

CREATION - A PERSPECTIVE FROM GURBANI

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'This most beautiful system of the sun, planets and comets, could only proceed from the counsel and dominion of an intelligent and powerful Being'. — Isaac Newton [1]

Our Universe is dotted with over 100 billion galaxies, and each one contains roughly 100 billion stars. It is unclear how many planets are orbiting these stars, but it is certain that at least one of them has evolved life. In particular there is a life form that has had the capacity and audacity to speculate about the origin of this vast universe [2].

Humans have been staring up into space for thousands of generations, to have a rational and coherent description for the creation and evolution of the universe. Bhagat Kabir, a saint poet of Sri Guru Granth Sahib [3-4] raises a very pertinent question in this regard;

ਓਇ ਜੁ ਦੀਸਹਿ ਅੰਬਰਿ ਤਾਰੇ ॥ ਕਿਨਿ ਓਇ ਚੀਤੇ ਚੀਤਨਹਾਰੇ ॥ ੧ ॥ ਕਹੁ ਰੇ ਪੰਡਿਤ ਅੰਬਰੁ ਕਾ ਸਿਉ
ਲਾਗਾ ॥ ਬੁਝੈ ਬੁਝਨਹਾਰੁ ਸਭਾਗਾ ॥ (ਗਉੜੀ ਕਬੀਰ ਜੀ, ਸਗਗਸ, p 329)

The stars which are seen in the sky , who is the painter who painted them? ||1||
Tell me, O Learned person, what is the sky attached to? Very fortunate is the person who knows this. (Gauree, Kabir Ji, SGGS, p 329)

Gurbani offers an elegant explanation of the origin and creation of the universe, making it one of the greatest achievements of human intuition, intellect and spirit. It is the consequence of an insatiable curiosity, a fabulous imagination, keen observation and logical thinking.

Guru Nanak, the first Sikh Guru, in his hymns of Jap(u), Aasa di Var, Sidh Gosht and Maru Sohile, and Guru Arjan Dev, the fifth Sikh guru, in his hymns of Gauree Sukhmani have enunciated incredible understanding of the mystery of creation. It is fascinating to note that some of the concepts / ideas expressed in these hymns were not known to modern science until eighteenth century. In this way one can safely observe that the Sikh Gurus' ideas were the forerunner of the modern scientific tradition. The ideas about the physical world (Creation), as presented in these hymns and discussed hereafter, might help us to confirm the above premise.

Before Creation

Using advance scientific techniques, scientists have been able to unravel numerous secrets of the universe during the present century. By analysing the light emanating from distant galaxies, nebulae, pulsars and newly found stars, the scientists have calculated that our universe was born about 13.8 billion years ago. How was the

universe created? When and Why was it created? Scientists are yet unable to pinpoint the answers to these questions. Many theories are in vogue about the evolution of the universe. It is generally assumed that our universe started out as a super dense ball called the 'Cosmic egg'.

On explosion of the 'cosmic egg' all the fundamental particles of matter came into existence in a very very short span of time. With passage of time, nebulae, stars, planets, satellites, pulsars, galaxies, and our sun, moon and earth... took birth from this cosmic dust. This process is still in progress in several galaxies and nebulae. In the expanse of the universe, millions of stars are taking birth, getting evolved and are dying on completion of their life span even now. Ultimately all these are being converted into a highly dense matter of the 'cosmic egg'. The existence of 'black holes' confirms this fact. This process of creation and destruction is going on and on in the universe.

Another prevalent theory is that our universe was created about 13.8 billion years ago. Since its birth, it is expanding and will continue as such for the next 29 billion years. Then under the force of gravitation its contraction will start which will continue for next 43 billion years, till, it again takes the shape of the 'cosmic egg'. Even this is not the end. This whole process of creation and destruction will start again with the explosion of the newly formed 'cosmic egg'. This cycle of creation and destruction will continue forever.

In Guru Nanak's hymns many interesting facts about the creation and evolution of the universe are present, which appear in consonance with the modern scientific concepts. Scientists agree that there was nothing like the moon, the sun, the earth, the galaxies and the day or night before the creation of the universe. Guru Nanak had expressed such a view about 500 years ago in one of his hymns of 'Maru Sohilee':

ਅਰਬਦ ਨਰਬਦ ਯੁੰਧੁਕਾਰਾ ॥ ਧਰਣਿ ਨ ਗਗਨਾ ਹੁਕਮੁ ਅਪਾਰਾ ॥ ਨਾ ਦਿਨੁ ਰੈਨਿ ਨ ਚੰਦੁ ਨ ਸੂਰਜੁ
ਸੁੰਨ ਸਮਾਧਿ ਲਗਾਇਦਾ ॥ (ਮਾਰੂ ਮਹਲਾ ੧, ਸਗਗਸ, ਪੰਨਾ 1035)

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. (Maru Mehl First, SGGS, p 1035)

ਖਾਣੀ ਨ ਬਾਣੀ ਪਉਣ ਨ ਪਾਣੀ ॥ ਓਪਤਿ ਖਪਤਿ ਨ ਆਵਣ ਜਾਣੀ ॥ ਖੰਡ ਪਤਾਲ ਸਪਤ ਨਹੀ ਸਾਗਰ
ਨਦੀ ਨ ਨੀਰੁ ਵਹਾਇਦਾ ॥ (ਮਾਰੂ ਮਹਲਾ ੧, ਸਗਗਸ, ਪੰਨਾ 1035)

