THE BIBLICAL FIRMAMENT[1]

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Abstract

The firmament is an extremely dense medium that rules all physics in the universe. Compared to the firmament, the universe of atoms is nothing. We will show that the firmament is identical to the Planck medium that has been known to physics for over a century. We shall also show that the firmament is the light-bearing medium commonly called the ether, and that the luminiferous ether is redundant and unnecessary.

The importance of the firmament is that it shields the creation from a true plenum. Also, the firmament acts as an anchor for the earth, keeping it firmly in the center of mass of the universe. From a scriptural perspective, the firmament is one more case where the Scripture knew the nature of space long before man discovered it. The firmament exonerates Scripture from the charge that its geostatic, geocentric approach is contrary to the truth. We also point out a fatal flaw in the spacetime foam and virtual particle explanations of modern cosmology.

We shall see that the plenum model of space historically appears long before the atomic model with its vacuum and void.

We shall see that there are two levels of atoms. The first is our every-day atomic matter, which behaves as if space is a void through which particles pass. As we zoom in on things smaller and smaller in the void we find that underlying it is a second type of atom, commonly called a Planck particle, which constitutes the firmament.

We conclude that the geocentric, Biblical model of the firmament as the most viable explanation for the phenomena associated with the Planck medium.

Definitions

Space = room needed for our existence.
Void = a space of no substance through which light and matter can only travel as particles.
Plenum = an infinite, **totally-filled** medium pervading all space.
Ether = the light, insubstantial intangible medium that supposedly transmits light waves.
Firmament = a created, finite medium that is indistinguishable from a plenum to atomic matter and energy and acts as a shield to protect us from God's plenum properties.
Universe = a synonym for the void-space, containing atomic material. Its existence is superimposed on the Firmament.
Exponential Notation, a.k.a. powers of ten: $10^{1} = 10$, $10^{2}=100$; $10^{-1}=0.1$, $10^{-2}=0.01$, etc.

[1] The foundational paper for a presentation given at the First Annual Catholic Conference on Geocentrism in South Bend, Indiana on November 6, 2010.

The Biblical firmament:

> [6] And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.
> [7] And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament: and it was so.
> [8] And God called the firmament Heaven. And the evening and the morning were the second day.
>
> —Genesis 1:6-8.

That is how Scripture introduces the firmament. Not much is added by to that in the rest of Scripture. So, gird up the loins of your mind, folks; I'm going to strain your credulity. In this session we are going to look at nothing and everything. We're going to talk about void and plenum; about genuine and counterfeit realities; and about why we're all here. So, let's start with nothing.

Nothing and Everything

Imagine absolute nothing. … OK, impossible, right? We all know that nothing is impossible.

Let's try a different tack. Let's explore the things that characterize nothing as a thing.

1. How big is nothing? Is its size zero? Nay, it doesn't even have the properties of size and presence.
2. How powerful is nothing? Zero? Nay, it doesn't even have the property of power.
3. Can nothing be intelligent? It cannot know nor can it sense, it has not the property of intelligence.
4. Can nothing exist? Nay, it cannot exist because it hasn't even the property of existence.

Nothing cannot have any real properties whatsoever not even the property of "thingness," for if it did, it would no longer be no-thing. We see then that nothing is impossible. There is the one property, if we can even call it a property, that nothing can have, and that is the property of impossibility. However, impossibility also has no property, so it is little more than a synonym or alias for nothing.

So, Prof. Logician: you deal with logic; if nothing cannot exist, what does exist?

"Everything!" Everything is the inverse of nothing. If nothing is impossible, then everything is possible.

Earlier we listed some of the properties non-existence (nothing) could not have. Existence must have the inverse properties. These properties are:

1. For no size, the inverse is infinite size. We call that *omnipresence*.
2. For no power, the inverse is infinite power. We call that *omnipotence*.
3. For no intelligence, the inverse is infinite intelligence. We call that *omniscience*.
4. For no existence, the inverse is infinite existence. We call that *the Great I AM*.

So we see that since nothing cannot exist, we are left with omnipresent, omnipotent, and omniscient existence. Those properties are indistinguishable from God; so let's call them *God*.

Omnipotence

Let's focus in on the nature of *omnipotence*. Omnipotence is infinite power, everywhere. By definition, omnipotence is omnipresent, for if omnipotence is not omnipresent, then there is a place where omnipotence has no power. In that place, the "omni-" (meaning *everywhere*) of omnipotence is violated and omnipotence is no longer omnipotent. We see, then, that omnipotence must also be omnipresent.

