

Guru Nanak: A Harbinger of Modern Scientific Thought

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Our universe has over 200 billion galaxies, each containing roughly 100 billion stars. It is still being determined how many planets are orbiting these stars. But, at least one of them has undoubtedly evolved life, with the capacity to speculate about the origin of this vast universe. Humans have been looking up into the sky for eons to have a coherent and rational understanding of the Creation. In his compositions [1] of Jap (u), Sidh Gosht, Aasa di Var, Thitee and Maru Sohile, Guru Nanak has enunciated an excellent understanding of the mystery of Creation. It is fascinating that some of the ideas expressed in these hymns were unknown to modern science until the eighteenth century.

Before Creation

Guru Nanak's hymns report many interesting facts about the state before the start of Creation [2]. In his Maru Sohilee composition, he articulates: "*For endless eons, there was only utter darkness. There was no earth or sky; there was only the infinite Command of the Creator. There was no day or night, no moon or sun; The Creator sat in primal, profound Samaadhi.There were no sources of Creation or powers of speech, air, or water. There was no creation or destruction, no birth or death. There were no continents, no nether regions, no seven seas, no rivers or flowing water. (SGGS, p. 1035)..... "The dazzling light glitters, although neither the moon nor the stars are shining; neither the sun's rays nor the lightning flashes across the sky. I describe the indescribable state, which has no sign, where*



the all-pervading Lord is still pleasing to the mind. (SGGS, p. 1033)." Interestingly the prevalent scientific ideas about the state before the start of Creation are in good accord with these views.

By analyzing the light emanating from pulsars, nebulae, distant galaxies, and newly found stars, astronomers have determined that our universe was born about 13.8 billion years ago. What was the situation like before the Creation of the universe? What was the first cause of Creation? How did the singularity (cosmic egg) originate? What contained it, i.e. whether space and time existed before the creation process? Why was it created? Scientists have yet to pinpoint the answers to these questions. Many theories are in vogue about the origination of the universe. Still, none can describe the state before the Creation of the universe precisely. However, Scientists agree that there was nothing like the sun, earth, moon, and galaxies, day or night, before the universe's birth.

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Origination

Describing the origination of the Creation [3-4], Guru Nanak articulated that it is impossible to know precisely when the Creation began. He proclaimed, *"When the Lord (Creator) so willed, the world was created. Without any visible support, he sustained the universe. (SGGS, p. 1036)."*..... *"Only the Creator knows when and how the universe was created. (SGGS, p. 4)."*

The currently prevalent view among scientists confirms this assertion, as is evident in the following. In 1930, Georges Lemaitre, a Belgium astronomer, expounded the 'Big Bang Theory,' which describes how the universe started. He proposed that approximately 13.8 billion years ago, the whole matter of the universe was contained in a primal atom called the 'cosmic egg.' It blew up, and its numerous fragments gave birth to stars, planets, galaxies, etc. One such galaxy contains our solar family.

All these galaxies are moving away from each other at incredible speed. Another theory, namely the Steady State Theory, was put forward in 1948 by three British cosmologists, Harmann Bondi, Thomas Gold and Fred Hoyle. They proposed that the universe was eternal and it has always existed. They stated that matter is continually being created at the rate of 62 hydrogen atoms per cubic inch of space every one billion years. It is enough to create new galaxies to fill in the gaps caused by the universe's expansion.



In 1965, Allan Sandage, an American astronomer, adapting the 'Big Bang Theory,' developed it into the 'Pulsating Universe Theory.' He proposed that the universe is created, destroyed and re-created in 86 billion-year cycles. He stated that, at present, the universe is only 13.8 billion years along the expansion stage. It will continue to expand for another 29 billion years; after that, the galaxies will overcome the 'Big Bang' force and start contracting. In the end, moving at millions of miles per hour, they will converge and fuse to form a primal atom, which will then explode once again to begin the new cycle. In other words, our universe is not without an end. Instead, it has numerous endings ... and countless beginnings. Evidently, scientists have diverse views about the universe's birth

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and ultimate fate. They are at a loss to say something definite about it with firmness.

Creation Process

In his composition 'Thitee,' Guru Nanak elaborates on the creation process [2-4]: *"The Creator created the universe, joining the elements together. Then, breaking the cosmic egg, he created the forces of attraction (union) and repulsion (separation). Next, IT made the earth and the sky the places to live. Finally, IT created day and night, fear and love. The One, who created the Creation, also watches over it. There is no other Creator Lord. (SGGS, p 839)."*

Describing the breaking of the cosmic egg (singularity), Guru Nanak proclaimed that the Creator created the material phenomena of the universe. In 'Jap(u)' bani, Guru Nanak describes the process of Creation of the universe as; *"You created the vast expanse of the Universe with One Word! Then, hundreds of thousands of rivers (the process of generation) began to flow (emerged). (SGGS, p 3)."* Guru Nanak's description of the starting process of Creation has been endorsed by the descriptions provided by the "Big Bang" and "Pulsating Universe" theories. Interestingly, Guru Nanak expressed these views about 425 years before the inception of the Big Bang Theory.

