

# **Sikh Religion and Science**

**By**

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Published by:

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## Opinions

1. “You have put so much effort in gathering so much data and information for this small volume. It would be a very valuable book about Sikhism.” *Dr. Baldev Singh Collegeville P.A. America*
2. “I whole-heartedly applaud this book. It should on the shelves of all libraries and be distributed by all Gurdwaras. It is imperative that the Sikh youth of today are encouraged to read works of this nature.” *Dr. Tarlochan Singh Warwick. Leamington Spa. U.K.*
3. “You have done a lot of work in studying Gurbani and its comparison with science. Evolutions of life, earth, space, and matter have all been explained in a beautiful manner. The language and terms used are simple and precise. A common person can understand them easily.” *Dr. Sarbjit Singh Scientific Officer Bhava Atomic research Centre Bombay 400085 India.*
4. “It is a splendid in-depth study of Sikhism and how it relates to science. It would make every Sikh proud to know that our Gurus were in deed well aware of scientific knowledge at a time when the world did not have all the sophistry and instrumentation which we now have.” *Dr. Gurcharan Singh Msc;PhD Taramedic Corporation Kuala Lumpur Malaysia.*
5. “I have read your book with great interest and found it very informative. It is a new addition to Sikh literature. You have done a marvellous job in quoting relevant scientific literature with respect to its religious interpretations. Thank you for giving me the opportunity to read your informative book.” *Dr. Gurmel Singh Sidhu America.*
6. “The writer has made a fine attempt to delve into the foundations of knowledge in order to reach the truth. He has the vision and the intuition to see into the life of

things. The effort made by him is really commendable. The book is sure to enhance the knowledge of its readers and broaden their outlook.”

*S. Ram Singh Kular Principal Akal Degree College Mastuana (India) and Chief organiser Guru Gobind Singh Study Circle Ludhiana. (India)*

7. “The writer has made a deep research in the relevance of science in religion. He has tried to highlight the strong bond between the two. He has not only based his study on the physical sciences but has also explored social sciences and humanities. Psychology, Physical science, Sociology, Philosophy, Economics, Secularism and communism have all found a niche in this study” *Professor Gurdev Singh Postgraduate Deptt. of English G.H.G.Khalsa College Sadhar (India)*

8.

“G.S.Sidhu ਹੋਰਾਂ ਦੀ ਪੁਸਤਕ ‘Sikh Religion and Science’ ਧਰਮ ਅਤੇ ਵਿਗਿਆਨ ਦੇ ਆਪਸੀ ਸਬੰਧਾਂ ਉੱਪਰ ਇੱਕ ਤਰਕ-ਪੂਰਨ, systematic ਅਤੇ ਸਾਰ-ਗਰਭਿਤ ਟਿੱਪਣੀ ਹੈ । ਸਿੱਧੂ ਸਾਹਿਬ ਨੇ ਸਿੱਖ ਧਰਮ ਦੀ ਵਿਗਿਆਨਕਤਾ ਦਾ ਡੂੰਘਾ ਵਿਸ਼ਲੇਸ਼ਣਾਤਮਿਕ ਅਧਿਐਨ ਕੀਤਾ ਹੈ । ਇਸ ਅਧਿਐਨ ਦੀ ਮੁੱਖ ਵਿਸ਼ੇਸ਼ਤਾ ਅਤੇ ਇਸੇ ਵਿਸ਼ੇ ਉੱਪਰ ਹੋਏ ਹੋਰ ਅਧਿਐਨਾਂ ਤੋਂ ਭਿੰਨਤਾ ਇਹ ਹੈ ਕਿ ਜਿੱਥੇ ਹੋਰ ਅਧਿਐਨਾਂ ਵਿੱਚ ਇਹ ਸਾਬਤ ਕਰਨ ਦੀ ਕੋਸ਼ਿਸ਼ ਕੀਤੀ ਜਾਂਦੀ ਹੈ ਕਿ ਗੁਰਬਾਣੀ, ਵਿਗਿਆਨ ਦਾ ਹੀ ਅਨੁਰੂਪ ਹੈ ਇਸ ਅਧਿਐਨ ਵਿੱਚ ਗੁਰਬਾਣੀ ਦੀ ਭੂਮਿਕਾ ਨੂੰ ਮੁੱਖ ਰਖਦੇ ਹੋਏ ਅਧਿਐਨਕਾਰ ਨੇ ਮੰਨਿਆ ਹੈ ਕਿ ਅਜੋਕਾ ਵਿਗਿਆਨ ਸਗੋਂ ਗੁਰਬਾਣੀ ਦਾ ਅਨੁਕਰਣ ਕਰ ਰਿਹਾ ਹੈ ।

ਸਿੱਧੂ ਸਾਹਿਬ ਦਾ ਇਹ ਅਧਿਐਨ ਇਹ ਸਥਾਪਤ ਕਰਨ ਵਿੱਚ ਪੂਰੀ ਤਰਾਂ ਸਫਲ ਰਿਹਾ ਹੈ ਕਿ Sikhism ਅਧੁਨਿਕ ਵੈਸ਼ਵਿਕ ਵਿਵਸਥਾ ਨੂੰ ਪੂਰੀ ਤਰਾਂ ਵਿਆਖਿਆ ਕਰਨ ਵਿੱਚ ਸਮਰਥ ਹੈ ਅਤੇ ਭਵਿੱਖ ਲਈ ਇੱਕੋ ਇੱਕ ਸੰਪੂਰਣ ਵਿਚਾਰ ਧਾਰਾ ਹੈ ਜੋ ਦੁਨੀਆਂ ਨੂੰ ਚੰਗੇਰਾ ਜੀਵਨ ਜਿਉਣ ਲਈ ਤਿਆਰ ਕਰਨ ਵਿੱਚ ਸਹਾਈ ਹੋ ਸਕਦੀ ਹੈ । *Dr. Rajinder Singh Deptt. of Hindi G.H.G.Khalsa College Sadhar(India)*

## Foreword

The relationship between science and religion has been a point of discussion between the volunteers of The Sikh Community and Youth Service Nottingham and the local young people. In order to address this issue Sardar Gurbachan Singh Sidhu was requested to meet a group of specially invited intellectuals and university students. The discussion that took place has formed the basis of this book.

There is very little information available in Sikh literature on this topic. This is surprising when one considers the large number of practising Sikhs who are also Science graduates. It is sincerely hoped that this book will stimulate the interest of Sikh writers to come forward and search for concepts in the Sikh scriptures that have yet to be developed by science.

It should be understood that the Sikh Gurus were not scientists nor trained in scientific methods. Yet they provided tremendous insights into the workings of the natural and physical world. They have remarkably stated their ideas in a language that not only satisfies religious quest but also proves true on the touchstone of science.

Sikhism is scientific and consistently challenges the illogical and superstitious beliefs. Mr. Sidhu has done a sterling job in interpreting Gurbani into a language, which is accessible to young people educated in the Western world. The book provides a new insight into Gurbani and counterbalances the misplaced view that only science represents the truth and has all the answers. I am sure it will undoubtedly make a huge contribution to assist the Sikhs and non-Sikhs to better understand the messages in the scriptures. A clear challenge to the Sikh scientists and Gurbani scholars is to extend this subject further so that we leave a legacy for future generations.

Gurmel Singh Kandola.  
Director Public Services,  
Greenwich. London S.E.18

## About this book

The faith of modern man has been violently shaken by the quick and continuous advances of science and technology in all areas of life. As a consequence some members of the modern society have started questioning the need for religion in the modern scientific age. The influence of communism has further spurred such questioning and criticism. This has resulted in the rapid erosion or in many cases rejection of spiritual values and has triggered its transplantation with agnosticism and atheism. For some people the idea of God is futile, superstitious and redundant. For some others religion is an outdated commodity, which has outlived its utility and has no relevance in the 21<sup>st</sup> century. They think it is unsuited to afford guidance in human affairs and therefore, they reject everything religious as unreliable, unless proven correct through science.

