is known as the cosmic microwave background (CMB). Since the CMB was first discovered by a ground-based radio telescope in 1965, scientists have eagerly tried to obtain high-resolution images of this radiation. NASA’s Cosmic Background Explorer satellite discovered the first evidence for structures, or spatial variations, in the microwave background in 1991.” Thus the press release. The long ages are, of course, totally hypothetical.

The press release continues: “The BOOMERANG images are the first to bring the cosmic microwave background into sharp focus. The images reveal hundreds of complex regions visible as tiny variations—typically only 100-millionths of a degree Celsius (0.0001 C)—in the temperature of the CMB. The complex patterns visible in the images confirm predictions of the patterns that would result from sound waves racing through the early universe, creating the structures that by now have evolved into giant clusters and super-clusters of galaxies.

“The BOOMERANG images cover about 3 percent of the sky. The team’s analysis of the size of the structures in the cosmic microwave background has produced the most precise measurements to date of the geometry of space-time, which strongly indicate that the geometry of the universe is flat, not curved. This result is in agreement with a fundamental prediction of the “inflationary” theory of the

universe. This theory hypothesizes that the entire universe grew from a tiny subatomic region during a period of violent expansion occurring a split second after the Big Bang. The enormous expansion would have stretched the geometry of space until it was flat.”

And there we have our creationist application. The inflationary model is capable not only of accounting for a 15-billion-year old universe, but it can also account for a 6,000-year old universe. (The original 1971 version produced the present universe in less than 100,000 years, for example.) Its flatness has theological significance, namely, that the universe is on the border of being open and closed. Thus God can but need not operate miracles in his creation. A closed universe is doomed while an open universe is open to our infinite Creator, the Lord Jesus Christ.



Above: By observing the characteristic size of hot and cold spots in the BOOMERANG images, the geometry of space can be determined. Cosmological simulations predict that if our universe has a flat geometry, (in which standard high school geometry applies), then the BOOMERANG images will be dominated by hot and cold spots of around 1 degree in size (bottom center). If, on the other hand, the geometry of space is curved, then the bending of light by this curvature of space will distort the images. If the universe is closed, so that parallel lines converge, then the images will be magnified by this curvature, and structures will appear larger than 1 degree on the sky (bottom left). Conversely, if the universe is open, and parallel lines diverge then structures in the images will appear smaller (bottom right). Comparison with the BOOMERANG image (top) indicates that space is very nearly flat.

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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