Now omnipotence is infinite power, and power has certain properties. One of the properties of power is mass. That means that one of the properties of omnipotence is omnipresent, infinite mass or matter.

The concept that space is infinitely dense is very ancient, dating back at least 2500 years to the ancient Greeks. They called it the *Plenum* because in a plenum every volume of space was as fully—or plentifully—filled as any other volume of space. So we started with nothing and have ended up with everything. We also see that the "everything" that is, the space-is-filled-with-a-plenum concept, was already old by the fifth century B.C.

History of the Plenum model

In the early 5th century BC, a Greek philosopher named Leucippus put forth a scandalous proposal that maybe there was a limit to how small a volume of space you could cut and still have more matter therein. He claimed that at some small-enough scale, a volume of space could not be further divided and still include matter. The volume at which that occurred would be the smallest particle making up the material of the universe. That particle he called an *atom*. Thus the birth of the atomic theory. Leucippus proposed that the physical universe is made up of atoms moving in a void.

The defender of the established plenum model, Parmenides, argued that since a void is full of nothing, any two particles would be separated by nothing and you'd be back at the plenum model. In hindsight, Parmenides and Leucippus were both right. But more on that later. For now, we note that we started with nothing, found everything, and are ending up with next-to-nothing; *viz*. two atoms in a cubic meter of the void is the average density of the universe.

For a few centuries the debate between plenum and the atomic theories raged on until Greek philosophers concluded that the plenum model was impossible. After all, they reasoned, we could not move if we were encased in lead; how much less if we were encased in an infinitely dense medium. Thus atoms separated by a void became the predominant model of space.

Still, every now and then over the intervening two millennia, the plenum model would find new life…for a while. After all, the void is a terrible thing. It causes all sorts of problems. Consider gravity, for instance, particularly the case of two bodies attracting one another with a void between them. What transmits the attraction between them? What mechanism communicates the presence of one of body to the other? Is it a rain of some "bullet-like" bodies, smaller than atoms, which press the two bodies towards each other? Or is it some sort of strain, like tension on a rubber sheet that is inherent over the void? If, so, the void must have some property able to transmit the strain from one body to the other. It is considerations like that which show that space cannot be a void. No wonder that the plenum refused to suffocate in the void's vacuum.

To solve such problems with an atomic-void theory, a new form of space-medium had to be invented. First, it was proposed that space was filled with tiny particles called *corpuscules* that zipped through space in all directions. To account for gravity, it was assumed that solid bodies absorbed a tiny fraction of the particle flux which would press objects together by particle shadowing. This is Fatio de Duilier's model (now commonly called Le Sage's model). It was embraced by Isaac Newton as the most likely cause of gravity since it avoided the action-at-a-distance problem of the void. Le Sage's version of the corpuscular model has been resurrected over the last 35-odd years by the talented and versatile mathematician, James N. Hanson, as well as by anti-relativists such as Apeiron's authors.

However, although the Le Sagean model solves the problem of action-at-a-distance for gravity, and could accommodate the particle nature of light, the Le Sagean model could not account for the wave-like behavior of light. This came to a head in the nineteenth century when fundamental experiments with light revealed that light might be a wave instead of a particle. At that time, two physicists, Fresnel and Arago, definitively demonstrated that light behaved as a wave. Waves do not travel but through a medium, so it looked like there might be something more substantial than a void separating the atoms and corpuscules. A second, new form of space-medium was proposed specifically to account for the wave-like behavior of light. It is called the *ether*, signifying an intangible medium characterized by lightness and insubstantiality. You'd think that would settle the matter, but it didn't. To this very day, particle-like behavior of light continues to live side-by-side with wave-like behavior.

Again we've gone from everything to next-to-nothing when it comes to the fabric of space. But in the twentieth century there was a new development in plenum theory. It originated with Bertrand Russell who noted that although linear (straight-line) motion is impossible in a plenum, there could be cyclical motion in the plenum as long as it is uncreated and has always existed.[2] Cyclical motion includes waves, orbits, and rotations: in general, any curved path. So we're back to everything; in this case the plenum model of space is again viable.

