

Part II

Qur'an on Earth and Universe

In the following chapters, we will deal with some of the scientific and historical facts affirmed or referred to by the Holy Qur'an, that were not understood at the time of revelation or for centuries to come. Yet, these facts have been discovered and affirmed by the progress of science and historical events, and have been used as proofs of the truthfulness of the revelation of the Holy Qur'an and the mission of the trustworthy and guided Prophet, Muhammad (peace be upon him).

Chapter ٤

Universe and Space

٤/١ Coherence of the Universe

Allah, the Exalted, says:

(اللَّهُ الَّذِي رَفَعَ السَّمَوَاتِ بِغَيْرِ عَمَدٍ تَرَوْنَهَا)

Meaning: Allah is He Who raised the heavens without any pillars that you can see. (Surah Ar-Ra'd – Verse No. ٢)

(خَلَقَ السَّمَوَاتِ بِغَيْرِ عَمَدٍ تَرَوْنَهَا وَأَلْقَى فِي الْأَرْضِ رَوَاسِيَ أَنْ تَمِيدَ بِكُمْ)

Meaning: He has created the heavens without any pillars, that you see and has set on the earth firm mountains, lest it should shake with you. (Surah Luqman – Verse No. ١٠)

This means that some (invisible) mechanical force holds the celestial bodies apart according to Allah's command. The source of this

centrifugal force is the kinetic energy released by these bodies during their breakup and it balances exactly with the force of gravity, thus keeping the celestial bodies in their orbits. Gravity in its turn, is another (invisible) force, which affects all matter, whether a celestial body or a nuclear particle. The Qur'anic expression, in its clarity and precision, contrasts with the erroneous conceptions of the human mind from the recent past, when the superstitions concerning the nature of the celestial bodies and the forces holding them together prevailed.

٤/٢ Dimensionsof the Universe:

The more man learns about astronomy, the more he realizes the inimitability of the cosmic references in the Holy Qur'an. Man has now discovered that the relative positions of the stars' orbits are precisely pre-defined.

In the Holy Qur'an:

(فَلَا أَقْسِمُ بِمَوَاقِعِ النُّجُومِ * وَإِنَّهُ لَقَسَمٌ لَوْ تَعْلَمُونَ عَظِيمٌ)

Meaning: So I swear by *Mawaqi`* (setting or the mansions, etc.) of the stars (they traverse). And verily, that is indeed a great oath, if you but know. (Surah Al-Waqi`ah – Verses Nos. ٧٥ - ٧٦)

The same meaning is stated in another verse:

(وَالسَّمَاءِ ذَاتِ الْبُرُوجِ)

Meaning: By the heaven, holding the big stars. (Surah Al-Buruj – Verse No. ١)

All the bodies in the universe float in their own orbits:

(وَهُوَ الَّذِي خَلَقَ اللَّيْلَ وَالنَّهَارَ وَالشَّمْسَ وَالْقَمَرَ كُلٌّ فِي فَلَكٍ يَسْبَحُونَ)

Meaning: “And He it is Who has created the night and the day, and the sun and the moon, each in an orbit floating.” (Surah Al-Anbiya' – Verse No. ٣٣)

(لَا الشَّمْسُ يَنْبَغِي لَهَا أَنْ تُدْرِكَ الْقَمَرَ وَلَا اللَّيْلُ سَابِقُ النَّهَارِ وَكُلٌّ فِي فَلَكٍ يَسْبَحُونَ)

Meaning: It is not for the sun to overtake the moon, nor does the night outstrip the day. They all float, each in an orbit. (Surah Yasin – Verse No. ٤٠)

The verse refers to the orbital motion of celestial bodies by the Arabic verb *sabaha*, meaning auto motion in Arabic. Thus the Holy Qur'an corrects the misconceptions of the ancient Greek philosophers who claimed that the sun, the moon, and the planets were separated in transparent spherical covers around the earth, which was the common center of the universe according to their conceptions.

The dimensions of the visible parts of the universe, even those parts visible to the naked eyes, are absolutely enormous. The diameter of our galaxy, including its stars such as the sun, planets, and moons, is about ١٠٠,٠٠٠ light-years. This means that light travels this distance in ١٠٠,٠٠٠ years. As for the next, and closest galaxy, for there are billions of galaxies in the universe, this is ٧٠٠,٠٠٠ light-years away from our galaxy. How great is the creation of Allah, as stated in the following verse:

(اللَّهُ لَا إِلَهَ إِلَّا هُوَ الْحَيُّ الْقَيُّومُ لَا تَأْخُذُهُ سِنَةٌ وَلَا نَوْمٌ لَهُ مَا فِي السَّمَوَاتِ وَمَا فِي الْأَرْضِ مَنْ ذَا الَّذِي يَشْفَعُ عِنْدَهُ إِلَّا بِإِذْنِهِ يَعْلَمُ مَا بَيْنَ أَيْدِيهِمْ وَمَا خَلْفَهُمْ وَلَا يُحِيطُونَ بِشَيْءٍ مِنْ عِلْمِهِ إِلَّا بِمَا شَاءَ وَسِعَ كُرْسِيُّهُ السَّمَوَاتِ وَالْأَرْضَ وَلَا يَئُودُهُ حِفْظُهُمَا وَهُوَ الْعَلِيُّ الْعَظِيمُ)

Meaning: Allah! *La ilaha illa Huwa* (none has the right to be worshipped but He), the Ever-Living, the One Who sustains and protects all that exists. Neither slumber, nor sleep overtakes Him. To Him belongs whatever is in the heavens and whatever is on earth. Who is he that can intercede with Him except with His Permission? He knows what happens to them (His creatures) in this world, and what will happen to them in the Hereafter. And they will never compass anything of His Knowledge except that which He wills. His *Kursi* extends over the heavens and the earth, and He feels no fatigue in guarding and preserving them. And He is the Most High, the Most Great. (Surah Al-Baqarah – Verse No. ٢٥٥)

The earth is not the center of the universe as previous generations thought. Rather, the planet earth is one of the satellites of the sun, which is one of the stars of the Milky Way galaxy, which includes about ١٠٠ billion stars spread in the extensive space. The minimum diameter of this galaxy is ١٠٠٠٠٠٠ light-years, as mentioned above, and since the velocity of light is ٣٠٠٠٠٠٠ kilometers per second, this diameter is equivalent to ١٠^{١٨} kilometers. The sun is located some ٣٠٠٠٠٠٠ light-years from the center of the Milky Way galaxy, which is only one of the billions of galaxies dispersed in the visible sky. It is estimated that there are at least ٥٠٠ billion galaxies in the visible space, i.e. visible through the most advanced telescopes and other means. However, it should be noted that the scope of these means is limited to ٥ billion light-years.

These scientific facts conform to the Qur'anic expressions in two aspects:

A- Whenever Allah mentions the earth and the heavens, the word heavens precedes the earth. This applies in ١٨٧ verses. The following are two examples:

(مَا خَلَقْنَا السَّمَوَاتِ وَالْأَرْضَ وَمَا بَيْنَهُمَا إِلَّا بِالْحَقِّ وَأَجَلٍ مُّسَمًّى وَالَّذِينَ كَفَرُوا عَمَّا أُنذِرُوا
مُعْرِضُونَ)

Meaning: We created not the heavens and the earth and all that is between them except with truth, and for an appointed term. But those who disbelieve turn away from that whereof they are warned. (Surah Al-Ahqaf – Verse No. ٣)

(وَنُفِخَ فِي الصُّورِ فَصَعِقَ مَنْ فِي السَّمَوَاتِ وَمَنْ فِي الْأَرْضِ إِلَّا مَنْ شَاءَ اللَّهُ ثُمَّ نُفِخَ فِيهِ أُخْرَى
فَإِذَا هُمْ قِيَامٌ يَنْظُرُونَ)

Meaning: And the Trumpet will be blown, and all who are in the heavens and all who are on the earth will swoon away, except him whom Allah wills. Then it will be blown a second time, when behold!, they will be standing, looking on (waiting). (Surah Az-Zumar – Verse No. ٦٨)

In two exceptional cases the word heavens is preceded by the word earth, but that was entailed by the context.

B- Qur'anic verses indicate that different forms of life are not confined to the planet earth alone, but that there should be other life-forms on other planets. Allah says in the Holy Qur'an:

(وَلِلَّهِ يَسْجُدُ مَا فِي السَّمَوَاتِ وَمَا فِي الْأَرْضِ مِنْ دَابَّةٍ وَالْمَلَائِكَةِ وَهُمْ لَا
يَسْتَكْبِرُونَ)

Meaning: And to Allah prostrate all that is in the heavens and all that is in the earth, of the live moving creatures and the angels, and they are not proud [i.e. they worship their Lord (Allah) with humility]. (Surah An-Nahl – Verse No. ٤٩)

(تَسْبِيحٌ لَهُ السَّمَوَاتُ السَّبْعُ وَالْأَرْضُ وَمَنْ فِيهِنَّ وَإِنْ مِنْ شَيْءٍ إِلَّا يُسَبِّحُ بِحَمْدِهِ
وَلَكِنْ لَا تَفْقَهُونَ تَسْبِيحَهُمْ إِنَّهُ كَانَ حَلِيمًا غَفُورًا)

