

A New Analysis Of Modern Science, In Torah (Biblical) Account Of Creation

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In The Beginning G-d created

G-d created the universe five thousand seven hundred and sixty two (5762) years ago. In the very first moment of creation, G-d created all physical matter. as the entire universe. The universe consists of two dimensions Heaven [\[1\]](#) and Earth. Heaven is spiritual and is in a constant state of motion, while Earth is physical and static. [Genesis 1, 1. Nachmanides ibid. Maimonides: laws of *Yesodei HaTorah* 3, 1-4. Guide to The Perplexed II].

the (more spiritual) Heaven (which is in constant motion), 2)

the (more physical) Earth (which stays in one place, and does not move)

The Earth was originally created in a chaotic state; including all earthly physical matter, but not yet divided into separate properties of solid, liquid, gas and plasma [Genesis 1, 2. Nachmanides *ibid.* Guide to The Perplexed *ibid.*] .

Then the Earth was divided into 4 separate entities: 1) the earth (solid), surrounded (on all sides) by 2) water (liquid), surrounded by 3) gas, Surrounded by 4) electromagnetic energy [*ibid.* Maimonides: laws of *Yesodei HaTorah* 3,9-10; 4,1] .

Then G-d said: let Light be developed. And part of the heaven became energy that radiates light and heat [Genesis 1, 3].

This large Light was later divided by G-d on the fourth day of creation [\[2\]](#) into many separate balls of radiating heat and energy. Namely, the Sun and many stars [\[3\]](#) [commentary of Rav S`adya Gaon on Genesis 1, 3-4].

The Heaven surrounds the earth (and its atmosphere) and revolves around it. Completing a full revolution of 360 degrees around the earth and its atmosphere in approximately one day (23 hours, 56 minutes and 4 seconds). The direction of the daily revolution is from east to west, parallel to the equator (which is located right between the north and south poles). Therefore the Sun and all the stars and planets rise in the east and set in the west [Maimonides laws of *Yesodei HaTorah* 3, 1-2].

At the same time the sun moves in its own independent motion from west to east, at a much slower pace (completing a revolution of 360 degrees every 365 days 5 hours 48 minutes 49.6 seconds [\[4\]](#)). Thus; only at the end of a full day (which is then divided into 24 hours), does the sun return to its original position [Maimonides: laws of *Kiddush Hachodesh* 12, 1] .

The light that was created on the first day, moved (in its own independent motion) at the same pace as the sun later would.

When the light was developed, it was placed 90 degrees west of Israel (just below its horizon [\[5\]](#)); thus causing night to last for approximately 12 hours, followed by an equal amount of day-time, forming one complete day(12/25 01) [\[6\]](#)[Genesis 1, 5].

On the second day G-d said, "Let there be *Rokia* (atmosphere)in the midst of the waters, and let it separate between water and water." And it was so [Genesis 1, 6] [\[7\]](#) .

G-d made the atmosphere. The water that is above the atmosphere exists in clusters of ice (some of them known as comets); when they descend to the atmosphere, they turn unto liquid water and then evaporate. The water below the atmosphere exists in colder temperatures in the solid form (ice), in warmer temperature in liquid form; when it heats up enough, it evaporates and rises and becomes clouds [Genesis 1, 7; 2, 6].

At the end of the second day, the water below the atmosphere still surrounded the solid Earth from all sides, covering and submerging it completely.

On the third day G-d said the water under the atmosphere should gather into one place, and let the dry land be revealed and it became so [Genesis 1, 9].

G-d designated the dry land (with its rocks, minerals and dust) to become the land that is going to be populated by human beings and animals. The gathering of water was designated by G-d to become oceans, rivers, lakes and wellsprings [Genesis 1, 10].

The earth brought out all kinds of grass, grain, fruits and vegetables [\[8\]](#) [Genesis 1, 11-12].

During the first 3 days of creation, there existed only one light and one unit of time (the day). Only 2 physical entities existed above the electromagnetic field of energy: the physical heavens and the Light.

On the fourth day G-d made the two great luminaries: the gaseous sun and the solid moon. Initially the moon light came from within (i.e. the moon radiated its own light). The moon: complained it is not worthy of two kings to use the same crown, i.e. that it is not proper that there should be two luminaries (that appear to be about the same size to an observer from earth [\[9\]](#)) both radiating their own light. G-d told the moon "go diminish yourself", i.e. cease to radiate light [\[10\]](#). From then on, the moon only reflects sunlight, and does not radiate its own light [Chulin 60b] [\[11\]](#).

G-d also made (on the fourth day) the stars, planets and satellites [\[12\]](#).