Agnosticism and materialism are today driving religion out of public mind. Young people are getting devoted to vice and accumulation of wealth than to religion. Religious places are losing attendance while public bars, cinemas and discos are doing a roaring trade. There is also no dearth of conservative theologians who think that religion is a supra-sensory, supra-rational, sacred, metaphysical phenomenon without any connection with science and therefore should not be approached with a questioning stance.<sup>1</sup> Such so-called guardians of religion are throwing the gold coin of true religion away with the worn out purse of un-necessary, meaningless ritualism.

It is a fact that science improves our environment and enhances our understanding of Nature. If science is ignored man will lose thousands of years of accumulated knowledge, which has enabled him from a cave-dweller to become a sophisticated

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<sup>1</sup> Al-Ashari and Al-Ghazali condemned reason and questioning in Islam and were therefore disliked. "But for al-Ashari and Al-Ghazali the Arabs might have been a nation of Galileos, Keplers and Newtons" (Syed Ameer Ali *The Spirit of Islam* p.486). In Sikhism the self-styled *Sants* are similarly standing in the way of interpreting Gurbani scientifically.

builder of skyscrapers and computers. However no one can deny that in wrong hands even science can do incalculable harm and destroy in seconds what takes religion thousands of years to build.

Religion imparts purpose to human life and provides direction to the humanism of an individual. If religion is ignored, social justice, tolerance, morality and human values will be on the decline. But religion on its own is not a panacea for the society. It may cause mental laziness and turn the humans into introverts.

Albert Einstein puts this debate succinctly when he says, "Science without religion is lame and religion without science is blind." (*Science, Philosophy and Religion: A symposium 1941 Chapter 13*)

Science and religion in tandem can become a great force to liberate the mind and help the humans to a fuller and better understanding of reality. Science deals with the exploration of matter and material comforts, which are very necessary for the humans. Religion deals with man's mind and instincts which are inalienable part of the humans. It is therefore imperative that knowledge of both religion and science is imparted to our next generation and nurtured with equal enthusiasm. "The diamond of knowledge always keeps the mind flooded with light and destroys the darkness of ignorance"<sup>2</sup> say the wise.

To write about religion is fraught with many difficulties but to compare and contrast it with science is really an uphill task. Looking for precise physical scientific laws and scientific experimental data in religion is like looking for fish in the desert. The difficulty is further accentuated for a person like me whose knowledge of his own religion is insufficient and that of science is patchy. To do such a gigantic task, one has to have an absolutely encyclopaedic knowledge of both disciplines especially of

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<sup>2</sup> ਗਿਆਨ ਰਤਨੁ ਸਦਾ ਘਟਿ ਚਾਨਣੁ ਅਗਿਆਨ ਅੰਧੇਰੁ ਗਵਾਇਦਾ ( ਪੰਨਾ ੧੦੬੩) ॥ ਗਿਆਨ ਕਾ ਬਧਾ ਮਨੁ ਰਹੈ ਗੁਰ ਬਿਨੁ ਗਿਆਨੁ ਨ ਹੋਇ ( ਪੰਨਾ ੪੬੯) ਗਿਆਨ ਖੜਗੁ ਲੈ ਮਨ ਸਿਉ ਲੁਝੈ ਮਨਸਾ ਮਨਹਿ ਸਮਾਈ ਹੇ (ਪੰਨਾ ੧੦੨੨) ਗਿਆਨ ਅੰਜਨੁ ਜਾ ਕੀ ਨੇੜੀ ਪੜਿਆ ਤਾ ਕਉ ਸਰਬ ਪ੍ਰਗਾਸਾ ॥ ਅਗਿਆਨਿ ਅੰਧੇਰੈ ਸੂਝਸਿ ਨਾਹੀ ਬਹੁੜਿ ਬਹੁੜਿ ਭਰਮਾਤਾ (ਪੰਨਾ ੬੧੦)

science, which has so many branches<sup>3</sup> and is at heart never constant. It is changing with every rising sun. No one can cover such a wide field expertly. Furthermore, we know that in the modern age of excessive specialization, what is accepted as established and widely recognised scientific fact one day may turn out to be a myth on another day.

The Sikh Community and Youth Service of Nottingham organised a series of lectures and asked me to speak on this difficult subject. Ever since the lectures were delivered, there has been a persistent demand to put my ideas in writing. The result is now in your hands. The book is based only on the fundamentals of science, which are a stepping-stone to advanced knowledge of the subject. References to complicated theories and scientific jargon were unavoidable. I have tried to minimise them, omit them or as far as was possible explain them in footnotes. Facts have been substantiated by quotations from Gurbani with page number.

I am of the opinion that Sikhism and science are not incompatible but complementary. In many ways science today is simply corroborating what the Sikh Gurus had said and recorded centuries ago. I will feel myself rewarded if the youth of today find this book of some use in evaluating their stance on life.

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August1,2003

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<sup>3</sup> There was a time when physics and chemistry were the only subjects considered as sciences but today the word science is loosely applied to optics, ethics, politics, mathematics, Sociology, biology, neurology, zoology, religion and a host of other disciplines.

## Acknowledgements

I must place on record my gratitude to Mr. Gurmel Singh Kandola Director Public Services Greenwich London S.E.18, who has very kindly added a very concise foreword to the book. Mr. Kandola's interest in preaching the scientific truths of Sikhism to the next generation is well known. It was only through the inspiration and encouragement from him and his colleagues that this work has been completed.

I wish to take this opportunity to thank the numerous individuals who read the manuscript and sent in their suggestions. Their names are too numerous to be listed here but I must thank the following for bending backwards to help me produce the book.

Sardar Hardev Singh Shergill Editor 'The Sikh Bulletin' President Khalsa tricentennial Foundation of North America Inc; Secretary-General Singh Sabha International America. Dr. Baldev Singh Collegeville. P.A America. Dr.Gurcharan Singh Msc.PhD Scientist at Taramedic Corporation Kuala Lumpur Malaysia. Dr.Sarbjit Singh Msc.PhD Scientist Radio Chemistry Division, Bhawa Atomic Research Centre Mumbai 400085. India. S. Ram Singh Kular Principal Akal degree College Mastuana (Panjab) and Chief Organiser Guru Gobind Singh Study Circle Ludhiana. Dr.C.S.Syan Msc.PhD Nottingham. Dr. Gurmel Singh Sidhu Molecular geneticist Fresno. Cal. America. Dr.Mandeep Kaur Khela Msc.PhD London. Dr.Tarlochan Singh Warwick. Leamington Spa. U.K. Dr. Rajinder Singh Department of Hindi Khalsa College Sadhar (India). Professor Gurdev Singh Postgraduate Department of English Khalsa College Sadhar (India) Dr.Haribala Vaid M.A. PhD London. Dr. Chanchal Singh Msc. London

I will be failing in my duty if I did not mention my grandson Sutej Singh Sivia of Birmingham and Harpreet Singh

Sehra of Nottingham (Students) who prepared the title of the book. I express my deep appreciation of Sardar Bakhtawar Singh Sehra of Nottingham for demonstrating patience in typing, re-typing, correcting and preparing the manuscript time and time again until it got ready for the press. As usual he has once again contributed financially to see this book in print. I must also express my heartfelt thanks to the numerous Gursikhs and Sikh organisations (including SCYS Nottingham) and Guru Nanak Mission Parchar Board Gravesend (Kent), which have contributed large amounts to see this book in print. My thanks also go to Dr. Gurmel Singh of Gurmat Bhawan Mandi Mullan Pur (India) for arranging the publication of this book and for shouldering the onerous task of shipping it to all corners of the world.