Time of Creation

Guru Nanak, in his composition 'Jap (u),' has raised a pertinent question about the time of Creation. *"What was the time, and what was the moment? What was the day, and what was the date? What was the season, and what was the month when the universe took its shape? Had Pandits (Hindu scholars) known the time, it would have been written in Puraanas. Had Qazis known the time, it would have been written in Quran. But, no Yogi knows the time, the weekday, the month or the*

season of the Creation. The Creator who created this Creation only IT knows about it. (SGGS, p. 4)." In this verse of Jap(u), Guru Nanak states that it is impossible to know the exact time or day of the origination of Creation by any means.

Interestingly, there have been many different views in vogue about the time of the Creation of the universe. Until the 18th century, scientists believed that the our planet was only a few thousand years old. However, based on the analysis of the fossils and the geological data, Kelvin, a renowned scientist, suggested by the latter half of the 19th century that the earth is approximately 20 million years old. During the 20th century, using the 'Radioactive Dating Technique,' it became known that our planet was formed about a few billion years ago. Our solar family is found to be 4.6 billion years old. Our Milky-Way galaxy is approximately 10-12 billion years old.

Georges Lemaitre, the renowned astronomer and founder of the Big Bang Theory, suggested that the super dense 'cosmic egg' explosion occurred about 13.8 billion years ago, leading to the universe's Creation. But he couldn't provide any precise date of Creation. Hermann Bondi, Thomas Gold and Fred Hoyle, the British cosmologists who put forward the 'Steady State Theory,' suggest that the universe was eternal and has always existed. Allan Sandage, the founder of the 'Pulsating Universe Theory,' believed that an incredible explosion occurred about 13.8 billion years ago, resulting in the universe's birth. But he could not tell us any definite date of this event. Even with the help of very advanced scientific techniques available in the twenty-first century, astronomers can still not pinpoint the exact time or date of the universe's origination. Thus, modern scientific views about the origin of the Creation conform with

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Guru Nanak's proclamation, propounded about 425 years ago.

Vastness

In Stanza 22 of his Jap(u) composition, guru Nanak proclaims the existence of the limitlessness of the Creation. He opines: *"There are numerous nether worlds and hundreds-thousands of heavenly worlds. The Vedas (Hindus' religious scriptures) say one can keep searching until one gets tired (but one cannot know the count). The Semitic scriptures say that there are eighteen thousand worlds, but there is only One Truth, in fact. If a count is feasible, one can try to write it, but actually, it is innumerable. (SGGS, p. 5)."*

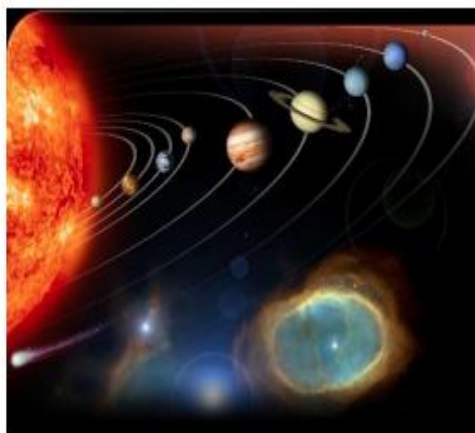
With this, Guru Nanak declares the unaccountability of Creation. He states that only the Creator knows His Creation's extensiveness. He elucidates an immeasurable expanse. He says: *"The limits of the Creation cannot be perceived. The limits of its near (micro) and far (macro) extremes cannot be discerned. Many struggles to know these limits, but these cannot be determined. None can know these limits. The more you say about these, the more there remains to be said. (SGGS, p. 5)."*

Guru Nanak enunciates that the material world is infinite. The more we know about it, the more it remains unexplored. In Jap(u) *bani*, he articulates: *"There are numerous winds, waters and fires; so many Krishnas and Shivas. Numerous Brahmas, fashioning forms of great beauty, adorned and dressed in many colours. Multiple worlds and lands for working out karma. Countless lessons to be learned! Numerous Indras, countless moons and suns, so many galaxies and worlds. (SGGS, p. 7)*

Let us see what the scientists have to say about the vastness of Creation. They report that the Sun, Earth, Moon, stars, satellites,

galaxies, etc., form our universe. The Milky Way is a wreath-like arch of stars stretched across the sky. It is a part of our galaxy, a vast system of clouds of glowing gas and 100 billion stars. Our universe contains over 200 billion galaxies. Our universe is enormous. It has yet to be determined whether its size is limited or infinite.