There were no sources of creation or powers of speech, no 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. (Maru Mehl First, SGGS, p 1035)

ਝਿਲਮਿਲਿ ਝਿਲਕੈ ਚੰਦੁ ਨ ਤਾਰਾ ॥ ਸੂਰਜ ਕਿਰਣਿ ਨ ਬਿਜੁਲਿ ਗੈਣਾਰਾ ॥ ਅਕਥੀ ਕਥਉ ਚਿਹਨੁ
ਨਹੀ ਕੇਈ ਪੂਰਿ ਰਹਿਆ ਮਨਿ ਭਾਇਦਾ ॥ (ਮਾਰੂ ਮਹਲਾ ੧, ਸਗਗਸ, ਪੰਨਾ 1033)

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. (Maru Mehl First, SGGS, p 1033)

Birth of the Universe

In 1930, a Belgium astronomer Georges Lemaitre expounded the 'big bang' theory, which describes the way in which the universe began. He suggested that about 13,800 million years ago all the matter of the universe was contained in a primal atom-which he described as a super dense 'cosmic egg'. This, he said, exploded and its many fragments gave birth to planets, stars, galaxies, etc. One of these galaxies contains our solar system. All these galaxies are moving apart at incredible speed.

Another popular belief – The Steady State Theory – was advanced in 1948 by British cosmologists Harmann Bondi, Thomas Gold and Fred Hoyle, who suggested that the universe was eternal and that it has always existed. They said that matter is continuously created, apparently from nothing, at the rate of 62 atoms of hydrogen per cubic inch of space every 1000 million years. This is sufficient to form new galaxies to fill in the gaps caused by the expansion of the universe.

In 1965, an American astronomer Professor Allan Sandage adapted the 'Big Bang Theory' and developed it into his 'Pulsating Universe Theory'. He suggested that the universe is created, destroyed and then re-created in 86,000 million – year cycles. At the moment, he said, the universe is only 13,800 million years along the expansion stage, and it will continue to expand for another 29,000 million years before the galaxies overcome the force of the 'Big Bang' and begin to contract. Eventually, he maintained, moving at millions of miles an hour, they will converge and fuse again into their primal atoms which will then explode once more to re-start the whole cycle. A universe is, in other words, not without end but with an infinite number of endings ... and beginnings. Thus, scientists have different views about the universe's birth and its ultimate fate. They are unable to say something definite about it with strict certainty. Guru Nanak, also held a similar view, i. e. it is not possible to know exactly when the creation began, thereby he proclaimed;

ਜਾ ਤਿਸੁ ਭਾਣਾ ਤਾ ਜਗਤੁ ਉਪਾਇਆ ॥ ਬਾਝੁ ਕਲਾ ਆਡਾਣੁ ਰਹਾਇਆ ॥ (ਮਾਰੂ ਮਹਲਾ ੧, ਸਗਗਸ,
ਪੰਨਾ 1036)

When the Lord (creator) so willed, the world was created. Without any visible support he sustained the universe. (Maru Mehl First, SGGS, p 1036)

ਜਾ ਕਰਤਾ ਸਿਰਠੀ ਕਉ ਸਾਜੇ ਆਪੇ ਜਾਣੈ ਸੇਈ ॥ (ਮ. ੧, ਸਗਗਸ, ਪੰਨਾ 4)

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Only the creator knows that when and how the universe was created. (Mehl First, SGGS, p 4)

Guru Amardas, the third Sikh Guru, proclaimed that the Universe was created as per the Command (*Hukam* or Natural Law) of the Creator.

ਹੁਕਮੇ ਹੀ ਸਭੁ ਜਗਤੁ ਉਪਾਇਆ ॥ (ਮ. 3, ਸਗਗਸ, ਪੰਨਾ 1055)

With his Command, he created the entire Universe. (Mehl Third, SGGS, p 1055)

Process of Creation

Guru Nanak in his hymns 'T'hitee' points out the process of creation of the universe as:

ਆਪੇ ਸਚੁ ਕੀਆ ਕਰ ਜੋੜਿ ॥ ਅੰਡਜ ਫੋੜਿ ਜੋੜਿ ਵਿਛੋੜਿ ॥ ਧਰਤਿ ਅਕਾਸੁ ਕੀਏ ਬੈਸਣ ਕਉ ਥਾਉ ॥
ਰਾਤਿ ਦਿਨੰਤੁ ਕੀਏ ਭਉ ਭਾਉ ॥ ਜਿਨਿ ਕੀਏ ਕਰਿ ਵੇਖਣਹਾਰਾ ॥ ਅਵਰੁ ਨ ਦੂਜਾ ਸਿਰਜਣਹਾਰਾ ॥
(ਮ. 1, ਸਗਗਸ, ਪੰਨਾ 839)

The Creator created the universe, joining the elements together. Breaking the cosmic egg, he created the forces of attraction (union), and repulsion (separation). He made the earth and the sky as the places to live. He created day and night, fear and love. The One, who created the Creation, also watches over it. There is no other Creator Lord. (Mehl First, SGGS, p 839)

