

further to mention that mind or consciousness and matter are interchangeable and that the spirit of God rests within both.

"You Yourself are conscious of Your Creation." (SGGSJ, p.1076)

"The distinction between Shiva and Shakti - mind and matter - has been destroyed, and the darkness has been dispelled." (SGGSJ, p.163)

"He Himself is mind, and He Himself is matter" (SGGSJ, p.1236)

Unified Field Theory: The Nature of Everything

When we move beyond Quantum field theory, which is already abstract, to try and understand the nature of a quantum field, we arrive at something which is pure being. This is beyond the human intellect, something purely abstract and in pure existence. At this point quantum physics begins to sound more like spirituality. The Shri Guru Granth Sahib Ji talks about God as being something intrinsic within the whole of creation, a characteristic of the whole of creation which is also beyond our human intellect and understanding.

"The Wisdom of the Undying Primal Being is beyond comprehension" (SGGSJ, p.212)

"Even the great Yogis cannot describe Your Glorious Virtues; they are beyond words." (SGGSJ, p.346)

"He is heard to be one thing, but He is understood to be something else again; He is beyond description and explanation." (SGGSJ, p.498)

"In an instant, You are one thing, and in another instant, You are another. Wondrous are Your ways! You are beautiful, mysterious, profound, unfathomable, lofty, inaccessible and infinite." (SGGSJ, p.613)

Entanglement

One of the most unusual truths of quantum physics is entanglement. Entanglement destroys the idea of separateness and space. For example, let us imagine that we create two electrons together and we send one electron to the other side of the universe. If we then do something to one of the electrons, the other will respond immediately, which implies that both objects are still one. Sikh dharma teaches that that everything came from the same point during the creation of our universe and that the creation is like beads bound together with the thread of God consciousness.

"As one thread holds hundreds and thousands of beads, He is woven into His creation. The waves of the water, the foam and bubbles, are not distinct from the water. This manifested world is the playful game of the Supreme Lord God; reflecting upon it, we find that it is not different from Him." (SGGSJ, p.485)

"He Himself is the thread, and He Himself is the many beads; through His Almighty Power, He has strung the worlds." (SGGSJ, p.604)

Therefore, space or Maya is just a construct that gives the illusion that we are separate.

"Deep within the self is the Light of God; It radiates throughout the expanse of His creation." (SGGSJ, p.126)

"In the four sources of creation, and in all speech, You dwell. You are dear to the minds of all." (SGGSJ, p.130)

"All the creation is His Body, Through and through, He is blended with His creation" (SGGSJ, p.294)

"Fareed, the Creator is in the Creation, and the Creation abides in God" (SGGSJ, p.1381)

Sikh dharma also derives moral teaches from the idea of oneness or entanglement by teaching that as everything is interwoven and from the same source, we should not indulge in slander of anyone.

"Don't indulge in slander for any reason, for everything is the creation of the Lord and Master." (SGGSJ, p.611)

Conclusion

The truths in Sikh dharma have been determined through experience of oneness and this essay shows that both science and spirituality can be used to understand truth in its many dimensions.



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Introduction

Science and spirituality (Dharma) are opposite sides of the same coin. Both science and spirituality aim to explain Truth. However, the approach of science is to use external physical measurements and laboratory experiments, whereas spirituality requires internal experimentation in the laboratory of our own inner being through meditation.

Over the last 50 years our ideas about the universe have changed dramatically and the line between science, philosophy and spirituality are appearing to blur and merge. Science, and in particular quantum physics, is a fascinating subject and its ideas provide an excellent validation for some key spiritual truths outlined in the Sikh Holy Scripture, the Shri Guru Granth Sahib Ji (SGGSJ).

Creation of the Universe

The currently accepted theory for the creation of the universe is the Big Bang theory which states that the universe has expanded into its current state from a primordial condition of enormous density and temperature. The Shri Guru Granth Sahib Ji also supports the idea of Big Bang and an expanding universe.

"In so many ways, He has unfolded Himself. So many times, He has expanded His expansion. Forever and ever, He is the One, the One Universal Creator." (SGGSJ, p.276)

"God, who expanded His expanse, is within all; I learned this from the True Guru." (SGGSJ, p.671)

"By His Hukam, the Expanse of the Universe is expanded." (SGGSJ, p.760)

"The Gurmukh knows that the Lord has expanded the entire expanse" (SGGSJ, p.1054)

Destruction of the Universe

The Shri Guru Granth Sahib Ji also supports the idea of a continuous cycle of creation and destruction of our universe and that our current universe is non-permanent.