The visible universe is a few tens of billions of light years across. The distance travelled by light in one year is called a light year. It is equal to 9460 billion kilometres. Quasars, the bright, unusual objects, are the most distant in the universe. They may be as far as 30 billion light years from the earth. Despite the latest scientific technology, such as radio telescopes and X-ray observatories, our



scientists failed to find the edge of the universe. Thus, to date, scientists could not find the limits of the Creation. It confirms Guru Nanak's assertions about the limitlessness of Creation.

In the 35th Santanza of his 'Jap(u)' hymns, Guru Nanak further elaborates on the infinite nature of Creation. Expounding the realm of truth (*Sach Khand*), in *Jap(u) bani*, Guru Nanak proclaims the existence of countless universes as; *"There are planets, solar systems and universes. If one has to*

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describe these, then one can only say that these are unlimited. There are countless worlds in the Creation. As is ordained, so these exist. (SGGS, p. 8)." Thus Guru Nanak asserts that there are innumerable inanimate things and countless living beings, planets, solar systems and universes. Contemporary science has also pointed out the possibility of the existence of multi-universes. Thus Guru Nanak's ideas are the precursor of modern science.

Origin of Life

Talking about the origin of life, Guru Nanak, in his hymns of 'Siri Raag,' proclaims, *"From the True Lord (ultimate reality) came the air, and from the air came water. The three worlds (beings in air, water and space) were created from water. In every heart, his essence is infused. (SGGS, p. 19).*" The central theme of the prevalent scientific ideas about the origin of life is in good agreement with these ideas of Guru Nanak, as is evident from the following.

Since ancient times, philosophers and scientists had tried to know- how, when and where life originated. They have been curious to understand the cause of the diversity of life on earth. By the end of the 17th century, scientists and philosophers believed that life originated spontaneously from non-living materials. Until the 1850s, life was thought to be created by some supernatural power, the Creator or God, out of nothing. According to Christian belief, God created the universe, plants, animals and humans in six natural days. According to Hindu mythology, the Creator simultaneously created various kinds of plants and animals.

According to modern science, approximately 13.8 billion years ago, the 'Big Bang' occurred. About 5 billion years ago, swirling clouds of cosmic dust began to condense to form our solar system. Our earth

was scorching when it came into existence. There was great volcanic activity on land, and the sun gave intense heat. The release of gases from the earth's womb led to the formation of the gaseous envelope (containing water vapours) around it. With time clouds took their shape. Then it rained on the earth for several hundred years. The rainwater flooded the earth and cooled it. In the shallower parts of the world, the water took the form of seas. Life, in the form of unicellular animals (e.g. Amoeba & Protozoa), is thought to have originated in seawater. From seawater, many organisms later invaded fresh waters and land. The present complex animals and plants have been produced by gradual change in the earlier simpler life forms. Darwin's theory of natural selection is today recognized as the main factor in the evolution of animal and plant life.

Diversity of Life

Biodiversity refers to genetic variation, species variation, or ecosystem variation within the natural world. Guru Nanak describes the abundance and diversity of the natural world too. He proclaims the magnificence of 'Nature' and biological phenomena and recounts the variety of species. As an illustrative measure, he reports: *"8.4 million species of beings were created. (SGGS, p. 1190).*"

Similarly, scientists have found that a wide variety of creatures and species and numerous sorts of colours and forms exist on the earth. Based on detailed data, a current estimate is that about 8.7 ± 1.3 million types of vegetation and animals are present on our planet. However, we only know the precise details of about 2.0 million of them. It is pertinent to add that Guru Nanak composed his hymns in the late fifteenth and early sixteenth centuries. In contrast, the above scientific ideas became prevalent in the second half of the 18th century.

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Earth's support in space

Since the earliest times, humans have been curious to know the mystery of earth's support in space. From time to time, there have been many different ideas in vogue. For example, ancient Indian believed the world was resting on an enormous turtle floating in a vast sea of milk. Four elephants stand on the turtle's back, facing the world's four corners. They hold the round, flat earth on their robust backs with their raised trunks.

In 'The Deep Book,' David Evesevich, a Russian scholar, states that the earth rests on the backs of three giant whales swimming in an ocean. While they are asleep, everything remains normal, but the instant they wake up and start moving, an earthquake begins. According to another fable, a mythical bull, standing on a giant snake's hood, is holding up the earth on his horns. The giant snake, *Sheshnag*, is riding on the back of a giant turtle. An earthquake occurs when the mythical bull changes the earth's place from one horn to another.