The forces of attraction (union), and repulsion (separation), are the basic framework for the occurrence of all process and phenomena in creation. This fact is proclaimed in Gurbani as;

ਸੰਜੋਗੁ ਵਿਜੋਗੁ ਉਪਾਇਓਨੁ ਸ੍ਰਿਸਟੀ ਕਾ ਮੂਲੁ ਰਚਾਇਆ ॥ (ਮ. 3, ਸਗਗਸ, ਪੰਨਾ 509)

Creating union and separation, the foundations of the Universe were laid. (Mehl Third, SGGS, p 509)

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;

ਕੀਤਾ ਪਸਾਉ ਏਕੇ ਕਵਾਉ ॥ ਤਿਸ ਤੇ ਹੋਏ ਲਖ ਦਰੀਆਉ ॥ (ਮ. 1, ਸਗਗਸ, ਪੰਨਾ 3)

You created the vast expanse of the Universe with One Word! Hundreds of thousands of rivers (process of generation) began to flow (emerged). (Mehl First, SGGS, p 3)

Guru Arjan Dev enunciated that all the vastness of the creation, manifested from a single source.

ਅਨਿਕ ਬਿਸਥਾਰ ਏਕ ਤੇ ਭਏ ॥ (ਮ. 5, ਸਗਗਸ, ਪੰਨਾ 289)

The many expanses of the creation have all come from the One (origin).(Mehl Fifth, SGGS, p 289)

It is obvious that the Gurbani's description of the beginning process of Creation is similar to the description provided by the Big Bang theory. It is interesting to note that the Sikh Gurus expressed these views about 500 years before the discovery of Big Bang theory.

Time of Creation

There are several different ideas in vogue about the time of creation of the universe. According to Christians, the universe was created in 4004 BC. Until the 18th century, scientists were convinced that our earth was only a few thousand years old. Using geological data and analyzing the fossils, Kelvin, a famous scientist, suggested by the second half of the 19th century that the earth is about 20 million years old. During the 20th Century, using 'Radioactive Dating Technique' it became known that our earth was created about a few billion years ago. Our solar system is found to be 4.6 billion years old. Our Milky-Way galaxy is said to be about 10-12 billion years old.

The founder of the Big Bang Theory, Georges Lemaitre had suggested that the explosion of the super dense 'cosmic egg' took place, about 13.8 billion years ago, which led to the creation of the universe. There is no precise date of creation. British cosmologists Hermann Bondi, Thomas Gold and Fred Hoyle, who had proposed 'The Steady State Theory', suggest that the universe is eternal and that it had always existed.

The founder of the 'Pulsating Universe Theory' Allan Sandage is of the view that about 13.8 billion years ago, a great explosion had occurred resulting in the birth of the universe. But he is unable to tell us about the precise date of its birth. Thus it is obvious that even the great astronomers and cosmologists of the twentieth century had been unable to pin point the exact date or time of the creation of the universe. Just like the above trend ... it seems almost definite that even in the present century the scientists will not be able to find out the exact time when the universe began either. Guru Nanak in his composition 'Jap(u)' has raised a pertinent question in this regard;

ਕਵਣੁ ਸੁ ਵੇਲਾ ਵਖਤੁ ਕਵਣੁ ਕਵਣੁ ਥਿਤਿ ਕਵਣੁ ਵਾਰੁ ॥ ਕਵਣਿ ਸਿ ਰੁਤੀ ਮਾਹੁ ਕਵਣੁ ਜਿਤੁ ਹੋਆ
ਆਕਾਰੁ ॥ ਵੇਲ ਨ ਪਾਈਆ ਪੰਡਤੀ ਜਿ ਹੋਵੈ ਲੇਖੁ ਪੁਰਾਣੁ ॥ ਵਖਤੁ ਨ ਪਾਇਓ ਕਾਦੀਆ ਜਿ ਲਿਖਨਿ ਲੇਖੁ
ਕੁਰਾਣੁ ॥ ਥਿਤਿ ਵਾਰੁ ਨਾ ਜੋਗੀ ਜਾਣੈ ਰੁਤਿ ਮਾਹੁ ਨਾ ਕੋਈ ॥ ਜਾ ਕਰਤਾ ਸਿਰਠੀ ਕਉ ਸਾਜੇ ਆਪੇ ਜਾਣੈ
ਸੋਈ ॥ (ਮ.1, ਸਗਗਸ, ਪੰਨਾ 4)

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. No Yogi knows the time, the weekday, the month or the season of the creation. The Creator who created this creation, only he knows about it. (Mehl First, SGGS, p 4)

In this verse of Jap(u) Guru Nanak has pointed out very clearly that it is not possible to know the exact time of the creation by any means. Even with the use of very advanced scientific techniques available in twenty-first century, it has not been possible to arrive at the truth of the issue. Obviously, Guru Nanak's ideas, about the creation of the material world (Universe) propounded about 500 years ago are in consonance with modern scientific views [5-6].

Vastness

The Sun, the Earth, the Moon, the stars, the satellites and the galaxies etc. form our universe. A wreath like arch of stars, stretching across the sky is the Milky Way. It is a part of our galaxy, which is an enormous system of clouds of glowing gas and 100 billion stars. Our universe contains about 100 billion galaxies. Our universe is vast. No one knows whether the universe is finite or infinite in size.