The manuscript was sent to the Assistant Secretary of the Dharam Parchar Committee SGPC Amritsar (India) after receiving his written consent for vetting. I regret very much to say that even after eight months and many subsequent e-mail reminders to the secretary no response was received. The involvement of the SGPC would have gone a long way in reassuring the readers of the correctness of my conclusions.

G.S.Sidhu.  
Nottingham

#### **Abbreviations used in this book**

1. Aad Sri Guru Granth Sahib                      AGGS
2. Sikh Vichar Dhara SGPC Amritsar 1969      SVD

# Chapter 1

## Science, mysticism and religion

**“Science and religion, in spite of being autonomous undertakings, are like contemporary forces that operate in tandem”** (*Religious experience in science*’ Dr. D.P.Singh)

**T**here was a time in human history when science had not developed much and the only ideas that could influence human society originated either from the priests or from the rulers of the time. This is not to say that reason did not exist in those days of yore. It was smothered under the jackboots of the dominating political and religious over lordship. Trespassers into the spheres of their influence were tortured or persecuted for questioning their wisdom. It was only in the last five hundred years, that tables were finally turned against this petrified dogmatic approach, giving place to rationalism.

Today, rationalism is based on the scientific method of cognition, observation, analysis, interpretation, hypothesis and final verification. Anything that does not stand to reason, or cannot be adequately explained or proven, is not readily accepted. Reason, rather than custom, tradition, spiritualism or authority has therefore become the ultimate court of appeal and for many it usually stands in opposition to established religions. The rationalists usually seek a cause behind every effect and unless the cause is known, a fact is not accepted. Most of them find religion lacking on this count and therefore they denounce and devalue religion as an unscientific aberration.

It is commonly alleged that more bloodshed has occurred on account of religion than any war in human history. Therefore some people call religions ‘cultural cocoons’ which spread fanaticism, bigotry, and discord. “Men never do evil so completely and cheerfully as when they do it from religious conviction” says Pascal. Examples of crusaders and dictators like Hitler, who exploited religion as their handmaiden, are quoted ad infinitum.

Is science a remedy for all ills and a blessing for the human society? Can we forget Hiroshima and Nagasaki and ignore the nuclear weapons that can annihilate the world in seconds?<sup>4</sup> True that we can now cure deadly and dangerous diseases and have begun to explore the outer limits of space but it is equally true that we have also invented extremely dangerous weapons of self-destruction and desolation. Our rivalry for supremacy these days rests on stockpiling lethal instruments of death, devastation and destruction. Fuel from our rockets and planes punctures big holes in the world’s protective ozone layer. This is causing concern to everybody including our scientists.

Staunch protagonists of religion think that modern scientific mind looks upon life simply as an automaton. Considering such danger to humanity the Pope said, “*The danger to modern man is that he would reduce the earth to a desert, the person to an automaton, brotherly love to planned collectivism, often introducing death where God wishes life.*”

(Pope John Paul I, 26.8.78)

Taking the moral base as a pre-requisite for development of science S.P.Charter Says, “Scientific realism is a noble concept but it can become an instant perversion to destroy the world.” Such perversion sets in because of human weaknesses which only religion teaches us to control and overcome.

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<sup>4</sup> “If I had known that my theories would lead to such destruction, I would rather have been a watchmaker” (Albert Einstein *How is it done* p. 177)

Science cannot remove social injustice, economic exploitation, bigotry and racial prejudice from the society. To this end, religion can act as an antidote to the vagaries of society because it tries to humanise scientists and urges them to realise their responsibilities towards society.<sup>5</sup>

It is high time the human society accepts that the world of matter and the world of spirit are two distinct entities and as such they should both be studied and explored independently of each other. The knowledge of matter comes through science and the knowledge of spirit comes through religion.

## 1.1 Religion

**“At the end of his intellectual tether, man has never ceased to become religious”** (Introduction to Science by *J.Arthur Thomson* p. 205)

Religion has been defined as, “The complex of man’s inter-relationship with super human power.”<sup>6</sup> Reading through the scriptures of various religions one finds that all religions fall into three main divisions.

- (1) Ceremonial Division: It prescribes directions for ritual observances.
- (2) Metaphysical and eschatological Division: It deals with God, soul, salvation, death, resurrection, judgement, after-life and legends relating to the lives of supernatural beings.

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<sup>5</sup> The spirit behind both religion and science is persistent search for reality. “Science can only be created by those who are thoroughly imbued with the aspiration toward truth and understanding. This source of feeling, however, springs from the sphere of religion” (Albert Einstein *Science Philosophy and Religion: A Symposium 1941*). “I can not conceive of a genuine scientist without a profound faith” (Albert Einstein. *Science and religion* p.26) ਖੋਜੀ ਉਪਜੈ ਬਾਦੀ ਬਿਨੈ ਰਹਿ ਬਲਿ ਬਲਿ ਗੁਰ ਕਰਤਾਰ (ਪੰਨਾ ੧੨੫੫)

<sup>6</sup> According to Oxford English Dictionary it is “Human recognition of superhuman controlling power.” “Practice of sacred rites.” . The word ‘Religion’ is derived from *Religare*, which means ‘to bring closer, to bind’. Some people define religion as “Thirst for God and its satisfaction.” These people believe that (1) God actually exists eternally and (2) that moral law is a fact and (3) that pursuit of moral laws will eventually ensure our final victory of right over wrong. In other words God rewards righteousness of the humans and punishes their iniquity. They preach that human mind is the habitation of Truth therefore it must be made pure for the divine guest.

Here history, mystery, philosophy and mythology get intermixed.

- (3) Spiritual and mystical Division: It concerns with spiritual experiences, ethics, and individual conduct vis-a-vis society.

Whereas institutionalised religions differ in their approaches to metaphysical, eschatological and ceremonial modes, there is a common denominator as far as spiritual and ethical division is concerned. It can therefore be said that the kernel of true religion transcends the metaphysical and ritual parts of religions by devoting full attention to ethical problems that affect the society as a whole.<sup>7</sup> In other words, we talk of universal religion, which does not consist of bundles of theories, doctrines rituals and observances. Such a religion simply reinforces spirituality and ideal social behaviour for the uplift of humanity rather than preaching a belief in any dogma or forced conformity. It is free from institutionalisation, text torturing, intellectual gymnastics, mythology, symbology and knotty problems of philosophy that often lead to unremitting hatred and controversies. Institutionalised religion is sick and politicised religion turns into a corpse. For the purpose of this book we will, therefore, consider this spiritual view of religion rather than its creedal, dogmatic or politicised fringe. Our definition of religion will be as provided by Guru Arjan Dev, “The best of all religions is to meditate on the Lord and to do good deeds.” (AGGS P. 266)<sup>8</sup>

Many people have preached ideas of rationalism, service to society and human brotherhood for decades. But the society still needs to learn how to submerge self-interest with common

