

Quran and Universe



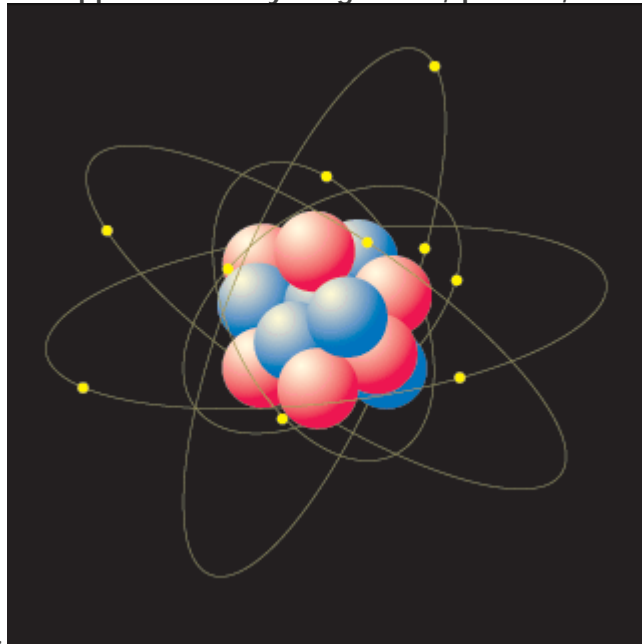
Allah Almighty says: *[And He it is Who created the night and the day, and the sun and the moon. They float, each in an orbit.] (Al-Anbiyaa' 21: 33)*

This glorious verse refers to a scientific fact concerning the system of the universe. Scientific discoveries have proved that we live in a huge universe that depends on revolution. The earth revolves round the sun once a year, the moon revolves around the earth once per lunar month, and the other planets of the solar system also revolve round the sun, each in its own orbit. Besides, most of these planets have moons that revolve around them, each, also, in its own orbit. Astronomers have discovered more than 60 of these moons so far.

The solar system, likewise, orbits a center of our galaxy, the Milky Way. This galaxy consists of more than 130 billion stars. Galaxies, in turn, revolve round a center that only Almighty Allah knows.

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The law of revolution applies also to atoms, the smallest units of elements that cannot be seen even by microscopes. An atom is composed of a nucleus whose diameter is less than a millionth of a millimeter. An atom is surrounded by electrons that move round the atom in an orbit. Since all matter in the universe-whether solid, liquid, or gaseous-consists of atoms, this means that the law of revolution applies to everything: stars, planets, moons,



animals, plants, sand, seas, air, and so on.

This includes cells as well. The cytoplasm in the cell moves around the nucleus.

Contemplating the above lines, we come to realize that revolution is a cosmic law.

With a believer's meditation upon such a scientific fact, another image of revolution is brought to one's mind: the pilgrims' circumambulation of the Ka`bah, which is a basic ritual of Hajj in Islam.

Circumambulating the Ka`bah is a symbolic act of worship, whose wisdom may be hidden from some. It indicates the believers' utter submission to Almighty Allah alone. The pilgrims go to Hajj in response to the divine order that Prophet Abraham (peace and blessings be upon him) conveyed to people. Allah Almighty says: **[And (remember) when We prepared for Abraham the place of the (holy) House, saying: Ascribe thou no thing as partner unto Me, and purify My House for those who make the round (thereof) and those who stand and those who bow and make prostration. And proclaim unto mankind the pilgrimage. They will come unto thee on foot and on every lean camel; they will come from every deep ravine.]** (Al-Hajj 22: 26-27)

This signifies that the Ka`bah is the spiritual center of the believers. It refers to the close bond that should be between a believer and his Lord. A believer turns toward the Ka`bah five times a day during the prescribed ritual Prayers.

A pilgrim circumambulates the Ka`bah as if he or she is a celestial body orbiting another greater body. Circumambulation of the Ka`bah is to be performed counterclockwise. This indicates that there is a joint factor between a pilgrim's expressing his ultimate faith in Almighty Allah by circumambulating the Ka`bah in that way and between the cosmic law of revolution discussed above. This indicates that there is consistency between the obligations of worship in Islam and the natural laws that govern the universe, which indicates that they all belong to only one source, that is, Almighty Allah.

This proves the truthfulness of the call of Islam that there is no god but Almighty Allah. Thus, Islam is the true religion that provides humankind with a comprehensive view in conformity with the divine truth that is apparent in the natural laws of the universe.¹

Source: islamonline.net

The Darkness and The Light

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"All praises and thanks be to Allah, Who (Alone) created the heavens and the earth, and originated the darkness and the light;" (Surat Al-An'am (The Cattle) 6:1).

This miraculous Qur'anic Ayah is found at the beginning of Surat Al-An'am (The Cattle), which was revealed in Makkah. It is one of the longest Qur'anic Surahs, as it consists of 165 Ayahs after Al-Basmallah. It is the fifth Surah after Al-Fatihah (The opening surah in the Holy Qur'an) and it was called so because it made mention of Al-An'am.

The scientific implications of this gracious verse:

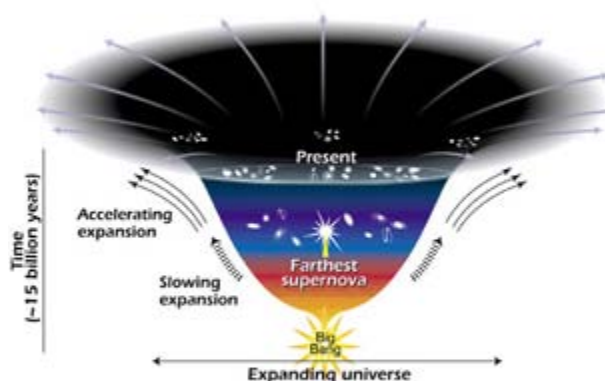
First: The creation of the heavens and the earth is one of the greatest evidences on the absolute divine creativeness:

In the beginning of the twentieth century, scientists made sure that the universe is expanding. The matter that led to the correct deduction that our universe was created from a minute point with a huge amount of matter and energy. This point exploded and turned into a cosmic cloud of dust and smoke from which the earth and the heavens were created. With the expansion of the universe, it cooled down from billions of degrees to three measurable absolute levels that can be measured today across the observed universe. Matter and antimatter and other forms of energy were formed in different stages, determined by scientists in the following points:

1. **The age of quarks and gluons:** This period lasted after a part of a hundred thousand millions of a second after the big bang. In this period, the primary particles of matter were created with its anti-particles from the cosmic dust. This includes the quarks and anti-quarks, neutrinos and anti-neutrinos. The cosmic dust was dense and dark while gravity was a separate force binding the parts of this cosmic dust together. The strong nuclear force was then separated from the weaker electromagnetic force. It is believed that the number of particles in this dust was more than the number of anti-particles or else there would be no universe. Another possibility is that a higher power separated the particles from the anti-particles so that the heavens and the earth would be established by Allah's Command. This period was a period of astounding expansion of the universe.
- 2.

The lepton age: It continued for a part of a million parts of a second after the big bang. In this period, the leptons, the lightest elementary particles for matter such as electrons, neutrinos and anti-neutrinos, were clearly distinguished from the quarks. Similarly, bosons were distinguished and the weak force was separated from the force unity known by the weak electric force.

3. **The nucleons and the anti-nucleons age:** This period lasted up to 225 seconds after the Big Bang. Meanwhile, quarks united together to form the nucleons and their anti-nucleons like the protons and neutrons and their antiparticles. The energy was weak enough at this point so it did not permit the formation of



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the nucleons and their anti-nucleons on a wide range or else there would be no universe.

4. **The formation of the nucleate of elements age:** This period was between 225 seconds and one thousand seconds after the Big Bang. In this period, stable deuterons were formed each by the combination of a proton with a neutron. Through their formation, nuclear fusion started to form hydrogen atoms' nucleate. By their unity, the nucleate of helium atoms as well as some of the nucleate of other heavier atoms were formed until the percentage of hydrogen reached 74%, helium 24% and nucleate of other heavier elements reached 1%.
5. **Ions formation age:** This period started from one thousand seconds to ten trillion seconds after the Big Bang. Meantime, the hydrogen and helium ions were formed and the universe continued its expansion and continued to cool down.
6. **The atom formation age:** It extends through the period starting from ten trillion seconds to one thousand trillion seconds after the Big Bang. At that time, the atoms of various elements were formed and bonded by the gravitational force. Then the universe became transparent.
7. **The age of the formation of stars and galaxies:** It extends from one thousand trillion of a second after the Big Bang (about 32 million years of our current years) up to this day i.e. about 10 milliards of years. In this period, most elements known to us were formed (which are more than 105 elements) by the process known as nuclear fusion, happened inside stars until the element known as iron was formed in the nebula and the great nebula. Elements of higher atomic weight than the iron atoms nucleate were formed by catching the elementary particles that were spread all over the heavens.

Qur'an preceded this scientific knowledge with 14 centuries, as Allah (SWT) says, "Have not those who disbelieve known that the heavens and the earth were joined together as one united piece, then We parted them? And We have made from water every living thing. Will they not then believe?" (Surah Al-Anbiyâ' (The Prophets):30).

He (SWT) says also, "Then He rose over (Istawâ) towards the heaven when it was smoke, and said to it and to the earth: "Come both of you willingly or unwillingly." They both said: "We come willingly." (Surat Fussilat (They are explained in detail):11).

He (SWT) further says, "With power did We construct the heaven. Verily, We are Able to extend the vastness of space therefore." (Surat Adh-Dhâriyât (The Winds that Scatter): 47)

These stages confirm the absolute wisdom and control in the creation of the heavens and the earth, because a slight error in calculations could have prevented the formation of the universe. This includes quantitative and qualitative calculations, the temperature, expansion rates and the combination discipline, especially as the entire process was a result of a big bang.

Mostly, an explosion causes destruction and scatters everything haphazardly. Therefore, when an explosion causes the construction of a universe with such a magnitude and great number of cosmic bodies with their controlled orbits, spinning rates and their precise relation with one another, then it must have been preceded, accompanied and followed by accurate estimation, ingenious creation and special care. The matter that led it to the present form obvious in our own selves and around us. All this proves the magnificence of The Creator, His absolute Power, perfect making and accurate estimation.

Second: creating darkness and light proves the absolute divine creativeness and entails praising Allah (SWT).