The observable universe is a few tens of billions of light years across. A light year is a distance traveled by light in one year, at the speed of 300,000 kilometers per second. It is equal to 9460 billion kilometers. The bright, unusual objects called quasars are the most distant objects in the universe found to date. Quasars may be as far as 16 billion light years from the earth. Even with all the latest scientific paraphernalia of radio telescopes, X-rays, observatories and space technology, our scientists are unable to find the edge of the universe. So until now, scientists could not find the limits of the creation.

There have been speculations about the extent of universe by religious persons as well. Christianity and Islam talk of fourteen regions, seven upper and seven nether. Hinduism believes in fourteen lokas or planes; the seven upper (Bhurloka, Bhuvarloka, Swarloka, Maharloka, Janaloka, Tapaloka and Satyaloka) and the seven nether (Atala, Vitala, Nitala, Gabhastimat, Mahatala, Sutala and Patala). Sometimes it talks of three regions known as Triloka viz. Heaven, Earth and the Netherworld. The earth has been further divided into nine regions known as Nav-Khand. Though in Sri Guru Granth Sahib there is a mention of nine continents, Triloka, and fourteen Lokas. But all these are just examples not convictions. Guru Nanak in his 'Jap(u)' (Santanza 22) proclaims the existence of countless upper and nether regions.

ਪਾਤਾਲਾ ਪਾਤਾਲ ਲਖ ਆਗਾਸਾ ਆਗਾਸ ॥ ਓੜਕ ਓੜਕ ਭਾਲਿ ਥਕੇ ਵੇਦ ਕਹਨਿ ਇਕ ਵਾਤ ॥ ਸਹਸ
ਅਠਾਰਹ ਕਹਨਿ ਕਤੇਬਾ ਅਸੁਲੂ ਇਕੁ ਧਾਤੁ ॥ ਲੇਖਾ ਹੋਇ ਤ ਲਿਖੀਐ ਲੇਖੈ ਹੋਇ ਵਿਣਾਸੁ ॥ (ਮ.1,
ਸਗਗਸ, ਪੰਨਾ 5)

There are numerous nether worlds, and hundreds thousands of heavenly worlds. The Vedas (religious scriptures of Hindus) say you can keep on searching, until

you get tired, (but you cannot know the count). The Semitic scriptures say that there are 18,000 worlds, but in reality, there is only One Truth. If a count is feasible, then one can try to write it, but in reality it is countless. (Mehl First, SGGS, p 5)

Hereby, Guru Nanak proclaims that the creation is unaccountable. Only the creator knows the extent of His creation. He elucidates an immeasurable expanse in the sense of 'Neti, Neti'.

ਅੰਤੁ ਨ ਜਾਪੈ ਕੀਤਾ ਆਕਾਰੁ ॥ ਅੰਤੁ ਨ ਜਾਪੈ ਪਾਰਾਵਾਰੁ ॥ ਅੰਤ ਕਾਰਣਿ ਕੇਤੇ ਬਿਲਲਾਹਿ ॥ ਤਾ ਕੇ ਅੰਤੁ ਨ ਪਾਏ ਜਾਹਿ ॥ ਏਹੁ ਅੰਤੁ ਨ ਜਾਣੈ ਕੋਇ ॥ ਬਹੁਤਾ ਕਹੀਐ ਬਹੁਤਾ ਹੋਇ ॥ (ਮ.1, ਸਗਗਸ, ਪੰਨਾ 5)

The limits of the creation cannot be perceived. The limits of its near (micro) and far (macro) extremes cannot be perceived. Many struggle to know these limits, but these cannot be determined. None is able to know these limits. The more you say about these, the more there still remains to be said.(Mehl First, SGGS, p 5)

Guru Nanak describes that the created material world is infinite in nature. The more we know about it, the more remains unexplored. In the hymns of *Jap(u)*, Guru Nanak portrays our earth as Dharam Khand (the region of noble actions) and depicts the natural phenomena therein.

ਰਾਤੀ ਰੁਤੀ ਥਿਤੀ ਵਾਰ ॥ ਪਵਣ ਪਾਣੀ ਅਗਨੀ ਪਾਤਾਲ ॥ ਤਿਸੁ ਵਿਚਿ ਧਰਤੀ ਥਾਪਿ ਰਖੀ ਧਰਮ ਸਾਲ ॥ ਤਿਸੁ ਵਿਚਿ ਜੀਅ ਜੁਗਤਿ ਕੇ ਰੰਗ ॥ ਤਿਨ ਕੇ ਨਾਮ ਅਨੇਕ ਅਨੰਤ ॥ (ਮ. 1, ਸਗਗਸ, ਪੰਨਾ 7)

Nights, days, weeks and seasons; wind, water, fire and the nether regions - in the midst of these, the earth is established as a home for Dharma. Upon it, are placed the various species of beings. These are countless and have numerous names. (Mehl First, SGGS, p 7).