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<sup>7</sup> Rituals and ceremonies are the chains of the mind “ਆਸਾ ਮਨਸਾ ਬੰਧਨੀ ਭਾਈ ਕਰਮ ਧਰਮ ਬੰਧਕਾਰੀ” (ਪੰਨਾ ੬੩੫) ਕਰਮ ਧਰਮ ਕਿਛੁ ਉਪਜਿ ਨ ਆਇਓ ਨਹ ਉਪਜੀ ਨਿਰਮਲ ਕਰਣੀ (ਪੰਨਾ ੫੩●) ਕਰਮ ਧਰਮ ਪਾਖੰਡ ਜੋ ਦੀਸਹਿ ਤਿਨ ਜਮੁ ਜਾਗਾਤੀ ਲੂਟੈ (ਪੰਨਾ ੭੪੭) Sikhism advocates ਬਿਬੇਕ ਬੁਧਿ (discriminating intellect.) “ਬਿਬੇਕ ਬੁਧਿ ਸਤਿਗੁਰ ਤੋ ਪਾਈ ਗੁਰ ਗਿਆਨੁ ਗੁਰੂ ਪ੍ਰਭ ਕੇਰਾ (ਪੰਨਾ ੭੧੧) ਬਿਬੇਕ ਬੁਧਿ ਸਭ ਜਗ ਮਹਿ ਨਿਰਮਲ ਬਿਚਰਿ ਬਿਚਰਿ ਰਸੁ ਪੀਜੈ (ਪੰਨਾ ੧੩੨੫) ਬਿਬੇਕ ਬੁਧਿ ਬੀਚਾਰਿ ਗੁਰਮੁਖਿ ਗੁਰ ਸਬਦਿ ਖਿਨੁ ਖਿਨੁ ਹਰਿ ਨਿਤ ਚਵੈ (ਪੰਨਾ ੧੧੧੪)

<sup>8</sup> “ ਸਰਬ ਧਰਮ ਮਹਿ ਸ਼੍ਰੇਸਟ ਧਰਮੁ ॥ ਹਰਿ ਕੇ ਨਾਮੁ ਜਪਿ ਨਿਰਮਲ ਕਰਮੁ ( ਪੰਨਾ ੨੬੬) This definition is supported by the scientist Albert Einstein who writes, “True religion is real living with all one’s soul, with all one’s goodness and righteousness.”

interest. Religion requires the individual to engage in service to humanity without any ulterior motive or expectation of a reward.

Technological advances in science improve physical conditions and are very necessary for the human society but they leave the society suffering from great mental strains and inner frustration resulting from non-fulfilment of desires. This is where true religion becomes handy and ameliorates the inner condition of man provided that religion is tinged with reason. When religion falls short of reason it weakens itself and sinks like lead.

## 1.2 Mysticism

**“The most beautiful thing we can experience is the mysterious. It is the source of all true art and science”** (Albert Einstein *Science Philosophy & Religion: A symposium 1941 Chapter 13*)

Mysticism (experiences of the soul and its communion with God) is an inherent part of all religions. It is this aspect of religions, which has drawn a lot of criticism. It is usually argued that only those who experience mysticism can draw benefit, if any, from mystical experiences but it cannot be stated with confidence that the experiences and claims of the mystics are imaginary or false? A careful study reveals that there is great similarity between the experiences of mystics of different religions. Just as mathematics remains the same in the entire world, mysticism and ethics appear to be the same everywhere.

Like the difficulty in describing the beauty of sunset or sunrise, it is hard to satisfactorily describe mysticism or explain mystic experiences. In the matter of spiritual beatitude there is no substitute for first hand experiences. “Just as a dumb cannot describe the taste of sugar, a mystic will find it hard to describe the realities behind his mystic experiences.” (AGGS p.657)<sup>9</sup>

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<sup>9</sup> “ਗੁੰਗੇ ਮਹਾ ਅੰਮ੍ਰਿਤ ਰਸੁ ਚਾਖਿਆ ਪੁਛੇ ਕਹਨੁ ਨ ਜਾਈ ਰੇ” (ਪੰਨਾ ੬੫੭) ਕਹੁ ਕਬੀਰ ਗੁੰਗੇ ਗੁੜੁ ਖਾਇਆ ਪੁਛੇ ਤੇ ਕਿਆ ਕਰੀਐ (ਪੰਨਾ ੩੩੪)

In Sikhism a truly knowledgeable mystic is called a *Sant* (*ਸੰਤ*=*God conscious man/woman*).<sup>10</sup> The Guru says, “The philosophy preached by a *Sant* (mystic) is the ladder for universal spiritualism. Fortunate are those who follow it.”(AGGS p. 622).<sup>11</sup> The *Saints* enkindle in us the thirst for the knowledge of the Almighty. They are the pace setters of ethics, morality and the art of living and hence instruments of God. They explain that our visible world is only an illusion. It exists only for the realisation of God’s moral purposes and to translate the Will of God into activity. They direct the selfish, self-seeking individuals to moderate their greed, control their desires and endeavour to create something for humanity. Such a process simply enriches our own individual personalities. The mystics guide us on how to get out of self and raise ourselves above ourselves. Without mystics humans are only a race of struggling, murdering and grabbing animals, which consider others as adversaries and targets of exploitation.

According to Aldus Huxley “Mystics are the channels through which knowledge of reality filters down into our universe of ignorance and illusion. A totally un-mystical world would be a world totally blind and insane.” To understand mysticism one has to tread the path personally with faith, self-consecration and devotion.

Even rationalists acknowledge that mysticism has a lot to offer to the society. For example, Bertrand Russell, a known religious sceptic, says that a combination of science and mysticism is necessary for the individual to rise to “the highest eminence, because mysticism inspires whatever is best in man.” According to him, “The greatest men who have been philosophers

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<sup>10</sup> ਜਿਨਾ ਸਾਸਿ ਗਿਰਾਸਿ ਨ ਵਿਸਰੈ ਹਰਿ ਨਾਮੰ ਮਨਿ ਮੰਤੁ ॥ ਧੰਨੁ ਸਿ ਸੇਈ ਨਾਨਕਾ ਪੂਰਨੁ ਸੇਈ ਸੰਤੁ ॥ (ਪੰਨਾ ੩੧੯) ਸੰਤ ਸਰਨ ਤਰਨ ਨਾਨਕ ਬਿਨਸਿਓ ਦੁਖੁ ਘੋਰ (ਪੰਨਾ ੧੩੦੭). ਸੇਈ ਸੰਤੁ ਜਿ ਭਾਵੈ ਰਾਮ ॥ ਸੰਤ ਗੋਬਿੰਦ ਕੈ ਏਕੈ ਕਾਮ (ਪੰਨਾ ੮੬੭). The Sikh Gurus have also used the words ਗੁਰਮੁਖ, ਸੁਹਿਮ ਗਿਆਨੀ and ਪੰਚ for *Sant*.

<sup>11</sup> ਸੰਤ ਕਾ ਮਾਰਗ ਧਰਮ ਕੀ ਪਉੜੀ ਕੋ ਵਡਭਾਗੀ ਪਾਏ (ਪੰਨਾ ੬੨੨) ਸੰਤ ਜਨਾ ਕੈ ਹਿਰਦੇ ਸਭ ਧਰਮ (ਪੰਨਾ ੨੯੪) ਸੰਤ ਗੋਬਿੰਦ ਕੈ ਏਕੈ ਕਾਮ (ਪੰਨਾ ੮੬੭)

have felt the need both of science and mysticism.”(*Mysticism, logic and other essays* p. 1, 4 and 12).

