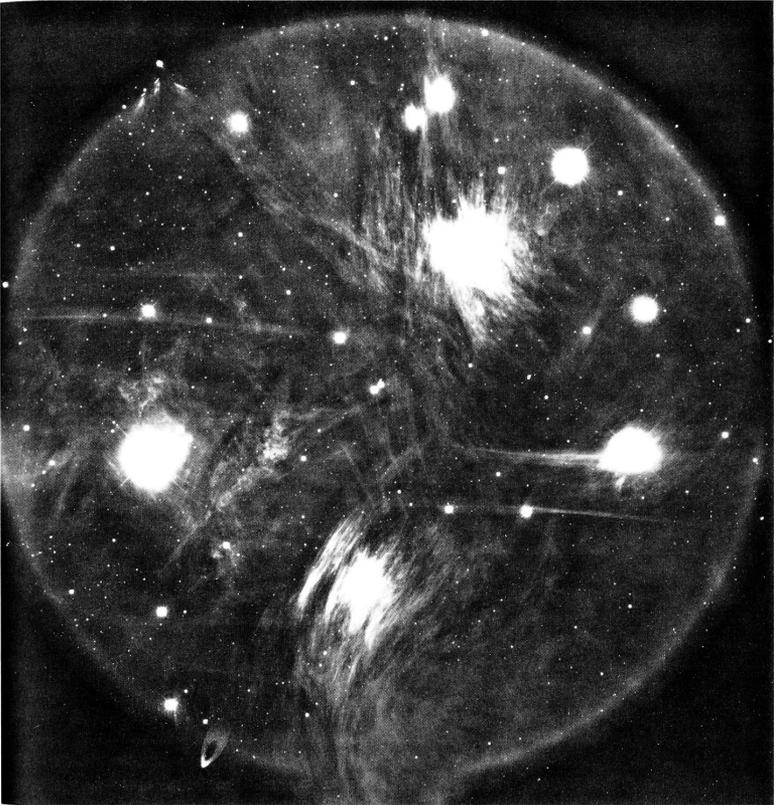


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Cover: A deep sky photo of the Pleiades star cluster. The photo shows the complex arrangement of dust in which the stars are embedded. (Kitt Peak National Observatory.)

THE BIBLICAL ASTRONOMER

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EDITORIAL

As mentioned in the previous issue, this one is late. I'm teaching seven courses (six different ones), as well as serving on the pulpit committee of our church, teaching Sunday school, and for the time being, leading the singing in church services, and leading the Wednesday prayer meeting.

Despite that, most of the delay is due to the time spent in preparing the article on the Pleiades. Of all the constellations and asterisms mentioned in the Bible, the Pleiades is the most important. Also known in the Bible as the seven stars, the Pleiades turn out to be a strong type of the Church ... but see the article for how strong.

Let me also take this occasion to publish an **erratum**. A couple of readers pointed out an error in "A Brief Introduction to the History of Evolution" which appeared in *Biblical Astronomer* No. 85, Summer 1998, pp. 9-17. On page 15 it is erroneously stated that Darwin learned his hatred of the Scriptures from his grandfather, Erasmus Darwin. Fred Middleton wrote by email:

Erasmus Darwin died in 1802, seven years before his famous grandson was born. The Erasmus Darwin in the Geological Society must have been Charles' brother.

Undoubtedly Erasmus senior's writings on evolution in *Zoonomia* (Vol. 2, 1796) and *The Temple of Nature* (1803) were used by Charles. Erasmus Darwin was clearly the first British evolutionist and very influential for two generations, but admirers of Charles Darwin concealed his influence.

Source: D. Hele-King, 1968. *The Essential Writings of Erasmus Darwin*, (London).

Finally, a heart-felt thank you to the encouraging letters, phone calls, and donations sent to your editor in the last several months. I was reminded thereby that not only must I occupy until the Lord comes back (Luke 19:13), but I'm not alone in that occupation either. Thank you all.

THE BIBLE AND THE PLEIADES

Gerardus D. Bouw, Ph.D.

Introduction: the science of the Bible versus the science of man

As a geocentrist, I come in contact with a great many skeptics. That should surprise no one. Some of them, when I explain the rationale for my stance, come to believe with me. Others loose a lot of their skepticism and hostility yet cannot quite bring themselves to believe in the geocentric model; and very many refuse to listen or consider the issues. To them, science has proven once and for all that the earth moves.

Now throughout history there have been many things that science has “proven once and for all,” at least in the mind of those who know a little science. As related in the book *Geocentricity*, the Right Reverend John Wilkins (1614-1672) argued that the Bible should not be taken literally in its scientific pronouncements because Psalm 19:6 says that the sun is hot. According to that Anglican Bishop, science has *proven* that the sun is not hot, that it was merely a mirror, reflecting the light from the lake of fire. Likewise, from before the days of Wilkins, through the time of the mathematician Leonhard Euler (1707-1783), it was widely argued in Europe that the Bible should not be believed because it makes of the earth a special place. Although Euler himself did not believe it, back in those days popular science had “proven” that the sun, moon, planets, and stars were inhabited; so God had no reason to make of the earth a special place. Today Mormonism and Adventism still believe that.

In the above examples, people placed their faith in the pronouncements of “modern science” instead of in the words of the Scriptures; and in each case “modern science” was proven wrong. The “modern science” of yesteryear is today’s superstition (Acts 17:22). We have no reason to doubt that today’s “modern” science will look just as silly to the practitioners of “modern” science in A.D. 2200, should the Lord tarry. Those who place their faith in science when it contradicts the Bible, place their trust in a proven loser.

So it is that we take up the nature of stars as presented in the Holy Bible, the nature of the Pleiades star cluster in particular. The Bible has much to say about stars, and it sounds strange to our ears to hear that men once believed that the stars, and most particularly the sun, are

inhabited. Had we questioned them as to why they seriously thought such we would have received reasons which on the surface seem reasonable. For example, some may have told us that prophets such as Emmanuel Swedenborg had talked with the inhabitants of these other worlds. Indeed, it was during one such séance with the inhabitants of the moon and Mars that Swedenborg was told how the solar system was created. That “revelation” is still the standard theory for the formation of the solar system. Back in those days LaPlace put the “revelation” in a pseudo-mathematical form and it came to be known as the *Nebular Hypothesis*. Asking the faithful of that ancient belief for a second reason, we might be told that the ancients believed the same. Is that any different than the von Daniken “ancient visitors from space” speculations?

