

‘TELL ME IF YOU KNOW!’ ADVANCED SCIENTIFIC KNOWLEDGE IS LARGELY UNDISCLOSED IN THE BIBLE, ACCORDING TO GOD’S OWN WORD.

But Neither Does it Contradict What We Now Know, Either

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What is the relationship between ‘Science and Scripture’? Often we hear this question asked, and often we are asked to select one of the following two answers:

1. **“Scripture makes many inaccurate scientific statements, even though it was never about science in the first place.”** People who say this often work from the understanding that Scripture contradicts modern scientific understanding, but since they worship the God of Scripture (are Christians or Jews), this answer allows them to ignore these sometimes embarrassing scientific shortcomings, as they see it. Often they fall back on the argument: ‘The morals of Scripture are really what matter.’ Unfortunately, pressed on even that position, they often feel forced to retreat even further in face of supposed immoral issues in the Old and New Testaments as well (like the supposed injustice of the world wide flood). The final stand is unfortunately a much reduced position: ‘relationship with Jesus is all that matters.’ There are many honest and devout Christians in this camp who honestly struggle with these issues, but even so, when we profess that there are errors, let alone pervasive errors in Scripture, this clearly begins to wash the foundations right out from under our feet.
2. **“Scripture says a lot about scientific matters, and it is accurate in all it says on these matters.”** People who say this are often reacting, in part, to the first answer. These are of the belief that the account of Scripture is true and accurate, and that scientific models dealing

with the past should start with a scriptural basis whenever applicable (whenever Scripture says something about the issue).

Let me plainly state that I am much closer to the second position than to the first.

Nevertheless, I feel there is a shortcoming in the second position, which is this:

Scripture is in fact extremely limited in what it says about advanced scientific matters. And it virtually never delves into matters of *scientific causation*. To the contrary, God himself makes it clear in the book of Job and elsewhere that he ‘holds the secrets of creation’ to himself – which shows that for the most part they are not revealed in Scripture. *The Bible itself directly makes this point!*

WHERE WERE YOU WHEN I FOUNDED THE EARTH?! TELL ME, IF YOU KNOW?!

Many statements in the book of Job make it clear that while God wonderfully controls all aspects of the cosmic system, that *man only faintly knows any of this*. God poignantly asks Job this question:

Where were you when I founded the earth?! Tell me, if you know? ... Surely you know, for weren't you born then? And the number of your days is so great! (Job 38:4, 21).

And again:

Have you comprehended the vast expanses of the earth? Tell me, if you know all this. What is the way to the abode of light? And where does darkness reside? Can you take them to their places? Do you know the paths to their dwellings? Surely you know, for you were already born! You have lived so many years! (Job 38:18-21; NIV)

‘The teacher’ (Solomon) put it this way:

“Everything has (God) made beautiful in its time, indeed, even eternity has he placed in (man’s) heart, *yet man cannot find out the work which God has done* from its beginning to its end” (Eccl 3:11).

The most poignant question in this matter is what God asked Job above: “*Tell me, if you know all this.*” Within this theophany (Job 38:1 - 42:6), the word for ‘know’ in Hebrew (*yd’ -- yadah*) occurs a whopping 15 times! Consider that in Modern Hebrew, the very word ‘science’ (*maddah – מדד*) comes from this very root, ‘to know.’ And that *scientist* in Modern Hebrew is likewise from this root (*maddan – מדדן*). Note how the entire encounter Job had with God was marked by this very challenge:

Gird yourself like a (strong) man. I will ask you, and you shall make it known to me. (Job 38:3).

The word ‘make it known’ here is a causative / *Hiphil* form of the same root: *to know*. So we can see how this entire account is marked by this central point: That man does not know much about creation (as most of the following questions revolve around creation) and its secrets from its foundations.

It should not be considered a problem then if the Hebrews *did not know* that the earth revolves around the sun, any more than they needed *to know* that all matter in the cosmos has a very small amount of attraction to all other matter, and that the strength of that attraction is described by an inverse square law (i.e. gravity). God himself made it clear that he was holding many of these mysteries of creation to himself. Let me make it clear that I do not deny that Scripture makes many historical and (albeit a lesser number of) scientific statements of fact. It certainly does. But most of the conflict between secular science and the Bible is a matter of them offering alternative *histories* rather than alternative *science*. Thus for example, there is no conflict between the Bible and secular science’s understanding on the question: *what makes the*

sun burn, because the Bible in fact never attempts to answer that, nor a million other scientific inquiries.