Enter the Firmament

The discovery of the Biblical firmament began around 1898 when the German physicist, Max Planck, was toying around with the fundamental constants; that is, he was combining three constants (the gravitational constant, the speed of light, and the Planck constant) and found out that he could recombine them to define a set of fundamental units which he called "natural" units.[3] There was a natural unit of length, another for time, yet another for mass, another for electric charge, and still another for temperature. It looked as if Planck had discovered a new type of atom, making up a new type of medium. But his new atom is vastly smaller than the atom making up the atomic matter we all know and love. Planck's atom is generally called a *Planck particle*. The Planck particles are tightly compressed one against another forming a medium called the Planck medium. The question arises: are these natural units real or are they an

[2] Aspden, H., 1961. *History of Western Philosophy*, (London: Allen and Unwin), pg. 86. NB linear momentum is thus problematic, which is why it appears undetectable in fundamental experiments such as Airy's failure.

[3] You can also create a set of fundamental units by adding electric charge, e, to the list of constants. The problem with that is that you either have no fine structure constant or you need at least five dimensions instead of our normal three (in addition to time) to make it work. (That's because the gravitational constant G does not appear in the charge entry in the properties of a Planck particle table.) Yet another set of constants can be generated from coupling constants of quantum mechanics, but the original set of constants, G, c, and ħ are the most fundamental; so much so that they are sometimes called "God's units."

artifact of our physics? I believe they are real because the properties they reveal about the firmament are too immense not to be real. The Planck medium has all the earmarks of being the firmament of Genesis 1.

PROPERTIES OF A PLANCK PARTICLE

Length	$= (\hbar\, G/c^3)^{1/2} = 1.616040 \times 10^{-33}$ cm
Time	$= (\hbar\, G/c^5)^{1/2} = 5.390528 \times 10^{-44}$ sec
Mass	$= (\hbar\, c/G)^{1/2} = 2.176570 \times 10^{-5}$ gm
Temperature	$= (\hbar\, c^5/G)^{1/2}/k = 1.416859 \times 10^{32}$ K
Charge	$= \langle m \rangle^{1/2} \langle l \rangle^{3/2} \langle t \rangle^{-1} = 5.62255 \times 10^{-9}$ gm$^{1/2}$ cm$^{3/2}$ sec^{-1}
	$= (\hbar\, c)^{1/2} = 11.7$ esu

In this table, G represents Newton's gravitational constant, c the speed of light, and ħ is Planck's angular momentum constant.

Is the Planck firmament the Firmament of the Holy Bible?

Before we conclude that the Planck medium is the firmament of the Bible, we need to see if the word, firmament, is a proper translation of the underlying Hebrew word. It makes little sense to assume the two are the same unless we find out why God needed to create the firmament in the first place. We will now show that "firmament" is the correct translation and that the firmament is a shield that protects us from the "consuming fire" that God is. It will also help us to ascertain the properties God demands of the firmament as a created plenum.

Let's imagine for a moment that we are God. We have something we would like to make known. Clearly, as members of the Trinity: the Father, Word, and Holy Ghost, we have perfect knowledge of all things, so there is nothing we can reveal to each other that we did not already know. However, being an omniscient, omnipotent God, we could create beings to whom we could reveal those things we already know about. The Apostle Paul states it this way in Romans 9:22-24:

> What if God, willing to show his wrath, and to make his power known, endured with much longsuffering the vessels of wrath fitted to destruction:
> And that he might make known the riches of his glory on the vessels of mercy, which he had afore prepared unto glory.
> Even us, whom he hath called, not of the Jews only, but also of the Gentiles?

If, as God, we want to reveal these things, we first have to create a safe haven for both the vessels of wrath and the vessels of mercy, for since we are omnipotent the energy density within us is infinite and would instantly consume any vessels we would create unshielded. First, we would have to make a space for them (heaven of Genesis 1:1), and then endue that space with provisions to sustain physical life as well as the foundations for wisdom and revelation (light) and then build a shield to protect the vessels we shall create inside the shielded region. I submit to you that said shield was made on the second day of creation and in English is called the *firmament*.

I don't know about you, but as a former professor of computer science I've dealt with virtual reality quite extensively and in my virtual ear I can hear a chorus of objections: "You blankety-blank-blank idiot! Don't you know that scholars have proven that 'firmament' should be translated as 'expanse' and that there is nothing firm about it?"

Another virtual entity cries, "Heresy! Don't you know that the firmament was a water canopy surrounding the entire earth before the flood?" (That theory is now totally discredited.)

Still another snickers: "Don't you know that the firmament is a reference to the ancient Egyptian cosmology, which Moses learned from his Egyptian schooling, where the sky is a star-studded dome, resting atop a circle of mountains and so covering the flat earth?"