According to the most accepted scientific theories, our universe started in a gaseous state that was dense and dark. This continued, at least, for a period of 30 million years (of our current years). Later, the universe started to transform to a more transparent state that was able to absorb the light resulted from nuclear fusion, which happened inside the stars. This lasted for a period of approximately 10 milliards of years, up to our current time and until Allah (SWT) wishes.

Since the majority of light, emitted by the stars, is unseen, darkness in our universe was categorized as follows:

1. **The primary darkness of the universe:** It covered the period from the Big Bang up to the beginnings of the nuclear fusion operation. It took about 30 million years (according to our current time). This period was characterized by the high density of

matter in its most elementary form. Further characteristics were the complete dimness and darkness.

2.

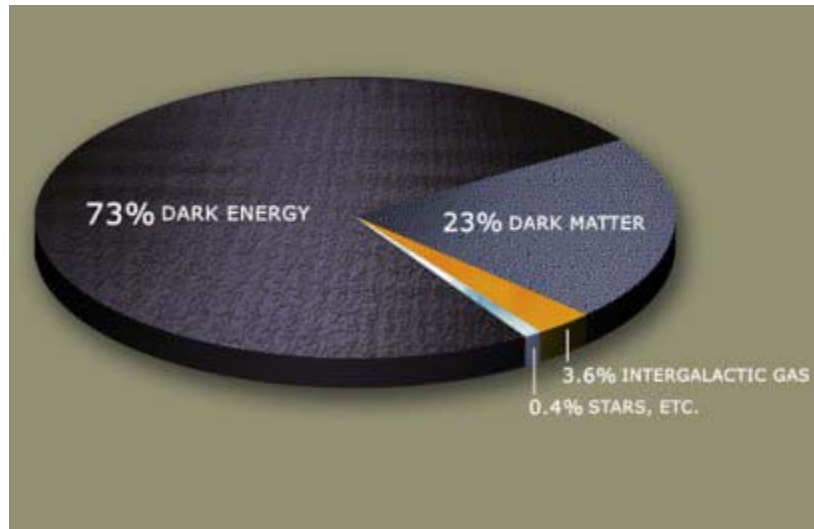
Dark matter and dark

energy: Dark matter and dark energy are two of the most vexing problems in science today. Together they dominate the universe, comprising some 96 percent of all mass and energy.

But nobody knows what either is. It's tempting to consider them products of the same unknown phenomenon, something theorist Robert Scherrer suggests. The professor of physics at Vanderbilt University says "k-essence" is behind it all.

Dark matter was invoked decades ago to explain why galaxies hold together. Given regular matter alone, galaxies might never have formed, and today they would fly apart. So there must be some unknown stuff that forms invisible clumps to act as gravitational glue.

Dark energy hit the scene in the late 1990s when astronomers discovered the universe is not just expanding, but racing out at an ever-faster pace. Some hidden force, a sort of anti-gravity, must be pushing galaxies apart from one another in this accelerated expansion.



3. **The current darkness of the universe**: After about 30 million years from the Big Bang, stars were formed and the thermal nuclear fusion started inside them and continued until today; more than 10 milliiards of years later and it will continue according to Allah's wills.

Consequently, stars started emitting their light to the vast heavens, although most of it is invisible, as it is formed of a chain of electromagnetic waves that includes radio waves with all its various wavelengths as well as infrared, ultraviolet and gamma rays. Those electromagnetic waves differ only in their frequencies and wavelength. The wavelength spectrum extends from few kilometers for radio waves, to a part of billion parts of a millimeter for gamma rays.

As for the visible light, the wavelength ranges between 0.01 micron to 100 micron (1 micron = 0.001 mm). This includes visible light, infrared and ultraviolet rays. Out of the visible light spectrum, the human eye can distinguish the red color (with the longest wavelength and lowest frequency) then orange, yellow, green, blue, cyan and violet (which has the shortest wavelength and is the highest in frequency). Those waves are not seen clearly except in the day layer, which is a very small part of the earth's atmosphere facing the sun. The thickness of this layer does not extend more than 200 kilometers. Besides, various colors are reflected in it by the dust particles and water drops when they mix together. Their mixing gives us the white light, which people on earth and on any other planet with a similar atmosphere can see and enjoy.

Accordingly, if we pass the daytime layer, we will see the sun as a blue disk at the middle of a black page of darkness. This is the current darkness of the universe that Allah (STW) described in His saying, "And even if We opened to them a gate from the heaven and they were to keep on ascending thereto (all the day long). 14. They would surely say (in the evening): "Our eyes have been (as if) dazzled (we have not

seen any angel or heaven). Nay, we are a people bewitched. 15." (Surat Al-Hijr (The Rocky Tract): 14-15).

In describing the sky, Allah said, "Its night He covers with darkness and its forenoon He brings out (with light)." (Surat An-Nāzi'āt (Those Who Pull Out): 29).

This is the darkness of the night of the sky. Its darkness increases when it meets the darkness of the night of the earth. The action, which is caused by the rotation of the earth around its axis. Therefore, the earth surface is divided into night and day with the part facing the sun having daytime while the other part having nighttime.

4.

The darkness of seas and oceans depth: It is scientifically proven that the bottoms of seas and oceans are extremely dark, because their depths extend hundreds of meters below (approximately 11034 meters with an average of 3795 meters). Sunrays can never reach such depth. It is proven that the ozone layer in the atmosphere reflects back most of the ultraviolet rays away from the earth, while clouds reflect 30% of the sunrays and absorb about 19%. Accordingly, only 51% of the sunrays reach the oceans and seas surface. The waves then reflect 5% and consume 35% of the infrared rays in evaporating water and in the photosynthesis process carried out by some seaweed.



As the remaining part of the sun layer penetrates the water, it is subjected to multiple refractions that resolve it to its various components. They gradually get absorbed according to their wavelength starting from the red all the way to the violet. Therefore, most of the observed light waves from the sunrays get absorbed at a depth of about 100 meters from sea level in seas and oceans. This region is known as the illuminated region.

Less than 1% of the sunrays continue past the depth of 150 meters, 0.01% continues to the depth of 200 meters in pure clear water. This small remaining amount of observed light continues to be refracted, dispersed and absorbed until it disappears completely at a depth that hardly reaches one thousand meters below sea level. The remaining part of the sunrays is negligible at this point (one part of tens of trillions). That in case no deep waves prohibited this remaining portion of light from reaching such a depth. Those waves start forming at a depth of 40 meters below sea level and might be repeated at lower depths.

The Glorious Qur'an describes the darkness in the bottom of deep as, "Or (the state of a disbeliever) is like the darkness in a vast deep sea, overwhelmed with waves topped by waves, topped by dark clouds, (layers of) darkness upon darkness: if a man stretches out his hand, he can hardly see it ! And he for whom Allah has not appointed light, for him there is no light." (Surat An-Nūr (The Light): 40).

5. **The darkness of the womb:** Allah (SWT) describes it saying, "... He created you (all) from a single person (Adam); then made from him his wife (Hawwā' (Eve)). And He has sent down for you of cattle eight pairs (of the sheep, two, male and female; of the goats, two, male and female; of the oxen, two, male and female; and of the camels, two, male and female). He creates you in the wombs of your mothers: creation after creation in three veils of darkness...." (Surat Az-Zumar (The Groups): 6).
- The threefold darkness were interpreted to be: the darkens of the belly, followed

by the darkness of the womb, followed by the darkness of the placenta with its mesentery and fluids.

6. The darkness of the grave representing the darkness of every closed place under or above earth:

According to the honorable Sunnah, the grave is to be dug to the extent of a qamah (6 feet) and a bastah (platform). It is to be dug sideways and towards the qibla. The body of the deceased is placed in it on the right side with the face facing the qiblah. Then, it should be built with mud bricks, filled up with sand and dust and raised to a length of a span of a hand above the earth. Else, a hole can be made at the middle of the grave and build it with bricks to put the deceased in it and cover it with something that did not enter fire like wood. Then dust and sand are placed over it to about a span of a hand length above the earth. After closing the grave, the darkness then is complete, from which Allah's Prophet (SAWS) used to seek refuge in Allah. The darkness of graves is similar to that of caves, mines, deep trenches in the earth, dark hideouts and every well-sealed place. As for the beautiful white day light, it is not seen except in the lower half of the atmosphere facing the sun to a thickness of 200 kilometers only where there are enough dust water particles and air gas particles that reflect, diffract and mix the observed waves spectrum to give us that amazing white light which distinguish daytime.

Allah (STW) describes this saying, "By the sun and its brightness.1. By the moon as it follows it (the sun). 2. By the day as it shows up (the sun's) brightness.3." (Surat Ash-Shams (The Sun): 1-3).

He indicates the delicacy of daytime layer by saying, "And a sign for them is the night. We withdraw therefrom the day, and behold, they are in darkness." (Surat Yâ-Sîn: 37).

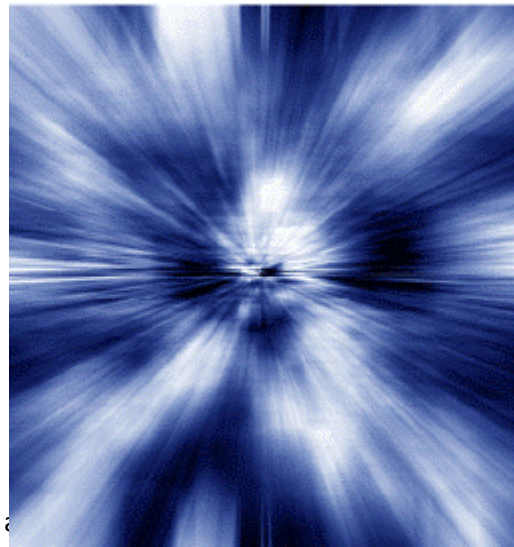
Allah (SWT) says also, "Allah, it is He Who has made the night for you that you may rest therein and the day for you to see. ..." (Surat Ghâfir (The Forgiver): 61).

He further says, "All praises and thanks be to Allâh, Who (Alone) created the heavens and the earth, and originated the darkness and the light; yet those who disbelieve hold others as equal with their Lord." (Surat Al-An'âm (The Cattle): 1).