In case someone should charge that I am making scripture unfalsifiable (a charge that I take very seriously), compare what Scripture says on many creation related matters compared to apocryphal texts, like 1-3 Enoch. There we find all kinds of scientific answers being proposed, often in attempting to explain certain astronomical phenomena. Many of these solutions have simply been shown to be wrong now. But interestingly, Scripture does not just provide a *better* solution to such astronomical questions, *it simply remains silent* on them.

A CASE STUDY ON THE LUMINARIES OF GENESIS 1

The failure to recognize the points we just considered has been a major factor, I believe, in leading some to unjustifiably claim a contradiction between a given scientific fact with Scripture. A good case example of this is the creation of the heavenly luminaries in Genesis 1.

And God said, “Let there be lights in the expanse of the heavens to separate the day from the night. And let them be for signs and for seasons, and for days and years,¹⁵ and let them be lights in the expanse of the heavens to give light upon the earth.” And it was so.¹⁶ And God made the two great lights – the greater light to rule the day and the lesser light to rule the night – and the stars.¹⁷ And God set them in the expanse of the heavens to give light on the earth,¹⁸ to rule over the day and over the night, and to separate the light from the darkness. And God saw that it was good.¹⁹ And there was evening and there was morning, the fourth day. (Genesis 1:14-19; ESV)

We might first note the paucity of scientific material that is communicated here. Concerning the stars, for instance, so far from offering a classification of them such as what we find in the Hertzsprung-Russell diagram, Scripture communicates nothing more than that God

created them as well: “.. and the stars.” The sun and moon themselves are called *māôr* (plural: *měôrîm*), meaning something like: ‘luminary,’ ‘light-giver,’ or ‘lamp.’ However, some have claimed that this name-description (*māôr* not only for the sun, but also for the moon) does in fact contradict scientific truth. Pete Enns has this to say on the matter:

To make a distinction between what ancient texts say and what it is presumed people actually thought is hard to justify... For example, are we to say that the Israelites actually knew better than to think that the moon was a “lesser light to govern the night” (v. 16) corresponding to the light-giving sun, the “greater light to govern the day”? Did they look up and think, “Well it *looks* like the moon is a light-producing body that gives off less light than the sun, but something else probably accounts for its light. Let’s just call the moon a ‘lesser light’ without committing ourselves to making any pronouncement on reality.” It is unreasonable to suggest that Genesis 1 *knowingly* describes *only* what Israelites perceived, while holding back any commitment that what they saw was in fact reality.¹

So what is bothering Enns? What problem does he see with regard to Genesis 1’s discussion of ‘the two great lights’? The issue is this: the Genesis 1 author called *both* the sun and the moon *měôrîm*: ‘luminaries,’ ‘light-givers,’ or ‘lamps.’ The problem is that today we know that the moon does not produce its own light like does the sun. It is entirely possible, then, as Enns argues, that the ancient Hebrews did not know this. They might well have believed that the moon produces its own light just as the sun does. The key problem then is this: The author may have in fact been influenced by this belief – that the moon produces its own light – when he named them both ‘light-givers’ or ‘luminaries.’

¹ Pete Enns, “The Firmament of Genesis 1 is Solid but That’s Not the Point” (January 14, 2010). Online: <http://biologos.org/blog/the-firmament-of-genesis-1-is-solid-but-thats-not-the-point>. Underlined emphases mine.

Let me first state that authorial intent *does* matter. Indeed, capturing authorial intent – which is *understanding the straightforward point the author intended to communicate* – is the central task of interpretation. The question we must ask then is this: ‘Did the author intend to communicate where the light of these luminaries comes from?’ And: ‘Was the author at all occupied with the question: “*How* do the sun and moon give off light?” or: “*By what process* do the sun and moon *produce* light?”’ You may notice that these questions, which are precisely the kinds of questions that modern science concerns itself with, are concerned with *scientific causes*. “*What causes* the moon and the sun to shine?” “*What is the source* of their light?”

The context to these passages gives a clear answer to these questions. I believe the author was no more intending to answer these questions of scientific cause than he was attempting to answer the question: ‘*what* makes the sun burn?’ So what does the text actually communicate about these bodies? It communicates that, a) God himself created and called these luminaries into being, and b) that he created them to perform certain functions. First and foremost, *they give light to the earth*, and thereby make a division between day and night. Additionally, they serve the functional purpose of marking ‘signs and seasons and days and years’ (Gen 1:14).² Perhaps someone in history might have responded:

“Yeah, I happened to know all that stuff already. After all, how could I have missed that the sun gives light by day!? I’m more interested in those mysterious questions, like: *What* makes the sun and moon *travel through the sky* by day and by night? And prey tell *how* do they give light in the first place? And that sun burns so bright ... *what exactly is it anyway?* Is it fire? And even if it is, how could it just keep on burning like it does?”