Obviously, I don't know any of that.

I suppose we'll have to try to convince these virtuosi with a little history lesson.

Linguistic arguments for a solid Firmament

The creation of the firmament takes place on the second day of the creation week. In Genesis 1:6-8 the Scripture records the event as follows:

> 6 And God said, Let there be a firmament in the midst of the waters, and let it divide the waters from the waters.
> 7 And God made the firmament, and divided the waters which were under the firmament from the waters which were above the firmament: and it was so.
> 8 And God called the firmament Heaven. And the evening and the morning were the second day.

Now, there is nothing in the account that requires the firmament to be a *hollow* shell.[4] Yet modern scholarship confidently informs us that the word, "firmament" hearkens back to the cosmologies of ancient Egypt and Babylon. To those peoples, the sky was a shell, particularly a hemisphere that covered the disk of the flat earth as the dome of a serving dish covers the dish.

Truth is, I've never been able to confirm the firmament-is-a-shell model in the source documents of any ancient Mid-East cosmology. The closest I've come is the story that Nut, the night-sky goddess who is often portrayed as a naked female stretched across the sky, swallows the sun on the first day of spring, when he enters her mouth, and then passes through her star-studded body to emerge from her birth canal nine months later.

The most ancient Egyptian explanation for the sky is that each day the sun embarks to sail across the sky in his eternal bark trying to keep peace and joy in the world. But every evening, after the sun disembarks his bark, the great primordial lotus blossom closes it's petals and sinks once more into the waters of the abyss. Darkness reigns throughout the night until the sun god within the Lotus is reborn in the morning. Then the lotus rises up to the surface of the deep, opens, and the young sun embarks his bark to start the journey all over again. Just what Moses included from these stories into his creation account of the firmament escapes me, but apparently not the virtuosi.

[4] An interesting thing happens as one draws closer to the edge of the firmament. The firmament's protection of atomic matter fades away so that its extreme density and temperature become manifest. The firmament is impregnably solid at its edge. This is the reason why the wording of Scripture is somewhat ambiguous when it comes to the concept of the firmament.

The dish interpretation of "firmament" stems from the 18th century when the Bible dictionaries were rewritten and secularized. Languages such as Hebrew, Latin, Greek, and English have sacred, as well as secular forms. (The English sacred form survives today in both the *King James* and the *Douay-Rheims* versions.) Each sacred language-form is only designed to embody the Scripture in that language and was considered sacred to its faithful. In the 18th century, however, as a direct result of the Copernican Revolution's success in removing the authority of the Bible from the physical realm, thus limiting its authority to the spiritual realm, there arose a movement whose goal is to "recover" and "correct" what God physically "meant" to say but did not have the wits to say correctly in the first place. The movement, commonly known as "higher criticism," rejected the established theology that God had given man his words by *revelation* and that God would actively *preserve* them through his people. Instead, the new movement embraced the notion that the Scripture which was given by inspiration of God now exits inerrantly only in heaven and must be *recovered* by virtuosi since only they think themselves equipped to recognize that which God had given by inspiration but didn't think worthy of preserving in the first place.

It was this movement with their assumption that only the "book of Nature" is inerrant, that set about to secularize the meanings of the sacred languages by adding, or replacing, or recoloring the sacred meanings of the Hebrew, Greek, Aramaic, and Latin words with secular meanings. That way these theologians could appear scientifically and historically respectable. Most of those virtuosi appealed back to pagan cultures to extract the so-called "correct" meaning. And so it came to pass that firmament, a word that suggests a solid medium, was replaced with a hollow, metal shell covering a flat earth.

Historical Precedence for the "Firmament" Translation

Now the word "firmament" is a translation of the Latin, *firmamentum*. In classical Latin, the word means "something which strengthens or supports." That was how the underlying Hebrew word, *raqija* was translated into the *Old Latin Bible* around A.D. 130. About twenty years later, ca. A.D. 150, Aquila did his translation of the Old Testament into Greek. He translated *raqija* as *stereoma*, which properly means a firm or solid structure. In Hebrew, the root word underlying *raqija* is *raka*, meaning to condense, to make firm or solid. These translators apparently support the solid firmament model.

All English translations up through the KJV, including the *Douay-Rheims*, chose "firmament," although most European translations render the Hebrew as "expanse." The latter word is neutral, allowing for either the shell or solid model. Add to that the debate between Leucippus and Parmenides about the plenum vs. atom models, which established the ancient heritage of the plenum model, and the linguistic support for the firmament model is secured.