Likewise, if we had asked Kepler how he could know so certainly that the earth rotates instead of the cosmos rotating about the earth once per day, he may have invoked the inhabitants of the moon to tell us. In an early science fiction story he wrote, Kepler proposed that the inhabitants of the moon could prove it by taking people to the moon along the shadow of an eclipse and could show them, from the moon, that the earth rotates. In recent history the same argument (but using astronauts instead of moon people) has been popularized by anti-geocentric Creationists. The argument, of course, is equivalent to saying that because you can see all sides of the engine at the center of a carousel “rotating” as you ride on the carousel, that this proves that the engine rotates and the horses on the carousel stand still.

Now this notion that the sun, moon, and stars are inhabited is not at all new. Consider for a moment what Adamantius Origen wrote about the stars.

Origen’s view of the nature of the stars

Although condemned as a heretic shortly after his death, and regarded as such for over a thousand years since, in the last couple of hundred years Origen has been reincarnated as the darling father of the critical bible. It is interesting to see how this man, who devoted his entire life to reconciling the unholy philosophies of Plato with the “philosophies” of God’s Holy Bible, viewed the stars.

We ought first to inquire after this point, whether it is allowable to suppose that [the stars] are living and rational beings; then, in the next place, whether their souls came into existence at the same time with their bodies, or seem to be anterior to them; and also

whether, after the end of the world, we are to understand that they are to be released from their bodies; and whether, as we cease to live, so they also will cease from illuminating the world. We think then that they may be designated as living beings, for this reason, that they are said to receive the commandments from God, which is ordinarily the case only with rational beings. "I have given a commandment to all the stars." (Isaiah 45:12¹) ... And seeing that the stars move with such order and regularity, that their movements never appear to be at any time subject to derangement, would it not be the height of folly to say that so orderly an observance of method and plan could be carried out or accomplished by irrational beings? In the writings of Jeremiah, indeed the moon is called the queen of heaven.² Yet if the stars are living and rational beings, there will undoubtedly appear among them both an advance and a falling back ... Job appears to assert that not only may the stars be subject to sin, but even that they are actually not clean from contagion of it. "The stars also are not clean in thy sight." (Job 25:5.³)⁴

So we see that Origen believed not just that the stars are inhabited, but that the stars themselves are alive and that each has a soul. That notion is totally foreign to the Bible, as can be seen in the footnotes. Today, scientists may not (yet?) believe what Origen believed about the stars, but many believe a similar thing about the earth. The notion that the spirit of the earth, Gaia, will protect the earth is such a superstition.

¹ Isaiah 45:12 "I have made the earth, and created man upon it: I, even my hands, have stretched out the heavens, and all their host have I commanded." The word "host," which Origen says is "stars," is never used for stars in the Bible. Hosts means the armies or company of heaven.

² The queen of heaven is mentioned several times in Jeremiah and the moon is mentioned twice (Jeremiah 8:2 and 31:35), but nowhere is there the least hint that the moon is the queen of heaven. The moon appears nowhere near the context of the queen of heaven there, or anywhere else in the Bible.

³ Job 25:5 "Behold even to the moon, and it shineth not; yea, the stars are not pure in his sight." Sin is not in the context.

⁴ Menzies, Allen, 1990. *The Ante-Necene Fathers*, 4, (Grand Rapids Michigan: Wm. B. Eerdmans Publ. Co.), p. 263.

(By the way, Gaia is the name of the elephant upon whose back, according to Hindu mythology, rests the earth.) But belief in Gaia has not in the least helped the Hindus improve their lot in life, nor has their faith in Gaia helped them achieve harmony with the earth, let alone with their fellow man. Yet many “modern” scientists, politicians, and businessmen are looking to Gaia to save them from perils real and imagined. Is that really so different from anything Origen believed? They are all too superstitious (Acts 17:22).

Now in all fairness, angels are called stars in the Holy Bible. Revelation 1:20 says:

The mystery of the seven stars which thou sawest in my right hand, and the seven golden candlesticks. The seven stars are the angels of the seven churches: and the seven candlesticks which thou sawest are the seven churches.

Jesus is himself referred to as “the bright and morning star” in Revelation 22:16. Likewise a third of the angels are referred to as “the third part of the stars of heaven” in Revelation 12:4, but whenever an angel appears in earth, he has the appearance of a man—without wings (Genesis 19:1, 15; Hebrews 13:2; etc.). And John is very bold in Revelation 21:17 and 22:8-9 to equate angels with men. Angels are also associated with flames and spirits (Hebrews 1:7). So the teaching of the Bible about the nature of angels is not as simple as Origen thought it to be.

Rather than stars being living and rational beings as Origen believed, it is more Scriptural to think of the stars as types, and perhaps the abode of at least some of the angels. Perhaps the stars are the chains referred to in Jude 6 where we read: “And the angels which kept not their first estate, but left their own habitation, he hath reserved in everlasting chains under darkness unto the judgment of the great day.” Here “under darkness” would refer to the darkness of outer space. But I speculate, for other interpretations are possible, too. It seems then that though Origen built his speculation on a simplistic view of a basic Bible truth, he carried it too far. As for me, I am not prepared to write a treatise on the stars as found in the Holy Bible. Still, we will see many of these stellar elements in the facts and lore of the Pleiades. But first, a bit about that lovely jewel in the sky.

The Pleiades as a star cluster

The Pleiades is what astronomers call an *open cluster* or a *galactic cluster* (the latter because they are confined to the plane of the

galaxy, the Milky Way). Such a cluster's stars are grouped in random but decreasing number outwards from the cluster center. In the case of the Pleiades the outline of the brightest stars is that of a tiny dipper or cup. Classically the Pleiades are said to consist of seven stars, one of which is missing. Normal adults see six or seven stars; those with excellent vision see about 10. Children see 12 to 14 stars. There are about 200 stars in the core of the cluster which is about two degrees in diameter (four times the apparent diameter of the full moon), and when extending the area out to six degrees, one counts about 500 stars. The cluster is about 360 light years from earth and is some 30 light years in diameter. The entire cluster is slowly moving to the south-west. The number of stars in a given volume in the cluster is about three times what it is in the solar neighborhood.