Albert Schweitzer goes a step further when he says that, “Rational thinking, which is free from assumption, ends up in mysticism. We must all venture once more to be thinkers so as to reach mysticism, which is the only direct and the only profound world-view. We must all, through thought, become religious” (*Civilization and ethics* p. 11-13)

Thus it can be seen that mystics have a lot to contribute to the world. In the words of W.T.Stace, “It is possible, in short, that the superman of the future is to be the mystic man” (*Mysticism and philosophy* p. 204)

### 1.3 Science

**“One thing I have learned in a long life is that our science, measured against reality, is primitive and childlike- and yet it is the most precious thing that we have”** (*Albert Einstein creator & rebel* p.5)

Science has been defined as “systematized knowledge of Nature, its laws and processes.”<sup>12</sup> The difficulty remains in defining ‘Nature’. Is human nature a part of ‘Nature’?<sup>13</sup> If so, what can we say about the laws and processes of human nature? Just as the law of gravitation existed all the time, whether we knew about it or not, so do the laws of human nature. Should they

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<sup>12</sup> “Systematic and formulated knowledge” Oxford English dictionary. Some define it as “verified knowledge.” Einstein described science as “Methodical thinking toward finding regulative connections between our sensual experiences” (*Ideas & opinions Crown publishers New York 1954*) “Science grows out of our rationality in relation to material things. Art grows out of our relation to living beings. Religion grows out of our relation to persons.” (*Reason & Emotion* by John Mac Murray p.196). “The aim of science is to study nature and human experience objectively” (Karl Pearson *Grammar of science* 1900 p.6)

<sup>13</sup> “Today, Nature looms larger than ever and includes more fully than ever ourselves. It is, if you will, a machine, but it is partly mentalised machine and in virtue of including ourselves, it is a machine with human qualities of mind. It is a running stream of energy—mental and physical --- and unlike man-made machines, it is actuated by emotions, fears and hopes, dislikes and love.”(Sir Charles Sherrington *Man on his nature* p.38 Pelican Edition)

be classified as science or religion? Are there any moral and spiritual laws comparable with the laws of physical sciences? If there are, then in what way do they differ from the laws of physical sciences? Scientists invent bombs, which on their own pose no danger unless a moral (or immoral?) law of the humans prompts their use.

Natural sciences develop through hypothetical-deductive method or through inference. For example a snake appears to be a rope unless we find that it starts slithering when challenged. A scientist would then state a hypothesis that if rope-like things move when challenged, they must be snakes. Hypothesis is followed by experimentation to prove or disprove it. If it is not disproved then it becomes a scientific law. Alternatively scientists postulate hypotheses through observation. For example if they find sparrows and other birds chirping and twittering frantically they would infer that there is some kind of danger near the birds. Careful observation then confirms their inference to be true or otherwise. Astronomer Adams followed this method of inference when he predicted the existence of Neptune because Uranus was behaving strangely.

Scientific theories keep changing for years and years until one particular theory is accepted in the hope that no one at any time will be able to disprove it. For example, Newton first advanced 'The corpuscular theory' of light, proving that light is a stream of particles thrown out by a luminous source and always travels in a straight line. Later, this was disproved when reflection, refraction and diffraction of light were brought into play. 'The corpuscular Theory' gave way to 'the wave theory' but soon even this theory lost its appeal and "the quantum theory" of indivisible photons was advanced to replace it. At present, light is considered both as a wave and a particle at the same time (Theory of Wave-particle duality). Sometimes it behaves like a wave and at other times as a particle and this behaviour is un-predictable. Einstein

also proved that light could bend.<sup>14</sup> Future research may even question this stand. Similarly, at one time Newton's three laws of motion were considered 'sermon in stone' but Einstein's theory of relativity modified many of Newton's conclusions.

## 1.4 Science and religion

Human mind refuses to be guided simply by facts and figures or the knowledge gained through physical sciences. For example a male doctor may know all the biological facts about his female patient but cannot explain why his patient fell in love with him. Again a surgeon operating upon his own dying child will not simply apply his impersonal professional medical knowledge but will be strongly affected by his parental instincts and emotions as well.

It is also true that physical sciences cannot produce honesty, compassion, peace of mind, friendship and tolerance, which are so necessary for modern society? Has any Scientist invented a machine that can help control pride, greed, anger, intolerance, fanaticism and the 'grabbing instinct' so common among humans?<sup>15</sup> Scientific knowledge is therefore insufficient for involving sentiments, behaviour, instincts, and emotions of human beings.

There are some people who call religion 'a licensed insanity' and declare that; "a rational religion is a scientific impossibility. The essential element in all religious beliefs is ultra rational sanction"<sup>16</sup> Therefore, they say that there is no meeting ground between science and religion. Others explain things scientifically as far as they can, leave the rest to God, and jokingly claim that God is left with a steadily diminishing territory.

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<sup>14</sup> According to the theory of relativity (1916) light bends in an accelerating system. Newtonian mechanics holds true at low velocities only.

<sup>15</sup> Psychologists and Psychiatrists do help but only in a limited sense. It is the Holy congregation ( संघट= society of the pious people) that can turn dross into gold.

<sup>16</sup> Kidd "Social Revolution"

It needs to be understood that natural sciences deal with truths of the physical world; whereas religion deals with the truths of the metaphysical world. Methods applied by one discipline cannot be applied by the other. A scientist cannot succeed by applying theological arguments and a priest cannot prove the existence of God or heaven and hell through experiments. Scientific laws are open to change but religious laws are stable and inflexible. They cannot be changed. We either accept them or reject them but we cannot change them unless we abjure a particular religion and adopt another. We do not establish the truth of these laws through inference or deduction like we do in science. To assume that an idea is unacceptable unless proved scientifically is to pre-suppose that science is the only valid thought process. Science can state what exists, but not what should exist. Human society needs *intellectual attitude*, which is as much the field of science as it is of religion.

There are people who genuinely feel that science has, instead of making religion redundant, increased its need many fold. “Those who think that Science has accounted for everything are just stupid”(Arthur C. Clarke *Mysterious world page 12*) “I don’t care what science dictates, I must stick to my faith” attitude is as dangerous as saying, “Religion is a thing of the past and has long since outlived its utility.”<sup>17</sup>

For human society spiritual reality is as important as the sensually perceived empirical reality. One soothes the mind and gives moral direction the other provides material comforts. One is didactic (instructive) and subjective, the other is dialectic (logical) and factual, both are necessary for human development. Instead of being irreconcilable they are two views of the same reality, observed through different coloured spectacles. Only if we accept each discipline in the context of the other can we hope to taste the

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<sup>17</sup> “ਲਾਈ ਲਗ ਮੋਮਨ ਦੇ ਕੋਲੋਂ ਖੋਜੀ ਕਾਫਰ ਚੰਗਾ” “A research orientated infidel is better than a committed fundamentalist” Professor Mohan Singh ਖੋਜ ਖੂਠਿ ਜਉ ਕਰੈ ਬੀਚਾਰਾ (ਪੰਨਾ ੩੪੨) ਖੋਜਤ ਖੋਜਤ ਬਹੁ ਪਰਕਾਰੇ ਸਰਬ ਅਰਥ ਬੀਚਾਰੇ॥ (ਪੰਨਾ ੭੧੪) ਸਮਝੈ ਸੂਝੈ ਪੜਿ ਪੜਿ ਬੂਝੈ ਅੰਤਿ ਨਿਰੰਤਰਿ ਸਾਚਾ (ਪੰਨਾ ੯੩●)

fruits of reality.<sup>18</sup> Such approach can be intellectually honest, satisfying, rewarding and socially beneficial.

Without moral control, material progress, however beneficial, can prove to be a bull in a china shop. Herbert Spencer writes, “Let science admit that its laws apply only to physical phenomena. Let religion admit that its theology is a rationalizing myth for a belief that defies conception. Let religion cease to picture the Absolute as magnified man, much worse as a cruel and bloodthirsty treacherous monster afflicted with love of adulation such as would be despised in human beings. Let science cease to deny deity or to take materialism for granted. Mind and Matter are equally relative phenomena, the double effect of an ultimate cause whose nature must remain unknown. The recognition of this inscrutable power is the core of truth in every religion and the beginning of all philosophy.” (As quoted in *SVD p. 5 SGPC* 1989)

“While the mystics’ way is inward and contemplative, Scientists’ is outward and analytical. You will hardly find one among the profounder sort of scientific minds without a religious feeling of his own.” (Albert Einstein *The world as I see it* p. 28) In deed someone has rightly said that in this materialistic age of ours the serious scientific workers are the only profoundly religious people.