Meaning: The seven heavens and the earth and whoever is in them extol to Him, and decidedly not a thing (is) except that it extols His praise, but you do not comprehend their extolment. Surely He has been Ever-Forbearing, Ever-Forgiving.” (Surah Al-Isra' – Verse No. ٤٤)

(وَمِنْ آيَاتِهِ خَلْقُ السَّمَوَاتِ وَالْأَرْضِ وَمَا بَثَّ فِيهِمَا مِنْ دَابَّةٍ وَهُوَ عَلَى جَمْعِهِمْ إِذَا يَشَاءُ قَدِيرٌ)

Meaning: And among His *Ayat* (proofs, evidences, signs, etc.) is the creation of the heavens and the earth, and whatever moving (living) creatures He has dispersed in them both. And He is All-Potent over their assembling (i.e. resurrecting them on the Day of Resurrection after their death, and dispersion of their bodies) whenever He wills. (Surah Ash-Shura – Verse No. ٢٩)

(وَلِلَّهِ يَسْجُدُ مَنْ فِي السَّمَوَاتِ وَالْأَرْضِ طَوْعًا وَكَرْهًا وَظِلَالُهُمْ بِالْعُدُوِّ وَالْأَصَالِ)

Meaning: And unto Allah (Alone) falls in prostration whoever is in the heavens and the earth, willingly or unwillingly, and so do their shadows in the mornings and in the afternoons. (Surah Ar-Ra'd – Verse No. ١٥)

The Arabic word, *Alamin* is recurrently mentioned in the Holy Qur'an. It is a plural word that refers to multitudes of creatures, including mankind and other unknown living creatures. It is mentioned in Surah Al-Fatihah (The Opening) and in another seventy-two different verses of

the Holy Qur'an. This accords with the notion that there are other types of life everywhere in the universe.

Moreover, the Prophet Muhammad (peace be upon him) said in one of his invocations:

“O, Allah, the Deity of the seven heavens and all that exists below them, and of the earths and all that is on them...” (Reported by At-Tirmidhi)

٤/٣ The Evolution of the Universe

First of all, it should be noted that whatever the achievements in scientific knowledge are, there could never be a final word concerning the origins of the universe. Yet, the conformity between modern astronomy and the precise expressions of the Holy Qur'an is quite amazing. With Allah's support it was recently discovered that the universe has been regularly expanding ever since its creation. There are some photographs of the depths of the universe, ١٥ billion light-years away, which record how the universe was during these ancient times. They indicate that the substance of the universe was expanding, after being torn into billions of parts, in the form of a bulky mass of smoke (the Big Bang). Later, these massive particles formed the celestial bodies that we now see in the heavens, i.e. the stars from which the planets and moons separated. Inimitable as it is, the Holy Qur'an referred to these three conceptions fourteen centuries ago:

A-The celestial bodies separated from one body:

(أَوَلَمْ يَرَ الَّذِينَ كَفَرُوا أَنَّ السَّمَوَاتِ وَالْأَرْضَ كَانَتَا رَتْقًا فَفَتَقْنَاهُمَا
وَجَعَلْنَا مِنَ الْمَاءِ كُلَّ شَيْءٍ حَيٍّ أَفَلَا يُؤْمِنُونَ)

Meaning: 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-Anbiya' – Verse No. ٣٠)

According to the 'Big Crunch' theory, they could all ultimately be pulled back together by gravitational forces, i.e. be “rolled up” to use the Qur'anic expression:

(يَوْمَ نَطْوِي السَّمَاءَ كَطَيِّ السِّجْلِ لِلْكِتَابِ كَمَا بَدَأْنَا أَوَّلَ خَلْقٍ نُعِيدُهُ وَعَدَّا عَلَيْهَا بِإِنَّا كُنَّا فَاعِلِينَ)

Meaning: And (remember) the Day when We shall roll up the heavens 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. (Surah Al-Anbiya' – Verse No. ١٠٤)

B- The celestial bodies originated from smoke :

(ثُمَّ اسْتَوَى إِلَى السَّمَاءِ وَهِيَ دُخَانٌ فَقَالَ لَهَا وَلِلْأَرْضِ ائْتِيَا طَوْعًا أَوْ كَرْهًا قَالَتَا أَتَيْنَا طَائِعِينَ)

Meaning: Then He *Istawa* (rose over) 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." (Surah Fussilat – Verse No. ١١)

C- The continual expansion of the universe:

Allah says in the Holy Qur'an:

(وَالسَّمَاءَ بَنَيْنَاهَا بِأَيْدٍ وَإِنَّا لَمُوسِعُونَ)

Meaning: And the heaven (is also a sign). We have built it with (Our) Hands and surely We are indeed extending (it) wide. (Surah Adh-Dhariyat – Verse No. ٤٧)

٤/٤ Time Relativity:

Allah, the All-Knowing Creator, referred again and again to the idea of the relativity of time, that has been discovered only in the modern age. Following are some inimitable Qur'anic verses that confirm this concept:

(وَيَسْتَعْجِلُونَكَ بِالْعَذَابِ وَلَنْ يُخْلِفَ اللَّهُ وَعْدَهُ وَإِنَّ يَوْمًا عِنْدَ رَبِّكَ كَأَلْفِ سَنَةٍ مِمَّا تَعُدُّونَ)

Meaning: And they ask you to hasten on the torment! And Allah fails not His Promise. And verily, a day with your Lord is as a thousand years of what you reckon. (Surah Al-Hajj – Verse No. ٤٧)

(تَعْرُجُ الْمَلَائِكَةُ وَالرُّوحُ إِلَيْهِ فِي يَوْمٍ كَانَ مِقْدَارُهُ خَمْسِينَ أَلْفَ سَنَةٍ)

Meaning: The Angels and the *Ruh* (Gabriel) ascend to Him in a Day the measure whereof is fifty thousand years. (Surah Al-Ma`arij - Verse No. ٤)

(يُدَبِّرُ الْأَمْرَ مِنَ السَّمَاءِ إِلَى الْأَرْضِ ثُمَّ يَعْرُجُ إِلَيْهِ فِي يَوْمٍ كَانَ مِقْدَارُهُ أَلْفَ سَنَةٍ مِمَّا تَعُدُّونَ)

Meaning: He arranges (every) affair from the heavens to the earth, then it (affair) will go up to Him, in one Day, the space whereof is a thousand years of your reckoning (i.e. reckoning of our present world's time). (Surah As-Sajdah – Verse No. ٥)

On Earth, a day is measured by the time it takes for one complete axial rotation around itself. This day is conventionally divided into ٢٤ hours, and an hour is divided into minutes and seconds. A day on Venus is equivalent to ١١٨ earthly days, on Mercury it is ١٧٦, on Jupiter it is ٩ hours and ٥٥ minutes, and on Saturn it is ١٠ hours and ٤٠ minutes. In the infinite space, our ٢٤ hour day is meaningless, it is significant only to those living on the planet Earth. It should be noted that the early scholars, not aware of these facts, have interpreted phrases such as, ‘a day with your Lord’ and the like as follows, i.e. that a day with Allah is equivalent to one thousand years on the earth. They considered this to be a sign of Allah’s forbearance.

When we consider the second verse mentioned above, the number ٥٠٠٠٠٠ could be noteworthy. The minimum radius of our galaxy, the Milky Way, that has some one billion stars, is estimated to be ٥٠٠٠٠٠ light-years from the center to the outside of the galaxy. This means that light, electromagnetic waves, and radiant bodies in general take the same amount of time to move from the center of the galaxy toward the cosmic space surrounding it and vice versa. At this stage, the human mind cannot continue to elaborate further, and Allah knows best.

On the other hand, there is no contradiction between the number ٥٠٠٠٠٠ in the second verse and the number ١٠٠٠٠ mentioned in the other two verses. The first number refers to journeys made by the Angels and Gabriel. The beginning and the end of such journeys in Allah’s wide space are unknown to us. As for the other number, it refers directly to the relativity of time in the universe and to the enormity of its dimensions being rated in thousands of light-years.

٤/٥ Calendars:

The difference between the lunar calendar and the solar calendar is ١٠-١١ days a year. The solar year is equivalent to ٣٦٥,٢٤٢٢ days, while the lunar year is equivalent to ٣٥٤,٦٠٣٦ days. Accordingly, ٣٠٠ solar years is equivalent to ٣٠٩ lunar years, i.e. ١٠٩,٥٧٣ days exactly. This clarifies the precision of the Qur'anic expressions regarding the People of the Cave:

(وَلَبِثُوا فِي كَهْفِهِمْ ثَلَاثَ مِائَةٍ سِنِينَ وَازْدَادُوا تِسْعًا)

Meaning: And they stayed in their Cave three hundred (solar) years, and add nine (for lunar years). (Surah Al-Kahf – Verse No. ٢٥)

This means that the People of the Cave stayed for ٣٠٠ solar years, or ٣٠٩ lunar years, and Allah knows best how long they stayed.

