

Scientific and Engineering Observations from the holy Qur'an

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Abstract

The Holy Qur'an provides a framework for integrating scientific and engineering observations with faith, emphasizing ethical stewardship of the earth and encouraging curiosity and innovation. This perspective reframes scientific advancements as spiritual and ethical responsibilities toward humanity and creation, enriching our understanding of life as described in the Qur'an. Since the late twentieth century, a popular literature genre, I'jaz, has emerged, claiming that the Qur'an contains scientific knowledge pre-dating modern discoveries, supporting the belief in its divine origin. Examples of these alleged "scientific miracles" include references to concepts in relativity, quantum mechanics, the Big Bang, and various fields of science and technology. Of particular note is the Qur'an's depiction of the universe's creation, which is often associated with the Big Bang theory. Moreover, the search for truth is central to Islam, suggesting that scientific inquiry can reinforce faith. Historical contributions by Muslims to empirical sciences highlight the harmonious relationship between Islam and the pursuit of knowledge.

Keywords: Scientific Miracles; Importance of Scientific Miracles; Contemplating God's Creation; Qur'anic Verses in Engineering.

1. Preface

The miracles of the Quran are intricate and multifaceted. This holy text provides knowledge about several well-known scientific phenomena, even before their formal discovery. It addresses concepts like the Theory of Relativity, the Big Bang Theory, genetics, and black holes, indicating that the Quran and science are interconnected rather than separate. The scientific revelations found within the Quran are referred to as Surahs, though some aspects were hard to accept until scientific understanding advanced enough to validate them. Nowadays, it can be asserted that the Quran mentions complex phenomena, while science serves to confirm its insights.

Particularly remarkable are the references to scientific inquiries in the Quran that were unknown over fourteen hundred years ago. One significant topic addressed is the origin of the universe. Until a century ago, many believed that the universe was eternal and had no creator. However, Albert Einstein's research led him to propose that the universe is continuously expanding, much like a balloon. Subsequently, a Belgian mathematician and priest suggested that this expansion originated from an initial, dense state. The Quran, revealed long before the formulation of the Big Bang theory, articulates this concept. It states, "Do not the disbelievers see that the heavens and the earth were a closed mass, then we opened them out" (Al-Anbiya: Verse 30). The term "closed mass" evokes images of darkness and compactness, mirroring the state of the universe prior to the Big Bang.

Another scientific principle discussed in the Quran is the Big Crunch theory, which hypothesizes how the universe might eventually meet its end. This concept, derived from Einstein's theory of general relativity, suggests that the universe, having originated from the Big Bang, may eventually reverse its expansion and collapse.

The Quran touches on this idea in (Al-Anbiya: Verse 104), stating, "Remember the day when we shall roll up the heavens like a scroll is rolled up by a scribe." This description aligns with scenarios proposed by physicists worldwide.

The phenomenon of two oceans merging, known as conflux, is defined by the observation that when two seas meet, they maintain distinct characteristics like temperature, color, and density. At the conflux point, one can observe two separate bodies of water flowing side by side. Although this understanding emerged recently, the Quran had already alluded to it in Surah (Al-Rahman: Verses 19 and 20) with the phrase, "He released the two seas, meeting [side by side], between them is a barrier so that neither of them transgresses".

The implications of scientific and engineering observations within the context of the Quran can be explored from several angles, particularly in relation to gaining a deeper understanding of the natural world and nurturing a sense of responsibility towards creation. Key points to consider include:

The Quran encourages the pursuit of knowledge, fostering an understanding of the universe through scientific exploration. This highlights the compatibility of faith and reason, suggesting that science and religion can enhance one another.

Observing the natural world can deepen one's faith and appreciation of divine creation. The Quran invites believers to reflect on the signs of Allah (God) present in the universe, which can fuel inspiration in scientific and engineering endeavors, driving technological advancements.

Scientific observations allow for a better comprehension of nature's laws, regarded as manifestations of God's will, as expressed in the Quran. This understanding can lead to advancements in various fields, including medicine, agriculture, and environmental sustainability .

The Quran underscores humanity's ethical obligation as stewards (Khalifah) of the Earth. Insights from scientific observations can guide sustainable practices and ethical decision-making, promoting responsible use of resources and environmental protection.

Curiosity and inquiry are founding principles of both science and Quranic teachings. The text encourages questioning and exploration, nurturing a mindset that prizes discovery and learning.

The quest for knowledge in Islam is holistic; scientific observations can enhance our understanding across disciplines, merging physical and social sciences for a more unified perspective on knowledge and existence.

The Quran presents verses that describe various natural phenomena, including those related to astronomy and the human body, inspiring scientists and engineers to innovate and develop technologies consistent with the observed principles of nature.

In conclusion, the perspective of the Quran on scientific and engineering observations serves multiple purposes, such as integrating faith and knowledge, emphasizing ethical stewardship over the Earth, and promoting curiosity and innovation. This viewpoint considers advancements in science and technology not just intellectual pursuits but also as fundamental aspects of fulfilling our spiritual and ethical duties toward creation and humanity. The relationship between these domains enriches human experience and contributes to a broader comprehension of life and existence as articulated in the Quran.

2. Scientific Miracle in the Qur'an

2.1 Introduction

What is meant by the scientific miracle of the Qur'an is that it talks about scientific facts that were not known to humanity on the day the Qur'an was revealed to our Prophet Muhammad, may God bless him and grant him peace, and science did not discover these facts except in our present time.

This scientific miracle is also considered evidence that Muhammad, may God bless him and grant him peace, is a messenger from God Almighty, and that the scientific facts he uttered, even though Muhammad, may God bless him and grant him peace, was illiterate and could not read or write, is clear evidence of the truth of his prophecy.