He mentioned darkness as plural owing to its vastness and prevalence in the universe. On the other hand, He made light singular for its specialty and limited source in life. Those are facts that were not realized except in the late twentieth century. Those facts being mentioned in a book revealed more than 14 centuries ago to an illiterate Prophet (SAWS) and in an ignorant nation, are a clear proof that the Qur'an is the words of Allah; The Creator. It proves also that the seal Prophet who received the Qur'an was in touch through the revelation and was taught by The Creator of the heavens and the earth. Peace and Blessing be upon Allah's Prophet, his Household, his Companions and whoever follows his guidance and proclaims his message till the Day of Judgment and praise be to Allah the Lord of all the worlds.

Speed Of Light And Quran

The speed of light in vacuum c is the same for all forces including light and all other electromagnetic waves, e.g. ultraviolet, infrared, radio and TV, and may be also the gravity. It is the upper limit speed for the forces in the physical universe and it can't be reached by any matter due to the infinite energy needed. Therefore, to describe this highest speed on the astronomical basis, the distance covered by which in a day as the shortest astronomical time is best compared to the astronomical distance covered by the moon as the nearest celestial object and the easiest to define its motion precisely. Lunar year is based on 12 cycles. Hence, puzzle of Monotheism books becomes a miracle;

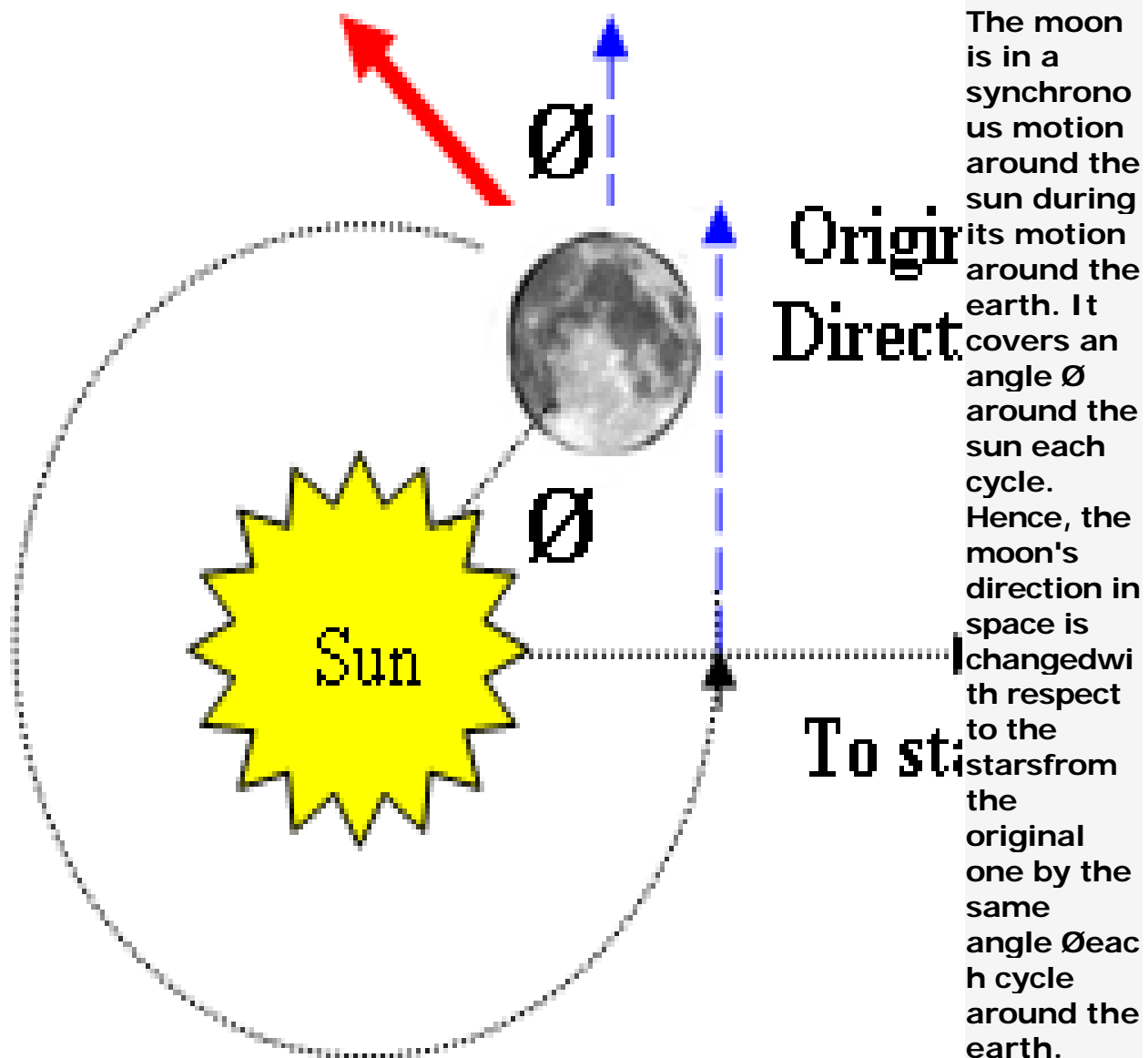


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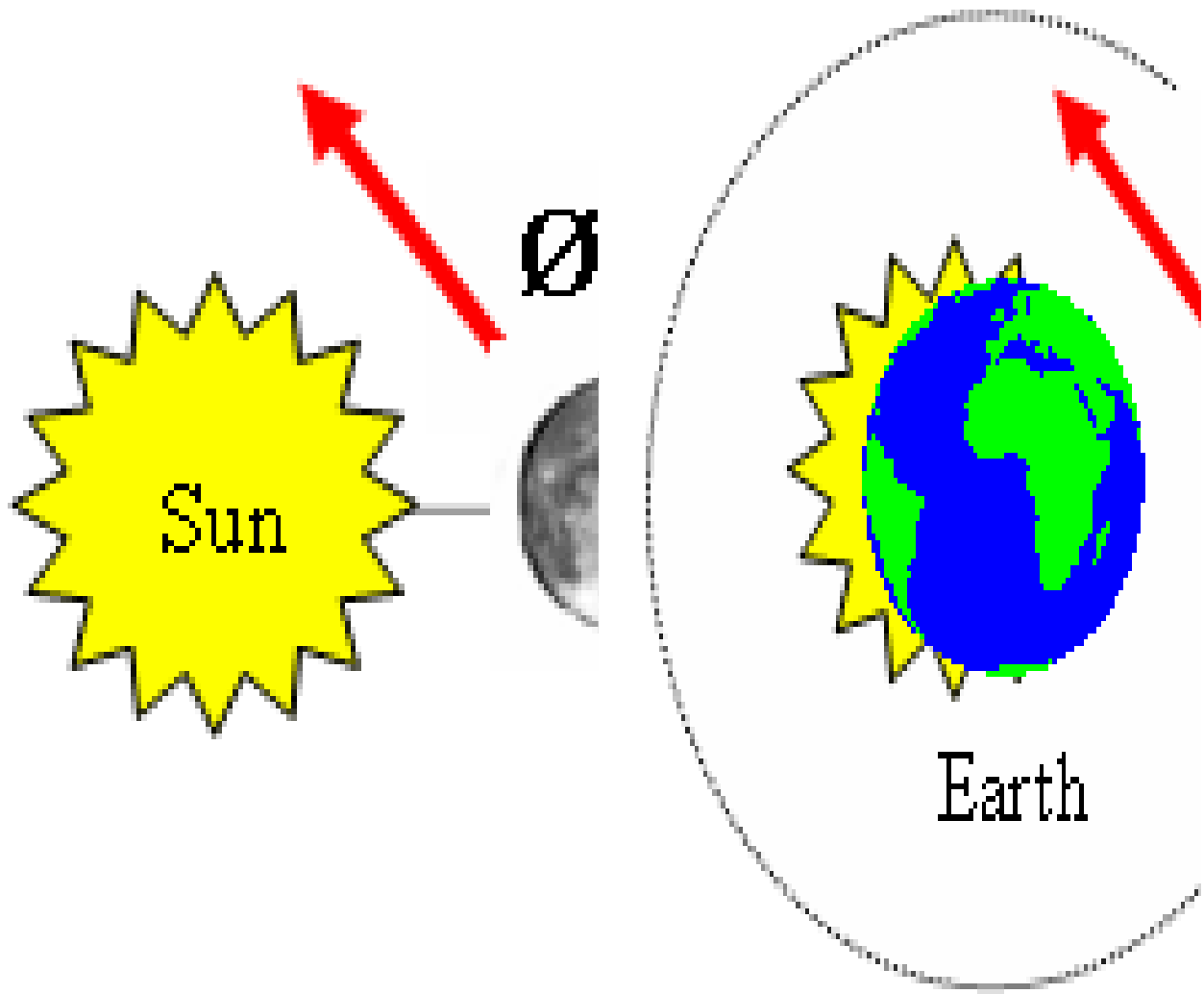
that "a day is comparable to or does not exceed a thousand year" (in distance), based on what moon's motion be reckoned, i.e. relative to vacuum as if earth is motionless as reckoned by earth observers, then isolated earth-moon system is achieved: "speed of light $c = 12,000$ moon's cycles per day (in the isolated system)".

The physicist Stephen Hawking said: "Light's velocity is different from the speed of anything else. A bullet or moon or planet always has a speed that is relative to something else. The speed of light is relative to nothing; it is an absolute constant, always the same" (Hawking's universe, p.35). The motion of forces including light is "absolute" because it isn't affected by the observer motion; hence it is termed "*The universal constant of motion*", while the motion of all objects is "*relative*" because it is affected by the observer motion. The geocentric moon's motion as detected by the earth observers is not made from a motionless earth as reckoned by them. But to make a constant relation with the universal constant of motion c using pure parameters; the system of the moon's motion around earth should be isolated as if earth is motionless as reckoned by earth observers.

Based on the naked eye observation from the earth; the moon is reckoned circling the motionless earth, in a perfectly circular orbit, devoid from the variation ratio either in velocity or distance, as if the motion of the moon around the earth is in isolated system. This is because the moon's motion with the earth around the sun can not be detected except by an observer outside the solar system, and the variation ratio from the mean values can not be detected by the naked eye. The exclusion of this ratio achieves the perfectly circular orbit exactly as it is reckoned.