٤/٦ The Sun

Modern science discovered the inimitable truthfulness of the Qur'anic verses in describing the sun. Some of these descriptions that could not be interpreted by classical scholars and interpreters of the Holy Qur'an, were that the sun is an 'incandescent lamp'. Its temperature is estimated to be about ٦,٠٠٠ degrees centigrade at its surface and about ٣٠ million degrees centigrade at its center.

The Noble Qur'an says:

(وَجَعَلْنَا سِرَاجًا وَهَّاجًا)

Meaning: And We have made a *siraj* (lamp) (sun). (Surah An-Naba' – Verse No. ١٣)

Remarkably, the Qur'an uses the Arabic *siraj*, which specifically means the traditional oil lamp. This is compared to the cold radiant moon, whose only role is to reflect the light of the sun:

(وَجَعَلَ الْقَمَرَ فِيهِنَّ نُورًا وَجَعَلَ الشَّمْسَ سِرَاجًا)

Meaning: And has made the moon a light therein, and made the sun a *siraj* (lamp)? (Surah Nuh – Verse No. ١٦)

(تَبَارَكَ الَّذِي جَعَلَ فِي السَّمَاءِ بُرُوجًا وَجَعَلَ فِيهَا سِرَاجًا وَقَمَرًا مُنِيرًا)

Meaning: Blessed be He Who has placed in the heaven big stars, and has placed therein a *siraj* (lamp) (sun), and a moon giving light. (Surah Al-Furqan – Verse No. ٦١)

Classical interpreters of the Holy Qur'an thought that the Qur'anic expression 'lamp' referred only to the similitude between the sun and the lamp in emitting light and not heat. The Holy Qur'an also refers to the continual movement of the sun in space in a pre-determined path:

(وَالشَّمْسُ تَجْرِي لِمُسْتَقَرٍّ لَهَا ذَلِكَ تَقْدِيرُ الْعَزِيزِ الْعَلِيمِ)

Meaning: And the sun runs on its fixed course for a term (appointed). That is the Decree of the All-Mighty, the All-Knowing. (Surah Yasin – Verse No. ٣٨)

The word 'runs' is a translation of the Arabic word *tajri* meaning rushing and moving quickly. It was discovered that the sun moves in space at a speed of ١,٥٠٠ km/sec, relative to the neighboring stars in the galaxy, completing its rotation around the centre of the galaxy in about ٢٠٠ million years. The great speed of the great sun, which is ٣٣٣,٠٠٠ times faster than that of the planet Earth, reflects the inimitability of the Qur'anic word 'runs.' Yet, an observer on earth, at any moment, perceives that the sun moves quite slowly from east to west.

Also, the Qur'anic expression 'for a term appointed' is in accordance with the observation that all stars go through a life cycle ending as a dwarf star:

(وَسَخَّرَ الشَّمْسَ وَالْقَمَرَ كُلًّا يَجْرِي إِلَىٰ أَجَلٍ مُّسَمًّى وَأَنَّ اللَّهَ بِمَا تَعْمَلُونَ خَبِيرٌ)

Meaning: And has subjected the sun and the moon, each running its course for a term appointed. (Surah Luqman – Verse No. ٢٩), also in (Surah Ar-Ra'd – Verse No. ٢)

٤/٧ The Moon:

The Holy Qur'an refers to the moon as a cold body 'giving light,' in contrast to the sun, the source of light:

(تَبَارَكَ الَّذِي جَعَلَ فِي السَّمَاءِ بُرُوجًا وَجَعَلَ فِيهَا سِرَاجًا وَقَمَرًا مُنِيرًا)

Meaning: Blessed be He Who has placed in the heaven big stars, and has placed therein a *siraj* (lamp) (sun), and a moon giving light. (Surah Al-Furqan – Verse No. ٦١)

(وَجَعَلَ الْقَمَرَ فِيهِنَّ نُورًا وَجَعَلَ الشَّمْسَ سِرَاجًا)

Meaning: And has made the moon a light therein, and made the sun a *siraj* (lamp)? (Surah Nuh – Verse No. ١٦)

This contradicts what was thought by the early interpreters concerning this verse. They believed that the moon illuminated the heavens above it and the earth beneath it.