The Qur'an is the true word of God: "And if any of the polytheists seeks protection from you, grant him protection until he hears the word of God, then informs him of his place of safety. That is because they are a people who do not know" (Al-Tawbah: Verse 6), [4].

In approximately seven hundred and fifty verses, the Holy Qur'an has addressed issues that are at the core of science, and mentioned some of the scientific facts as general issues, and entered into the details of some other facts. Taken together, these verses are one of the aspects of the miraculous nature of the Qur'an that appeared in this era, in which individuals and groups believe in science, and in which people are measured by the science and inventions they have achieved.

It is known that the Qur'an is not a book on medicine, engineering, agriculture, or any other experimental science, but it contains a portion of these sciences. To be proof that the Qur'an is the word of God Almighty, revealed to His servant and Prophet Muhammad, may God bless him and grant him peace.

God created man and taught him, and revealed the Noble Qur'an to His servant and Prophet Muhammad, may God bless him and grant him peace, and God Almighty told him that he would reveal to people in general and to scholars in particular the truth about the clear verses in this Qur'an to be evidence of the truth of the message of our Prophet Muhammad, may God bless him and grant him peace.

God Almighty said: “We will show them Our signs on the horizons and within themselves until it becomes clear to them that it is the truth. Is it not sufficient for your Lord that He is a Witness over all things” (Fussilat: Verse 53), [5].

The signs that God will show to His servants are not limited to one period of time, nor to one generation of generations, but rather they include all times and all generations, in a clear indication that the Holy Qur’an is a truth from God Almighty.

2.2 The Importance of Scientific Miracles at the Present Time

Many people nowadays need scientific persuasion; So that they may become Muslim and their hearts may be at peace; As science advanced in a way that astonished many people and shook the beliefs of those with weak faith, these people thought that the mind had become capable of everything, and it was worthy of these people to increase their certainty in God Almighty through these discoveries. Knowledge is only one of the important means that deepen faith in God Almighty.

God Almighty said: “We will show them Our signs on the horizons and within themselves until it becomes clear to them that it is the truth” (Fussilat: Verse 53), [5].

Modern man today is in dire need of religious certainty that will restore his lost unity, lost happiness, and stolen security.

As long as the conviction based on scientific facts is today one of the most effective convictions for verifying this certainty, and as long as the Qur’an gives us this large and miraculous amount of these facts that are beginning to appear every day, why do we not move in light of the scientific miracles found in the Holy Qur’an and the Sunnah to save this contemporary man? Who is suffering from the loss of certainty?

Faith today is not based on mere acceptance, speculation, or imitation, but is also based on persuasion based on science. Science is the language that today's people understand, and if Europe has made tremendous progress in the field of experimental sciences that will make it difficult for us Muslims to catch up with them, then we should not fail to provide them with scientific evidence found in the Qur’an and Sunnah, Some of them were revealed by some European scientists themselves, and they were astonished when they learned that Islam had spoken about these scientific facts more than fourteen centuries and a half ago, and other evidence remained in the Qur’an and Sunnah whose secrets science is still unable to discover, and the day will come when science will reveal them, if God willing.

The scientific miracle in the Qur’an will be talked about very briefly in the following literature:

2.2.1 Unity of the Universe

Modern scientific theories say: The Earth was part of the solar system, then it separated from it, cooled, and became suitable for human habitation. They prove the validity of the theory by the presence of volcanoes and inflamed materials in the interior of the Earth, and the Earth is ejecting from time to time this lava of inflamed volcanic materials.

This modern theory is consistent with what the Noble Qur’an indicated in His saying, may He be glorified and exalted: "Have those who disbelieved not seen that the heavens and the earth were a joined mass, then We separated them and made from water every living thing will they not then believe" (Al-Anbiya: Verse 30), [1].

2.2.2 The Origin of the Universe

The astronomer Jeans says that the matter of the universe began as a gas that spread throughout space in an orderly manner, and that the astronomical groups were created from the condensation of this gas. Dr. Jumbo says: The universe, at the beginning of its inception, was filled with a uniformly distributed gas, and from it the formation processes of the Earth occurred.

We find support for this theory in the Holy Qur'an. If the Qur'an had not told us about this, we would have ruled out this theory. God Almighty says:

“Then He turned to the sky while it was smoke, and said to it and to the earth, Come, willingly or by compulsion, they said, we come, willingly.” (Fussilat: Verse 11), [6].

The Qur'an depicted the source of the creation of this universe (with smoke), which is what the Arabs understand in terms of tangible things. Would an illiterate person, fourteen and a half centuries ago, have been able to understand this at a time when people knew nothing about this universe and its secrets.

2.2.3 Landform

The roundness of the Earth is miraculously expressed in the expression: The night is made equal to the day, and it is known that the Earth is not a perfectly round sphere, but rather an oval. On the other hand, modern science has proven that the ratio between the two diagonals of the Earth decreases steadily, and this is what is referred to in the Qur'an by the decrease of the Earth from its edges. God Almighty said: “Rather, we provided enjoyment to these people and their fathers until their lives were prolonged. Do they not see that We will bring the earth to the ground, diminishing it from its edges. Will the overcomers understand.” (Al-Anbiya: Verse 44), [7].

God Almighty said: “He created the heavens and the earth with truth, He folds the night into the day, and He folds the day into the night, and He subjugated the sun and the moon, each running for a specified time, He is the Mighty, the Forgiving” (Al-Zumar: Verse 5), [8].

2.2.4 Earth Movement

Many verses accurately indicate the Earth's continuous movement in its rotation around itself. Such as talking about folding and twisting the night and day (takwir is linguistically: folding and twisting), and talking about the night from which the day is peeled off; That is: it arises from it little by little due to the movement of the earth, and likewise the verse that combines night and day with both the sun and the moon in talking about rotating and swimming in the spheres, each in its own orbit, He sought night and day diligently, and some scholars also believe that the expression “Lord of the East and West” agrees with the movement of the Earth. Because at every moment there is a new place on Earth where the sun rises and another where it sets.