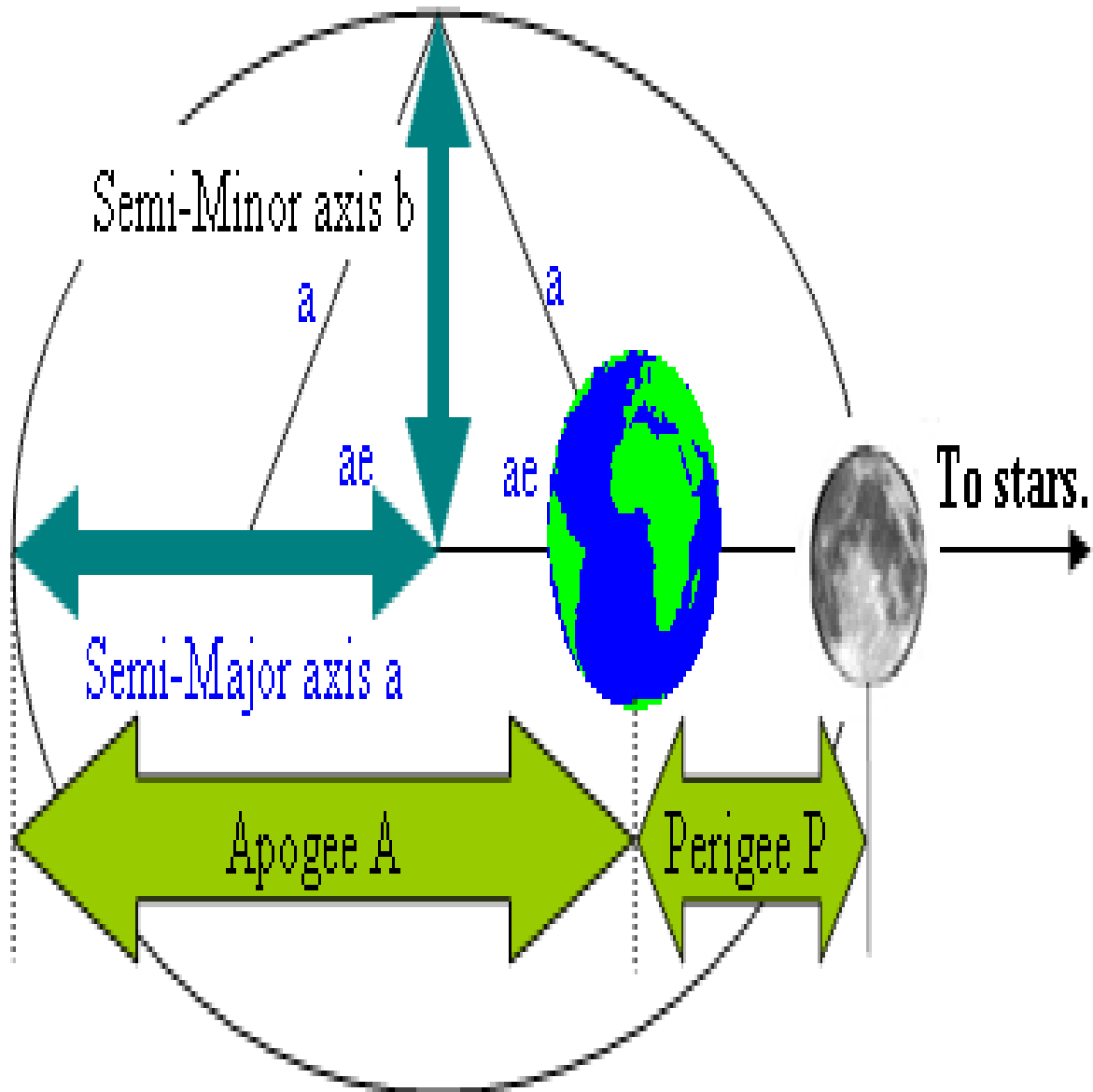


The "velocity" has a certain value and a certain direction (Vector), while the "mass" for example has only a certain value (Scalar). In the isolated earth-moon (e-m) system; the moon's velocity comes again to the original direction each cycle around the earth. But, actually its direction is changed with respect to the stars from the original one by an angle \emptyset each cycle around the earth due to the simultaneous motion around the sun.



The moon covers an angle \emptyset around the sun each cycle and its direction of velocity is chang

Hence, the lunar orbit is an ellipse instead of a perfectly circular one, the parameters of motion are means instead of basic and fixed ones, and either the mean velocity or the mean distance has a certain variation ratio.



The elliptical lunar orbit

Eccentricity (deviation from the circle) $e = ae/a$; **Variation ratio of velocity (V) or distance(R):**

$2e$; **Moon's near distance (perigee) P** = $a (1 - e)$; **Moon's far distance (apogee) A** = $a (1 + e)$;

Semi-major axis of the lunar orbit a = $(A + P)/2 = 2R / \{1 + (1 - e^2)^{0.5}\}$; **Semi-minor axis b** = $\{a^2 - (ae)^2\}^{0.5}$; **Mean distance R** = $(a + b)/2$; **orbit length L** = $2\pi R = V \times \text{Revolution period: } T'$;

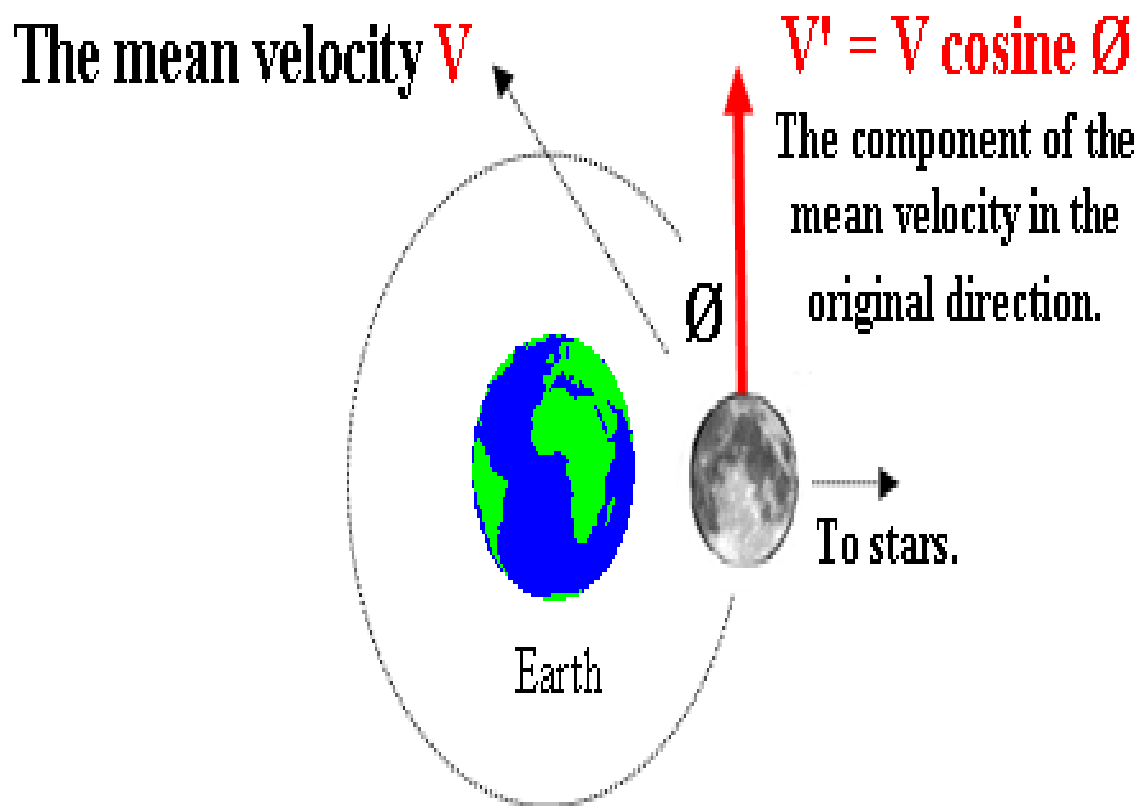
Mean velocity V = $2\pi R/T'$; **angle θ** = $360 (T'/Y')$, where Y' is the revolution period of the earth.

Sidereal year Y: 365 days, 6 hours, 9 minutes, 9.5 seconds (31558149.5 seconds = 365.25636 days). **Sidereal month T**: 27 days, 7 hours, 43 minutes, 11.5 seconds (2360591.5 seconds = 27.32166088 days): (sidereal year/synodic month) + 1 = (sidereal year/sidereal month). **Sidereal day t**: 86164.09966 seconds: (sidereal

