

(A Brief Treatise on the Nature of Light)
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Greetings again Paul, in the name of our Lord Jesus:

You ask first for an explanation of the presence of light upon the earth. Obviously, it can't be accomplished in this brief space (and in one response), but at least I can provide an overview of where we'll be going as we further examine this topic.

Light has long been an enigma for the scientific mind (quite near the perplexity of gravity — another topic for another time), and at present we are only beginning to understand something of it, though we utilize it (and experience it) wonderfully. It does help, however — indeed is most necessary — to look beyond the findings of the discipline of science (and most certainly our common experience) when considering the matter of light, for, in the final analysis — and in the most basic essence — God is light (NO, light is *not* God!).

There are at least four degrees (or types, levels) of light, and further discoveries will no doubt reveal more (perhaps as sub-levels):

1. God is light (1 John 1:5) — the very Essence of Light (it is fundamentally how His Power manifests itself as He entered – enters – His Creation). (How the transcendent, omniscient, omnipotent, omni-present Being enters into a finite, tangible universe.) (Or, how the transcendent enters the tangible)
2. Injunctive light (“Let there be light.”) — The fundamental process of our Energy// (Motion) // Matter continuum.
3. Created light (the luminescent bodies) — the empirical light of our common experience.
4. Artificial light (our harnessing of energy) — the light of our convenience

Since you have asked the question, I would be interested to know of what extent you have studied the phenomena of light. Historically there are those who have given extensive study to light, almost always focusing on only one aspect, and their theories tending to promote only that somewhat limited view for a time.

Newton of the 17th century found light to be a *particle*, while Huygens of roughly the same time period declared light to be a *wave*. Faraday (19th) studied light as a *field*, and Maxwell (19th) looked at its *electromagnetic properties*. Plank (20th) introduced the *quantum characteristics* of light and “discovered” the *photon*, and Einstein gave us light as the *constant* in the universe.

We largely experience light in its ambient mode (daylight, fire light, lamp light) and have learned of late to work with it in its coherent form (laser light). Light is essentially energy, made up of photons, which are light quanta. And quanta are “particles” (pure energy, without mass) that make up energy. Therefore, I hope that you can see that when God commanded, “Let there be light,” a great deal more than we know was going on, and a wonderful series of events were set in motion.

Ultimately to us, light is a paradox. When you feel ready — and after we’ve covered some other matters — I’d be happy to send you my brief paper on this topic entitled “The Cosmic Mirage: Space, Time, and the Relative Age of the Universe,” as well as some of my other writings on this subject (or if you prefer, discuss this within the context of our e-mails).

But for now (and offering that part that might be of most interest to you), the paradox works something like this: Light is a measurable “constant” velocity implying distance \times time. However, according to Einstein’s Special Theory of Relativity, at the inherent velocity of light, distance is infinite (that is, without dimension) and time is without duration.

Einstein’s equivalency formula ($E=mc^2$) proposes that energy and mass are actually different states of a single Energy / Matter continuum, much as water, steam and ice are all composed of a single entity, H₂O. Energy is *matter* in its intangible form: Matter is *energy* in its tangible form.

Now in our own limited, finite sense of observation and comprehension (and here is something you absolutely must be acutely aware of — our extreme intellectual limitations), and allowing that the speed of light has remained constant over time (a true uniformitarian assumption for the cosmos!) — a likely improbability (see Setterfield, www.ldolphin.org/setterfield/redshift.html) — it is reasonable to suppose that the Creator performed His creative processes (i.e. Energy / Mass conversion) at a velocity very near 99.999...% the speed of light (for how else would you suppose the Power of God would enter into a physical, created universe?) thereby suggesting a velocity/time dilation conversion on the order of 10 to the eighth power (10 billion light years) = 4 minutes, 10 seconds.

Our common experience tells us that photons arriving now from our sun left that body 8.3 minutes ago. Light photons represent the mass/matter of the Energy/Mass continuum and, as “pure matter,” can thus be measured according to velocity and distance (except at the quantum level according to the Heisenberg Uncertainty Principle — HUP).

However, the “pure energy” of light (apart from photons) cannot be measured since at the inherent velocity of light there is no dimension or duration according to Special Relativity Theory (SRT). In this sense then, the true speed of light represents the light/energy of the Energy/Mass continuum.

So Quantum Mechanics (QM) and HUP have it right at this quantum, particles of light level. The next (and final?) level will find that not only can’t position be determined when velocity is measured, and visa versa, but at this level any measurement is impossible, vis-a-vis SRT (the “ruler” being as infinite in dimension — and duration — as the “object” being measured!).

And indeed, if no measurement is possible, and we have reached the “level” of infinity, then in eternity where there is no dimension or duration, and all is perfect “order,” we can finally expound the “Unified Field Theory,” AKA “The Theory of Everything,” the ultimate quest of science (cf., Einstein, Hawking, Davies, etc.).

And in the final analysis, Man was/is created between two infinities, that of the “real” macro-cosmic and that of the “real” micro-cosmic, infinities (or as One) where things eternal are there to behold within the context of the Creation. Interesting and wonderful thought, isn’t it?