Most of the brighter stars in the cluster, indeed all the brightest ones, are hot stars, white to bluish-white in color. They are embedded in a wispy nebulosity (clouds). This issue's cover shows a long-exposure photograph taken at Kitt Peak National Observatory. You can see the dust clouds, reminiscent of cirrus clouds, about the stars as well as between them. I've enhanced the contrast to make the streaking more apparent. The mystery is why the wisps should go in all directions, apparently at random. (The mysterious forms at the edge of the circular photo are due to edge effects caused mostly by light reflection off the interior of the telescope tube, and partly by contact printing, since the exposure is not on film but on a glass plate.)

Figure 2 shows all the stars in the Pleiades region visible through a small telescope. It also shows the official modern names of the brightest stars of the Pleiades. The star names are not necessarily those assigned by the ancients, though the names conform to Greek legend. The Greek Pleiades were seven sisters named Alcyone, Sterope, Electra, Celaeno, Maia, Merope, and Taygeta. Atlas was their father and Pleione was their mother, but the stars bearing the parental names on Figure 1 were not given those until about four or five hundred years ago; Pleione by Michel Florent van Langren (Langrenus) of Antwerp, and Atlas by the Jesuit, Riccioli. The rest of the star names may not be all that much older.

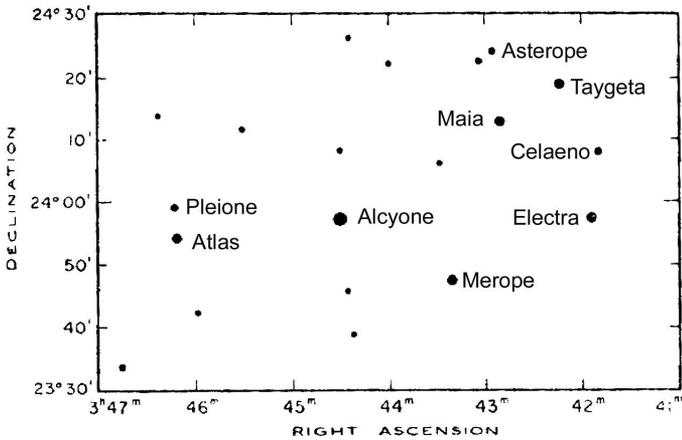


Figure 1: The Pleiades

The seven brightest stars in the cluster are, in order from brightest to faintest, Alcyone (magnitude 2.96), Atlas (3.80), Electra (3.81), Maia (4.02), Merope (4.25), Taygeta (4.37), and Pleione (5.0-5.5, an irregular variable star of the P-Cygni class). Since Pleione is hard to see in the glare of Atlas, Celaeno (5.43) may be seen as the seventh instead of the eighth. The ninth brightest star is Asterope (or Sterope). It consists of two stars which are so close together that they appear as one star of magnitude 5.85. Except for Alcyone, the names do not appear to be too ancient.

The Pleiades in the Holy Bible

From time immemorial the Hebrews and the Christian Church have linked the constellations to the truths of scriptures. The Hebrews, for example, maintain that the constellation of Orion the hunter, which they call *Kesil*, (meaning fool), was usurped by Nimrod (Gen. 10:8-9) to immortalize himself in the sky. Indeed, most of the pagan accounts of the Pleiades even have Biblical overtones. Thus many ancients associate Taurus, the constellation in which the Pleiades is found, with the flood of Noah, and they associate the Pleiades with the ark. Related to that, some regard the Pleiades as doves. Of course, we know Noah sent a single dove from the ark (Genesis 8:8), not seven, but the connection is there nevertheless.

In the Bible the Pleiades, also called the “seven stars,” are mentioned seven times. In Hebrew they are called *Kimah* which means either a tablet, or a cup. A tablet is a flat ornament of precious metal worn about a person. It may be inscribed. Strong’s *Exhaustive Concordance* says “cluster” for the meaning (from his 3558), but the root word there means “store,” so the derivation is dubious. The Euphratean name for the Pleiades is *dimmena*, which means “foundation” or “faithful.” Since the letters *k* and *d* are regarded as interchangeable in the study of word origins, the Euphratean name’s meaning exactly matches Strong’s number 3559 instead of 3558. The meanings faithful, tablet, or cup can all apply to the Pleiades in the Bible.

As far as the Greek word, *Pleiades*, is concerned, the derivation is said to be uncertain and, as we shall see, several homonyms are brought to bear on ascertaining the meaning of the name. My own research points to a meaning of “plenty,” “many,” or “greater.”

Below are all seven references to the Pleiades or seven stars in the Holy Bible:

Job 9:9 Which maketh Arcturus, Orion, and Pleiades, and the chambers of the south.

Job 38:31 Canst thou bind the sweet influences of Pleiades, or loose the bands of Orion?

Amos 5:8 Seek him that maketh the seven stars and Orion, and turneth the shadow of death into the morning, and maketh the day dark with night: that calleth for the waters of the sea, and poureth them out upon the face of the earth: The LORD is his name

Revelation 1:16 And he had in his right hand seven stars: and out of his mouth went a sharp twoedged sword: and his countenance was as the sun shineth in his strength.

Revelation 1:20 The mystery of the seven stars which thou sawest in my right hand, and the seven golden candlesticks. The seven stars are the angels of the seven churches: and the seven candlesticks which thou sawest are the seven churches.

Revelation 2:1 Unto the angel of the church of Ephesus write; These things saith he that holdeth the seven stars in his right hand, who walketh in the midst of the seven golden candlesticks

Revelation 3:1 And unto the angel of the church in Sardis write; These things saith he that hath the seven Spirits of God, and the seven stars; I know thy works, that thou hast a name that thou livest, and art dead.

From the above verses is clear that Biblically the Pleiades represent the spirits of seven churches. These churches correspond first to seven churches in Asia Minor (now Turkey; see Figure 2), which existed at the time John wrote the Revelation at the end of the first century.

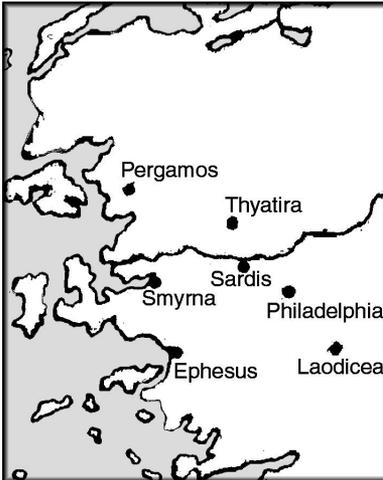


Figure 2: The Seven Churches

Second, the seven churches relate to the seven church ages into which the history of the Church can be divided. Ephesus, A.D. 33-200; Smyrna, 200-325; Pergamos, 325-500; Thyatira, 500-1000; Sardis 1000-1600; Philadelphia, 1600-1900; and Laodicea, 1900-present. Each of these ages is characterized by the spirit described for it in the second and third chapters of the Revelation.