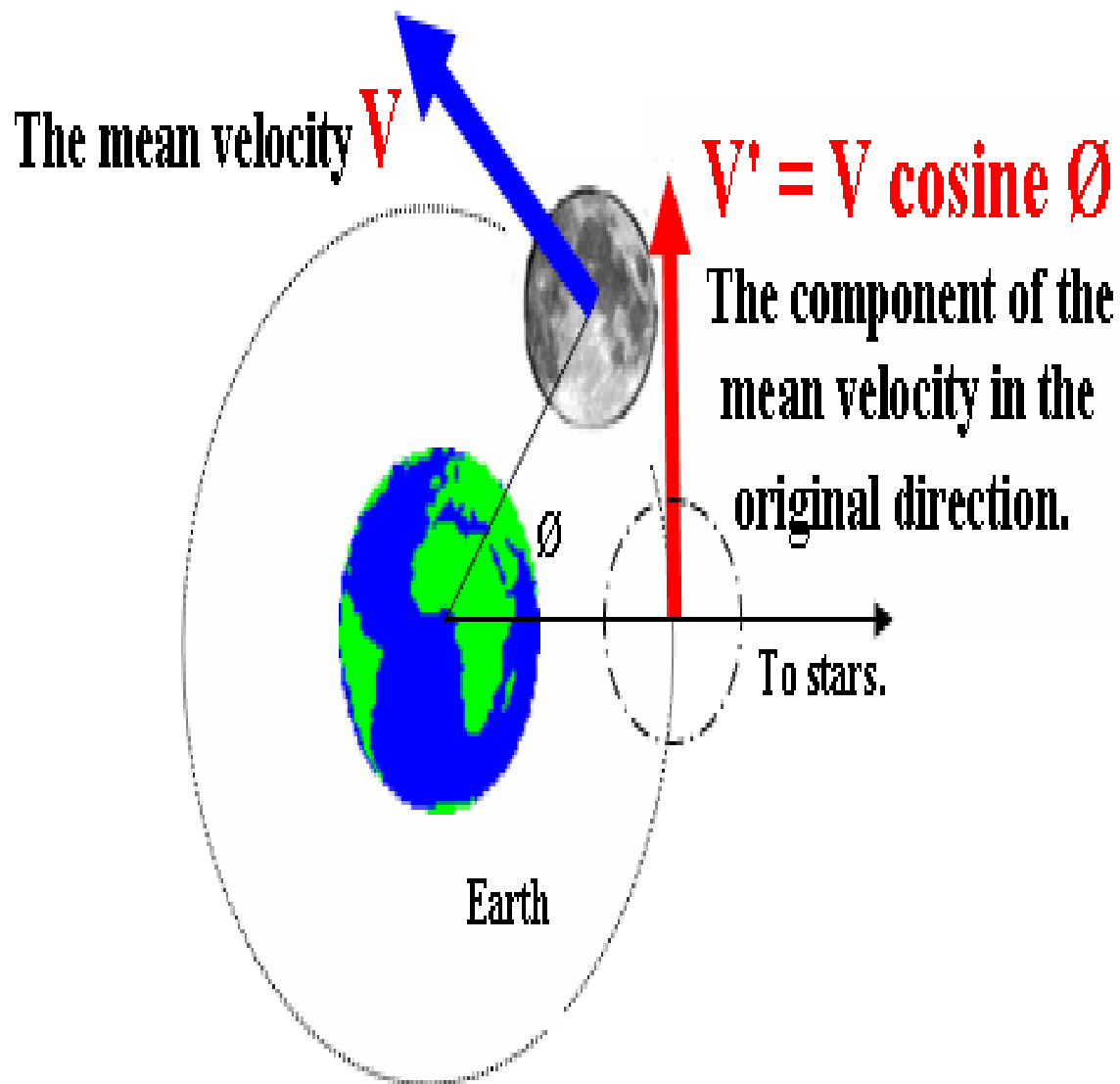
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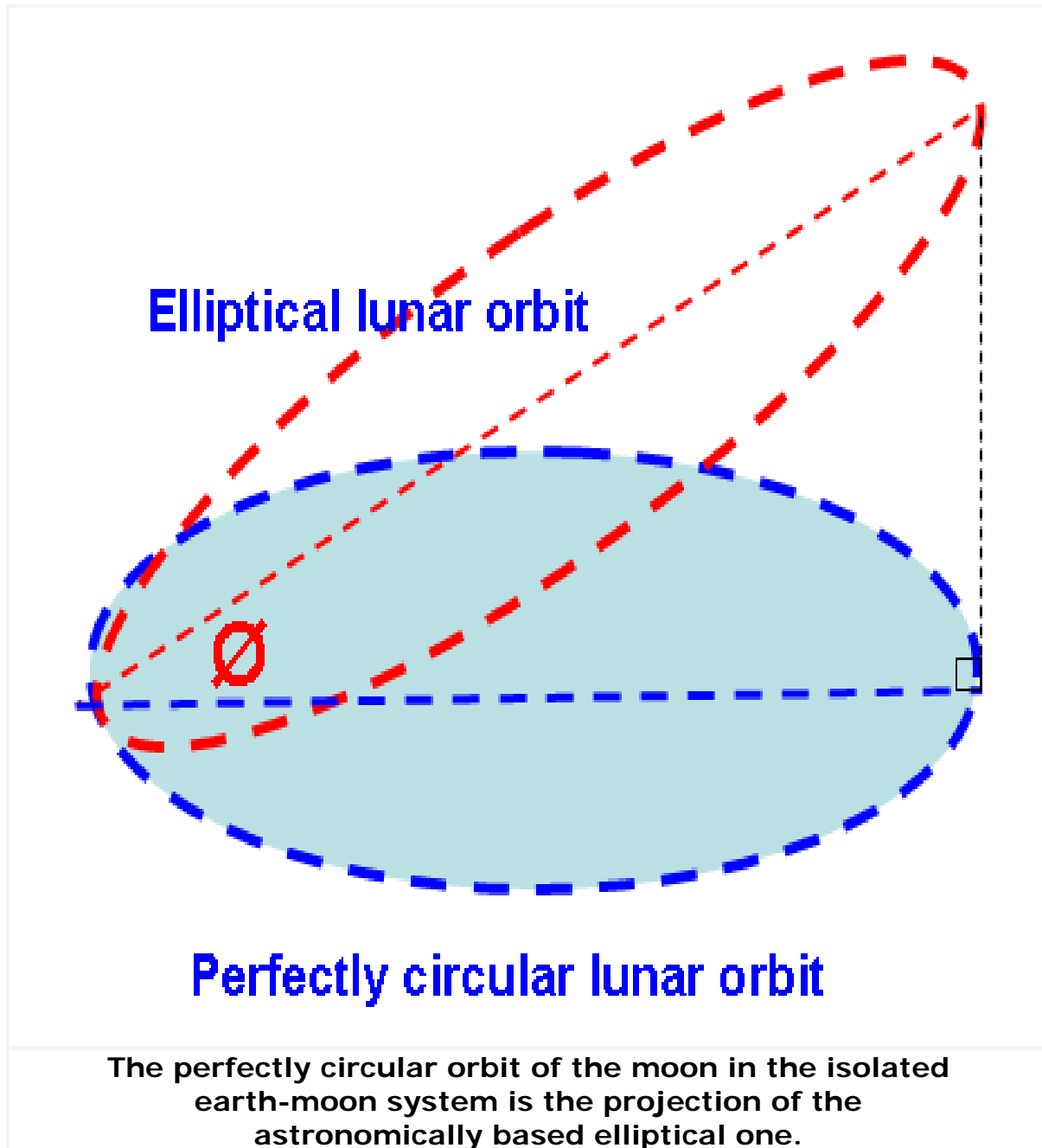
year/synodic day) + 1 = (sidereal year/sidereal day). The Deviation angle of the earth-moon system in relation to vacuum (due to motion around sun every sidereal month) \emptyset : 26.92847817 [$\emptyset = 360T/Y$], Cosine \emptyset : 0.891572542289913397, $2e = 1 - \cos \emptyset = 0.108427457710086603$, $e = 0.0542137288550433015$ (about 0.055), $\pi = 3.1415926535898$.

It is known that "accelerate" means to change speed, but in case of planets for example the regular change in direction reflects acceleration also, therefore the direction change of the moon's velocity is acceleration. Hence, to achieve the pure geocentric moon's velocity V' in the isolated e-m system, it is plausible to exclude the effect of the heliocentric motion from the actual one. This can be done either by exclusion of the variation ratio $2e$ of the moon's mean velocity V from its mean value: $V' = V (1 - 2e)$, or by analysis of the mean velocity V as a force to define the value of its component in the original direction V' after one cycle: $V' = V \cos \emptyset$.



The analysis of the lunar mean velocity in the original direction to define the velocity value in the isolated earth-moon system.





Subsequently, the lunar orbit deviation from a circle (eccentricity) can be defined precisely: $e = 1/2 (1 - \cos \emptyset)$, as well as the pure distance ($L' = V'T'$) covered by the pure geocentric motion of moon each month.

All laws of motion are defined in isolated system to avoid the external effects and to reveal the constant relations. Therefore, it is essential to use the isolated e-m system to define the constant speed of light value c by the pure non-variable moon's motion parameters, and to unify the pure lunar orbit length L' and the earth rotation period t' in one constant relation: $c = 12000 L'/t' = 12000 V \cos. \emptyset T'/t'$. For more precise calculation; the lunar heliocentric angle

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\emptyset° is $(360 \text{ } T'/Y')$: 26.92847817°(about 27°), cosine \emptyset is: 0.8915725423 (about 0.89), the variation ratio of the moon's mean distance or velocity $2e$ is $(1 - \cos \emptyset)$: 0.1084274577 (about 0.11), and the eccentricity of the moon's orbit e is $(2e/2)$: 0.05421372885 (about 0.055).

The moon completes a circle (360°) with the earth around the sun with respect to the stars in 365.25636 mean days (The sidereal year Y'). The earth rotation period t' with respect to the stars is 86164.09966 seconds (The sidereal day), but with respect to the sun the (synodic) day t is 86400 seconds. The difference in time is due to the earth revolution around the sun during its rotation around itself. These differences make an extra rotation cycle t' each revolution: $Y'/t = (Y'/t') - 1$. Similarly, the moon's revolution period T' is 27.32166088 mean days (The sidereal month). The pure periods (t' and T') are considered in the isolated e-m system.

The moon's mean velocity was found to be about 1.023 km. /sec. (Laros Astronomy, p.142), and the value 1.022794272 (about 1.023) km. /sec. achieves exactly the speed of light value in vacuum c , which is the most important value in Physics, and which is defined only recently since 1983:

$$V = 1.022794272 \text{ km. /sec.}, \text{ Cosine } \emptyset = 0.8915725423, \underline{t'} = 86164.09966 \text{ sec.}, T' = 27.321088 \text{ days} = 2360591.5 \text{ sec.}, \underline{L'} = V \text{ Cos. } \emptyset T' = 2152612.269 \text{ km. So:}$$

$$c = 12000 \underline{L'}/t' = 299.792.458 \text{ about } 300,000 \text{ km. /sec.}$$

This is exactly the known value today for the speed of light c (The Encyclopedia Britannica 2003, the Encarta encyclopedia 2003).



Ole Christensen Roemer (1644-1710)

This precise value for speed of light is the latest step in a long history of measurements, ending in the **1983** when it was accepted in the conference of Paris for the measurements, and beginning in the early 1600s with an unsuccessful attempt by Galileo to measure the speed of the lantern light. The first evidence that the speed of light is finite was given in **1676** by **Olas Romer**. The value defined by him for the speed of light was about: **227000** km. /sec.

Realization:

In the equation ($c = 12000 L'/t'$); at present: $L' = 2\pi R' = V'T' = 2152612.269$ km. ($n = 3.1415926535898$). Therefore: $V' = 0.9118952894$ km. /sec., $V = V'/\cos \emptyset = 1.022794272$ km. /sec. ($\cos \emptyset = 0.8915725423$), $R' = 342,598.8832$ km., $R = R'/\cos \emptyset = 384,263.6095$ km., semi-major axis $a = 384546.3752$ km., semi-minor axis $b = 383980.8438$ km., Perigee (the near distance) $P = 363,698.6823$ km., and apogee = **405,394.0681** km.