“To assume that scientific materialism has, in its couple of hundred years of existence, come up with a truer description of reality than that arrived at over centuries by philosophers dedicated to the task is- to put it mildly- presumptuous” (Rita Carter in ‘*Consciousness*’)

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<sup>18</sup> “The nature of reality is such that it can not be directly and immediately apprehended except by those who have chosen to fulfil certain conditions making themselves loving pure in heart and poor in spirit” (Aldus Huxley). Intuitive knowledge goes farther than rational knowledge. It does not contradict it but certainly transcends it.

It is therefore justified to conclude that religion and science are both necessary for human progress and that science should work as a helper of religion.

“I maintain that the cosmic religious feeling is the strongest and the noblest motive for scientific research.” (Albert Einstein 1930 *Forum* 83 p. 373). Keeping religion and science apart would be potentially dangerous and any effort to make them coincide would equally miss the point. “Man is body, mind and soul and as such needs science and religion, medication and meditation for harmonious relationship with nature” (Frolov of Moscow)

“You can neither understand the spirit of true science, nor of true religion, unless you keep seeking in the forefront” (Sir Arthur Eddington *Science and the unseen world* p.5)

## Chapter 2

### Science and Super-power

**“The philosophy of religion differs from other physical sciences in beginning with the idea of God instead of reaching it at the last; in the one case it is the *Terminus A Quo*, in the other *Terminus Ab Quem*” (Hegel)**

**R**eligion depends on intuitional power and demands belief whereas physical sciences depend on observations and experimentation. They require concrete demonstrable proofs. The mystic simply believes that a Prime mover (God) is the final cause of all creation but the scientist does not accept the presence of a Prime mover and demands proof of its existence. Therefore the first clash between religion and science starts at the question of the Creator.

According to many modern scientists and agnostics there is no higher authority (God) creating, controlling and running the universe. They argue that matter is eternal. It has in-built self-sufficiency to evolve, dissolve and shape itself. On the other hand the mystics argue that if matter is eternal, how did the vast processes of motion and transformation begin which resulted in filling the vast universe with matter? How did matter develop thinking and evolve into mind?

Descartes said, “The essence of matter is expansion in space but the essence of mind is thought” (cited by Sir James Jeans in *The mysterious universe* P. 171). How and at what stage did matter change into mind is not known. Neither is it known as to how the expansion of matter started and when will it end?

“Mind no longer appears as an accidental intruder into the realm of matter, we are beginning to suspect that we ought rather to hail it as the Creator and Governor of the realm of matter, not of course our individual minds, but the minds in which the atoms out of which our individual minds have grown exist as thoughts.”(Sir James Jeans *The mysterious Universe* p. 187)

Aristotle has written quite a lot on this subject. He writes, “If we are not to plunge drearily into an infinite regress putting back one problem step by step endlessly, we must posit a Prime Mover unmoved being, incorporeal, invisible, space-less, sexless, passionless, changeless, perfect and eternal (God) who is the final cause of nature.”(SVD p. 47)

Aristotle’s view is quite convincing. The extremely complex chemical and physical make up of living organisms is a very convincing testimony to a superior and perfect maker. Most living organisms originate from a minute fertilized egg barely visible to the naked eye. The egg is as small as a pinprick and yet this insignificant pinprick contains immeasurable traits of new life for future regeneration. Remarkably incomprehensible, intricate, unbelievable and mysterious developments result in the womb producing functionally different organs of the body like eyes, ears, and the brain (with at least 10,000,000,000 cells in it). It is hard to believe that all this happens by itself without any planner.

One wonders what protects the embryo from the surrounding harmful chemicals in an egg. What mechanism provides food for its growth until the chick develops into millions of complex living cells within a short span of time? Who provides vital oxygen to the chick in the egg or disposes of exhaled carbon dioxide? “There certainly is some ‘directive principle’ at work” (*Science Today* p. 25-26).

According to Sikhism ‘*the directive principle*’ is the Creator who created everything and infused His spirit in the living

organisms. The Guru says, “O, my body, the Lord infused His consciousness in you and only then did you appear on the earth”<sup>19</sup> (AGGS p. 921). Since there is a design in everything we see in nature, there must also be a designer. The more complicated a design is, the more intelligent the designer. Sikhism believes that God is the designer whose creative designs are par excellence.

As for providing sustenance and protection in the womb, the Guru says, “The Lord provided protection to you in the womb.” (AGGS p. 805)<sup>20</sup> According to Sikhism God created the universe and he looks after everything.<sup>21</sup>

## 2.1 God

“God is dead”. *Nietzsche*

Scientists like Lodge, Crooks and Cripps claim that there is nothing beyond Nature. If there is God, He must be coincident with Nature. But we know that there is a limit beyond which lies the unknown and our scientific knowledge does not help in explaining the intricacies of Nature.<sup>22</sup> After never-ending research many scientists have eventually started believing in the existence of God. They now acknowledge that “All through the physical world runs an unknown content which must surely be the stuff of our consciousness. I do not think that with any legitimate usage of the word it can be said that the external world of physics is the only world that really exists” (Sir A. Eddington in *Space, time and gravitation*).

Four hundred years ago, the fifth Guru of the Sikhs had written, “One and the same *“directive principle”* exists in the

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<sup>19</sup> ਏ ਸਰੀਰਾ ਮੋਰਿਆ ਹਰਿ ਤੁਮ ਮਹਿ ਜੋਤਿ ਰਖੀ ਤਾ ਤੂ ਜਗ ਮਹਿ ਆਇਆ ( ਪੰਨਾ ੯੨੧)

<sup>20</sup> ਜਨਨੀ ਕੇਰੇ ਉਦਰ ਉਦਕ ਮਹਿ ਪਿੰਡੁ ਕੀਆ ਦਸ ਦੁਆਰਾ ॥ ਦੇਇ ਅਹਾਰੁ ਅਗਨਿ ਮਹਿ ਰਾਖੈ ਐਸਾ ਖਸਮੁ ਹਮਾਰਾ  
(ਪੰਨਾ ੪੮੮) ਮਾਤ ਗਰਭ ਮਹਿ ਜਿਨਿ ਪ੍ਰਤਿਪਾਲਿਆ (ਪੰਨਾ ੧੦੭੧) ਮਾਤ ਗਰਭ ਮਹਿ ਤੁਮ ਹੀ ਪਾਲਾ (ਪੰਨਾ ੧੩੨)

<sup>21</sup> ਜਿਨਿ ਉਪਾਈ ਮੇਦਨੀ ਸੋਈ ਕਰਦਾ ਸਾਰ (ਪੰਨਾ ੭੨੪) ਜਿਨਿ ਉਪਾਈ ਰੰਗਿ ਰਵਾਈ ਬੈਠਾ ਵੇਖੋ ਵਖਿ ਇਕੋਲਾ (ਪੰਨਾ ੭੨੩)

<sup>22</sup> ਸੋਚੈ ਸੋਚਿ ਨ ਹੋਵਈ ਜੋ ਸੋਚੀ ਲਖ ਵਾਰ (ਪੰਨਾ ੧) ਚਤੁਰਾਈ ਨ ਚਤੁਰਭੁਜੁ ਪਾਈਐ (ਪੰਨਾ ੩੨੪) ਚਤੁਰਾਈ ਨ ਪਾਇਆ ਕਿਨੈ  
ਤੂ ਸੁਣਿ ਮੰਨ ਮੋਰਿਆ (ਪੰਨਾ ੯੧੮) ਚਤੁਰਾਈ ਨਹ ਚੀਨਿਆ ਜਾਇ (ਪੰਨਾ ੨੨੧)

moon, the sun and the galaxies.” (AGGS P. 294)<sup>23</sup> The Guru says, “He established the earth, the sky and the air, the water of the oceans, fire and food. He created the moon, the stars and the sun, night and day and mountains; he blessed the trees with flowers and fruit. (AGGS P.1399)<sup>24</sup>

There is hardly a page in the Sikh scripture where God is not mentioned but the Guru does not provide any proof of God’s existence. He says that the mysteries of God are unintelligible to human beings.