Third, the seven churches representing seven churches which will again exist in the future. This is suggested by the emphasis on works in the prophecies about the seven Asian

churches. There is the offer of rewards for overcoming, for example, but according to I John 4:4 and 5:5, all Christians are overcomers by faith. In verses such as Revelation 2:7 eternal life is tied to “overcoming,” but Christians already have eternal life, hidden in the Lord Jesus Christ, and don’t need to eat from the tree of life to live eternally. For a Christian, that which is here rewarded with eternal life is nothing more than “reasonable service” (Romans 12:1). Thus we look to a future fulfillment of these seven churches, probably in the time of the great tribulation or Jacob’s trouble (Jeremiah 30:7).

The Bible itself interprets the seven stars as the seven churches, the mysterious “sweet influences” referred to in Amos 5:8 are now clearly identifiable as the sweet influences of the Gospel of Jesus Christ as ministered by these seven angels. The sweet influences were proclaimed by the prophets in the Old Testament, the believer-priests in

the current dispensation (I Peter 2:9), and kings in the next dispensation (Rev. 1:5-6). Amos 5:8 is key, for it associates the Pleiades with the resurrection (turning the shadow of death into the morning — see Mat. 28), Orion with the darkness (occultism) that darkens even the day, and the Pleiades with the rain or start of the rainy season, a theme associated with them around the world.

Before we look at some of the pagan perversions of this biblical truth, we should take note of Revelation 2:5 — "Remember therefore from whence thou art fallen, and repent, and do the first works; or else I will come unto thee quickly, and will remove thy candlestick out of his place, except thou repent." The threat is that the first of the seven, Ephesus, may no longer shine in his place. We find that tales of a missing Pleiad are worldwide.

The Pleiades as a constellation

Today the Pleiades are officially considered part of the constellation of Taurus the bull. Most people view the Pleiades as located on the shoulder of the bull, some on the neck, and others on the back. Hyginus placed them on the hindquarter while Pliny, Columella, Vitruvius, and Nicander placed them on the tail of the bull. Pliny is also reported to have made them out as a separate constellation. Eratosthenes, Homer, and Hesiod placed them above the bull and separate from it. Eudoxus and Aratos placed them near the knees of Perseus, a constellation to the north of them, and again separate from Taurus. The Jews and Arabians place the Pleiades as on the rump of Aries, the ram, which is the constellation to the east of them. The Hindus place them on the head of the bull. The rest of the ancient world seems to view the Pleiades as a separate constellation.

The Pleiades as virtuous maidens

In the West, the best-known tale of the Pleiades hails from Greece. According to Greek legend, Orion met Pleione and her seven nymph daughters in Boeotia and pursued them through the woods for five years until Zeus translated them all, Pleione, her seven virtuous daughters, Orion, and even his dog into the heaven as the respective constellations (the constellation of the dog is Canis Major). Figure 4 shows the locations of the constellations Orion, Taurus the bull, and the Pleiades. All the daughters of Pleione became ancestresses of divine or heroic families. As for the missing Pleiad, various accounts say it is Electra mourning for Troy, or Merope in shame for marrying the

mortal, king Sisyphus, and so settling for far less than her sisters who all married gods.

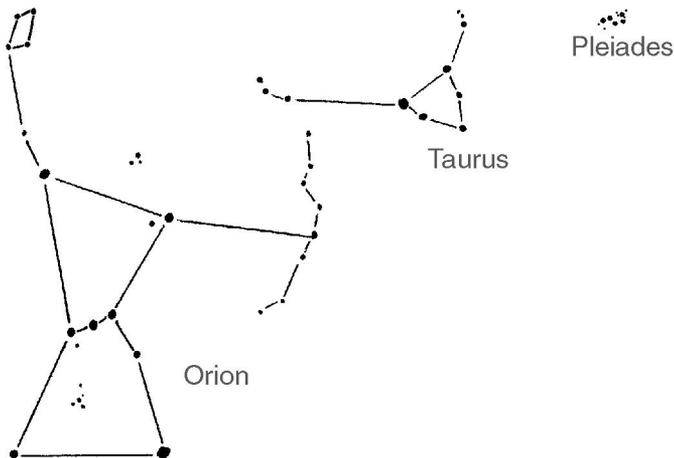


Figure 3: Orion, Taurus, and the Pleiades.
(The horizontal scale is slightly exaggerated.)

Despite the beclouding of the ancient Bible truth in the Greek tale, the biblical truth is still recognizable. According to the Jews, Orion is Nimrod, the founder of the Babylonian religious system, which for more than four thousand years has pursued all the children of the living God, even his Church to this very day. Their Father upholds the earth with the word of his power (Hebrews 1:3), and their mother is Jerusalem which is above (Galatians 4:26).

As the Church is a chaste virgin, washed by the blood of the lamb, we are not surprised that Hesiod should refer to the Pleiades as seven virgins. Likewise the rabbis call the Pleiades the *Succoth Renoth*, the booths of the maidens. The Syrian name for the asterism also means “booths.”

Even the queen of heaven gets into the act. The transformation of the virgin queen into a star was rather late as far as legends are concerned; yet, Ishtar, whose pagan holiday is Easter, reputedly became one of the Pleiades. This is, to the Christian at least, an obvious corruption of the figure of the church, the bride of Christ. Insofar as Jesus is the King of kings, and king of heaven in particular, his bride, the Church, is the “queen” of heaven. Nevertheless, the Holy Bible never refers to the Church as the queen of heaven, and all

scriptural references to the queen of heaven are negative (see Jeremiah 44:17 v.f.).

The Missing Pleiad

In the Bible, there is the threat to the angel of the church at Ephesus that his candlestick may be removed. According to the rest of the world, the star is gone. We have already seen the Greek account of the missing Pleiad. Tales of a missing star are found in other places in Europe, in China, India, Japan, the Americas, Africa, and Australia. The Pirt-Kopan-noot tribe of Australia tell a tale of a missing Pleiad. According to their tradition, the Pleiades were a chieftess named Gneeanggar and her six attendants. Waa, the crow (the star Canopus), fell in love with her. One day while the women were hunting grubs, Waa changed himself into a white grub and bored himself into a tree trunk to await his love who was sure to find him. When she stuck her bone hook into the hole he let her draw him out, turned into a giant, and carried her away. Since then only the six attendants remain. The Africans say that there are seven stars but that one, plain and not as beautiful as her sisters, hides herself for shame. (This suggests Pleione, the star that can be lost in Atlas's glare.)