God Almighty said: “And We inherited the people who were oppressed the easts of the land and its wests which We had blessed, and the best word of your Lord was fulfilled upon the sons of Israel because they were patient, and We destroyed what Pharaoh and his people did, and what they used to raise a throne” (Al-A'raf: Verse 137), [9].

And God Almighty said: “And it is He who created the night and the day and the sun and the moon, each swimming in an orbit” (Al-Anbiya: Verse 33), [10].

2.2.5 Mountains Stabilize the Earth

God Almighty said: “And He has placed firm mountains in the earth, lest it should turn over” (Luqman: Verse 10), [11].

These verses show us the role of mountains in relation to the earth. God has made them stable so that they will not be disturbed. They are like pegs that hold the tent from disturbance and falling. Scientists have noticed that the extent of the mountains in the interior of the earth exceeds their height above its surface, which enables these mountains to play their role in stabilizing the earth, just as pegs stabilize a tent and just as an anchor stabilizes ships.

2.2.6 The Sun

Modern science has discovered the miraculous truth of the verses of the Holy Qur'an that describe the sun with characteristics that were hot in ancient commentators: it being a burning, glowing lamp, whose temperature is estimated at thousands of degrees compared to the cold, illuminating moon, whose role is limited to that of a reflecting mirror. The Qur'an also referred to its continuous movement in a specific direction (stable for it at a speed of 1,500 kilometers per second) in relation to the stars surrounding it in the direction of the so-called Al-Jathi constellation, which is located in an area inclined about 10 degrees to the southwest of the bright star called the Real Eagle.

God Almighty said: "Blessed is He who placed constellations in the sky and placed therein a lamp and an illuminating moon" (Al-Furqan: Verse 61), [12].

And God Almighty said: "And the sun runs to a resting place for it. That is the decree of the Mighty, the All-Knowing" (Yasin: Verse 38), [13].

And God Almighty said: "And We built above you seven strong towers * and made a blazing lamp" (Al-Naba: Verses 12 and 13), [14].

2.2.7 The Moon

Among the miracles of the Qur'an in astronomical sciences is its treatment of the facts discovered in the modern era about the moon: that it is a cold, light-reflecting body, unlike the shining state of the sun, and its size, which is smaller than the sun, despite its apparent size to the viewer, and its apparent shape to us, which changes from a crescent to a full moon according to its relative positions of the sun and the moon.

God Almighty said: "It is He who made the sun a shining light and the moon a light and ordained it as stations so that you may know the number of years and the reckoning. God did not create that except with the truth. He details the verses What do they know". (Yunus: Verse 5), [15].

And God Almighty said: "And We have ordained the moon in its places until it becomes like the ancient crescent moon" (Yasin: Verse 39), [16].

And God Almighty said: "And He made the moon therein a light and made the sun a lamp" (Noah: Verse 16), [17].

2.2.8 Night and Day

Sleep is one of the signs of God Almighty in His creation. God is grateful for making the night a resting place and a natural time for sleep, and He confirms this in many verses. Modern medicine has shown that the nervous system is divided into two parts: Parasympathetic: which works at night and brings calm and tranquility, and calms blood pressure and heart palpitations. It works to store energy, while the sympathetic is active during the day and is responsible for activity, movement, and energy consumption. Blood pressure rises with it, and tension and palpitations increase. Therefore, God's guidance has always been the common sense, that He does not know who He created.

God Almighty said: "It is He who has made for you the night in which you may rest, and the day a giving sight. Indeed, in that are signs for a people who listen" (Yunus: Verse 67), [18].

2.2.9 Meteors

God Almighty said: "And when we touched the sky, we found it filled with a strong guard and shooting stars. And we used to sit in it as seats to listen, so whoever listens will come now. Provide for him a shooting star as a watchful eye." (Al-Jinn: Verses 8 and 9), [19].

With miraculous scientific precision, the Qur'an reveals the reality of meteors, which is something that humans have only recently realized, and that they result from the rapid movement of material bodies through the space surrounding the Earth, "Except him who steals away, then a piercing meteor follows

him” (Al-Saffat: Verse 10), [20]. He also pointed out the amazing astronomical fact: space is filled with meteors, so much so that it is estimated that thousands of millions of meteors enter the Earth’s atmosphere every day at a speed that may reach 72 kilometers per second (for a meteor weighing 1 milligram), and they can only be seen with a telescope, and they quickly turn into vapor by contact with the air, including what is visible with the naked eye.

2.2.10 Lack of Oxygen in the Upper Atmosphere

Modern science has discovered that oxygen decreases in the atmosphere as we ascend; Then the person feels tightness in the chest and difficulty breathing. God Almighty said: “Whoever God wants to guide, He opens his breast to Islam, and whoever He wants to lead astray, He makes his breast constricted and constricted, as if it were ascending into heaven.” (Al-An’am: Verse 125), [21].

2.2.11 Division of the Atom

Scientists believed that the smallest part of the elements was the atom until the nineteenth century, then they discovered that the atom contains smaller component parts: 1 - the proton 2 - the neutron 3 - the electron, and using these parts they invented the atomic and hydrogen bomb.

God Almighty said: “And not the weight of an atom escapes from your Lord in the earth or in the heaven, nor is it smaller than that nor greater except in a clear Book” (Yunus: Verse 61), [22].

2.2.12 The Phenomenon of Equilibrium

Science has revealed that the precise phenomenon of balance governs the behavior of various natural, chemical, and biological systems. Likewise, the animal kingdoms, whether terrestrial, marine, birds, or insects, have their survival and extinction governed by precise balances linking them to weather, geological, and plant phenomena. This balance also exists in the structure of the human body, such that an imbalance in any of its components can lead to ill health. This balance is summed up with complete precision by God’s clear verses, God Almighty said:

(1) “Allah knows what every female bears, and what the wombs close in, and what they increase, and everything is with Him in a measure” (Al-Ra’ad: Verse 8), [23].