The visible shape of the moon changes from a crescent to a full moon, according to its relative positions (stages) from the sun and the earth. This is mentioned in the following two verses:

(هُوَ الَّذِي جَعَلَ الشَّمْسَ ضِيَاءً وَالْقَمَرَ نُورًا وَقَدَرَهُ مَنَازِلَ لِتَعْلَمُوا عَدَدَ السِّنِينَ وَالْحِسَابَ مَا خَلَقَ اللَّهُ ذَلِكَ إِلَّا بِالْحَقِّ يُفَصِّلُ الْآيَاتِ لِقَوْمٍ يَعْلَمُونَ)

Meaning: It is He Who made the sun a shining thing and the moon as a light and measured out its (their) stages, that you might know the number of years and the reckoning. Allah did not create this but in truth. He explains the *Ayat* (proofs, evidences, signs, etc.) in detail for people who have knowledge. (Surah Yunus – Verse No. ٥)

(وَالْقَمَرَ قَدَرْنَا مَنَازِلَ حَتَّىٰ عَادَ كَالْعُرْجُونِ الْقَدِيمِ)

Meaning: And the moon, We have determined it by *manazil* (mansions, positions, phases), till it becomes again like the old date-stalk. (Surah Yasin – Verse No. ٣٩)

The moon is much smaller than the sun (its diameter is $1/436$ of the sun's diameter). Yet, to an observer on earth, it seems to be $1,18$ bigger than the sun. Let us consider the following Qur'anic verses:

(وَكَذَلِكَ نُرِي إِبْرَاهِيمَ مَكُوتَ السَّمَوَاتِ وَالْأَرْضِ وَلَيَكُونُ مِنَ الْمُوقِنِينَ * فَلَمَّا جَنَّ عَلَيْهِ اللَّيْلُ رَأَى كَوْكَبًا قَالَ هَذَا رَبِّي فَلَمَّا أَفَلَ قَالَ لَأُحِبُّ الْأَفْلِينَ * فَلَمَّا رَأَى الْقَمَرَ بَازِغًا قَالَ هَذَا رَبِّي فَلَمَّا أَفَلَ قَالَ لَئِن لَّمْ يَهْدِنِي رَبِّي لَأَكُونَنَّ مِنَ الْقَوْمِ الضَّالِّينَ * فَلَمَّا رَأَى الشَّمْسُ بَازِغَةً قَالَ هَذَا رَبِّي هَذَا أَكْبَرُ فَلَمَّا أَفَلَتْ قَالَ يَا قَوْمِ إِنِّي بَرِيءٌ مِمَّا تُشْرِكُونَ * إِنِّي وَجَّهْتُ وَجْهِيَ لِلَّذِي فَطَرَ السَّمَوَاتِ وَالْأَرْضَ حَنِيفًا وَمَا أَنَا مِنَ الْمُشْرِكِينَ)

Meaning: Thus did we show Ibrahim (Abraham) the kingdom of the heavens and the earth that he be one of those who have Faith with certainty. When the night covered him over with darkness he saw a planet. He said: "This is my lord." But when it set, he said: "I like not those that set." When he saw the moon rising up, he said: "This is my lord." But when it set, he said: "Unless my Lord guides me, I shall surely be among the erring people." When he saw the sun rising up, he said: "This is my lord. This is greater." But when it set, he said: "O my people! I am indeed free from all that you join as partners in worship with Allah. Verily, I have turned my face towards Him Who has created the heavens and the earth *Han.fan* (worshipping none but Allah Alone) and I am not of *Al-Mushrikun* (Polytheists). (Surah Al-An'am – Verses Nos. 76 - 79)

Abraham (peace be upon him) gazed at the sky, so that he might be guided to the Great Creator, Who is Greater and more Lasting than all things. In his meditation [had the following thoughts]: What would be the Lord? He began contemplating a small radiant planet that appeared to disappear. Then, he observed the radiant full moon, but that too would soon disappear. Then, he considered the sun, which was greater than the moon and other planets. This represented Abraham's gradual progress of human thought. The Holy Qur'an refers to the sun, and not the moon, as the greater, despite the fact that the visible surface of the moon seems, to an observer on the earth, to be somewhat bigger than the sun, and so much bigger than the other visible planets. It is Allah, the All-Wise and the All-Knowing, Who gives a hint that the sun is larger than the moon and any of the planets in the solar system.

In addition, the Holy Qur'an indicates that the moon is not the sole celestial body that orbits a planet. Through observation, science discovered ٥٩ moons in our solar system: ١٦ in Jupiter, ١٦ in Saturn, two in Mars, ١٥ in Uranus, eight in Neptune, and one in Pluto; besides there also being other moons in the Milky Way galaxy, and the universe. This accords with the comprehensive Qur'anic verses:

(أَلَمْ تَرَوْا كَيْفَ خَلَقَ اللَّهُ سَبْعَ سَمَاوَاتٍ طِبَاقًا * وَجَعَلَ الْقَمَرَ فِيهِنَّ نُورًا وَجَعَلَ الشَّمْسَ سِرَاجًا)

Meaning: See you not how Allah has created the seven heavens one above another, And has made the moon a light therein, and made the sun a *siraj* (lamp)? (Surah Nuh – Verses Nos. ١٥ - ١٦)

Reference here is to all (seven) heavens, so it seems that the Qur'anic word moon is a generic noun, i.e. it is not confined to our moon.