The Pleiades as birds

The association the Australian aborigines drew between the Pleiades and a bird is wide-spread. Many other peoples associate the Pleiades with birds. For example, Athenaeus, Hesiod, Pindor, Simonides, and Sicily call them the seven doves. In the Bible, doves are associated with spirits. The ancients associate Taurus with the Noaic flood and Pleiades with the ark, again tying the constellation to the dove and indirectly to the heavenly Jerusalem.

In the Coverdale Bible of 1535, the margin note to the reference in Job reads "these vii starres, the cock henne with her chicks" reflecting the then-common name for the Pleiades among the north-central and Western Europeans, namely hen and chickens (a reference to Jerusalem, Mat. 23:37). This is said to have come from Aben Razel and other Hebrew writers, who remarked on the similarity between the Greek word for Pleiades and the Greek word for chicken coop. The Japanese also saw the Pleiades as a hen and her chicks.

The Samoans know the Pleiades as the bird of paradise, the first hint of a link between the Pleiades and paradise.

The Pleiades as a grape cluster

Not nearly as many peoples associate the Pleiades with a cluster of grapes, but there are some, and through them we are reminded of the “new wine” mentioned in connection with the birth of the Church in Acts 2:13. But before that, the birth of the nation of Israel is associated with a cluster of grapes. At the time Israel was to enter the promised land, the spies brought back a cluster of grapes (Numbers 13:20-24). By their subsequent rebellion Israel forfeited that entry, and when they finally did enter the land some 39 years later, it was as a figure for a future fulfillment. This future fulfillment is the Millennial kingdom which follows the Tribulation and, as noted earlier, there are seven churches in Asia mentioned before the start of the Tribulation. Those seven churches are the vehicle, the ark, that shows the way of salvation throughout the Tribulation, the strait gate through which is reached the sabbath kingdom promised in the Old Testament.

The Pleiades as flames

The Hindus regard the Pleiades as seven flames. Here, too, Biblical overtones are in evidence, for we saw earlier that the flame of fire is associated with spirits and angels. The association between Pleiad and flame manifests itself in that the appearance of the Pleiades in the evening sky of October-November initiates the festival of lamps celebrated throughout the Far East at that time of year. The seven flames also remind us of the seven lamps of the candlestick Moses made for the tabernacle (Ex. 25:31 v.f.). The candlestick is in the Holy of Holies and represents the Holy Ghost who indwells the Christian believer. Its seven lights represent the seven Spirits of God which constitute the Holy Ghost (Rev. 1:4; Isa. 11:1-2).

The Pleiades as the seat of immortality

The brightest star in the Pleiades is called Alcyone. In Greek this word can mean the center or pivot, but another possible meaning is contained in the variant, *Halcyone*, which means heavenly. In Greek mythology, one has to cross the Alkyonic Lake in order to reach the spirit world. The word halcyone is also found among the natives of Mexico to refer to the bird of paradise. The name for the star Alcyone in Arabic is *Al Wasat*, which also means the central one according to

the important Arab astronomer Ulug Begh. The Arab, Hafiz, reported that the Pleiades were the seal or seat of immortality, that is, of Paradise. This view was shared by the Berbers of Morocco, some of the Moors, and the Dyaks of Borneo.

To compound the influence, the Pleiades are associated with the feast of the dead on November 1 as celebrated by the Roman Catholic Church in Europe, the Celtic Druids, and the natives of Peru. In Australia, the event sparked a three-day celebration in honor of the Pleiades.

The pervasiveness of the Pleiades as the spiritual center or seat of the universe led Wright, in 1750, to propose that the Pleiades are at the physical center of the universe. In 1846 this led to the suggestion by Maedler that the whole universe revolved around Alcyone.

Now the reason behind Maedler's speculation was that some years before, Sir William Herschel noted that stars seemed to be streaming past the sun away from the constellation Hercules. This he interpreted as due to the sun's motion towards that constellation. Today the motion is held caused by the sun's orbital motion about the center of the Milky Way, but the nature of the Milky Way wasn't known in the nineteenth century and so Maedler suggested the the center of the orbit lay in the opposite direction from the center of the Milky Way, around the Pleiades. This he did with no proof whatsoever that his conjecture was true, yet it was a popular idea in the nineteenth century and has resurfaced from time to time in the twentieth century.

The Pleiades and geocentricity

Throughout the above accounts, those knowledgeable about the Bible will see the many veiled references pointing to the Church. The suggestion is that it is the Church, the true Bride of Christ, the one described in the Holy Bible and none other, which occasions that the earth is located at the center of the universe. It was for that Bride that Jesus Christ, God himself, came; and he shed his blood to redeem her. Her members, even those who believe on the Lord Jesus Christ, are assured eternal life, even the resurrection from the dead. Finally, the Lord Jesus Christ will return for her and she will be his wife for ever. But until that day, she is the light of the world (flame), is indwelt by the Holy Ghost (who is the seven Spirits of God), who came upon her betrothed, the Lord Jesus Christ, in the form of a dove (Mat. 3:16). The gospel of grace she presents to the world, that eternal life and forgiveness of sins are the free gift of God to the sinner who will but

believe it, embodies the sweet influences spoke of by the prophet Amos; for these influences are shed abroad by the seven Spirits of God.

When we look at the lore associated world-wide with the Pleiades we find there threads of all the elements connected with the Church in the Holy Bible. There can be little doubt that the original pattern, perhaps dating back to Adam who was the first astronomer among Jewish and early Christian writers, is at least in part preserved in the world's myths and tales of the Pleiades. We find then, in the Pleiades, a strong type of the Church of God.

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QUOTABLE QUOTES

Whenever we begin to subject the primitive phraseology about natural events to scientific analysis, our language becomes stiff and cramped, unpoetical, because it is built upon a framework of new and rough scientific hypotheses which have not yet been settled into their proper places even by experts, and which to the mass of mankind are nothing but jargon. In this state of things, poetry and science are supposed to be in opposition to each other; and if science is admitted deficient in grace, poetry is suspected to be indifferent to truth.