(2) “And there is not a thing but with Us are its treasures, and We do not send it down except in a known measure” (Al-Hijr: Verse 21), [24].

(3) “And We sent down water from the sky in measure and settled it in the earth, and indeed, we are able to remove it” (Al-Mu’minun: Verse 18), [25].

2.2.13 Couple Exists in Everything

Scientists used to believe that mating (male and female) only existed in human and animal species, so modern science came and proved that mating exists in plants, as well as inanimate objects, and in every atom of the universe, even electricity, which has positive and negative, and even the atom has a proton and a neutron. God Almighty said: “And of everything We have created pairs that you may remember” (Al-Dharyat: 49), [26].

2.2.14 Life Cycle

Every living organism, whether animal or plant, has a life cycle in which it interacts with soil, water, air, and other organisms. Consider the eloquent indications of the emergence of the living from the dead, and of creation and rebirth. Modern science has also proven that the cycle of life in man is also linked to the cycle of the elements surrounding him, from the earth, from whose elements man is formed, and on whose products, he feeds and interacts with it, giving and taking, in the processes of breathing, nourishment, and excretion. It renews cells throughout its life, and then decomposes it after its death.

God Almighty said: “You cause the night to enter into the day, and You cause the day to enter into the night, and You bring forth the living from the dead, and You bring forth the dead from the living, and You provide whomsoever You will without Reckoning” (Al Imran: Verse 27), [27].

God Almighty said: “He brings forth the living from the dead, and brings out the dead from the living, and revives the earth after its death. And thus, will you be brought forth.” (Al-Rum: Verse 19), [28].

2.2.15 The Bottom of the Seas and Oceans

Modern research using precise telescopes has proven that the depths of the seas and oceans are not static, but rather ripple with waves and currents that are darker and denser than those on its surface, and God Almighty is truthful when He says: “Or like the darkness in a deep sea covered by a wave from above, a wave above which is a cloud of darkness, one upon another. When he took out his hand, he had hardly He sees it, and whoever does not make light for him, then he has no light” (An-Nur: Verse 40),[29].

2.2.16 Salt Water Does Not Mix with Fresh Water

God Almighty said: “And it is He who made the two seas pass, this one fresh and soft, and this one salty and brazen, and made between them a barrier and a blocked stone” (Al-Furqan: Verse 53), [30].

Modern science has proven that it is impossible for sea water to mix with river water, otherwise it would be salty and brackish, thanks to the property of membrane diffusion (osmosis), which forces fresh water molecules to spread within the salt water, and not vice versa, across the surface separating them (the barrier or isthmus). In this regard, it is also worth noting the miracle of sea and ocean water remaining unfrozen. The frozen ice floats on top of it to keep the rest of the water from freezing, and to preserve the life of fish and marine life, and to continue navigation in it. This is due to a property that God gave water to the exclusion of all other materials. Its density decreases (does not increase like other things) by freezing (the density of ice is less than the density of liquid water).

2.2.17 Pollination by Wind

Modern science has proven that the air is what transfers the male organs to the female organs in palms, figs, and other fruit trees, through the wind. God Almighty said: “And We send the fertilizing winds, and We send down water from the sky and give you to drink thereof, but you are not its keepers” (Al-Hijr: Verse 22), [31].

2.2.18 The Clouds

Modern science has revealed that some of the clouds are electrified, and some are negative, and when the wind pushes them and brings them together, a spark is generated that leads to lightning, thunder, and rain, which is consistent with the wording of the Holy Qur'an.

God Almighty said: “Have you not seen that God causes the clouds, then unites them, then makes them into heaps, and you see rain coming out through them and descending from the sky from the mountains in it. Of hail, with which He afflicts whomsoever He wills, and turns it away from whomsoever He wills. It is almost like a sharp tooth; its lightning takes away sight.” (An-Nour: Verse 43), [32].

2.2.19 Solar and Lunar Calendar

The difference between the lunar and solar calendar is 10-11 days per year. Hence, three hundred solar years are exactly equivalent to three hundred and nine lunar years. Hence, the accuracy of the miraculous Qur'anic expression is evident in the story of the People of the Cave. God Almighty said: “And they remained in their cave for three hundred years, and they increased for nine” (Al-Kahf: Verse 25), [33].

2.2.20 Agricultural Soil

One of the precise geological facts is that if the still clay soil gets wet with water, it expands upward and cracks, causing the roots and hairs of the plant to shake beneath it. See the miraculous accuracy of this being consistent with the description of the Almighty's saying: "And you see the earth lifeless, but when We send down water upon it, it shakes and grew from each pair Joyful" (Al-Hajj: Verse 5), [34].

2.2.21 Sperm

Modern medicine has discovered that this fluid from human semen contains small animals called sperm, which are not visible with the naked eye, but are visible with a microscope, and each animal has a head, neck, and tail that resembles a leech in its shape and design, and that this animal mixes with the female egg and fertilizes it. If the fertilization is completed, the cervix closes and nothing enters the uterus after it. As for the rest of the animals, they die. The scientific aspect here is that the sperm resembles a leech in shape and design, and this has been proven by the Holy Qur'an.

God Almighty said: "Read in the name of your Lord who created. * He created man from a leech of leeches" (Al-Alaq: Verses 1 and 2), [35].

This verse is an eloquent miracle from the miracles of the Qur'an. It did not appear at the time of its revelation or hundreds of years after it, until the microscope was discovered and it was known how man is formed by God's power.