In *Jap(u) bani*, Guru Nanak while describing 'Gian Khand,' enunciates:

ਕੇਤੇ ਪਵਣ ਪਾਣੀ ਵੈਸੰਤਰ ਕੇਤੇ ਕਾਨ ਮਹੇਸ ॥ ਕੇਤੇ ਬਰਮੇ ਘਾੜਤਿ ਘੜੀਅਹਿ ਰੂਪ ਰੰਗ ਕੇ ਵੇਸ ॥ ਕੇਤੀਆ ਕਰਮ ਭੂਮੀ ਮੇਰ ਕੇਤੇ ਕੇਤੇ ਧੂ ਉਪਦੇਸ ॥ ਕੇਤੇ ਇੰਦ ਚੰਦ ਸੂਰ ਕੇਤੇ ਕੇਤੇ ਮੰਡਲ ਦੇਸ ॥(ਮ.1, ਸਗਗਸ, ਪੰਨਾ 7)

There are numerous winds, waters and fires; so many Krishnas and Shivas. Numerous Brahmas, fashioning forms of great beauty, adorned and dressed in many colors. Numerous worlds and lands for working out karma. Countless lessons to be learned! Numerous Indras, countless moons and suns, so many galaxies and worlds. (Mehl First, SGGS, p 7)

Thus in the 35th Santanza of 'Jap(u)' infinite nature of the creation is becomes obvious. Even scientific theories have not yet found the limits of the universe. Till date,

scientists have been able to unravel only a very small portion of the universe. The vastness of the explored universe can be understood from the fact that if we use the speed of light at 300,000 km/s, to observe the explored portion of the universe, it will take more than 16 billion years to cover its vastness, whereas the much larger part of universe still remains unexplored.

Guru Amar Das has affirmed the extensive nature of the creation as;

ਖੰਡ ਪਤਾਲ ਅਸੰਖ ਮੈ ਗਣਤ ਨ ਹੋਈ ॥ ਤੂ ਕਰਤਾ ਗੋਵਿੰਦੁ ਤੁਧੁ ਸਿਰਜੀ ਤੁਧੈ ਗੋਈ ॥ ਲਖ ਚਉਰਾਸੀਹ
ਮੇਦਨੀ ਤੁਝ ਹੀ ਤੇ ਹੋਈ ॥ (ਮ. 3, ਸਗਗਸ, 1283)

There are countless worlds and nether regions; I cannot calculate their number. You are the Creator, the Lord of the Universe; You create it, and You destroy it. The 8.4 million species of beings issued forth from You. (Mehl Third, SGGS, p 1283)

ਅਨਿਕ ਪਵਨ ਪਾਵਕ ਅਰੁ ਨੀਰ ॥ ਅਨਿਕ ਸੂਰ ਸਸੀਅਰ ਨਖਿਆਤਿ ॥ ਅਨਿਕ ਅਕਾਸ ਅਨਿਕ
ਪਾਤਾਲ ॥ਅਨਿਕ ਪੁਰੀਆ ਅਨਿਕ ਤਹ ਖੰਡ ॥ ਅਨਿਕ ਰੂਪ ਰੰਗ ਬ੍ਰਹਮੰਡ ॥ ਅਨਿਕ ਬਨਾ ਅਨਿਕ
ਫਲ ਮੂਲ ॥ ਅਨਿਕ ਜੁਗਾਦਿ ਦਿਨਸ ਅਰੁ ਰਾਤਿ ॥.....ਅਨਿਕ ਅਨਾਹਦ ਆਨੰਦ ਝੁਨਕਾਰ ॥(ਮ. 5,
ਸਗਗਸ, ਪੰਨਾ 1236)

Many winds, fires and waters. Many suns (stars), moons and constellations. Many Akaashic ethers, many nether regions of the underworld.....Many solar systems, many galaxies. Many forms, colors and celestial realms. Many gardens, many fruits and roots. Many ages, days and nights.....Many unstruck melodies resound and resonate with bliss. (Mehl Fifth, SGGS, p 1236)

Expounding the realm of truth (*Sach Khand*), in *Jap(u) bani*, Guru Nanak proclaims the existence of countless universes as;

ਤਿਥੈ ਖੰਡ ਮੰਡਲ ਵਰਭੰਡ ॥ ਜੇ ਕੇ ਕਥੈ ਤ ਅੰਤ ਨ ਅੰਤ ॥ ਤਿਥੈ ਲੇਅ ਲੇਅ ਆਕਾਰ ॥ ਜਿਵ ਜਿਵ ਹੁਕਮੁ
ਤਿਵੈ ਤਿਵ ਕਾਰ ॥ (ਮ. 1, ਸਗਗਸ, ਪੰਨਾ 8)

There are planets, solar systems and universes. If one has to describe these, then one can only say it that these are unlimited. There are countless worlds in the Creation. As is ordained, so these exist. (Mehl First, SGGS, p 8)

In Gauree Sukhmani, Guru Arjan Dev, the fifth Sikh Guru, proclaims the vastness of creation as;

ਕਈ ਕੋਟਿ ਪੰਖੀ ਸਰਪ ਉਪਾਏ ॥ ਕਈ ਕੋਟਿ ਪਾਥਰ ਬਿਰਖ ਨਿਪਜਾਏ ॥ ਕਈ ਕੋਟਿ ਪਵਣ ਪਾਣੀ
ਬੈਸੰਤਰ ॥ ਕਈ ਕੋਟਿ ਦੇਸ ਭੂ ਮੰਡਲ ॥ ਕਈ ਕੋਟਿ ਸਸੀਅਰ ਸੂਰ ਨਖਜਤ੍ਰੁ ॥..... (ਮ. 5 ,
ਸਗਗਸ, ਪੰਨਾ 275)