But as soon as the scientific analysis has been made in a satisfactory manner in any particular subject, it becomes evident that the primitive phraseology which stood the test of experience for so many thousand years is really the most scientific as well as the most elegant, and that it does not convey any false impressions to those who have studied the matter, any more than to those who have not.

Thus, our phraseology about the thermal phenomena was put into confusion last century by those who said there was no heat in fire, nor anywhere else, except in our minds.

We now agree in language better with our remoter ancestors when we measure the quantity of heat given off by a pound of coal, and we never think of confounding what we are measuring with a sensation.

—James Clerk-Maxwell

Commenting on “the proper use of language with respect to motion”
Journal of the Transactions of The Victoria Institute, or Philosophical Society of Great Britain, F. W. H. Petrie, ed., vol. 11, (London), 1878, p. 421.

PANORAMA

The Force is With Them¹

The communication loop between earth-based ground stations and interplanetary spacecraft allows extremely accurate measurements of the radial [along the line-of-sight —*Ed.*] velocities of these distant man-made machines. As these spacecraft hurtle toward the fringe of the solar system, the visible sun dwindles to a small, bright point, and its gravitational field falls off as the inverse square of the distance. At least, that is what is supposed to happen.

Four far-flung spacecraft, (Pioneer 10, Pioneer 11, Ulysses, and Galileo) are experiencing a mysterious decelerating force not encompassed by the Law of Gravitation. It's a tiny force, but it seems real. Making it even more puzzling is the fact that it is decreasing according to the inverse distance from the sun rather than the inverse square. Is it a non-solar force? Is it "new" physics? Or maybe just an artifact of the spacecraft and ground-based equipment?

The fact that four spacecraft feel its tugging suggests the force is real. But the motions of the distant planets do not seem to be affected by it. So everyone is perplexed. Most think that the effect is an artifact of the data processing and will disappear as more data comes in. We'll see. In the meantime, see "the missing mass stays missing" below.

On Varshni's stance

As pointed out in the book *Geocentricity*, in the mid-seventies an astronomer named Varshni noted that based on the spectral types of the quasars alone (that is, not on their radial velocities), the quasars then known seemed to fall on 57 concentric shells about the earth. Varshni was interested at the time in promoting his theory that the quasars are in our own Milky Way, thus avoiding the geocentric implications of 57 concentric shells.

Some time later, when geocentrists started to make wide-spread use of Varshni's observation, a rumor was spread that Varshni had "recanted." Eventually it was discovered that Varshni had *not* recanted and, even though at the time there were seven times as many quasars known as when Varshni wrote his original paper, he still maintained

¹ Reprinted from Wm. Corliss, *Science Frontiers*, No. 120, Nov-Dec, 1998, p. 2. (Box 107, Glen Arm, MD 21057.)

that if they were classified by spectral type they would still fall on concentric shells about the earth (though there would be more than 57 of them).

Lately the topic came up again on a forum on the Internet in which these old claims were raised against Varshni. An anonymous contributor sent the following reply in defense of the geocentric model:

The notion of “concentric spherical shells” having a common center shouldn’t be a big surprise. Odd it would be if the shells were concentric and didn’t have a common center, no? Varshni is pointing out that the shells are concentric to our position, based on correlation of spectral data and red shifts (treating the latter according to the Standard Model, namely, as Doppler effects, thus invoking the Hubble relation).

When someone makes a claim on the order of “If someone were to view the solar system from outer space, they would not see the Sun move around the Earth,” one must pose the question: how does *that* observer know himself to be at rest, and not himself co-moving with the Sun? The questioner is situating himself so as to guarantee the desired Copernican result. When we read that satellite cameras prove the Earth rotates, I marvel at the logical fallacy that must be swallowed to accept such statements as evidence of any kind at all. Prove that the camera is absolutely motionless (with respect to what is the problem), and maybe you have something there. Otherwise, all one detects is relative motion at this raw observational level. This kind of reasoning, from a defective analogy, doesn’t go very far in countering Varshni.

Speaking of anger, note that a story was circulated in the early 1980s that Varshni had recanted his theory, so that no one would have to deal with the Quasar Distribution Problem at all. Varshni pointed out that the story being circulated was a false one — he had never recanted. We geocentrists ask, Why is there such hostility to anti-Copernican evidence, even when published in refereed journals by non-geocentrists like Varshni; hostility enough to generate a demeaning rumor that Varshni had recanted his findings? Is that the best Varshni’s critics can do, is get rid of the “problem” by expunging its existence by trickery? I’m curious as to how one defends this situation, as proponents of academic freedom and pursuit of scientific truth.

Do any of our readers know who wrote this?

The Sagnac effect and the Michelson-Morley experiment

This is by the same mystery writer as above:

The premises can be itemized as follows: if an aether exists, the fact that the Earth's orbital motion around the Sun cannot be measured with respect to it must be accounted for. The converse is true for the Earth's axial rotation: the Sagnac effect, from the point of view of most aether theories, exhibits the Earth's rotational motion with respect to the aether.

The challenge lies in explaining why aether entrainment arises from the earth's rotation but not from its annual revolution. All entrainment theories (including those that adopt the principles of inertial frame dragging) falter on this point.

Geocentricity cuts the Gordian knot by affirming that the aether, as an infinitely rigid body, rotates diurnally on an axis through the Earth's poles. This accounts for the Sagnac effect and the null-results of Michelson-Gale, etc. Sufficiently accurate Rayleigh spectrometers using phase-feedback optical techniques have existed since the early 1990s for detection of the presumed orbital component, and the latest laser ring gyros are more sensitive yet. The aether bears the Planck density (ρ) of $3.6 \times 10^{93} \text{ g/cm}^3$, treating this fundamental density as the current subquantum reality rather than an initial state condition (e.g., the proposed Big Bang's initial density). Why not adopt the virtual particle view of quantum spacetime foam of Hawking instead? Because, as Redmount & Suen have shown in 1993, such formulations are unstable against decay into wormholes. An actual subquantum domain consistent with the work of Vigier & Bohm answers best to the geocentrists' proposal. Such an approach explains the +376 ohm reactive impedance of the supposed vacuum of free space as well.

In short, geocentricity and the aether are related in the manner set forth above, explaining both the M-M and Sagnac results thereby. This is not sleight-of-hand in the least: it is a legitimate explanation of the results, however controversial.