2.2.22 Stages of Fetal Development

God Almighty said: "O people, if you are in doubt about the Resurrection, then indeed We created you from dust, then from a drop of blood, then from a clot, then from a formed embryo, and otherwise We were created that We may make clear to you, and We establish in the wombs what We will for an appointed time; then We will bring you forth as infants, then that you may attain your maturity" (Al-Hajj: Verse 5), [36].

One of the most impressive verses of God in His Noble Book is the precise anatomical description of the stages of the formation of the fetus, from the time it was a sperm, developing into a leech, then a created and uncreated embryo, then the emergence of bones and covering them with flesh until the beginnings of movement and life before emerging into the world.

2.2.23 Duration of Pregnancy

God Almighty said: "Mothers shall breastfeed their children for two full years, for whoever wishes to complete the breastfeeding" (Al-Baqarah: Verse 233), [37].

And His Almighty said: "And its weaning period is in two years" (Luqman: Verse 14), [38].

Then came the verse of Surah Al-Ahqaf, which combines pregnancy and breastfeeding with thirty months. God Almighty said: "His mother bore him with difficulty, and gave birth to him with difficulty, and his gestation and weaning were thirty months" (Al-Ahqaf: Verse 15), [39].

If we delete the full period of breastfeeding, which is two years, that is: 24 months out of thirty months, which is the period of pregnancy and breastfeeding together, then six months remain for pregnancy, which is the minimum period of pregnancy. The fetus can remain alive if it is born in full.

Science comes to decide that the minimum period of pregnancy after which the fetus can remain alive if it is born in its full term is six months. As the birth before it is called (miscarriage), and the fetus at this stage is not viable, and as for the birth after it, and before the completion of pregnancy for nine months, it is called (prematurity), or premature birth, and prematurity is viable, but medicine recommends special care for it. This period is legally considered in the courts of most countries around the world.

2.2.24 Fetal Membranes

It has been scientifically proven that the fetus in its mother's womb is surrounded by three membranes, and these membranes appear to the naked eye as if they were one membrane.

God Almighty said: "He creates you in the wombs of your mothers, a creation after a creation, in three darknesses. That is Allah, your Lord; to Him belongs the dominion" (Al-Zumar: Verse 6), [40].

2.2.25 Gender of Newborn

Modern genetics has proven that the sex of the newborn is determined primarily from the sperm, not from the egg, and this is consistent with the context of the verses in a way that confirms their miracle.

God Almighty said: "Was he not a drop of semen from the man. Then He was a clot and He formed Him, and He made of them a male and the female pair (Al-Qiyamah: Verses 37-39), [41].

On the other hand, the connection of the gender of the newborn to a specific animal from among the millions of animals (350 million in one ejaculate) indicates the impossibility of human prediction, let alone control of the gender of the sperm carried by a female, which confirms the inability of science, and the miracle of the power of God Almighty, who has designated Himself with knowledge of what the wombs grow in more than one verse.

2.2.26 Genetic Traits

Modern science has proven that genetic characteristics are determined by both the father's chromosomes and the mother's chromosomes, 50% for each, and this takes place in the first sperm that combines the sperm and the egg (the gamete sperm); That is: the mixture; The genes of the new creature are formed in accordance with the noble verse. We have previously referred to the miracle of the Qur'an in indicating that the gender of the newborn, not all of its characteristics, is uniquely determined by semen alone.

God Almighty said: "Indeed, we created man from a semen of sperm, and We tested him and made him All-Hearing and All-Seeing." (Al-Insan: Verse 2), [42].

2.2.27 Every Human being has a Special Smell

Modern forensic medicine has shown that every human being has a distinct smell from all other human beings, just like fingerprints, and hence police dogs are used to track down criminals, and this is completely consistent with what is stated in Surah Yusuf that God Almighty has singled out His Prophet Jacob for this miracle.

God Almighty says: "And when the caravan was separated, their father said, 'Indeed, I smelled the smell of Joseph, had you not dispersed.'" (Yusuf or Joseph: Verse 94), [43].

2.2.28 Every Human Being has his or her own Fingerprints

Modern science has proven that one person's fingerprints are not similar to those of another person. Therefore, scientists have used these fingerprints to detect the perpetrators.

God Almighty said: "Yes, we are able to create a human fingerprint" (Al-Qiyamah: Verse 4), [44].

2.2.29 Eye

Ophthalmology has discovered the relationship between emotion and increased eye pressure and cataracts, which is completely consistent with the Holy Qur'an in its description of Jacob, peace be upon him. God Almighty said: "And he turned away from them and said: O sorrow for Joseph, and his eyes became white with grief, for he was distressed" (Yusuf or Joseph: Verse 84), [45].

2.2.30 Harmful Effects of Long Sleep

Modern medicine has proven that long sleep leads to bed sores, clogged blood vessels, and pressure on the nerves in the feet. Hence, the miracle of the Qur'an appeared in turning the people of the cave during their long sleep. God Almighty said: "And you would think that they were awake while they were asleep, and We would turn them over to the right and to the left, and their dog's arms would be spread out on the ground, if you were to look at them "You would have turned away from them in flight, and would have been filled with terror from them" (Al-Kahf: Verse 18), [46].

2.2.31 Al-Rutab (Dates)

In modern obstetrics, a pregnant woman is given a female hormone in the late days of pregnancy to strengthen uterine contractions during birth, then to help it expel blood residue from the uterus. She is also given a laxative to expel intestinal waste. Modern science has proven that dates perform these two functions in addition to their high nutritional value. God Almighty said: "And shake the trunk of the palm tree towards you, and it will let down upon you fresh dates" (Maryam: Verse 25), [47].

2.2.32 Olive

Science has shown that olive oil has advantages that make it the best fat for human food. Due to its nutritional value and lack of cholesterol, in addition to its benefits for the skin and hair, God Almighty has mentioned it in many verses of the Qur'an, even though it is not a common tree in the Arabian Peninsula.