The Firmament as a Created Plenum

Before we consider the firmament as a created plenum, we need to appreciate some of the properties of Planck particles. It is hard to comprehend how tiny a particle of firmament is. If we were to enlarge such a particle to the size of a typical marble (about 1 cm), the diameter of the marble would be enlarged to more than 12,500 universes laid side-by-side.[5] Or if we were to enlarge the Planck particle to the size of a hydrogen atom, the hydrogen atom would be some ten

[5] $D_U = 4 \times 10^{28}$ cm, $D_P = 2 \times 10^{-33}$ cm ==> $(0.5 \times 10^{33} / 4 \times 10^{28}) = 12{,}500$.

million earths laid side-by-side, engulfing the entire orbit of Neptune far enough to encroach Pluto's orbit.

Likewise, how much larger is the largest stable nuclear particle we know, the proton, than Planck particle? A proton's size is 1.32×10^{-13} cm. Compared to the 1.62×10^{-33} cm size for the Planck particle, that means that the size of a proton is close to 10^{20} times that of a Planck particle. The number 10^{20} is said to be "twenty orders of magnitude." Of those twenty orders of magnitude, we are clueless of 18 of them (the Higgs boson is about 100^{th} the size of a proton but has yet to be detected). Those twenty orders of magnitude are not empty, mind you; they are filled with Planck particles, as is the entire universe, as well as every atom, and every fundamental particle. Those twenty orders of magnitude provide a buffer between atomic matter and the firmament. No extreme Planck property can traverse it. The particles are too small to directly affect the universe.

Now, like any good particle, the Planck particle has a mass as well as a size. In this case, the mass is only a couple of hundred-thousandths of a gram. With a size and a mass, we can compute the density of a Planck medium, that is, the density of the firmament. When we run the numbers, we find that the density of the firmament is about 4×10^{93} grams/cm^3.[6] In comparison, the mass of the universe is estimated at 6×10^{56} gm.[7] That means that if we packed the entire universe into one cubic centimeter—about the size of a small sugar cube— then we would have 56 of the 93 zeroes in the exponent making up the density of the firmament. We'd have to keep packing more and more universes into the sugar cube until we've packed in some 10^{37} universes. Yes, the density of the firmament is 10^{37} universes per cubic centimeter. If the firmament is the same size as is currently estimated for the universe, (a radius of 2×10^{28} cm.) then the firmament's mass is a whopping 10^{123} universes. Clearly, the firmament is by far the most massive created thing.

We've already noted that the particle's mass is 2.2×10^{-5} gm and that its size is 1.6×10^{-33} cm. Also, the particle is electrically charged with a charge of 11.7 esu. It is that charge that is the target of the various "perpetual motion" zero-point-energy machines promoted on the Internet. The firmament's electric charge property is also at the core of Harold Aspden's plenum theory of the ether. Significantly, the Planck particle has no magnetic properties. To me, this implies that the electric fields in universe will exhibit wave properties while magnetic fields will foster particle properties.

In our table of Planck particle properties we saw that the particle is on the hot side. The Planck particle has a surface temperature of 1.4×10^{32} K. It so happens that the "black-body" radiation curve of a body at the Planck temperature has its peak at the Planck length. For comparison, the black-body peak for the temperature of the universe is located at 2.7 K and is called "the cosmic background radiation."

So, why are we not instantly vaporized by the Firmament? Two reasons: firstly, the Planck particle is the size that a particle of a Planck mass (2×10^{-5} gm) would have if it were compressed into a black hole. That implies that the surface of a Planck particle will behave similarly to a black hole, namely, that no light, heat, or radiation can escape from it. Even though the Planck temperature is of the order of 10^{32} Kelvins, none of the radiation can escape the surface of the particle. Secondly, even if radiation were to escape from the surface of a Planck particle, its wavelength is far too short to affect the universe of atoms. Besides, it would simply be reab-

[6] 4.220×10^{93} assuming a Planck particle has a spherical shape. If we assume the Planck particle is a cube, the density is 5.128×10^{93} gm/cm^3.
[7] Assuming a universal mass of 6×10^{56} gm based on the baryon count.

sorbed into the firmament before it traveled more than a Planck length or two. As a result, we are quite safe from being vaporized by the firmament…at least for now.

Clearly, the firmament is by far the most massive thing created. Its mass is estimated at $2x10^{179}$ gm. Is it any wonder, then, that the firmament dictates the physics of the universe?