Note that geocentrists have long proposed (since at least 1981) that interferometric measuring devices should be brought on board the space shuttle to make the kind of nonterrestrial measurements that could falsify the geocentric thesis (viz, by proving that entrainment is common to all planets & bodies). In point of fact, though, it is the acentrist who has no data to support aether entrainment on any body other than our own Earth. Proposals for such experiments have been dismissed inasmuch as the thesis to be tested has already been rejected

beforehand. The geocentric critic cannot point fingers at geocentrists for failing to follow through: his own camp has rejected testing nonterrestrial entrainment. Significantly, if such a test were made, and it failed to detect entrainment (on Mars, or the Moon), the dogma of the anti-geocentrists would have been dealt a near-mortal blow. Such an undesirable experimental result (e.g., reading Mars' motion around the Sun with an interferometer) is just as much feared as it is discounted.

Geocentrists don't expect anyone to try the test anytime soon: the results have already been assumed without evidence, a priori. Paracelsus tore up his students' papers for merely regurgitating Aristotle without conducting experiments — who is going to tear up student papers today for regurgitating Einstein without experimentation?

In conclusion, I agree with our critic: we *should* expect to find these same effects on other planets on acentric grounds. On geocentric grounds, however, this is not the case. Geocentrists were the first to propose a falsification of their own theory. The acentrists have no interest in conducting an experiment that could jeopardize their own model. Who is upholding the higher standard of science here?

More about the Voyager space probes

The following is from a NASA press release entitled "Voyager Status" and dated February 1, 1999.

Both Voyager spacecraft are healthy and are continuing to explore the environment at the very edge of the solar system, sending back particles, waves and fields data from the far outer heliosphere, the outermost region of the Sun's influence.

Voyager 2 continues to operate normally after ground controllers regained contact with it in early November 1998. The flight team continues to use the spacecraft's alternate transmitter, which was enabled by saving software on board the craft when communications were briefly lost in November. Onboard software was modified late last year to ensure that the spacecraft would automatically attempt to reestablish radio communications with Earth if a similar problem were to occur.

A sequence to turn off Voyager 2's scan platform was also completed on schedule in November. Voyager 1's scan platform will be turned off in mid-2000. Shut-down of the scan platforms is one of several planned actions to conserve electrical power as the plutonium naturally decays inside the Voyagers' onboard radioisotope

thermoelectric generators. These actions to conserve electricity will extend the Voyagers' lifetimes through 2020.

Five of Voyager 2's 11 science experiments — the cosmic ray instrument, low-energy charged particle instrument, plasma science instrument, plasma wave instrument and magnetometer — continue to gather and return data. The spacecraft, which is now 8.6 billion kilometers (5.3 billion miles) from Earth, is departing the solar system at an angle 48 degrees to the south of the ecliptic plane at a speed of 15.9 kilometers per second (35,000 miles per hour). Round-trip light time from Earth to Voyager 2 — the time it takes for a radio signal to reach the spacecraft and for confirmation to be returned to Earth — is currently about 16 hours.

Voyager 1, the most distant man-made object in space, continues to operate normally. The spacecraft, which is currently 10.9 billion kilometers (6.8 billion miles) from Earth, is departing Earth's neighborhood at 35 degrees north of the ecliptic plane at a speed of about 17.3 kilometers per second (38,752 miles per hour). Round-trip light time from Earth to Voyager 1 is about 20 hours.

A setback for time travel

Two separate teams at Fermilab and CERN have shown that there is a fundamental difference between going forward in time and going backwards in time. In the 1950s physicists thought that elementary particles obeyed physical laws coupled to three symmetric properties of the universe and that they would obey them even if the universe was reversed. The three symmetric properties were the flip-flopping of spatial directions with their mirror images, swapping matter for antimatter, and time running in reverse. Later experiments proved this notion in error.

In the mid-fifties it was found that particles behave differently if their directions are reflected in a mirror. In the mid-sixties it was discovered that exchanging antimatter for matter made no difference to the mirror problem. Now, evidence shows that the universe is also asymmetric when time reverses.

The CERN team allowed antiprotons and liquid hydrogen to annihilate each other in matter-antimatter collisions. The reaction produces particles called kaons and antikaons which can switch from one to the other. After looking at 1.3 million transformations, they noted a slight difference in the kaon-to-antikaon rate versus the reverse rate. The processes would be interchanged if time were to flow in reverse.

The Fermilab group produced a high-energy beam of kaons and found particle tracks whose shape would differ if time were reversed. The different pattern was found in 1811 examples of a rare type of kaon decay.

Of course, the reason for the asymmetry is not known. One possibility is that there is some super-weak force in the universe, or the effect could relate to the entropy constraints the firmament places on atomic matter.

Faster than light communication?

Einstein was always bothered by quantum mechanic's insistence that the speed of light is not an inviolate quantity. In the July 25, 1997 issue of *Science* (p. 481), experiments at the University of Geneva have confounded Einstein. Physicists sent two beams of entangled photons over fiber optics channels to two stations 10.9 kilometers apart. Although the total energy of the photons is fixed, minute fluctuations of energy are possible, however. When the photons passed through the analyzer, depending on its energy, it will either be counted or not. The result, each photon of the pair knows what its partner does, and does the same thing. What happens at one detector has some influence on what happens at the other. Furthermore, the effect does not fall off with increasing distance which means that quantum events far away in the cosmos might influence events in earth. In practice the correlation could be used for encryption, but one would need to control what happens to a correlated photon at one end to communicate to the other, a thing which is not [yet] possible according to the research team.

Another evolutionary origin of galaxies problem

Matt Visser, in a paper entitled "Energy Conditions in the Epoch of Galaxy Formation,"² looked at the big bang theory with an eye to the classical general relativity gravity equations and found a glaring violation in the energy conditions for galaxy formation. The energy density, momentum density, and stress conditions of the theory require that there be no large violations of the classical energy conditions at temperatures far below the temperature of the firmament (10^{32} K). Yet at a time when the temperature was below 60 K, such a violation must

² M. Visser, 1997. "Energy Conditions in the Epoch of Galaxy Formation," *Science*, 276:88-90.

have occurred. Visser concludes his abstract with the sentence “This implies that no possible combination of ‘normal’ matter is capable of fitting the observational data.” In other words, the big bang (Friedmann-Robertson-Walker) model won’t fit the evolutionary time scale unless large quantities of “abnormal” matter is introduced.

The Heisenberg Uncertainty Principle: is it real?