God Almighty said: "Thereby He produces for you crops and olives and palm trees and grapes and of all kinds of fruits. Indeed, in that is a sign for a people who reflect" (An-Nahl: Verse 11), [48].

2.2.33 Honey Bee

God Almighty said: "And your Lord revealed to the bees, 'Take houses in the mountains and in the trees and in what they erect.' Then eat of all the fruits, and so follow the paths of your Lord." From their bellies emerges a drink of various colors, in which is healing for the people. Indeed, in that is a sign for a people who reflect. (An-Nahl: Verses 68 and 69), [49].

Today, science has come to reveal the healing properties of honey, and doctors have come up with the conclusion that honey has a cure for many diseases: eye pain, wounds, burns, and stomach ulcers, and it plays a role in preventing tooth decay, respiratory infections, and other diseases.

Doctors agree that honey is the best treatment for those suffering from stomach and duodenal ulcers, provided that it is taken an hour or more before meals, and the best time is before breakfast, dissolved in a cup of warm water, and other properties, which have been tested in various eras.

It should be known that the healing property of honey varies according to its color. Therefore, the Qur'anic expression came: "From their bellies emerges a drink of various colors" (An-Nahl: Verse 69), [50]. There is a relationship between color difference and the ability to heal.

2.2.34 Milk

God Almighty said: "And indeed in livestock there is a lesson for you. We give you to drink of what is in their bellies, from between dung and blood, pure milk, palatable to the drinkers" (An-Nahl: Verse 66), [51].

Consider the miracle of accuracy in the physiological and anatomical description of the source of milk in cattle, which was confirmed by science after many centuries of wise revelation. The products of digestion in livestock are distributed between: blood to the veins, milk to the udders, urine to the bladder, and dung to the excretory.

2.2.35 The Impossibility of Treating Albinism

Dermatology has proven that it is impossible to cure albinism; Because it is linked to the death of millions of cells, which are impossible to revive again, and all doctors do is activate the remaining cells to alleviate the matter, not to cure it. Hence, the mention of the healing of leprosy in the gallery of miracles performed by God Almighty at the hands of His Prophet Jesus, peace be upon him, is clear evidence of the truth of The Qur'an.

God Almighty said: "When God said, 'O Jesus, son of Mary, remember My blessings upon you and upon your mother when I supported you with the Holy Spirit, speaking to people in your cradle and at old age When I taught you the Book and the Wisdom and the Torah and the Gospel, when you were created from clay like the shape of a bird by My permission, then you will blow upon it, and it will become a bird by My permission, and you will heal the blind and the lepers by My permission, and when you will bring out the dead by My permission, and when I restrained the Children of Israel, peace be upon them When you came to them with clear proofs, those who disbelieved among them said, This is nothing but clear magic.'" (Al-Ma'idah: Verse 110), [52].

2.2.36 Pigs Meat are the Cause of Many Diseases

God Almighty said: "He has only forbidden to you dead animals, and blood, and the flesh of swine, and what has been dedicated to other than God. But whoever is compelled, neither wronging nor transgressing, then indeed God is Forgiving and Merciful." (An-Nahl: Verse 115), [53].

Modern medicine has proven that pork meat is a fertile breeding ground for more than four hundred and fifty epidemic diseases, and the pig serves as an intermediary in transmitting fifty-seven diseases to humans.

3. Contemplating God's Creation

Contemplating God's creation means exercising the mind by contemplating all the cosmic creatures God has created, such as the sky, mountains, seas, and earth, and contemplating how human and animal creatures were created and how they continue to live. Through contemplation it becomes clear that God did not create this universe in vain. Rather, He created it so that life would go according to a certain approach and to test people in performing the acts of worship required of them. They look at what God has created with their minds and not with their eyes.

3.1 Verses about Contemplating God's Creation

Contemplating God's creation shows the greatness of God the Creator, and makes one acknowledge the oneness of God and humble himself to His greatness, Glory be to Him. Because contemplation involves knowing the ability of God Almighty to be well organized, precise, and to realize the aspect of perfection in everything He, Glory be to Him, created. The following is a group of verses that encourage contemplation of God's creation:

3.1.1 Verses contemplating the creation of the universe:

(1) The Almighty said: (Indeed, in the creation of the heavens and the earth, and the alternation of the night and the day, and the [great] ships which sail through the sea with that which benefits people, and what Allah has sent down from the heavens of rain, giving life thereby to the earth after its lifelessness and dispersing therein every [kind of] moving creature, and [His] directing of the winds and the clouds controlled between the heaven and earth are signs for a people who use reason), (Al-Baqarah: Verse 164), [54].

(2) God Almighty said: (Do they not contemplate within themselves? Allah has not created the heavens and the earth and what is between them except in truth and for a specified term. And indeed, many of the people, in (the matter of) the meeting with their Lord, are disbelievers), (Al-Rum: Verse 8), [55].

(3) God Almighty said: (Have they not considered the kingdom of the heavens and the earth and what God has created of anything. And if it may be that their time has drawn near, then in what hadith after it will they believe), (Al-A'raf: Verse 185), [56].

(4) In Surah Al-Ghashiyah, Allah says, "Do they not see how the camels were formed, how the sky was lifted, how the mountains were raised high, how the earth was spread out?" (Al-Ghashiyah: Verse 17-20), [57].

He tells us to reflect on the world around us and by doing so, we are able to appreciate the greatness of Allah, His beauty and majesty. This reaffirms our faith in Him.

3.1.2 Verses Contemplating the Creation of Man and his Death

(1) The Almighty's saying: (Allah takes the souls at the time of their death, and those that do not die [He takes] during their sleep. Then He keeps those for which He has decreed death and releases the others for a specified term. Indeed, in that are signs for a people who give thought), (Al-Zumar: Verse 42), [58].