Singh, D. P., Invited talk: "Creation - A Perspective from Gurbani," delivered on 5th October, 2021, during Global Gurmat Vichar 57th Webinar Meeting, at Phoenix, Arizona, USA

Many millions of birds and snakes have been created. Many millions of stones and trees have been produced. Many millions are the winds, waters and fires. Many millions are the countries and realms of the world. Many millions are the moons, suns and constellations. (Mehl Fifth, SGGS, p 275)

ਕਈ ਕੋਟਿ ਖਾਣੀ ਅਰੁ ਖੰਡ ॥ ਕਈ ਕੋਟਿ ਅਕਾਸ ਬ੍ਰਹਮੰਡ ॥.....

Many millions are the fields of creation and the solar systems. Many millions are the etheric skies and the universes.

ਕਈ ਕੋਟਿ ਕੀਨੇ ਬਹੁ ਭਾਤਿ ॥.....

Many millions are created in various forms.

ਤਾ ਕਾ ਅੰਤੁ ਨ ਜਾਨੈ ਕੋਇ ॥ (ਮ. 5 , ਸਗਗਸ, ਪੰਨਾ 276)

The limits (of creation) are not known to anyone. (Mehl Fifth, SGGS, p 276)

Thus Gurbani asserts that there are innumerable inanimate things and countless living beings, planets, solar systems and universes. There are numerous worlds and creations. As is ordained by the Creator so it happens. Contemporary science has also pointed out the possibility of the existence of multi- universes. Thus the ideas of Sikh Gurus appear to be the precursor of modern science.

Origin of Life

Since ancient times, philosophers and scientists tried to know- how, when and where the life originated. They have been curious to understand the cause of diversity of life on earth. By the end of 17th century, both scientists and philosophers were of the opinion that life originated spontaneously from non-living materials. Until the middle of the nineteenth century, life was generally 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 human beings in six natural days. According to Hindu mythology, the creator created the various kinds of plants and animals simultaneously.

According to modern science, about 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 extremely hot when it came into existence. There was a great volcanic activity on land and sun gave intense heat. The release of gases, from the womb of earth, lead to the formation of gaseous envelope (containing water vapours) around it. With time clouds took their shape. Then it rained on earth for several hundred years. The rainwater flooded the earth and cooled it. In the shallower parts of the earth water took the form of seas. Life, in the form of unicellular animals (e.g. Amoeba & Protozoa) is thought to have originated in the seawater. From seawater, many organisms later invaded fresh waters and land. The present complex animals and plants have been produced in the course of ages by a process of gradual change in the earlier

simpler forms of life. Darwin's theory of natural selection is today recognized as the main factor in the evolution of animal and plant life.

Guru Nanak in his hymn of 'Siri Raag' proclaims;

ਸਾਚੇ ਤੇ ਪਵਨਾ ਭਇਆ ਪਵਨੈ ਤੇ ਜਲੁ ਹੋਇ ॥ ਜਲ ਤੇ ਤ੍ਰਿਭਵਣੁ ਸਾਜਿਆ ਘਟਿ ਘਟਿ ਜੋਤਿ ਸਮੋਇ ॥

(ਸਿਰੀਰਾਗੁ ਮਹਲ ੧, ਸਗਗਸ, ਪੰਨਾ 19)

From the True Lord (ultimate reality) came the air, and from the air came water. The three worlds were created from water. In each and every heart his light is infused. (Siri Raag, Mehl First, SGGS, p 19)

From the ultimate reality, air (mixture of gases) was produced. From the air, water came into being. Then from water the whole world of living beings came into existence. These ideas of Guru Nanak are broadly in agreement with the central theme of the prevalent scientific ideas about the origin of life.

Diversity of Life

Biodiversity is the degree of variation of life. This can refer to genetic variation, species variation, or ecosystem variation within in the natural world (in an area, biome, or planet). Scientists report that there exist a wide variety of creatures/forms, numerous varieties of colours and species on our earth. Based on rigorous data, a recent estimate is that there are about 8.7 ± 1.3 million types of vegetation and animals present on our earth. But we have the exact details of about 2.0 million of them till date.

Guru Nanak in his hymns describes the abundance and diversity of natural world. He proclaims the magnificence of 'Nature' and Natural phenomena and recounts the diversity of languages. He reports that there are 8.4 million species of creatures.