But if the firmament is that dense, how can we move through it? Recall Bertrand Russell's discovery that in a true plenum only cyclical motion is possible as long as the plenum and its motions are eternal and uncreated. But the firmament is not a plenum, so how can we move through it? The answer is that the universe of atomic matter must perceive the firmament as if it were a true plenum and, likewise, the motions allowed through the firmament must be cyclical. In turn, any straight-line motion through the vacuum of space cannot be detected by the firmament.

All particles act as waves insofar as the firmament is concerned. A particle at rest relative to the firmament acts as a standing wave (the type of wave started by plucking a guitar string) and its wavelength is called a "Compton wavelength." For instance, the Compton wavelength of a Planck particle is a Planck length. For a particle moving through the firmament, its wavelength is known as the "deBroglie wavelength." The moving wavelength of a particle is shorter than its static Compton wavelength. As a nuclear particle moves faster and faster through the firmament, its energy increases, which makes the particle appear more and more massive.[8] Likewise, its wavelength gets shorter and shorter. Once the nuclear particle's energy-laden mass approaches the Planck mass and its wavelength approaches a Planck length, the nuclear particle and the Planck-particle ocean detect each other and the hapless moving particle, now traveling close to the speed of light, is absorbed into the firmament.

Earlier we saw that the Compton wavelength of a proton (that is, its size) is about 20 orders of magnitude longer than that of a Planck particle. We know next to nothing of the spatial properties in those 20 orders of magnitude, but we do know that it is filled to capacity with the stuff of the firmament. To allow motion through a dense, created plenum, it is sufficient that the particles' wavelengths be very much longer than that of the particles making up the created plenum. Twenty orders of magnitude minimizes the chance that the proton and Planck particle will ever sense each other unless the proton moves so fast that its effective mass approaches the Planck mass, at which point the proton will be absorbed into the firmament. Those two conditions, the huge difference in wavelengths between Planck particle and proton and the resistance a mass encounters as it moves faster and faster through the firmament, serve to guarantee that no nuclear particle can ever be detected by the firmament and vice-versa. That, in turn, means that we can move freely through the firmament.

In the ways we have outlined in the previous paragraphs, we see that the firmament is indistinguishable from a true plenum. The obvious conclusion is that the firmament is a created plenum that serves as a barrier between us and the true plenum that is a property of God. In that sense, the plenum is a false god. It is for those two reasons, a barrier between us and the loving mercy of God, and the false-god property of the firmament that explains why God did not declare the firmament "Good" in the day that he created it. (See Genesis 1:8.)

Light and the Firmament

What about light waves and the firmament? Earlier we saw that the ether, an ephemeral concept that was postulated solely to account for the propagation of light. Can the firmament be responsible for the transmission of light? The answer is, "Yes."

[8] Remember, $E=mc^2$; energy is mass and mass is energy.

At least three types of waves can exist in the firmament. These are: *transverse waves*, *longitudinal waves*, and *thermal waves*. Whether or not these waves actually occur in the firmament will not be argued here. Let me just state that in the firmament these waves are mechanical, not electromagnetic, although their appearance in the universe of atomic matter will likely be electromagnetic. Thermal waves are not relevant to this report, although they possibly play a role in the firmament's shielding function.

Transverse waves are waves that manifest themselves in two dimensions. A rope tied to a doorknob and then shaken up and down is a transverse wave. Light is also a transverse wave. When the standard, classical, expression for transverse waves is applied to the firmament the speed of the wave equals the speed of light to at least five significant digits. This implies that the firmament plays a pivotal role in the transmission of electromagnetic waves through space. It also means that the firmament dictates the physical behavior and properties of light waves.

Longitudinal waves are compression waves, such as sound waves or shock waves. This waveform presses particles together into a region of high pressure which, in turn, causes a low pressure area on both sides of it. The particles are then pushed back into the low-pressure area which, again, becomes a high pressure area, and the process repeats itself by radiating outwards from its source. A slinky is an example of a longitudinal wave. The speed of longitudinal waves through the firmament is 3×10^{39} cm/sec, which is10^{29} times the speed of light. At that speed, the signal crosses the firmament in roughly 10^{-11} second or one one-hundred-billionth of a second. The computation assumed that the pressure on a particle inside the firmament is the gravitational attraction between two Planck particles in contact with one another. The actual pressure is likely to be higher and thus the speed of a longitudinal wave through the firmament will also be higher. Longitudinal waves probably play a role in the nature of gravity.