This verse could be explained as follows: Allah is the one who takes away the souls when their term ends. He also takes the souls whose term has not ended when they sleep. He then withholds those for whom He has decreed death and releases those for whom He has not decreed death until a time that is fixed in His knowledge, (may He be glorified).

In this taking away, release, giving of death and life there are indications for a people who reflect on the fact that the one who does this is able to resurrect people after their death for reckoning and recompense.

(2) And the Almighty says: (Have they not traveled through the earth and seen what was the end of those before them who were mightier in strength than them and who cultivated the earth of what they inhabited and populated it extensively, and their messengers came to them with clear proofs. It was not Allah who wronged them, but it was they who wronged themselves), (Al-Rum: Verse 9), [59].

This verse could be explained as follows: Do these people not travel the earth so that they can ponder over what the outcome of the nations who rejected Allah before them was? Those nations were much stronger than them; they adapted the land for farming and construction, and populated it much more than these people have.

Their Messengers brought clear proofs and evidences for the oneness of Allah but they were rejected. So, when Allah punished them, He was not oppressive, rather they themselves were oppressive by leading themselves to destruction by disbelief.

3.1.3 Verses about Contemplating the Creation of Plants

(1) God Almighty said: (And it is He who sends down rain from the sky, and We produce thereby the growth of all things. We produce from greenery from which We produce grains arranged in layers. And from the palm trees - of its emerging fruit are clusters hanging low. And [We produce] gardens of grapevines and olives and pomegranates, similar yet varied. Look at [each of] its fruit when it yields and [at] its ripening. Indeed, in that are signs for a people who believe), (Al-An'am: Verse 99), [60].

This verse could be explained as follows: He, may He be glorified, is the One Who sent down rain water from the sky and then with it He caused all types of vegetation to grow.

From the vegetation He brought out crops and green trees, from which He produces grain that is packed one of top of the other, as it is found in spikes.

From the spathe of the date-palm come clusters that are close to any person standing or sitting.

He also brought out grape orchards; and produces olives and pomegranates, the leaves of which are similar but the fruit are different.

Look, O people, at the fruit when it first appears and when it ripens.

O people, in that there are clear proofs of Allah's power for a people who believe in Allah. Such people are the ones who will benefit from these proofs.

(2) God Almighty said: (Would any of you like to have a garden of palm trees and vines, beneath which rivers flow. He would have in it all kinds of fruits, but greatness would afflict him and he has weak descendants, then it was struck by a hurricane containing fire, and it was burned. Thus does God make clear to you the signs that you may reflect), (Al-Baqarah: Verse 266), [61].

This verse could be explained as follows: Do any of you wish to have a garden with date-palms and grapevines through which sweet waters flow and which has all kinds of wholesome fruit? When the owner of the garden becomes old and is no longer able to work and earn, and he has weak young children who also cannot work, a strong fiery wind strikes this garden and it burns down completely at a time when he is most in need of it because of his old age and for his weak young children.

The condition of a person who spends his wealth to show people is like that of this man: when he comes before Allah on the Day of Resurrection, he will have no good actions at a time when he will be most in need of them.

In this manner, Allah explains to you what will be of benefit to you in this world and the next, so that you may reflect.

(3) God Almighty said: (He causes to grow for you thereby crops, olives, palm trees, grapes, and all kinds of fruits. Indeed, in that is a sign for a people who reflect), (Al-Nahl: Verse 11), [62].

This verse could be explained as follows: With that water, Allah grows for you the crops that you eat. He also grows for you olives, date-palms and grapes as well as other types of fruit.

In that water and the things that it gives rise to there is a sign of Allah's power for people who ponder over His creation and use it as evidence of Allah's greatness.

Also, God Almighty said: (The example of the life of this world is only as water which We send down from the sky, and with it is mixed the plants of the earth, which people and livestock eat, until when the earth takes on its adornment and is beautified, and its people do like it. Indeed, they have power over it. Our command came to it, day or night, and We made it a harvest as if it had not produced the day before. Thus, do We detail the signs for a people who reflect), (Yunus: Verse 24), [63].

This verse could be explained as follows: The likeness, the description, of the life of this world is only as water, rain, which We send down from the heaven, then the plants of the earth mingle with it, [they mingle] because of it, attaching themselves one to another, whereof mankind eat, [plants] such as wheat and barley and so on, and cattle [eat], of pasture, until, when the earth has taken on its ornaments, its splendor of plants, and has adorned itself, with flowers (izzayyanat, 'adorned itself', is originally tazayyanat, but the t' has been substituted with the zy and assimilated with it) and its inhabitants think that they are masters of it, fully capable of harvesting its fruits, Our command, Our decree or Our chastisement, comes upon it by night or day, and We make it, that is, its crops, as reaped corn, like that which has been reaped with sickles, as though (ka-an is softened, in other words [read it as] ka-annah) the previous day it had not flourished, [as though] it never were. Thus, do We detail, [do] We make clear, the signs for a people who reflect.

3.2 The Positives of Contemplating God's Creation

Contemplating all of God's creation reveals secrets that were unknown, and certainty that may have been absent. Among the beauties of sitting and contemplating the wonderful creation of God is the following:

(1) Certainty in God's knowledge and increasing the strength of a Muslim's faith.

- (2) Contemplation is an act of worship in itself, and it is one of the best and greatest acts of worship.
- (3) Contemplating the greatness of God's favor upon His creation, their lack of it, their inability, and their lack of help.
- (4) Contemplating God's creation opens horizons of knowledge and learning, so a person acquires new knowledge and useful sciences that will benefit him in his life.