In an Internet debate last September, a knowledgeable anti-geocentrist raised the issue that the Heisenberg uncertainty principle negated the need (and by convoluted logic, the reality) of the firmament. The same day that the critique was posted, *Science News* published a report doubting the reality of the uncertainty principle.³

The uncertainty principle stems from the dual nature of particles such as the electron. On the one hand electrons behave as particles, and on the other hand they behave as waves. The act of measuring the position or momentum of an electron collapses its dual nature. We measure either its wave property or its particle property, but we cannot measure both together. The uncertainty principle is usually stated two ways. If the energy of a particle is measured to high precision then one does not know when the particle has that energy or, one can measure the momentum of a wave or particle but will have little or no idea of its position.

In the September 3 issue of *Nature* German experimenters report that the mere existence of information about an object’s path causes its wave nature to disappear. This means that an underlying mechanism obscures either the wave or particle nature of the object. The mechanism is called entanglement or correlations.

At the University of Konstanz a research team passed ultra-cold rubidium atoms across a pattern of laser light that splits each atom’s path. This enables the atoms, as waves, to simultaneously take divergent routes through the experimental apparatus. As long as no one tries to measure which way the atoms went, they emerge with an interference pattern, but should a detector be in place, the interference pattern vanishes. The detector in this case was a microwave field that oriented the spins of the atoms upwards if they took one path and downward if they took another.

The experiment shows that the wave-particle duality only needs entanglement and correlation to exist. The uncertainty principle has nothing to do with the wave-particle duality. Critics maintain that the

³ P. Weiss, 1998. “Wave or Particle? Heisenberg, take a hike!” *Science News*, **154**:149.

uncertainty principle is broader than wave-particle duality and still applies to other situations.

In my original paper on the firmament, which appeared in *Bulletin of the Tychonian Society* issue no. 43, 1987 I surmised that the uncertainty principle was not the cause of the vacuum state fluctuations (also called Planck particles) which make up the fabric of space and time, but that it was the fabric itself which caused the uncertainty principle. This was simply due to the fact that if the elementary particles were ever to be made aware of these firmamental particles, they would be sucked into the material of the firmament in less than an instant. The “unawareness” is maintained by the wave nature of the entity. It seems that it is the entanglement, not the correlation, which causes the appearance of the uncertainty principle. When the microwaves were introduced into the German experiment the atoms were disentangled, and the interference pattern disappeared. Paradoxically, the experiment strengthens the case for geocentricity.

More problems for the big bang

The following is reprinted from the *Meta Research Bulletin* produced the Tom van Flandern.

W. Q. Sumner, “On the variation of vacuum permittivity in Friedmann universes,” *Astrophysical Journal*, **429**:491-498, 1994. In a paper most remarkable for its appearance in the *Astrophysical Journal*, Sumner points out that the Friedmann expanding-universe models that are the basis of big bang cosmology must all require that the permittivity of the vacuum will become more dilute as the universe expands. This is because big bang cosmology requires that space itself expands, as opposed to matter simply moving outward through space.

So the vacuum permittivity (*e.g.*, its ability to store electric potential energy) is a function of the Friedmann radius of the universe. This will cause both meter sticks and atomic clocks to appear to change with time as the universe expands or contracts. However, the frequency of atomic emissions depends on the radius of the universe squared, and therefore must change twice as rapidly as the change in photon wavelength that produces the redshift of galaxy light. When these two effects are combined, it turns out that the redshifted light from galaxies indicates that galaxies are really approaching, not receding. Therefore the present universe must actually be collapsing, not expanding — a

significant oversight of all previous work done with the Friedmann big bang models.⁴

The missing mass stays missing

One of the outstanding cosmological mysteries of the twentieth century will not be solved before the end of the century, it seems. The mystery is called the missing mass. It shows up in the following way.

We all know the popular ideas about orbits. NASA and other space agencies around the world use Newton's laws of gravity to launch spaceships into space. Under rare circumstances they may use the more complicated Einsteinian gravity, but that's rare and only reasonably applicable for the orbits of atomic clocks. These earth-based gravitational laws work fine around the solar neighborhood. They even seem to work fine for distant stars in orbit about one another. The first hint of trouble comes when one considers larger groupings such as star clusters. The Pleiades, for example, doesn't obey the "virial theorem." At least, it seems that way. That theorem says that the stars should have equal amounts of kinetic energy (energy of motion). The stars seem to have more energy than the star count indicates. In other words, it looks as if there are more stars than we can see; a missing mass, in other words.

The problem gets larger when we look at the orbits of stars about their galactic centers. When we do that, the orbits suggest that there are anywhere from 3 to 30 times more stars than we can count. But wait, the problem gets worse. When we look at clusters of galaxies the virial theorem says that there is 100 times more mass in the cluster than we can see and count. That's what's meant by the *missing mass*.

Now various proposals have been put forth to account for the missing mass. It could be in the form of faint stars, too faint to be seen. It could be in the form of cold, dark matter, too dark and cold to be seen. It could be in the form of "ghost galaxies," galaxies whose stars never started to shine. But none of these can be proven. As Vera Rubin of the Smithsonian Astrophysical Observatory said recently, "We're sort of in a black room doing an all-black puzzle."⁵

There is one proposal that is rarely stated and widely ignored and that is that gravitation may not behave the way science thinks it does.

⁴ Tom van Flandern, 1994. "Remarkable papers in the journals," *Meta Research Bulletin*, 3(3):39-40. Meta Research, Inc., 6327 Western Ave., NW, Washington, DC 20015-2456.

⁵ Quoted by J. Glanz, 1999. "News Focus: How dark matter became an unlikely media star," *Science*, 283:923. (12 Feb.)

In the firmament model we expect quantum mechanical properties to apply to the very small and to the very large, that is to atomic particles and to the universe as a whole. For the very small, the mass is inversely proportional to the square of the size, thus an electron is less massive than a proton but is also much larger. That is why the electron “surrounds” the proton, because its wavelength is much larger than the proton’s. In the other extreme, the mass of the universe should again be inversely proportional to the square of its diameter, that is, it would seem very light. Clearly, I think, the problem lies in our physics and not in the unobservable.

The error of the theologians of the (Galileo’s) day in upholding the centrality of the earth was that of thinking that our knowledge of the structure of the physical world is in some way imposed by the literal sense of Holy Scripture.

— Pope John Paul II

In *Agenda for the Third Millennium*, (London: Harper Collins), 1997

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.

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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.

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– Isaiah 8:20

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