We may believe in the existence of God only if we have firm faith, and firm faith is the activity of the soul. The Sikhs believe that God cannot be known through passive acceptance of established dogmas or the cut and dried laws of physical sciences. For them existence of God is a reality. Their faith shows the way to meaningful living, which in turn is the way to God.

According to Sikhism knowledge is necessary<sup>25</sup> to solve the basic human problem, which is ‘How to live?’ Science does help provide comforts but it is belief in God that solves this real problem. Science informs and nurtures the humans, but belief delineates the art of living for them. Science reveals the secrets of reality but faith creates a link between reality and real living. Science may prolong our life but it is religion that deepens it. “Only by true living can the truth be realised”<sup>26</sup>

Some scientists and researchers now admit that there may be a power that runs the universe. “Modern scientific theory

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<sup>23</sup> ਸਸੀਅਰ ਸੂਰ ਨਖਤੁ ਮਹਿ ਏਕੁ (ਪੰਨਾ ੨੯੪)

<sup>24</sup>ਸਸਿ ਰਿਖਿ ਨਿਸਿ ਸੂਰ ਦਿਨਿ ਸੈਲ ਤਰੁਅ ਫਲ ਫੁਲ ਦੀਆਉ (ਪੰਨਾ ੧੩੯੯) In Sikhism God can be male or female (ਤੂੰ ਮੇਰਾ ਪਿਤਾ ਤੂੰ ਹੈਂ ਮੇਰਾ ਮਾਤਾ). For the sake of convenience we shall use the word ‘He’ for God. Albino Luciani (Pope John Paul I) speaking to a packed audience at St. Peters’ Square on Sunday 10.9.78 said of God, “He is our father even more He is our Mother.” There was a hue and cry throughout the Christian world against this statement because most Christians thought God was male. Pope John Paul simply pointed out that he was quoting from Isaiah.

<sup>25</sup> ਮਨ ਸਮਝਾਵਨ ਕਾਰਨੇ ਕਛੁਅਕ ਪੜੀਐ ਗਿਆਨ (ਪੰਨਾ ੩੪●)

<sup>26</sup> ਸਚਰੁ ਓਰੈ ਸਭੁ ਕੇ ਉਪਰਿ ਸਚੁ ਆਚਾਰੁ (ਪੰਨਾ ੬੨)

compels us to think of the Creator as working outside time and space, which are part of His creation, just as the artist is outside his canvas” (*The mysterious Universe by Sir James Jeans P. 183*)

G.J.Van Wylen, Richard Sonntag clinches the issue by saying, “We see the second law of thermodynamics as a description of the prior and continuing work of a Creator, who also holds the answer to our future destiny and that of the universe.” (*Fundamentals of Classical Thermodynamics 1985 p. 232*)

## 2.2 Why can't we see God?

For the Sikhs the existence of God requires no proof because God “is visible everywhere.”<sup>27</sup> He is immanent in the phenomenal world like a musician can be said to be present in his music. Just as the sun does not exist for the owl, God does not exist for those who haven't got the vision to see Him. To see God one has to have mental vision and intuitive eyes. The Guru says, “The eyes that see God are different from physical eyes.”(AGGS p. 1100)<sup>28</sup> “God or religion cannot be proved by theoretical reasoning” (Kant)

The five senses (of seeing, smelling, touching, hearing and tasting)<sup>29</sup> that help us understand our surroundings have very limited capabilities. Our eyes can see the matter but they cannot see all its properties. For example they cannot detect radiation, radio impulses and magnetism etc. They cannot see the data on a floppy/compact disk or DVD. This does not mean that nothing exists on them.<sup>30</sup>

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<sup>27</sup> ਨਾਨਕ ਕਾ ਪਾਤਸਾਹੁ ਦਿਸੈ ਜਾਹਰਾ (ਪੰਨਾ ੩੯੭) ਡੂੰਗਰਿ ਜਲਾ ਬਲਾ ਭੂਮਿ ਬਨਾ ਫਲ ਕੰਦਰਾ ॥ ਪਾਤਾਲਾ ਆਕਾਸ ਪੂਰਨੁ ਹਭ ਘਟਾ ॥ ਜਹਿ ਜਹਿ ਦੇਖਾਂ ਤਹਿ ਤਹਿ ਸੋਈ (ਪੰਨਾ ੧੦੫) ਏਕ ਅਨੇਕ ਬਿਆਪਕ ਪੂਰਕ ਜਤ ਦੇਖਉ ਤਤ ਸੋਈ (ਪੰਨਾ ੪੮੫)

<sup>28</sup> ਨਾਨਕ ਸੇ ਅਖੜੀਆਂ ਬਿਅੰਨਿ ਜਿਨੀ ਡਿਸੰਦੇ ਮਾ ਪਿਰੀ (ਪੰਨਾ ੧੧੦੦) “ਚਸਮ ਗਰ ਬੀਨਾ ਬਵਦ ਦਰ ਹਰ ਤਰਫ਼ ਦੀਦਾਰ ਅਸਤ” (ਭਾਈ ਨੰਦ ਲਾਲ) God is visible everywhere if only we have the eyes to see Him

<sup>29</sup> ਗਿਆਨ ਤਿੰਦਰੇ (ਹਵਾਸ ਏ ਖਾਮਸਾ) = ਸ਼ਬਦ, ਸਪਰਸ਼, ਰੂਪ, ਰਸ, ਗੰਧ

<sup>30</sup> The wavelength range in which our eyes can see is only .0001 centimetres. Waves of higher or lower wavelengths go undetected. With this limited vision humans cannot claim to see everything.

God is not material. He is the totality of cosmic consciousness<sup>31</sup> that exists everywhere.<sup>32</sup> Therefore “The basic oneness of the universe is not only the central characteristic of the mystical experience, but is also one of the most important revelations of modern physics. It becomes apparent at the atomic level, and manifests itself more and more as one penetrates deeper into matter, down into the realm of sub-atomic particles.”(Dr.Capra *The Tao of Physics* p.130-131). Modern science has therefore brought man to a point where he has begun to see the unity of all things so vehemently preached by religion

This universal cosmic consciousness is as much beyond our limited comprehension as infinity in space. If God can be physically seen or known, He will be God no longer.<sup>33</sup> We can visualise God only when by a life of devotion we are converted into a likeness of the Creator stamped on our souls. To see God we have to be pure, without stain, without sin, without temptation and to live continually in the peace, joy and love of God and His creation. “Those who wish to see God must either be as great as God or at least capable of comprehending His greatness.” (AGGS p.5)<sup>34</sup>

“Man sees God through his own nature and he can not transcend his being to exhaust the knowledge of the Supreme Being” (Schiller. *Human Knowledge*)