"The entire creation came from God. As it pleases Him, He creates the expanse. As it pleases Him, He becomes the One and Only again." (SGGSJ, p.294)

"Nothing of the color and the form of the creation shall remain; the entire expanse is transitory." (SGGSJ, p.999)

The Origins of Life

Accepted theories of the origin of life are that the Big Bang released large amounts of Hydrogen which combined to form Helium and other heavier gases. Water formed with

oxygen combining with hydrogen, and water led to the evolution of life. The Shri Guru Granth Sahib Ji also teaches that the universe started with gases which eventually led to the formation of water in turn giving birth to life.

"From the True Lord came the air, and from the air came water. From water, He created the three worlds; in each and every heart He has infused His Light." (SGGSJ, p.19)

"Know that the creation was formed through air and water" (SGGSJ, p.1256)

Planets, Solar Systems and Galaxies

Astronomy has led to the discovery of billions of galaxies in our universe each of which probably have planets and solar systems like our own. The Sikh Holy scripture mentions that there are an uncountable amount of planets, solar systems and galaxies in our universe.

"There are planets, solar systems and galaxies. If one speaks of them, there is no limit, no end. There are worlds upon worlds of His Creation. As He commands, so they exist." (SGGSJ, p.8)

"I have searched and searched, across so many worlds, but without the Name, there is no peace." (SGGSJ, p.255)

"Among all lights, I behold Your Form; all the worlds are Your Maya." (SGGSJ, p.351)

"Many millions are the fields of creation and the galaxies" (SGGSJ, p.276)

Life on Other Planets

Science has not yet been able to either prove or disprove the existence of life on other planets. However, the Shri Guru Granth Sahib Ji teaches that there are an uncountable amount of planets with many forms of life on them including human forms of life who also are in God-consciousness.

"You are the One True Lord and Master of all the other beings, of so many worlds." (SGGSJ, p.15)

"There are beings and creatures in the water and on the land, in the worlds and universes, form upon form." (SGGSJ, p.466)

Temperature

People have intuitively known about temperature for a long time e.g. that fire is hot and snow is cold. Greater knowledge of temperature was gained as people attempted to work with metals through the bronze and iron ages. Galileo invented the first documented thermometer in

about 1592, however this was not available in India. Nevertheless, the Shri Guru Granth Sahib Ji teaches that the boiling point of milk is higher than that of water.

"O mind, love the Lord, as the water loves the milk. The water, added to the milk, itself bears the heat, and prevents the milk from burning. God unites the separated ones with Himself again, and blesses them with true greatness." (SGGSJ, p.60)

Quantum Field Theory: The Nature of Matter

Science has been used exhaustively to determine the nature and characteristics of matter i.e. whether matter is a wave or a particle. The famous double slit experiment used a set of single electrons (particles) fired one after the other through two slits. The result was an interference pattern which is characteristic of a wave and not a particle. This implied that each single electron would go through both slits, through no slits, through just the left slit and through just the right all at the same time!

Quantum field theory explains this by stating that matter is neither a wave nor a particle. It is something more abstract and could be considered as a simultaneous co-existence of all possibilities. This leads to the idea of superposition i.e. all possibilities potentially existing at the same time. The Shri Guru Granth Sahib Ji mentions the idea of superposition as being an intrinsic part of creation and the creator.

"You have thousands of eyes, and yet You have no eyes. You have thousands of forms, and yet You do not have even one. You have thousands of Lotus Feet, and yet You do not have even one foot. You have no nose, but you have thousands of noses. This Play of Yours entrances me." (SGGSJ, p.13)

"He Himself is formless, and also formed; the One Lord is without attributes, and also with attributes" (SGGSJ, p.250)

"At the same time, He is both hidden and revealed. For the Gurmukh, doubt and fear are dispelled." (SGGSJ, p.1048)

Another finding from the famous double slit experiment was that when scientists put cameras at each of the slits to observe the actual slit through which any given electron was passing through, they discovered that the electrons behaved like particles and created only two bands on a screen instead of an interference pattern. So matter behaved differently when interacting with thoughts or the mind. The Shri Guru Granth Sahib Ji also goes