1. [Heaven is the translation of the Hebrew word "shomayim". The modern reference to it as "Space"; is a result of the modern conception that only something which can be sensed with 1 of a Human Being's 5 senses \(sight, hearing, touching, smelling and feeling\) can be defined as something physical. Thus stripping the more spiritual Heaven of its physical character; attributing motion to something else; replacing the word "Heaven" \(that refers to something physical\) with the word "Space" \(that refers to something that is not physical matter, but merely space that physical matter can occupy\). This is one example of the answer to an interesting question: what is the relationship between science \(Particularly: modern science\) and Torah. The Torah represents truth and reality as revealed to us by the Creator himself. Science is based on observations of finite human beings, and cannot even pass judgment on whether or not anything absolute \(for instance: absolute motion\) exists..](#)
2. [These days of creation were equal in length to the day](#)

that exists today. Since the creator is omnipresent; the question that arises when one reads the Torah's account of creation is not: how could this have been accomplished in such a short period of time, but rather: why did G-d create the world in six days, when he could have done it all in one second.[For an answer to this question, see note 6]

3. The apparent width of the Sun (to someone observing it from the Earth) is 32 minutes of a degree (a complete circle being divided into 360 degrees and a degree into 60 minutes). The apparent width is a result of the proportion of its distance from the Earth to its actual size. It seems that the Light (that was created on the first day of creation) was placed at such a distance, so that its apparent width (to someone observing it from the Earth) should be 32 minutes of a degree.
4. Maimonides (laws of *Kiddush Hachodesh* 12, 1) does not specify the exact length of the solar year. However; it can be calculated from the amount of degrees, minutes and seconds that Maimonides (ibid.) states that the Sun goes per 100 (1000 and 10000) days.
5. horizon is a 180-degree radius (90 to each direction: north, south, east and west).
6. from the fourth day onwards, there were three units of time: 1) day. 2) month. 3) Year. The sixth day of creation (the day that man was created) was the first day of the first month of year 2 (1/1 02).
7. Every physical aspect of creation was preceded by a corresponding spiritual action: The dual language in the Torah concerning the formation of the *Rokia* – first G-d said “let there be *Rokia*... and it was so,” then G-d made the *Rokia* (atmosphere) – is explained by Reb Shneur Zalman of Liadi in his *Likkutei Torah (Pinchos 78b)* as follows: “Let there be *Rokia* ” refers to the spiritual *Rokia*, which separates the G-dly source of physical matter from physical matter itself; “G-d made the *Rokia* ” refers to the physical *Rokia* (the

atmosphere).The same explanation applies to the dual language concerning the formation of the luminaries. The development refers to the spiritual Luminaries. "And G-d made the two luminaries... and the stars" refers to the physical luminaries (the sun, moon, stars, planets and satellites).

8. The Light supplied the energy for the plants and fruit.
9. The Sun is much larger than the moon (the Sun's diameter is 5.5 times the diameter of the Earth. Hence, its volume is $166 \frac{3}{8}$ the volume of the earth. The volume of the Earth is approximately 40 times the volume of the moon [Maimonides: laws of Yesodei HaTorah 3, 8]). The diameter of the Sun is 20 times the diameter of the moon. However, the distance between the Sun and the Earth is 20 times the distance between the moon and Earth. Therefore the apparent size of the moon (when it is full) is close to the apparent size of the Sun.
10. With this statement, the Talmud (Chulin 60b) explains the verse (Genesis 1, 16) that begins "and G-d made the two great luminaries" and continues "the greater luminary to rule the day and the smaller luminary to rule the night". When they were first created, they both radiated their own light; hence, they are referred to as "the two great luminaries". Later, when the moon ceased to radiate its own light and it merely reflects sunlight, it's referred to as "the smaller luminary". Rav Yisroel Yitzchok Piekarsky (*Even Yisroel*, Droshoh for *Shabos HaGodol* 5708) explains: the Talmud (Bava M'tziah 12b) says that someone who eats by his parents is considered a *Koton* (minor), but if he is self-supported then he is considered a *Godol* (adult). Hence, the luminary that radiates its own light is considered a *Maor Hagodol* (the larger luminary), but the luminary that does not radiate its own light (and merely reflects someone else's light) is considered a *Maor HaKoton* (the

smaller luminary).

11. In the days of moshiach, the moon would once again radiate its own light.
12. The luminaries visible to the naked eye (that is not aided by a telescope) are divided into 2 categories:
 - a. 7 planets (Moon, Mercury, Venus, Sun, Mars, Jupiter and Saturn) that are relatively close to the Earth (the Moon completes a full revolution of 360 degrees in approximately 27 days and 8 hours. The Sun, Mercury and Venus complete a full revolution of 360 degrees in approximately 365 $\frac{1}{4}$ days. Mars completes a full revolution of 360 degrees in approximately 2 $\frac{1}{2}$ years. Jupiter completes a full revolution of 360 degrees in approximately 12 years. Saturn completes a full revolution of 360 degrees in approximately 30 years).
 - b. stars that are more distant from the Earth. These stars are fixed in the Heaven (that rotates daily around the Earth and its atmosphere parallel to the equator, and completes a full revolution of 360 degrees in approximately 25,000 years tilted 23 $\frac{1}{2}$ degrees north and south of the equator).