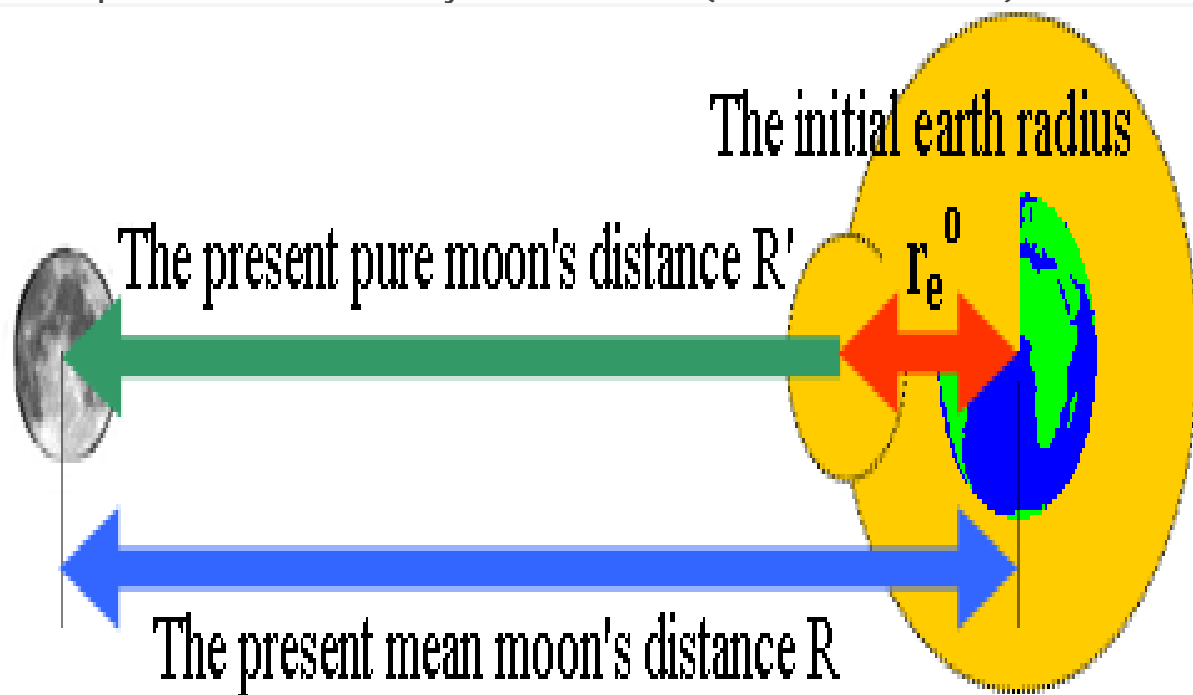
These values are in agreement with astronomically defined ones based on **the approximate value** of the lunar orbit eccentricity (**0.055**) and the value **384,405** km. for the lunar orbit semi-major axis, with the following results (Astrophysics, Zeilik and Neilson, Thanks for visiting our website please tell to your friends also about our site so that they can also increase there knowledge Remember us in your prayers.www.scienceandislam.yolasite.com

New York, p53): the near distance of the moon $p = 363,263$ km. and the far distance $A = 405,547$ km.

A trial to explore the unification in origin

As long as the initial velocity in any system of motion is isolated without external effect; sum of which as a vector will be constant forever.

In the equation ($c = 12000 L'/t'$); c is dealt with as a constant value, so the lunar orbit length L' should be related to the earth rotation period t' by a constant value ($L'/t' = 299792.458/12000 = 24.98270483$), which is achieved if the moon is on the earth periphery with similar earth rotation t' and moon's revolution T' periods ($L'/t' = V'T'/t' = V'$). Then, it should represent the rotation velocity of the initial earth (24.98270483 km. /sec).



The difference between the pure and the mean moon's distances (from the centre to the centre) is a fingerprint representing the initial earth radius length ($R - R' = r_e^0$).

At meeting of moon and earth centers; $R' = \text{zero}$, so the value ($R - R'$) must equal radius of initial earth $r_e^0 = 41,664.7263$ km. Hence, its rotation period t^0 must be $10,478.73711$ sec., which

is nearexpected value (2.5 hrs) if separation was from earth with the present mean radius (6371.3 km).

The value $R-R'$ equals $2e$ ($2e = 1 - \cos. H$) relative to R ; so at any time: $r_e^\circ/R = 2e = 1 - \cos. H$. The value $2e$ represents the ratio in the motion of the moon resulting from its motion around the sun. At contact of the moon with the earth: $r_e^\circ/R = 2e = 1 - \cos. \emptyset = 1$. Therefore, the motion of the moon should be totally around the sun as a peripheral point. The angle \emptyset was in its maximum 90° ($\cos. \emptyset$: zero), making a tangential direction of the moon with the sun's centre confirming that it was a peripheral point of it. Due to Unitarian origin; earth and moon may be viewed as a twin planet. The value $e = 0.5$ reveals the maximum eccentricity at which the earth and moon were prone to escape. At contact of them with the sun; the earth revolution and the sun rotation periods were similar ($Y' = T' 360/\emptyset = 4t^\circ$).

A residual distance exists after the complete recession of the moon in the isolated e-m system which represents the initial earth mean radius r_e° , therefore, the actual moon's distance R of the initial lunar orbit was $2 r_e^\circ$. The lunar parameters at contact of the moon with the earth are reflections to the initial lunar orbit; so its parameters can be defined provided that $2e = r^\circ/R = 0.5$, and $\emptyset = 60^\circ$ ($\cos. \emptyset = 0.5$). The angle 60° is the equilibrium angle because at which the sun and earth effects on the moon were equal. The doubling of the moon's distance means that the moon's mean orbital velocity V should be half of the rotation velocity of the initial earth $0.5 V_e^\circ$. Hence, the pure lunar motion that represents the escape velocity of earth can be defined ($V' = V \cos \emptyset = 0.5 \times 0.5 V_e^\circ$): 6.245676208 km. /sec. Then, the actual moon's revolution period (T') value was $4t^\circ$ ($V'T' = 4V't'$).

Because of the unified origin of the sun, earth, and moon, the escape velocity of any of them at contact depends either on the radius or the mass ($r_1/r_2 = V_1/V_2$, $M_1/M_2 = V_1^3/V_2^3$). Consider the present masses (sun: 1.99×10^{30} kg., earth: 5.9736×10^{24} kg., moon: 7.35×10^{22} kg.), so the escape or rotation velocity and mean radius of the sun and moon can be defined; the sun escape velocity was 432.963991 km. /sec. and its radius was 2888290.327 km., and the moon escape velocity was 1.441882483 km. /sec. and its mean radius was 9618.756561 km. Then, the unified mean density of either the sun, earth, or moon ($3M/4\pi r^3$) was: 19.7170496 kg. /meter³.

Realization: Initial mean density of:

Sun: $3 \times 1.99 \times 10^{30} / \{4 \times 3.1415926535898 \times (2888290.327)^3\} = 19.7170496 \text{ kg./meter}^3$.

Earth: $3 \times 5.9736 \times 10^{24} / \{4 \times 3.1415926535898 \times (41664726.3)^3\} = 19.7170496 \text{ kg./meter}^3$.

Moon: $3 \times 7.35 \times 10^{22} / \{4 \times 3.1415926535898 \times (9618756.561)^3\} = 19.7170496 \text{ kg./meter}^3$.

The mean density of the earth at present is 5520 kg. /meter³, therefore the initial earth volume was about 280 times larger. Similarly, the initial volumes of the sun and the moon were respectively about 70 and 170 times larger based on the present mean densities (1409 and 3342 kg. /meter³).

To compare the mean density of the solar system nebula; the density of the distilled water is: 1000 kg. /meter³ (about 50 times larger), and the mean density of air at sea level is: 1.3 kg. /meter³ (about 15 times smaller). This result is in agreement with the hypothesis that the nebula; from which our world was formed, was mainly a collection of gas and dust as a part of our galaxy. Applying the projectiles law ($V^2 = 2MG/r$; where V the escape velocity, M the projectile mass, G the gravity constant, r the earth radius); the gravity constant G when our galaxy formed was: $1.36038342 \times 10^{-19} \text{ km.}^3/\text{kg./sec.}^2$; about 2 times the present one ($6.67 \times 10^{-20} \text{ km.}^3/\text{kg./sec.}^2$), exactly as expected by Paul Dirac (1902-1983) that G was larger in the past.

Knowing the value of initial earth rotation period, we can calculate to define the value of the initial synodic day (sidereal year/synodic day) + 1 = (sidereal year/sidereal day), it was found

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to be about **4 hours** only which is a plausible value; in agreement with the expected one by other ways.

Because of the minor external effects; consider the heliocentric motion of the earth is in isolated system. The present earth distance from sun R_e should be related to the present equatorial sun rotation period t_s according to the initial escape velocity of the sun V_s^0 (**432.963991** km. /sec.) at which earth escaped in a similar relation to that of e-m system ($V_s^0 = 2\pi R_e/t_s$).

Realization: Present equatorial sun rotation period is slightly larger than **25** mean days, and the value **25.12694896** mean days defines exactly the present earth distance from sun: **149,597,870** km. which is termed "**The astronomical unit**" because it is used in measure inside solar system.

The rotation and escape velocities of initial moon or sun were similar. The initial Earth rotation velocity was 4 times larger than its escape velocity indicating that it was a whirl at the periphery of the initial sun. Initial moon rotation period was also similar to its revolution period indicating that present ovoid-shaped moon with long axis towards earth may face it by the same face since beginning ($2\pi r_m/\text{the lunar rotation velocity} = 2\pi R_m/\text{the mean lunar orbital velocity} = \mathbf{41914.9484}$ seconds).

Because of the angular momentum conservation ($MVR = \text{constant}$); **the lost moon's mass** can be defined: $M/M^0 = V^0 R^0/VR = \mathbf{0.8329464537}$. Therefore, it had lost a reasonable ratio of its original mass about **16.7%**. The loss of most of its gases may be due to its low gravity in comparison with the sun that has 99.86% of the solar system mass in a gaseous state.