٤/٨ The Meteors

The Holy Qur'an reveals the reality of the meteors, which have been discovered recently. Meteors result from the fast movement of particles in the earth's atmosphere:

(وَلَقَدْ جَعَلْنَا فِي السَّمَاءِ بُرُوجًا وَزَيَّنَّاهَا لِلنَّاظِرِينَ * وَحَفِظْنَاهَا مِنْ كُلِّ شَيْطَانٍ رَجِيمٍ * إِنْ أَمَّنْ
اسْتَرْقَى السَّمْعَ فَاتَّبَعَهُ شِهَابٌ مُبِينٌ)

Meaning: And indeed, We have already made in the heaven constellations, and We have adorned it to the onlookers. And We have preserved it from the outcast Shaytan (Devil). Excepting him who (gains) hearing by stealth, (and) so an evidently flaming (meteor) follows him. (Surah Al-Hijr – Verses Nos. ١٦ - ١٨)

This same meaning is repeated in more than one other Qur'anic verse:

(إِنَّا زَيَّنَّا السَّمَاءَ الدُّنْيَا بِزِينَةِ الْكَوَاكِبِ * وَحِفْظًا مِنْ كُلِّ شَيْطَانٍ مَارِدٍ * لَا يَسْمَعُونَ إِلَى الْمَلَأِ الْأَعْلَى وَيُقَدِّفُونَ مِنْ كُلِّ جَانِبٍ دُحُورًا وَلَهُمْ عَذَابٌ وَأَصِيبٌ * إِلَّا مَنْ خَطِفَ الْخَطْفَةَ فَأَتْبَعَهُ شِهَابٌ ثَاقِبٌ)

Meaning: Surely We have adorned the lowest heaven with an adornment, the planets, And (as) a preservation against every insurgent Shaytan (devil). They do not overhear the most Exalted Chiefs (i.e. Angels), and they are pelted (with hurled meteors) from every side. Outcast, and theirs is a constant (or painful) torment. Except such as snatch away something by stealing and they are pursued by a flaming fire of piercing brightness. (Surah As-Saffat – Verses Nos. ٦ - ١٠)

(وَلَقَدْ زَيَّنَّا السَّمَاءَ الدُّنْيَا بِمَصَابِيحَ وَجَعَلْنَاهَا رُجُومًا لِلشَّيَاطِينِ وَأَعْتَدْنَا لَهُمْ عَذَابَ السَّعِيرِ)

Meaning: And indeed We have adorned the lowest heaven with lamps, and made them outcast (meteorites) for Ash-Shayatin (devils), and We have readied for them the torment of the Blaze. (Surah Al-Mulk – Verse No. ٥)

Here, the Holy Qur'an refers to the surprising astronomical fact, that space is full of meteors. The number of particles that enter the earth's atmosphere daily is estimated as being ٤٠ million and they may reach up to a speed of ٢٧ kilometers per second. This applies to meteors weighing ١ mg. that can only be seen by telescopes. Most of these microscopic particles soon vaporize due to the heat arising from the air friction. Some other meteors can be seen by the naked eye. The fall-out from meteors on the earth surface is estimated to be more than ٢,٥٠٠ kg daily. Consider the following verses:

(وَأَنَّا لَمَسْنَا السَّمَاءَ فَوَجَدْنَاهَا مُلْتَأَةً حَرَسًا شَدِيدًا وَشُهَبًا * وَأَنَّا كُنَّا نَعْبُدُ مِنْهَا مَقَاعِدَ لِلسَّمْعِ فَمَنْ يَسْتَمِعِ الْآنَ يَجِدْ لَهُ شِهَابًا رَصَدًا)

Meaning: And that we contacted the heaven, yet we found it filled with very strict guards and flaming (meteors). And that we used to sit (there on seats (over) hearing; yet whoever listens now finds a flaming (meteor) (closely) observing him. (Surah Al-Jinn – Verses Nos. ٨ - ٩)

According to the verse, the jinns were surprised to find that there was an unusual increase in the number of meteors, as if they were about to fill the lower heaven. Modern science has discovered some proofs that there

was a planet between Jupiter and Mars that exploded in ancient times. This planet crumbled and its fragments scattered throughout space, colliding with the planets of the solar system. These fragments, and the like, are thought to be the source of meteors.