It is clear that there is a relationship between the firmament and the speed of light. Most likely, the firmament is the light-bearing medium, the "ether" for which physicists and astronomers alike have searched. According to the behavior of light, the earth stands still in the universe. That observed behavior of light means that we no longer need to postulate the existence of ether as the conductor of light; the firmament fits that bill. It is not clear how the firmament controls gravity, but as the firmament has the property of omnipresence insofar as the material universe is concerned, as such, gravity may be due to pressure-dynamics within the firmament itself.

Modern interpretations of the Firmament

To show that the firmament model is the superior model of the Planck medium today, we need to show that the modern interpretations thereof are flawed. So, let's look at today's interpretations of the firmament.

At present, the Firmament goes under many different names. Some of these are: *vacuum state, Planck medium, spacetime foam, zero point energy (ZPE),* and *Markov's maximon fluid*. The particles making up the Firmament's medium also have various names. Most prominent among them are: *Planck particles, maximons, massive superstrings,* and *virtual particles.* All these aliases for the firmament and its particles suggest that there is no consensus among cosmologists on the nature of the firmament.

The most common interpretation of the firmament is the vacuum state theory. That theory claims that the firmament is a sea of "virtual particles." According to the theory, a virtual particle, which we've referred to as a Planck particle, is said to pop into existence from nothing, per-

sist for a Planck time (about $5x10^{-44}$ sec.), and then pop out of existence again. The firmament is thus pictured as an ocean of fictitious particles ceaselessly popping in and out of existence. The popping region is referred to as "spacetime foam." In the firmament model, the particles are real, not virtual.

It turns out that the spacetime foam of virtual particles does not behave as required by theory. On such a tiny scale, the mechanical motions of the virtual particles popping into and out of existence fluctuate so violently, so randomly, and so energetically, that all kinds of bizarre structures, such as wormholes,[9] develop. But there is no limit to the size that these structures can have, so if the virtual spacetime-foam model is correct, then these strange structures should grow larger and larger and should readily be detected, yet none are detected.

The result implies that the particles are real, not virtual. It is the popping into and out of existence that causes the instability because the virtual particle model is unstable to *real* constraints. If the particles are real, however, their constraint is one of detectability, not one of existence; that is, the particle is only visible for a Planck time. We conclude that the firmament's Planck particles are real particles having a real existence and that consequently, the firmament is real.

Now some may wonder that my view is on the phenomenon that is interpreted as spacetime foam. I see this as the particle solidifying from the future into the past where the particles are deposited into 8-dimensional sheets. Entropy (you may find it easier to think of entropy as information), from the future, present, and past, is heated to the Planck temperature by the energy flowing from the past through the present. When the Planck temperature is reached, the entropy becomes a Planck particle at which time the information or present state is frozen into the particle as it collapses into its black hole status. This happens at the same time throughout all the volume of the universe. The 8-dimensional holographic sheet is deposited onto the stack we call the past, and it disappears $5x10^{-44}$ seconds later when the next sheet solidifies on top of it. Note: no particles popped out of existence in this theory. In effect, the momentum of the firmament keeps the process going. The entire process of time takes one Planck time and repeats itself $2x10^{43}$ times every second over the entire volume of the firmament. The formation of these sheets requires entropy and gravity, both of which are not subject to entropic decay. [10]

Rotation of the Firmament

Experimental observations show that the firmament rotates once every 23 hours and 56 minutes with the earth located at the dynamic center of firmament as well as universe. If the firmament were not rotating in the true plenum, then there would be no way to distinguish it from the true plenum and the creation would instantly vaporize. The rotation fulfills Russell's requirement that only cyclical motion is allowed.

If we design an experiment to measure the relative rotation of earth and firmament, we get a positive result. The first to do the experiment was Georges Sagnac who conducted it in 1904. Sagnac did find evidence that can be interpreted as the ether rotating about the earth, but it can equally well be interpreted that the earth rotates in the firmament. There is presently no way to distinguish whether the earth rotates in the firmament or the firmament rotates with the earth on

[9] Wormholes are tunnels in spacetime joining two distant regions in the universe or parallel universes.

[10] For more on this theory see: Bouw, G. D., 2007. "Vistas in Time I: the Physics," and "Vistas in Time II: the Linguistics" at http://geocentricity.com/ba1/no121/, and "Vistas in Time III: Time sheets," at http://geocentricity.com/ba1/no122/.

its axis. The only way to tell is to go outside the universe and compare the motions in the universe with the status there. The observed rotation period is 23 hours 56 minutes, a sidereal (star-rise to star-rise) day, as opposed to a solar day of 24 hours (sun-rise to sun-rise).