The six successive days-like periods of universe creation in religious books can be divided into three main stages: one for what was happened before the earth separation as a part of our galaxy, one for the earth interior layers, and the last one for the earth crust and atmosphere that were established since about **0.25** billion years (Encyclopedia Britanica). The recent data is consistent with the religious books classification for the universe creation, because the age of the universe was found to be about **12.5** (10 – 15) billion years and the age of the earth crust and atmosphere was found to be about **4.3** (4 - 4.6) billion years. So, the age of earth and moon separation as parts of our galaxy should be about **8.4** billion years, at which the mechanics of the earth-moon-sun system was really started. The accumulated distance by the moon's recession is **300934.1569** km, hence, the annual moon's recession rate should be about: **3.6 cm./year**, which is the exact known value today by laser telemetry since Apollo 11 mission in July 1969 where reflectors were put on the surface of the moon.

The same value of solar nebula age and earth separation (about **8.4** billion years) can be obtained if we consider what the last monotheism book has mentioned that length of calendar year at the end of our world creation (since **0.25** billion years) is **12** of the present calendar months (**29.530588** days), because the present length of calendar year is **12.368267** months with an accumulated extra value of **0.368267** in **0.25** billion years, so total length of present year is accumulated in a period of **8.4** billion years; the age of our galaxy. This indicates that dynamics of earth and moon was formed with our galaxy before their own formation.

- "**Verily, the count of the months (in a year) in the sight of God (according to his design) was twelve of the present months at the time of (full) creation of the heavens and the earth (our visible universe)**" (9/36).

In the isolated e-m system; the moon's distance R' and the day length t' , as well as the moon's recession rate $\Delta R'$ and the day length increase rate $\Delta t'$ should have a constant relation: $R'/t' = \Delta R'/\Delta t' = \mathbf{3.976120966}$. This relation can be expressed by the moon's

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velocity: $V \cdot t' = \text{constant}$ (78572.6366), and can be expressed by the moon's distance instead of the earth rotational period: $V \cdot R' = \text{constant}$. To avoid the mass M changes effect; it may be considered, hence the fundamental law in physics of the circular motion is achieved which is conservation of angular momentum ($MVR = \text{constant}$) confirming conserved dynamics of isolated e-m system.

A certain Order means One conscious Will beyond

stephen hawking

Chaos never exists, but instead the whole physical world is in order according to certain laws, and the Unitarian origin of the earth and moon with the sun extends to cover the whole universe Unity in one beginning which reflects One Will beyond. This is also what the British physicist Stephen Hawking said: *"The whole history of science has been the gradual realization that events do not happen in an arbitrary manner, but that they reflect a certain underlying order."* (Brief history of Time, page 140) Stephen Hawking conclusion was very clear and decisive, he said: *"So long as the universe had a (Certain one) beginning .. it had a (Certain one) Creator."* (Brief history of Time, page 122) Subsequently, the Creator who made the order should not be divisible or visible but instead one and unique. This is the most probably aim of "the Monotheism books relation of ultimate unification"; particularly because this is frequently declared as "the original belief".



To know the fact don't forget this One thing

In the Bible; the relation is still clear although there are not enough details or a definite indication to the universal upper limit speed, and what is comparable to 1000 years is not fixed to a day, hence the interpretation was only a philosophical one that the Creator is beyond the time, so a thousand years for him may be a day or only an hour; or even the reverse.

- Ps90/4: "For a thousand years in your sight Are but as yesterday when it is past, As a watch in the night."

- 2Pt3/8: "But don't forget this one thing, beloved, that one day is with the Lord as a thousand years, and a thousand years as one day."

(World English Bible, WEB, 1998)

In the Koran; there are three verses having the same keywords of the relation; "a day" and "a thousand years", but each context is particular.

One gives the relation making it according to what earth observers reckon, hence the motion of moon around the earth on which the Arabic (lunar) years are based becomes in isolated system determining correct way used in all physical motion equations: "And verily, a day in the sight of your Lord is as a thousand years according to what you reckon" 22/47 (At your Lord; according to Islamic belief, doesn't mean except according to the design in the whole universe that has been created by the Lord).

The Koran second verse is not only emphasizing that this relation is constant; but also it gives many details indicating by analysis that this implied speed is universal and the upper limit for the traveling, space is not empty but it is full of what we call forces, all have a Unitarian upper limit speed and a curved path in the space, these forces and matter are unified in origin and fate (one essential building matter), the earth with its satellite and sun are unified in origin and mechanics as well as all celestial objects in the universe, and the whole universe should

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have a unified end at which everything will be vanished again exactly as it was at the unified beginning reflecting an indivisible One Great Will beyond lasting forever.

- "He (your Lord) manages everything, from the heaven to the earth (to be in order). Then (accordingly), there is what is traveling (forces) in a curved path (filling the space) until the end; (to cover) in a day a measure that cannot exceed a thousand years according to what you reckon" 32/5.

The speed of light in vacuum can not be exceeded by any mass-bearing object and the upper-limit speed for the traveling forces in the universe; hence it is the suitable speed by which the huge astronomical distances can be measured using the suitable unit of time. The moon is about 1 second far, the sun is about 8 minutes, the nearest star (Alpha Centauri) is 4.3 years, and the nearest galaxy (Andromeda) is about 2 million years. To define the upper-limit distance or the radius of the universe on the astronomical basis; the suitable unit of time is the maximal one we can define, which is the sun's year, or the period of a circle covered by the sun around the centre of our galaxy (Milky way), it is about 250 million years. The beam of light covers universe radius in its age which was found to be about 12.5 (10–15) billion years, or 50 by feasible time units (Sun's years).

Excluding the keywords indicative to the universal constant of motion ("a day" and "a thousand years"); still a keyword (50) in the third verse contextually indicative to the maximal astronomically observable distance by maximal speed and the units of time feasible for measure (sun's years).

- "The (non-physical messengers) Angels and the Spirit are traveling in (the universe) curved paths until the end (covering a huge expansion); of a measure of fifty (feasible units of time); thousand years in a day" 70/4.

Amazingly; maximal astronomical distance in last monotheism book is defined as "a measure of fifty; thousand years in a day" that contextually means: "50 (feasible time units) by the 1000 years per day speed". This distance can't be measured by traveling of any physical being due to the time barrier during traveling in the dynamic universe by a limited speed.

The plausible conclusion of these scientifically based measures is that prophets message is one, and what is incomplete and distorted by time is detailed and corrected in the last one; with evidences of Divine Inspiration confirming that Creator is unique, invisible and indivisible; but only One.

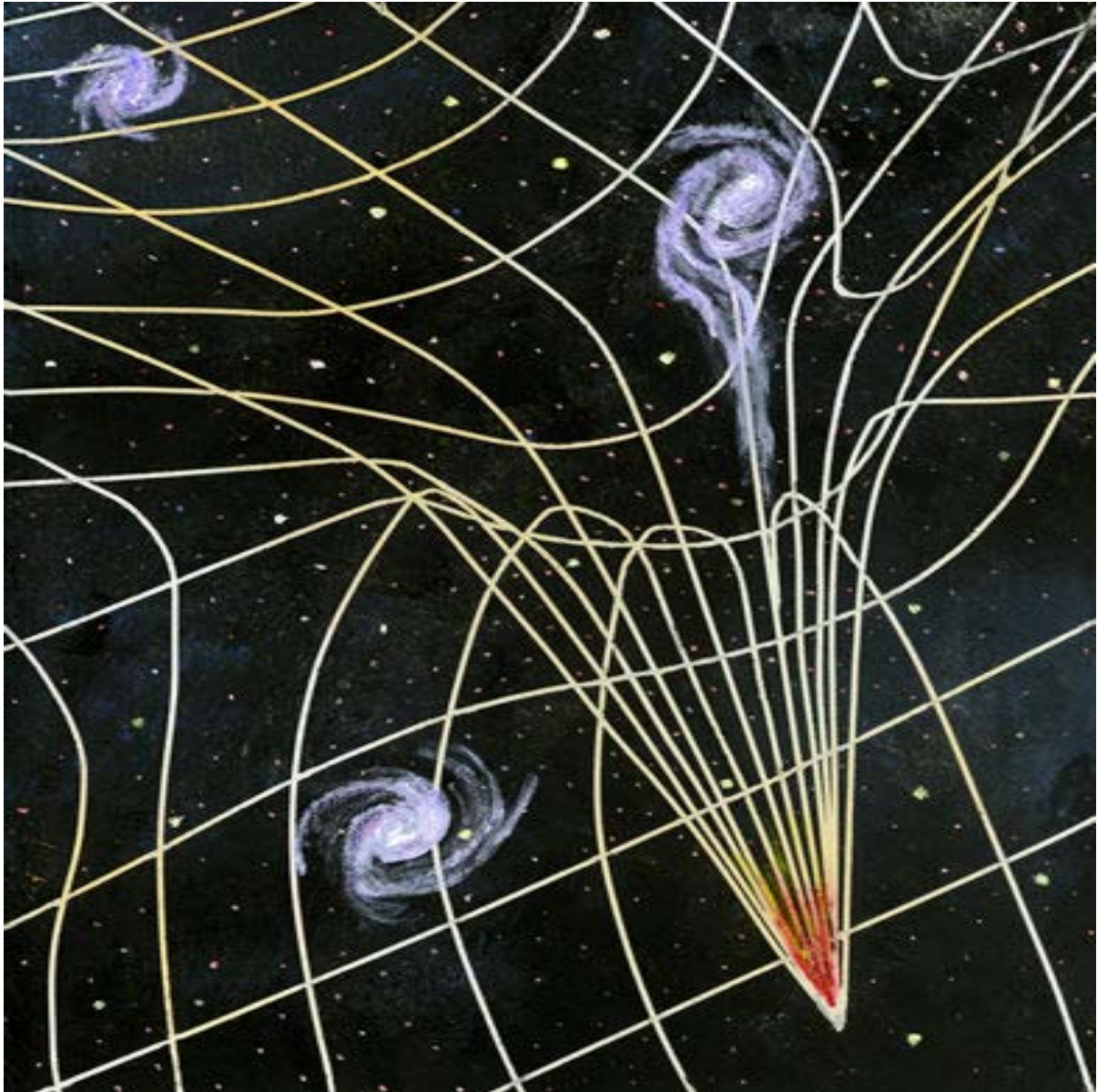
The Koran tells us that it has been revealed by the Great God himself by the same message (Monotheism) of the previous book, but with more details describing obscure facts about the physical world and absence of change or distortion, so the Koran is dominating over it, and should not be rejected: "We (An expression of Greatness) have revealed to you the Book truthfully confirming what was in the previous book; but dominating over it." 5/48

The Seventh Principle

The scientific approach of the end of the universe asserts that there are three possible scenarios for this dramatic end.