With his rationalistic approach [5-7] to the event, Guru Nanak explained the cause-effect relationship between the earth and its support in space. In his 'Jap(u)' composition, he proclaimed, "*The mythical bull is righteousness, the offspring of mercy. It is what patiently holds the earth in its place. One who understands this realizes the truth. What a great load there is on the bull! There are countless earths! What power holds those and supports their weight? (SGGS, p. 3).*"

Guru Nanak articulated that natural law (Creator's *hukam*) is the mythical bull that supports the whole Creation. Appropriate observance of natural laws provides a proper order of things. By knowing it, one realizes the

truth. He elaborated that if we consider the prevalent view correct, then think about how much the load is on that (mythical) bull. Can a bull support such an enormous load? If the bull is holding up the earth in space, it must need something to stand on. It indicates that there must be earth under its feet.

Similarly, under this earth, there will be a bull again, and so on. What will be the prop for the last bull to stand on? Such a situation is ridiculous. He asserted that the Creator's



natural laws (*Hukam*) support the earth in space. "*His Command (Hukam) is the mythical bull which supports the burden of the earth on its head. (SGGS, p. 1037).*" Describing the domain of the *Hukam*, he proclaimed, "*Everyone is subject to His command; no one is beyond it. (SGGS, p. 1).*" Guru Nanak's assertion that everything is happening according to the Creator's *Hukam* (Natural laws) is a rational and realistic approach to the problem, providing a logical answer. Even scientists confirm the existence of natural laws (i.e., the law of gravitation etc.) to support the earth in space, confirming Guru Nanak's viewpoint.

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Ultimate Fate of the Creation

Talking about the ultimate fate of the Creation, Guru Nanak proclaims that it leads to the pre-creation stage "*From this Primal Void, came the four sources of Creation, and the power of speech. They were created from the Void and will merge into the Void. (SGGS, p. 1037).*"

Let us see what the scientists have to say about the issue. Currently, cosmologists have three different versions [8-10] of the universe's ultimate fate, depending on its critical density. If the universe's critical density were high, then enough mutual gravity would exist to slow its expansion and eventually halt it. After billions of years, it would collapse again, resulting in Big Crunch. It could create another Big Bang, leading to the rebirth of the universe. If the universe's critical density were low, gravitational pull among celestial bodies would be too weak to hold things together. The expansion would continue forever and ever. Galaxies would spread apart; Stars would die. Eventually, all things would cool down to the background temperature of the universe. It will lead to a Big Freeze. The third scenario propounds the existence of a flat Universe. It is so if the universe's critical density were just right. It will lead to the universe's perpetual expansion and continual slowing down. In this situation, the universe will take an infinite amount of time to reach a dead stop. Recently, the results from NASA's WMAP spacecraft have reported data for the universe's actual density, favouring a flat Universe scenario. However, observations are inconclusive, and alternative models are still possible [11].

As is apparent, Guru Nanak has enunciated an excellent understanding of the mystery of Creation. His ideas have stood the

test of time and have even been confirmed by later scientific discoveries. It is pertinent to add that he composed his hymns in the late fifteenth and early sixteenth centuries. In contrast, the above scientific ideas became prevalent only in the latter half of the 18th century. Evidently, Guru Nanak was the harbinger of modern scientific thought.

REFERENCES

1. [Sri Guru Granth Sahib, 1983 reprint, SGPC, Amritsar, pp.1-1430](#)
2. Singh, D. P., Creation of Universe - A Fabulous Tale, in "Science and Sikhism – Conflict or Coherence," 2018. Singh Brothers, Amritsar, India. pp. 73-91.
3. Singh, D. P., [Creation of the Universe as expounded in Guru Nanak's Bani, \(Part-I\)](#), The Sikh Review, Kolkata, India. 54/9, 2006, 21-25.
4. Singh, D. P., [Creation of the Universe as expounded in Guru Nanak's Bani, \(Part-II\)](#), The Sikh Review, Kolkata, India. 54/10,2006, 9-15.
5. Singh, D. P., Guru Nanak: A Prophet with a Scientific Attitude, in "Universal Relevance of Guru Nanak's Teachings," 2020, Edited by Board of Directors, PHFC, pub. by Punjabi Heritage Foundation of Canada, Ottawa, Canada pp. 331-343.
6. Singh, D. P., Guru Nanak's Teaching - A Scientific Perspective, Punjab Dey Rang, Lahore, Pakistan. July -Sept 2019, pp. 5-2
7. Singh, D. P., Guru Nanak: A Prophet with a Scientific Attitude", Paper presented at the 4th Canadian Punjabi Conference, celebrating the 550th birth anniversary of Sri Guru Nanak Dev, organized by Punjabi Heritage Foundation of Canada, Ottawa, Canada. July 6, 2019.
8. <http://www.universetoday.com/105588/how-will-the-universe-end/>
9. http://en.wikipedia.org/wiki/Ultimate_fate_of_the_universe
10. [WMAP - Fate of the Universe](#), WMAP's Universe, [NASA](#). Accessed online July 17, 2008.