Let's make sure we have this straight. When scientists conduct experiments to determine the speed of the earth moving through a light-bearing medium, its speed registers zero. To account for this, we are told that there is no light-bearing medium and that the speed registers zero because the motion of the apparatus is hidden by shrinkage of the apparatus in the direction it is moving. On the other hand, if we try to discover the relative speed of *rotation* of the earth through the light-bearing medium, we get a positive result. For some reason, the motion of the apparatus is *not* shrunken by its relative rotational speed through space.

The most consistent explanation for these results is that the firmament is absolute space, and, as absolute space, all motion is to be measured relative to it. If the earth does not move through the firmament, all experiments designed to detect that motion will fail. So the firmament anchors the earth in the dynamic center of the firmament. To those who accuse physics of "conspiring" to hide the motion of the earth through space I ask, "What's the difference between the firmament controlling the physics to make it look as if the earth at the dynamic center of creation or whether the earth truly is located at the dynamic center of the firmament? There is no difference; the earth is at the dynamic center of both universe and firmament.

At the Barycenter

I believe that the earth is located at the barycenter of both the universe and the firmament. The barycenter is the one point about which all bodies revolve. The barycenter of the solar system is not too far into the sun. It is never the case that the less massive object revolves around the more massive object; both revolve around their common barycenter, which is merely a point in space that remains fixed while the sun and planets move through their orbits. From fundamental experiments and observations, it appears that the universe controls physics so that the earth is kept at the barycenter of the universe. Heliocentrists prefer to say that physics somehow *conspires* to make it look as if the earth is at the center of the universe. Even if there were no firmament, the universe would still fight any attempt to change the earth's central position. From that perspective it makes sense that the earth is located at the barycenter of creation.

Now if the earth is at the barycenter of firmament and universe, then the gravitational fields of the firmament, universe, and the earth are superimposed upon one another. Any attempt to dislodge the earth or alter its rotation or position will be opposed by the firmament as an attempt to detect it by trying to impose upon it a straight-line motion (radial in this case). It will thus be the most vacuous thing centered on the earth and firmament that will be forced to react in behalf of the earth. That is the universe of atomic matter. This behavior is akin to how a gyroscope rights itself back to its original path when deflected by changing the orientation of its axis.

Summary

We have ranged far and wide, starting with nothing, and finding everything by taking the inverse of absolute nothing. We found that the everything had the particular properties of an infinitely dense medium called the *plenum* and discovered that these properties are identical to the properties of God and so is God.

From there, we looked at the history of the plenum and void models of space. We found that one could not exist without the other since light and matter have both particle and wave properties. This led us to ether models and we rediscovered not only the true nature of motion through a plenum but also that a created plenum exists. We concluded that second model, a peculiarly "counterfeit" plenum, is the firmament of the Bible. We identified the reason why God created the plenum and saw that the firmament shields the creation from God's plenum properties by endowing the firmament with counter-properties, such as the firmament's extreme density and opacity.

We confirmed the translation of firmament in the English bibles by historical analysis. From that we conclude that Bible is authoritative in everything it touches upon, including science. The Copernican Revolution's efforts to rid the world of the *Holy Bible* is thus exposed as the sham it is.

We saw, too, that the firmament rules all the physics in the universe and that, insofar as fundamental experimental observations are concerned, the firmament always shows the earth at rest. In the course of our analysis, we discovered that the ethereal ether is unnecessary and redundant. The firmament is responsible for the wave properties of light.

We also found that the modern scientific interpretation of the firmament as a sea of foamy virtual particles is fatally flawed because it lacks real constraints to suppress a menagerie of problematic structures that should be observed but are not.

This leaves the geocentric, Biblical model of the firmament as the most viable explanation for the Planck medium. Having thus started with nothing, we end up with two plenums, an uncreated one, and a created one.

Conclusion

As a created plenum, the Planck medium is the only candidate for the Biblical firmament of the first chapter of Genesis. It shields the creation from God's fervent heat and serves as an anchor that stabilizes the earth. Since the firmament rules the physics of the universe, it is the likely cause of the phenomenon that physics "seems to conspire" to anchor the earth at the dynamic center of the creation. The Copernican Revolution was thus mistaken in concluding that the Bible need not be believed when it touches on scientific matters, and the Bible is an infallible authority on all topics it covers.