² See comments immediately below with regard to this ‘functional’ emphasis.

Whether or not it is disappointing to the questioner, it clearly was not the author's intent to address such questions of *scientific cause*. I might respond to the questioner like this:

As interesting and important as those questions are, is it right to assume that the purpose of the text was to disclose the mysteries of the physical creation? And was it really the purpose of the text to disclose *the detailed physical means* by which the creator made the things he made? In fact, a close reading of Genesis 1 reveals that it says next to nothing about detailed matters of *scientific causation*, but rather focuses on *the grander, teleological purpose* for which God made the things he made. Now someone might find this second focus less interesting (if even irrelevant) when compared to the 'fun' scientific details of *how* the creator made all these objects do what they do. To this, I would ask: What is more important, *the means* by which a purpose is carried out (relating to the scientific details), or *the original purpose* for which a thing was made in the first place? Let us witness, through reading these words, ***the reason and the purpose for which the Creator made these cosmic bodies in the first place***. Namely: He wanted there to be a day and night period on earth as well as times and seasons, as dictated by their 'rule' ("... the greater light *to rule* the day and the lesser light *to rule* the night" – 1:18).

So we can see from the text that the sun and moon and stars were *the means by which* the Creator chose to accomplish *these purposeful intentions*. There is no indication that the text was seeking to answer *exactly how* these objects *work* (e.g. *how* the sun burns, or *how* exactly the moon gives off light). But the text clearly expresses to us the grander, teleological purpose for which God made these cosmic bodies. This point is driven home by analyzing the many infinitives in the text, for instance: *in order to give light, in order to separate, in order to (do this or do that)*. It is abundantly clear that the focus of the text is on expressing these *purposeful*

functions, not on expressing *how* God made them do what they do. The text tells us no more than that *He Spoke it, and it was*.

This teleological focus should by no means be considered a less interesting or less relevant concern as compared to a scientific focus, especially when we realize that *there can be many means* by which *a purpose* can be fulfilled, but only one purpose stands in the end. In other words, *the means* serves the purpose, and not the other way around.³ And in fact, within this very text we find that *the means* by which God fulfilled *these purposes (or purposeful functions)* changes once! For up until this day of creation (day 4), God had been fulfilling the purpose of dividing the day from the night *by another means*. And what is more, according to the Apocalypse of John at the end of the New Testament, there will once again be a ‘changing of the guard,’ where these cosmic bodies will no longer be needed (not vitally so at least). And yet in all of these cases, *the original teleological purpose* still stands and remains centrally important: that God’s people and the creation would have light to walk by:

And the city has no need of the sun or of the moon to shine on it, for the glory of God has illumined it, and its lamp is the Lamb. The nations will walk by its light, and the kings of the earth will bring their glory into it. (Revelation 21:23-24; NAS)

³ Just as an expecting husband and wife might excitedly tell their friends about the new nursery room and crib they just put up, complete with painted walls, a baby mobile above the crib and a baby monitor, without ever discussing *how* they actually constructed and put together any of these things, with nails and bolts and hammers and screws. Even if they do mention some of those details, those matters are secondary. Nor would they say anything about *how* the monitor transmits radio signals. Rather, it’s the final finished environment that they are excited about, as their chief thought through it all is on the new baby being in that new crib and nursery. The bolts, the screws, even the monitor radio signals, are important things, but they are all mundane details when compared to what’s really on their heart: finding a warm home for their new baby.

All of this supremely illustrates why the *overall teleological purpose* of a matter is really what matters in the end, and that is what Genesis 1 focuses on.

There is one more legitimate response Enns might make, and that concerns the text's usage of the term *māôr* in the first place, and also on the exact terminology it uses when it says that these luminaries “*enlighten / give light upon the earth*” (Gen 1:17). Does this language reflect an attempt to communicate that both of these bodies do in fact “*produce*” light?