Big freeze

It occurs if the universe continues expanding as it has been.



Over a time scale on the order of 10^{14} years or less, existing stars burn out, stars cease to be created, and the universe goes dark. Over a much longer time scale in the eras following this, the galaxy evaporates as the stellar remnants comprising it escape into space, and black holes evaporate via Hawking radiation. The universe may eventually achieve thermodynamic equilibrium.

Big crunch

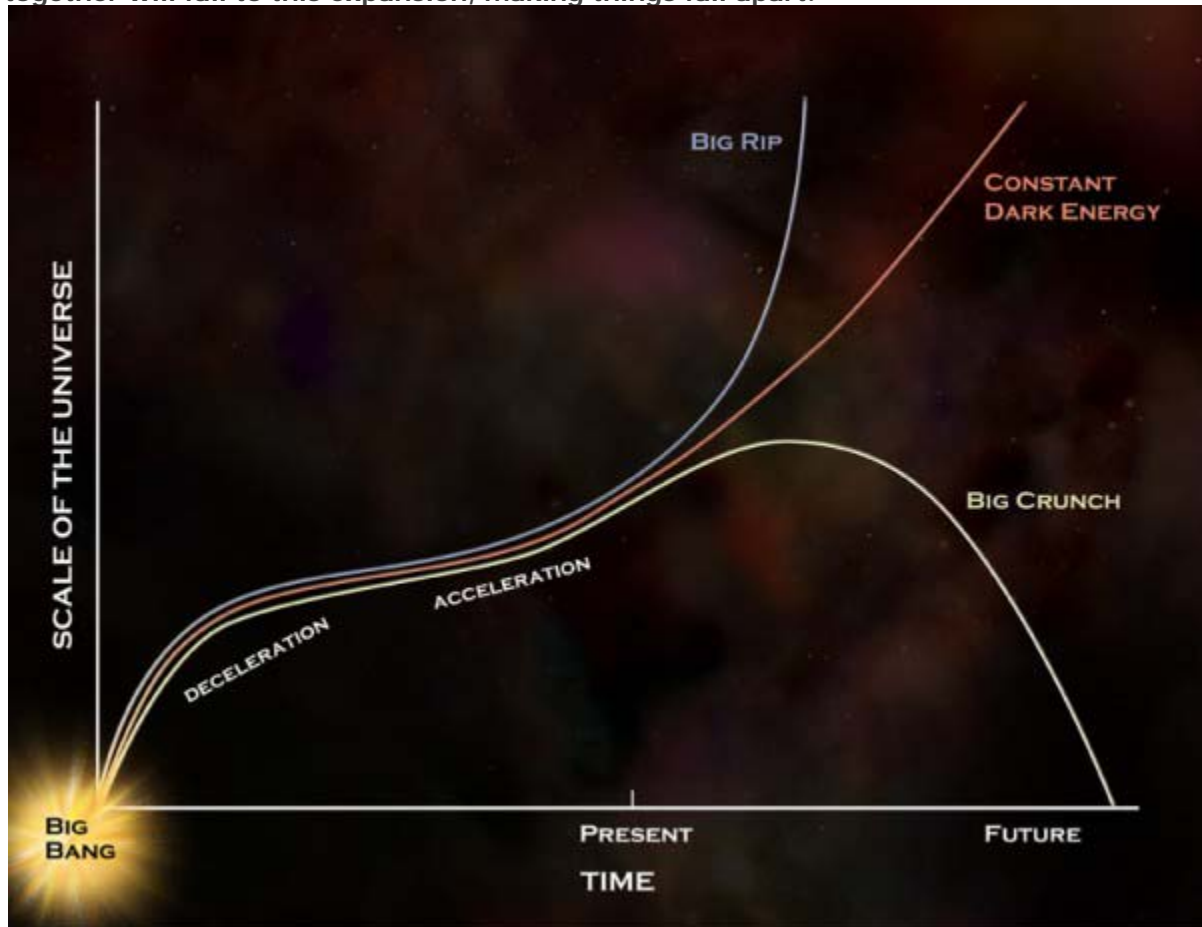
If the energy density of dark energy was negative or the universe was closed, then it would be possible that the expansion of the universe would reverse and the universe would contract towards a hot, dense state. This is often proposed as part of an oscillatory universe scenario, such as the cyclic model. Current observations suggest that this model of the universe is unlikely to be correct, and the expansion will continue or even accelerate.

Big rip

This scenario is possible only if the energy density of dark energy actually increases without limit over time. In this case, the expansion rate of the universe will increase without limit. Gravitationally bound systems, such as clusters of galaxies, galaxies, and ultimately the solar system will be torn apart. Eventually the expansion will be so rapid as

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to overcome the electromagnetic forces holding molecules and atoms together. In other words, the universe will expand so much that the electromagnetic force holding things together will fall to this expansion, making things fall apart.



There are three possible scenarios for the end of the universe

"Tai" Rolling up the heavens

Quran gave a clear picture of how the universe began and referred to the major events and facts on the universe evolution timeline. And to complete the picture, Quran also indicates how the universe will end.

The only theory that may be at high degree of agreement with the Quranic explanation of the fate of the universe is the big crunch theory. Quran asserts that the universe will return back to its original state from which it had been created. The universe will contract on itself as Quran indicates that the heavens will be rolled up like a scroll.

Allah says

"يَوْمَ نَطْوِي السَّمَاءَ كَطَيِّ السِّجِلِّ لِلْكُتُبِ كَمَا بَدَأْنَا أَوَّلَ خَلْقٍ نُعِيدُهُ ۖ وَعَدًا عَلَيْنَا إِنَّا كُنَّا فَاعِلِينَ" (الأنبياء:

(104)

"And (remember) the Day when We shall roll up the heaven like a scroll rolled up for books, As We began the first creation, We shall repeat it, (it is) a promise binding upon Us. Truly, We shall do it." (Quran 21:104)

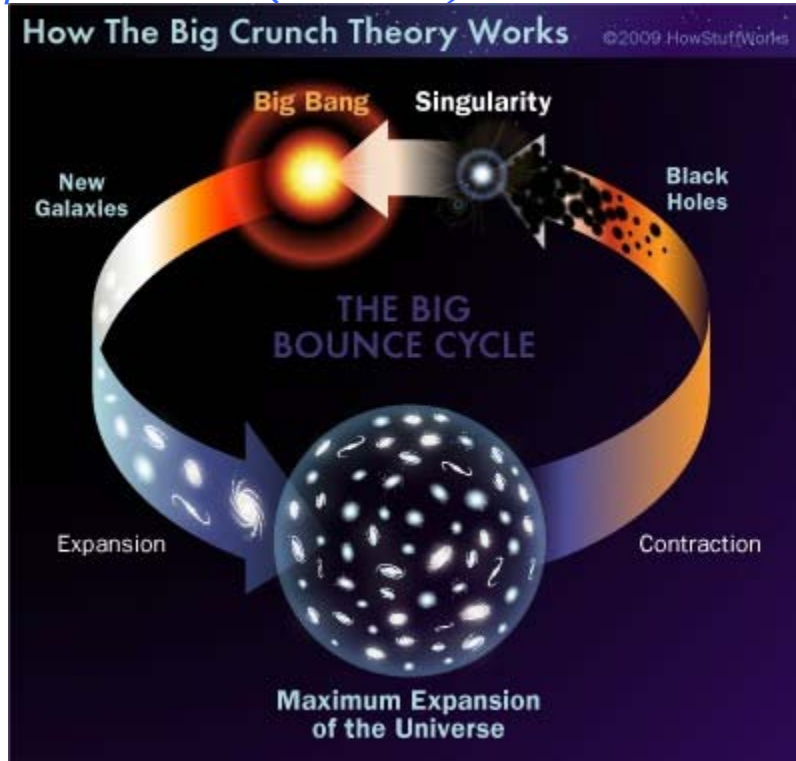
In another verse Quran indicates the fate of the earth and heavens. The fate of universe exhibits dramatic changes. Ultimately the heavens become convolute (Tai) and the earth is densely gathered (Kabd).

Allah says:

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"وَمَا قَدَرُوا اللَّهَ حَقَّ قَدْرِهِ وَالْأَرْضُ جَمِيعًا قَبْضَتُهُ يَوْمَ الْقِيَامَةِ وَالسَّمَاوَاتُ مَطْوِيَّاتٌ بِيَمِينِهِ سُبْحَانَهُ وَتَعَالَى عَمَّا يُشْرِكُونَ" (الزمر: 67)

They made not a just estimate of Allâh such as is due to Him. And on the Day of Resurrection the whole of the earth will be grasped by His Hand and the heavens will be rolled up in His Right Hand. Glorified is He, and High is He above all that they associate as partners with Him! (Quran 75:67)



....As We began the first creation, We shall repeat it, (it is) a promise binding upon Us. Truly, We shall do it." (Quran 21:104)

To know that the universe has a beginning and it will absolutely end is undeniable proof that this universe has a creator who is all-mighty and all-powerful. To know that Quran which is a book revealed from 1400 years has mentioned these cosmological facts that have only been discovered in the previous few decades is undeniable proof that Quran is the word of Allah the creator of this vast universe.

This knowledge, which the Qur'an came with, included a precise description of the subtlest secrets at a time when humanity could never have known them, which indicates that its source is Divine, as Allah (SWT) says: *"Say: 'the (Qur'an) was sent down by Him Who knows the secret (that is) in the heavens and the earth: Verily He is Oft-Forgiving, Most Merciful.'" (Quran 25:6)*

It also indicates that the one to whom the Book was sent down was a Messenger inspired. Allah (SWT) but says the Truth in the Verse: *"Soon will We show Our Signs in the Universe and in their own selves, until it becomes manifest to them that this is the Truth. Is it not sufficient that your Lord does witness all things?" (Quran 61:53)*

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أيبرعلا عجارملا

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