4. Engineering in the Qur'an

God Almighty wants the human believer to be a teacher for others, and to achieve this, the Almighty God gave the believers the greatest book, which if they contemplate it and contemplate it properly, will shorten them long distances on complex issues and matters. God Almighty says: "And fear God, and God will teach you, and God is All-Knowing" (Al-Baqarah: Verse 282). The Lord confirms the fact that the Holy Qur'an contains all knowledge, including engineering and sciences, as He, Glory be to Him, says: "A messenger from God reciting purified pages * in which are valuable books" (Al-Bayyinah: Verse 3), [64].

It is noted that the science of mechanics is closely linked to the metal of iron, although it can be true using materials other than iron, such as metals in general, but iron is what distinguishes the science of mechanics by its strength and hardness. God Almighty says in Surah Al-Hadid, verse 25, "And We sent down iron, in it there is mighty strength and benefits for mankind." Iron was sent down from the sky, and this is a fact that has been proven by science and has become known in our day.

God Almighty says in Surat Saba, verses 10 and 11 [65]: "And We gave David a bounty from Us, the mountains respond to him, and the birds, and We made for him iron, that he might do righteous deeds. Be mindful of the narrative and do righteousness. Indeed, I see what you do".

In these verses, God Almighty directs His Prophet David, peace be upon him, to He took up the blacksmith's craft after he made iron for him so that he could support himself with it. Iron, by its solid nature, is difficult to manufacture. Therefore, God Almighty granted it to His Prophet David so that he could manufacture sabighat. In our current era, mechanisms have become available that enable the manufacture of iron, such as turning, milling, and others. The word (sabighat) was interpreted in all interpretations to mean shields, which were made by David, peace be upon him, and "predestined" in the narrative means the nails that he used that needed to be adjusted, and that their dimensions and sizes were appropriate for the task that they would perform in the manufacture of shields. This is what we call in our current era the study of mechanical systems.

Through the verses, we conclude that the Qur'an referred to the three components of mechanical engineering, or the science of tricks, as the Arab Muslim scholars called it, which are: study (appreciation in narration), making mechanisms (making sabighat), and ease of manufacturing (elasticating iron).

The other type of engineering is concerned with plane shapes, that is, those that depend on two dimensions, length and width, as in shapes formed from the intersection of straight lines, such as a rectangle, triangle, and others, or a diagonal dimension, as in circles and curves, which is known as plane geometry.

God Almighty said, "Until when He makes the two shells equal," (Al-Kahf: Verse 96), [66]. so equal means equalness and equality, and it is an intransitive verb from His saying, "I made it equal, so it was made equal." We say a thing is made equal with such-and-such, and such-and-such, and it is said, "I made this one equal to that when I raised it until it reached its value and extent". During construction, it is required to make a gradation in the weld area between two materials of different thicknesses, with the need for the welding joint not to be of the overlapping type, as the welded joint in the case of

overlapping becomes in a state of shear and the weld is weak in resistance to this type of loading, so the word “until” means from the engineering aspect, it is necessary to do this grading so that the welded joint becomes strong and strong and provides immunity against the occurrence of cracks between the plates.

God Almighty says: “Is he who founded his building on fear of God and His approval better, or he who founded his building on the brink of a rushing cliff and it collapses with him in the fire of Hell and God does not guide the wrongdoing people.” [Al-Tawbah: Verse 109], [67]. The verse contains engineering references to the foundations of buildings and the nature of the building, which governs the degree of steadfastness and durability of the structure, or leads to its collapse. It included several references affecting an aspect of soil mechanics and foundations. The verse showed an aspect of the engineering miracle in the Holy Qur’an that can be deduced from the engineering concepts and references that were mentioned in the text of the verse.

Also, God Almighty says: "Give me pieces (blocks) of iron," then, when he had filled up the gap between the two mountain-cliffs, he said: "Blow," till when he had made it (red as) fire, he said: "Bring me molten copper to pour over it." (Al-Kahf: Verse 96), [66].

In this verse, they brought pieces of iron to him, so he began building with them between the two mountains, until when he had made them level with his building, he said to the workers: “Light these pieces”, until when the iron pieces turned red, he said: “Bring copper to pour on top of it”.

The Noble Qur’an is the word of God, which He sent down as a mercy to the worlds, and with it heals the hearts of a believing people. It contains a complete curriculum that continues to provide us with various types of science, and reveals to us treasures of knowledge, and revives our minds by stimulating thought, and above all this is a light that guides us to the right path. Oh God, guide us with it and make us among those who read it, understand it, memorize it, and act upon it.

5. Conclusions

Exploring the relationship between scientific and engineering observations and the Quran reveals several important aspects. The Quran promotes the pursuit of knowledge, suggesting that faith and reason can coexist and mutually benefit one another. Observing nature can deepen faith and appreciation for divine creation, as the Quran encourages reflection on God's signs in the universe, which can inspire innovation in science and technology.

Scientific inquiry helps in understanding natural laws as expressions of God's will, leading to advancements in various fields like medicine and environmental sustainability. The Quran emphasizes humanity's ethical responsibility as caretakers of the Earth, guiding sustainable practices and ethical decision-making through insights gained from scientific observations.

Curiosity and inquiry are foundational to both science and the teachings of the Quran, which promote exploration and discovery. The pursuit of knowledge in Islam is holistic, integrating various disciplines to provide a unified perspective on existence. The Quran mentions numerous natural phenomena, inspiring scientific advancements that align with observed principles .

In summary, the Quran's perspective on science emphasizes the integration of faith and knowledge, ethical stewardship, curiosity, and innovation, viewing scientific pursuits as essential to fulfilling spiritual and ethical responsibilities. Furthermore, the Quran contains insights that align with modern scientific discoveries, underscoring its divine origins. Knowledge in Islam serves to reveal higher truths rather than being an end in itself. Historically, Islamic scholars made significant contributions to fields like algebra, chemistry, and medicine, influencing the scientific revolution and shaping modern knowledge.

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