ਲਖ ਚਉਰਾਸੀਹ ਜੰਤ ਉਪਾਏ ॥ (ਬਸੰਤੁ ਮਹਲਾ ੧, ਸਗਗਸ, ਪੰਨਾ 1190)

8.4 million species of beings were created. (Basant, Mehl First, p 1190)

Guru Amardas affirms this fact and also delineates their multiplicity, as;

ਲਖ ਚਉਰਾਸੀਹ ਮੇਦਨੀ ਤੁਝ ਹੀ ਤੇ ਹੋਈ ॥ (ਮ. 3, ਸਗਗਸ, ਪੰਨਾ 1283)

The 8.4 million species of beings issued forth from You. (Mehl Third, SGGS, p 1283)

ਮੇਰੈ ਪ੍ਰਭਿ ਸਾਚੈ ਇਕੁ ਖੇਲੁ ਰਚਾਇਆ ॥ ਕੋਇ ਨ ਕਿਸ ਹੀ ਜੇਹਾ ਉਪਾਇਆ ॥ (ਮਾਰੂ ਮਹਲਾ 3, ਸਗਗਸ, ਪੰਨਾ 1056)

My True Lord God has staged a play. He has created no one like anyone else. (Maru, Mehl Third, SGGS, p 1056)

Bhagat Naam Dev, a saint poet of Sri Guru Granth Sahib, proclaims that there are 4.2 million creatures, who live their life in the water.

ਬਇਆਲੀਸ ਲਖ ਜੀ ਜਲ ਮਹਿ ਹੋਤੇ.....॥ (ਭਗਤ ਨਾਮਦੇਵ ਜੀ, ਸਗਗਸ, ਪੰਨਾ 485)

There are 4.2 million species of beings are in the water(Bhagat Namdev Ji, SGGS, p 485)

It is pertinent to add that Sikh Guru's composed their hymns in early sixteenth century whereas the above scientific ideas (about origin and diversity of life on earth) became prevalent in the second half of the eighteenth century

Earth's support in space

Since the ancient times, people have been curious to know the secret of earth's support in space. There have been several different ideas in vogue from time to time. Ancient Indian believed that the world is resting on an enormous turtle floating in a huge sea of milk. Four elephants stand on the turtle's back. With their trunks raised in the air, the elephants face the four corners of the world, holding the flat, round earth on their mighty backs.

According to a tale described by David Evesevich, a Russian scholar, in 'The Deep Book', the earth rests on the backs of three enormous whales, swimming in an ocean. Everything remains alright while they were asleep, but as soon as they woke up and started moving, an earthquake begins. Another ancient story is that the earth rests on the horns of a mythical bull. The bull is standing on the hood of a giant snake 'Sheshmag'. The Sheshmag is sitting on the back of a huge turtle. When the mythical bull changes the position of the earth from one horn to the other, earthquakes occur.

Guru Nanak, with his scientific attitude, tried to find out the cause and the rational justification of the event objectively. He attempted to explain the cause-effect relationship about the earth's support in space. He proclaimed in 'Jap(u)':

ਯੋਲੁ ਧਰਮੁ ਦਇਆ ਕਾ ਪੂਤੁ ॥ ਸੰਤੋਖੁ ਥਾਪਿ ਰਖਿਆ ਜਿਨਿ ਸੂਤਿ ॥

The mythical bull is righteousness, the off spring of mercy. This is what patiently holds the earth in its place.

ਜੇ ਕੇ ਬੁਝੈ ਹੋਵੈ ਸਚਿਆਰੁ ॥ ਧਵਲੈ ਉਪਰਿ ਕੇਤਾ ਭਾਰੁ ॥

One who understands this, realizes the truth. What a great load there is on the bull!

ਧਰਤੀ ਹੋਰੁ ਪਰੈ ਹੋਰੁ ਹੋਰੁ ॥ ਤਿਸ ਤੇ ਭਾਰੁ ਤਲੈ ਕਵਣੁ ਜੋਰੁ ॥ (ਮ. 1, ਸਗਗਸ, ਜਪੁ, ਪੰਨਾ 3)

There are countless earths! What power holds those, and supports their weight? (Mehl First, SGGS, Jap (u), p 3)

Guru Nanak proclaimed that the creator's *hukam* (Natural Law) is the mythical bull to provide support to the whole creation. Appropriate observance of the natural laws provides a suitable order of the things. Knowing it, one realises the truth.

Considering the prevalent view, he said, just think that how much is the load on that (mythical) bull. How can a bull support such a huge load? Also, if the bull is supporting the earth in space then it needs the support of something to stand on. This implies that there is earth under its feet. So under this earth again there will be a bull and so on. What will be the support for the last bull to stand on? Obviously, such a situation does not provide the required answer. So Guru Nanak asserted that the natural laws (*Hukam*) set by the Creator are providing support to the earth in space.

ਹੁਕਮੇ ਧਰਤੀ ਧਉਲ ਸਿਰਿ ਭਾਰੰ ॥ (ਮ. 1, ਸਰਗਸ, ਪੰਨਾ 1037)

His Command (*Hukam*) is the mythical bull which supports the burden of the earth on its head. (Mehl First, SGGS, p 1037)

Guru Nanak described these natural laws as *Hukam* or will of the Creator. Describing the domain of the *Hukam*, he proclaims;

ਹੁਕਮੈ ਅੰਦਰਿ ਸਭੁ ਕੇ ਬਾਹਰਿ ਹੁਕਮ ਨ ਕੋਇ ॥ (ਮ. 1, ਸਰਗਸ, ਪੰਨਾ 1)

Everyone is subject to His command; no one is beyond it. (Mehl First, SGGS, p 1)

Guru Nanak's assertion that everything is happening according to the *Hukam* (Natural laws) of the Creator, is a rational approach to the problem, providing a logical answer. Even the scientists confirm the existence of natural laws (e.g. Law of gravitation etc) to provide support to the earth in space. Obviously Guru Nanak's viewpoint was definitely different from the contemporary prevalent ideas. However, his assertion appears to be in consonance with the scientifically correct viewpoints.