Paul, as it regards the issue of light, here are some questions you might consider: Is light absolute, or is it relative? Perhaps it is both! Is it wave or is it particle? Or both; or neither? Is it energy, or is it matter? How does relative speed effect it? How does the notion of infinite speed effect it? Is it ethereal or is it phenomenal? Again, perhaps both, or perhaps neither!

Having said this — and recognizing our finite limitations (as Job finally did — cf., ch.38) as created beings — it is well to realize that fundamentally, light can be considered in two ways: Universally — that is, “inhabiting” the whole of the universe at once; and phenomenologically — that is corpuscularly, point by point, moment by moment, in the context of space and time.

One of our problems may be that we have, without warrant, separated between the spiritual creation and the physical realm of things. But the creation of the physical world may not in fact have been fundamentally different from the spiritual. Both worlds are almost certainly concentrations of energy in different form.

Jeans suggested that what we call light is really matter moving at its fastest possible speed, and that to move matter at this speed requires infinite power. As he pictured it, the moment this infinite energy is reduced and the speed of matter slows down, it ceases to be “light” and becomes “matter.” He termed matter “bottled light” and he termed light “unbottled matter.” Instead of bottled, he might have used the word congealed. For this is his basic meaning.

Physicists are coming increasingly to the view that all the solid things about us are really “concentrates” of energy and that matter itself is basically spiritual in nature. Its solidity is, to a large extent, an illusion.

The creation of angels could well have been the first step in the creation of a special form of matter, and accordingly the first step in the creation of a special form of space - and a special kind of time. The “disappearance” of energy in the congealed form, which we experience as matter, will mark the disappearance of what we now experience as spatial time i.e., a time frame that demands a spatial frame also.

Next, you have asked me to explain evening and morning. Your question, in the broader inquiry (“[E]xplain... evening and morning, in Gen. 1:3-5, before the creation of the sun, moon, and stars on day four...”) seems to reveal that you see the evening and morning as dependent on the sun, etc., and I wonder why. The Bible is quite clear to point out that light (as well as darkness) was present prior to day four, and at that stage not dependent upon the luminescent bodies for its manifestation. Indeed, I believe it can be said (though I may be pushing it here) that even we can “produce” light and darkness without the direct benefit of the sun through our understanding (and manipulation) of the Energy/Matter continuum.

Now whether the Creator began the evening and morning time sequence through a rotational process imposed upon our globe, or whether He used the Energy/Matter continuum process during the first three days as He was forming the earth and the universe, and through this means “switched” on and off the light is not given to us. Suffice to say, He did not need the sun, moon and stars to fashion the sequence of time during this, the first day.

(I’m not familiar with Dr. Morris’ view of this, but if it is as you’ve described, I would not agree — and I’m sure you don’t either. And I am delighted that you have an abiding interest in the matter of light as I do, and I’m sure we will both grow in our understanding as we dialogue on this further.)

It would seem (and here you could perhaps help me?) that the Jewish rabbis believed that the duration of the day and the duration of the night on the first day were actual creations and not merely the result of the creation of the heavens and the earth. They held specifically that “time” was created simultaneously with the world (and not before it).

Since Einstein was himself a Jew and undoubtedly acquainted with the literature of his forebears, it is not perhaps so surprising that such a thought as the coincidence of the creation of matter and the creation of time should have been in his mind when he formulated his Special Theory of Relativity and made time part and parcel of the physical world.

Actual experimental verification of this revolutionary view (as opposed to the classical and common sense picture of time as an ever-flowing stream with invariant speed of current) began with the experiments of Michelson-Morley (1887). Yet the concept itself of the relativity of time goes back a very long way, far beyond Einstein, to Augustine (354-430 A.D.) in fact — and before Augustine to Philo (c. 20 B.C. — c. 42 A.D.) and his contemporaries. According to the Jewish commentators in the time of our Lord, God produced ten things on the first day of creation. He produced the heavens and the earth, Tohu and Bohu, light and darkness, wind and water, the duration of the day and the duration of the night. (See Custance, “Time: The Philosophical Account” for an in-depth elaboration of this view). . . .

Paul, be very careful of your (our) intuitive notions of space, time and motion. Always remember that the Creation of the universe was a singularity, and by definition, supernatural (beyond science and intuition) at that. In order to even begin an attempt at understanding “In the beginning. . .” and what occurred at that “moment,” there requires a great deal of humility (supplication), and some profoundly revolutionary thinking. The notions you seem to buy into don’t carry the burden of either of those qualities.

Popular science with all of its presuppositional baggage is constrained within a naturalistic box of its own making. Its methodology (certainly valid in a number of applications) requires as its fundamental principle — besides that of *Naturalism* — a principle of uniformity. You were right to jettison the uniformitarianism of classical historical geology as well as that of biological evolution, but it appears that you still subscribe to the classical model of astro-physics and astronomy.

When you begin to delve into the subject, you soon discover that a uniform model of the cosmos is even more bizarre and constraining than when it is applied to the time-frame of earth. To finally break out of that box of intellectual pride (such as that manifested by Hugh Ross) and to begin to again see the glory of God in the heavens and His unique Creation is most invigorating to the faith of the believer.

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