Besides meteors, there are also comets that rotate in space. Comets are supposed to be a snow-like substance, formed from water laden with impurities. They have oval and very elongated orbits, some of which intersect the orbit of the earth once every few decades. The most famous comet is Haley's Comet, which appears once every ٧٦ years with its last appearance being in ١٩٣٤. Read the following Qur'anic verses in which Allah swears by comets:

(فَلَا أَقْسِمُ بِالْخُنُوسِ * الْجَوَارِ الْكُنُوسِ)

Meaning: Then no! I swear by the constant slinkers, the running, the constant sinkers. (Surah At-Takwir – Verses Nos. ١٥ - ١٦)

This verse refers to all that disappear and re-appear amongst the planets and comets.

٤/٩ Space Travel

Air pressure decreases quickly the more we rise in space, especially if the ascension is speedy and exceeds three kilometers or more. The result leads to difficulty in breathing and a tightness of the chest. The inimitable Qur'an expresses these symptoms in the following verse:

(فَمَنْ يُرِدِ اللَّهُ أَنْ يَهْدِيَهُ يَشْرَحْ صَدْرَهُ لِلْإِسْلَامِ وَمَنْ يُرِدْ أَنْ يُضِلَّهُ يَجْعَلْ صَدْرَهُ ضَيِّقًا حَرَجًا كَأَنَّمَا يَصْعَدُ فِي السَّمَاءِ كَذَلِكَ يَجْعَلُ اللَّهُ الرِّجْسَ عَلَى الَّذِينَ لَا يُؤْمِنُونَ)

Meaning: And whomsoever Allah wills to guide, He opens his breast to Islam, and whomsoever He wills to send astray, He makes his breast closed and constricted, as if he is climbing up to the sky. Thus Allah puts the wrath on those who believe not. (Surah Al-An'am – Verse No. ١٢٥)

Rising in space disturbs the equilibrium of the eyes, accordingly, visible things sway as if one is intoxicated. This was truly realized by the astronauts when they came out of the space vehicle during the swimming in space experiments. The inimitable Holy Qur'an states this in the following verses:

وَلَوْ فَتَحْنَا عَلَيْهِمْ بَابًا مِّنَ السَّمَاءِ فَظَلُّوا فِيهِ يَعْرُجُونَ * لَقَالُوا إِنَّمَا سُكَّرَتْ أَبْصَارُنَا بَلْ نَحْنُ قَوْمٌ مَّسْحُورُونَ

Meaning: And even if We opened to them a gate from the heaven and they were to continue ascending thereto, They would surely say: "Our eyes have been (as if) dazzled. Nay, we are a people bewitched. (Surah Al-Hijr – Verses ١٤ - ١٥)

The Noble Qur'an, the Word of the Creator of the heavens and earth, states that, in principle, it is possible for human beings to travel in space by His leave, once He gives them the authority, namely, the necessary power and technical abilities:

يَا مَعْشَرَ الْجِنِّ وَالْإِنسِ إِنِ اسْتَطَعْتُمْ أَنْ تَنْفُذُوا مِنْ أَقْطَارِ السَّمَوَاتِ وَالْأَرْضِ فَانفُذُوا لَّا تَنْفُذُونَ إِلَّا بِسُلْطَانٍ * فَبِأَيِّ آلَاءِ رَبِّكُمَا تُكَذِّبَانِ * يُرْسَلُ عَلَيْكُمَا شَوَاظٌ مِّنْ نَّارٍ وَنَحَّاسٌ فَلَا تَنْتَصِرَانِ

Meaning: O assembly of jinns and men! If you have power to pass beyond the zones of the heavens and the earth, then pass (them)! But you will never be able to pass them, except with authority (from Allah)! Then which of the Blessings of your Lord will you both (jinns and men) deny? There will be sent against you both, smokeless flames of fire and *nuhas* (molten metals, brass), and you will not be able to defend yourselves. (Surah Ar-Rahman – Verses Nos. ٣٣ - ٣٥)

Yet, these verses also refer to the dangers that a traveler faces when rising into space, such as falling stars, solid and molten meteors, and destructive burning rays, such as radioactivity, and in particular cosmic rays. These dangers were not known by human beings before the space age. On the other hand, even if man could protect himself from these dangers, it is scientifically impossible for him to travel in space for more than a few light years due to his limited age. According to the theory of relativity, a physical body cannot exceed the speed of light. However, suppose a man traveled at the speed of light and spent his life in this travel (e.g. one hundred years), he would never be able to cover even one hundredth of the diameter of our galaxy. Then, how about the diameters of the heavens of the universe and the billions of galaxies they contain?