Ultimate Fate of the Universe – Dead End or Recreation

About 13.8 billion years ago, our Universe, with a big bang, grew from a microscopic singularity into the vast cosmos we see today. Its evidence is very compelling. But what is the ultimate fate of the Universe? How will it end? Will it be recreated?

In the present era, cosmologists have three different versions [7-9] of the ultimate fate of the Universe. These three outcomes for the end of Universe, in actual depend on its critical density. If this critical density of the universe was high, then there was enough mutual gravity to slow and eventually halt its expansion. Billions of years in the future, it would then collapse in on itself again, resulting in Big Crunch. Perhaps, it can create another Big Bang, leading to rebirth of the universe. This is known as a closed Universe scenario.

If the critical density of the universe was low, then there wouldn't be enough gravity to hold things together. Expansion would continue on forever and ever. Galaxies would spread apart, Stars would die. Eventually everything would cool down to the

background temperature of the Universe, leading to a Big Freeze. This is an open Universe scenario.

The third scenario suggests the existence of a flat Universe. It is so if the critical density of the universe was just right, leading to its forever expansion and continuous slowing down. Such a Universe will reach a dead stop in an infinite amount of time. Recently the results from NASA's Wilkinson Microwave Anisotropy Probe (WMAP) spacecraft have reported data for the actual density of the Universe, which favours a flat Universe scenario. However, observations are not conclusive, and alternative models are still possible [10].

Describing the creation and destruction of the Universe, Guru Arjan Dev, proclaims that it happens in accordance to the Natural Laws set by the Creator.

ਹੁਕਮੇ ਧਾਰਿ ਅਧਰ ਰਹਾਵੈ ॥ ਹੁਕਮੇ ਉਪਜੈ ਹੁਕਮਿ ਸਮਾਵੈ ॥ (ਮ. 5, ਸਗਗਸ, ਪੰਨਾ 277)

By His Order, the creation is established, and he maintains it unsupported. By His Order, the world was created; by His Order, it shall be obliterated. (Mehl Fifth, SGGS, p 277)

Guru Nanak proclaims the end of universe leading to pre-creation stage.

ਸੁੰਨਹੁ ਖਾਣੀ ਸੁੰਨਹੁ ਬਾਣੀ ॥ ਸੁੰਨਹੁ ਉਪਜੀ ਸੁੰਨਿ ਸਮਾਣੀ ॥ (ਮ. 1, ਸਗਗਸ, ਪੰਨਾ 1037)

From this Primal Void, came the four sources of creation, and the power of speech. They were created from the Void, and they will merge into the Void. (Mehl First, SGGS, p 1037)

ਭਣਤਿ ਨਾਨਕੁ ਜਬ ਖੇਲੁ ਉਝਾਰੈ ਤਬ ਏਕੈ ਏਕੰਕਾਰਾ ॥ (ਮਾਰੂ ਮਹਲਾ 5, ਸਗਗਸ, ਪੰਨਾ 999)

Prays Nanak, when He brings His play to its close, then only the One, the One Lord remains. || (Maaroo, Mehl Fifth, SGGS, p 999)

Gurbani also affirms universe's recreation. It emphasizes that such destruction and recreation had occurred many times. Thus Gurbani appears to support the cyclic model of the universe.

ਅਨਿਕ ਪਰਲਉ ਅਨਿਕ ਉਤਪਾਤਿ ॥ (ਮ. 5, ਸਗਗਸ, ਪੰਨਾ 1236)

Many apocalypses (have happened), many creations (have emerged). (Mehl Fifth, SGGS, p 1236)

ਕਈ ਬਾਰ ਪਸਰਿਓ ਪਾਸਾਰ ॥ (ਮ. 5, ਸਗਗਸ, ਪੰਨਾ 276)

So many times, the expansion has taken place. (Mehl Fifth, SGGS, p 276)

Singh, D. P., Invited talk: "Creation - A Perspective from Gurbani," delivered on 5th October, 2021, during Global Gurmat Vichar 57th Webinar Meeting, at Phoenix, Arizona, USA

As reported above, even the modern scientists⁵⁻⁶ suggest several ways for the creation as well as for the ultimate fate of the universe. Guru Arjan Dev also affirmed that the process of creation and destruction can occur in many different ways as;

ਅਨਿਕ ਜੁਗਤਿ ਰਚਿ ਥਾਪਿ ਉਥਾਪਿ ॥ (ਮ. 5, ਸਗਗਸ, ਪੰਨਾ 282)

In many ways, it is established and disestablished. (Mehl Fifth, SGGS, p 282)

As is obvious, Sikh Gurus' have enunciated an incredible understanding of the mystery of creation. These ideas as presented in the hymns of Sri Guru Granth Sahib are in consonance with prevalent scientific thoughts in general. As most of the prevalent scientific concepts / ideas about creation were not known to modern science until eighteenth century, thus one may safely observe that the Sikh Gurus' ideas were the forerunner of the modern scientific tradition.

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