First, I would say that it is a mistake to use (or at least to emphasize) the word “produce” (as Enns did), since there is nothing in the word *māôr* that focuses on (*inherent*) production. The word is a simple *m* prefix noun form from the word ‘light’ (’ôr).⁴ There are many ways to make a Hebrew noun from another underlying root word (*light* in this case), and the *m* prefix is the most common for noun prefix form patterns. There is nothing much to be gleaned from this noun form. If you take the abstract concept of ‘light’ and make it into an object-associated-with-light, you have this noun: a *māôr*, a *light-object* if you will.⁵ But what about the causative verb form of light (הָאִיר) that the text uses here (typically translated “give light on the earth”), does this say something about the objects themselves *intrinsically producing* the light? Well, the causative (*Hiphil*) verb form of ’ôr appears some 34 times. There is no doubt that in most cases it simply means *to shine* or *enlighten*. Often it is used of God *shining* his face upon us, as in the Aaronic

⁴ See Waltke O’Connor *IBHS* 5.6.a.

⁵ Only usage in the end can determine the ultimate semantic meaning of some of these apparently simple / *qal* type *m* prefix noun forms (examples of which are: *shafat* – *to judge* → *mishpat*: judgement; *zavak* – *to sacrifice* → *mizbeak*: altar). In fact the same root can generate more than one *m*-prefix noun form. For example from the word ‘to see’ (*ra’ah*) we get *mar’eh* (מַרְאֵה – ‘appearance’) and *marah* (מַרְאֵה – ‘vision’).

blessing (Numbers 6:25), a concept which is repeated often in the psalms (Ps 80:4 – “and make your face *shine upon us* that we may be saved.”). Lightning *enlightens* the world (Ps. 97:4). The psalmist contrasts death with having one’s eye’s enlightened: “Enlighten my eyes! Lest I sleep the sleep of death” (Ps. 13:3). Even when the object truly is one that burns or intrinsically produces its own light, the focus is on the act or function of *shining light* / of *illuminating* something, not on the burning process itself, for instance. The *menorah* / temple lampstand is for instance tasked with the purpose of “shining light upon the place in front of it.” – “And the lamps shall be set up so as to give light on the space in front of it. (Exod 25:37, ESV)”

...

“the fundamental distinction between *Piel* and *Hiphil* is that the former signifies the *bringing about of a state* and the latter *the causing of an event*,”⁶

clearly we see in these hiphil employments of ’ô^r that the focus is on *the event of light shining*, *shining* on the path of the righteous, *shining* on the area in front of the golden *Menorah* in the Temple, or even light *shining* in one’s eyes (as opposed to when they are in darkness, no light befalls their eyes).

מְצַנֵּת יְהוָה בְּרָהּ מְאִירַת עֵינַיִם (Ps 19:9) – the *commandment* of Yahweh is pure, *enlightening the eyes*.

So, the root meaning of the *Hiphil* form of ’ô^r is *to enlighten* or *to shine light*. It is not focused on *how* that object gives off light. It says nothing about whether that light-source *burns* for instance. Also,

⁶ Waltke, O’Connor, *IBHS*, 437 (27.2.d).

So then, the moon most certainly does shine light upon the earth, as the text says. There is no focus in this terminology on *how* that light-source intrinsically *produces* (or reflects and etc.) its light.

Second of all, there is clearly another reason the word *māôr* was used here. Close analysis of the Genesis 1 creation account reveals that the author was very concerned with providing simple definitions for the chief elements of creation. As such, ‘earth’ (*’eres*) is simply defined as ‘dry land’ (*yabbašâ*). ‘Seas’ (*yam/yammim*) are simply defined as ‘gatherings-of-water’ (*mikwê hammayim*). There are other such examples in this text. It is not surprising then that the author does not simply call these by their common name of ‘sun’ and ‘moon,’ but rather gives them a technically descriptive, albeit simple, name: ‘the big luminary/light-giver’ (*māôr haggādōl*) and ‘the small luminary/light-giver’ (*māôr haqqāṭōn*). Scholars have long noted that this account entirely avoided using the names ‘sun’ and ‘moon,’ which no doubt aided in his purpose of demythologizing these entities (i.e. teaching that they are not gods, but simply physical objects created by God).⁷ Nonetheless, I would strongly argue that this purpose *nicely dovetailed* with the purpose of providing a technical but simple description of God’s creation. Genesis 1 is very unique in how it does this, in my view.

Coming back to the main point though, there were many reasons for the author’s special use of the term *māôr*. None of these have anything to do with providing a *scientific explanation* for *how* or *in what way* (*by reflection? by self generation?*) the luminaries *give off light*. Rather,

⁷ The names for all of these objects (e.g. ‘sun,’ ‘moon,’ and ‘sea’) were used as the names for major gods throughout the rest of the pagan world (*Shemesh, Yareach, and Yam*).

the text is simply stating that these are ‘*light givers,*’ according to the will of God, and that God made them for this express purpose: of *enlightening* the earth by day and by night. And that they do most splendidly.