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<sup>31</sup> ਚੇਤਨਤਾ “In modern physics, the question of consciousness (ਚੇਤਨਤਾ) has arisen in connection with the observation of atomic phenomena. Quantum theory has made it clear that these phenomena can only be understood as links in a chain of processes, the end of which lies in the consciousness of the human observer” (Dr. Fritjof Capra *Tao of physics* p.300). Also read Eugene Wagner’s book *Symmetries and reflections—Scientific essays* (p.172) where he discusses this point and argues that consciousness may be an essential aspect of future theories concerning matter and its properties. ਆਪੇ ਸਭ ਘਟ ਅੰਦਰੇ ਆਪੇ ਹੀ ਬਾਹਰ, ਆਪੇ ਗੁਪਤੋ ਵਰਤਦਾ ਆਪੇ ਹੀ ਜਾਹਰਿ ॥ ਬੈਠਾ ਤਾੜੀ ਲਾਇ ਆਇ ਸਭਦੂਹੀ ਬਾਹਰਿ॥ ਆਪਣੀ ਸਿਤਿ ਆਪਿ ਜਾਣਦਾ ਆਪੇ ਹੀ ਗਉਹਰ (ਪੰਨਾ ੫੫੫)

<sup>32</sup> ਏਕ ਅਨੇਕ ਹੋਇ ਰਹਿਓ ਸਗਲ ਮਹਿ ਅਬ ਕੈਸੇ ਭਰਮਾਵਹੁ (ਪੰਨਾ ੧੧੦੪)

<sup>33</sup> “It is incorrect to say that God is a person; it is more nearly correct to say that God is personal meaning that God can be and is revealed existentially to a human person or persons” (*Religion in Philosophical & cultural perspective* by J.C. Feaver and William Horosz 1967 page 15)

<sup>34</sup> ਏਵਡ ਉਚਾ ਹੋਵੇ ਕੋਇ ਤਿਸ ਉਚੇ ਕੋ ਜਾਣੇ ਸੋਇ (ਜਪੁਜੀ ਪੰਨਾ ੫).

God is an omnipotent and omnipresent cosmic conscious energy.<sup>35</sup> Sir A. Eddington says, “Consciousness is the most direct thing in experience; all else is remote inference.” Although man cannot be equal to God there is something of God in him. He is the highest and the noblest creature endowed with a very developed mind, intellect, reason, and power of discrimination, which are not equally efficient in other creatures. Although physiologically he is composed of the same elements as the other living creatures, only he has the ability to look back into the past and plan his future. He is comparatively more social than all other creatures and has developed ethics as a tool for meaningful living. He can discriminate between right and wrong, good and evil. He has emotions and sentiments and the will power to control them. There is an invisible, incomprehensible and indescribable spark of superior consciousness in the human being. Such a marvellous creature could not have developed from matter without the agency of an intelligent Creator.

There are hardly any instances of religious men becoming scientists,” Once a mystic is always a mystic.” There are however numerous examples of scientists turning to religion. For example the famous scientist Swedenborg (1688-1772) born into a royal family at Stockholm abandoned science in his mid fifties and devoted the rest of his later life to religion. He wrote, “Of the two worlds, the physical, far from being real of itself, is only the symbol of the spiritual. The human body is merely the haberdashery of the soul” another striking example is that of Annie Besant, an atheist social worker and a scathing critic of religion. She eventually became a very inspiring preacher of religion and ended up being the president of World theosophical Society. Koestler was once an atheist but later became a mystic.

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<sup>35</sup> The words consciousness, force, energy, and power have been interchangeably used for God in this book. The Sikh Gurus consider that this consciousness exists in all things ਜਾਤਿ ਮਹਿ ਜੋਤਿ ਜੋਤਿ ਮਹਿ ਜਾਤਾ (ਪੰਨਾ ੪੪੧) ਬਾਬਾ ਸਾਹਿਬੂ ਚੂਰਿ ਨ ਦੇਖੁ ॥ ਸਰਬ ਜੋਤਿ ਜਗਜੀਵਨਾ ਸਿਰਿ ਸਿਰਿ ਸਾਰਾ ਲੇਖੁ (ਪੰਨਾ ੯੯੨) ਏਕਾ ਸੁਰਤਿ (consciousness) ਜੇਤਾ ਹੈ ਜੀਆ॥ ਸੁਰਤਿ ਵਿਚੁਣਾ ਕੋਇ ਨ ਕੀਆ (ਪੰਨਾ ੨੪)

Arguments, logic and scientific proofs alone fail to satisfy the heart. “Above the logic of the head is the logic of the heart. The heart has reason of its own, the head can never understand.” (Rousseau in *SVD* p.114).

The fundamental Sikh belief is that God is a reality, which cannot be seen or proved through arguments. He can be experienced through the help of mystics rather than proven experimentally. Mystics influence the hearts of their devotees.<sup>36</sup>

We need intuition and insight<sup>37</sup> to comprehend God’s greatness. Our *Self* is the churning mill of speculations, reasoning and philosophical theorising. This *Self* (consciousness) when magnified, purified and freed from worldly encumbrances reflects the essence of God.<sup>38</sup> We cannot know God by means other than ourselves “because there is no other like Him for evaluation” (AGGS p. 797)<sup>39</sup> If the smaller *self* wants to know the greater *Self*, it only has to know itself. The Guru says, “O my mind you are the stuff of His light, recognise thyself.”<sup>40</sup>(AGGS p. 441) To be able to realise the existence of higher consciousness (God), one must of necessity rise to a higher level of consciousness. This is where mystics and religious preceptors become helpful.

The fundamental principle of Sikhism is “God was in existence before time began running its course; He has been in existence and shall be in existence for ever and ever.” (AGGS

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<sup>36</sup> ਜਿਨੀ ਆਤਮ ਚੀਨਿਆ ਪਰਮਾਤਮ ਸੋਈ (ਪੰਨਾ ੪੨੧) ਆਤਮਾ ਬਾਸੁਦੇਵਸਿ ਜੇ ਕੋ ਜਾਣੈ ਭੋਉ (ਪੰਨਾ ੪੬੯) ਆਤਮ ਮਹਿ ਪਾਰਬ੍ਰਹਮ ਲਹੰਤੇ (ਪੰਨਾ ੨੭੬) ਆਤਮ ਚੀਨਹੁ ਰਿਦੈ ਮੁਰਾਰੀ (ਪੰਨਾ ੧੦੪੧) ਆਤਮ ਚੀਨਿ ਭਏ ਨਿਰੰਕਾਰੀ (ਪੰਨਾ ੪੧੫)

<sup>37</sup> “Notion without intuition is empty, intuition without notion is blind” Kant

<sup>38</sup> ਆਤਮ ਜੋਤਿ ਭਈ ਪਰਫੂਲਤਿ ਪੁਰਖੁ ਨਿਰੰਜਨੁ ਦੇਖਿਆ ਹਜੂਰਿ (ਪੰਨਾ ੧੧੯੮) ਆਤਮ ਚੀਨਿ ਪਰਮ ਪਦੁ ਪਾਇਆ ਸੇਵਾ ਸੁਰਤਿ ਸਮਾਈ ਹੇ (ਪੰਨਾ ੧੦੭੦)॥ ਆਤਮ ਚੀਨੈ ਸੁ ਤਤੁ ਬੀਚਾਰੇ (ਪੰਨਾ ੨੨੪). “Our mind is a great magician.

The Universe is nothing but an ocean of conscious energy in motion” (Sir Arthur Eddington)

<sup>39</sup> ਤਿਸ ਤੇ ਦੂਜਾ ਨਾਹੀ ਕੋਈ ਤਿਸ ਦੀ ਕੀਮਤ ਕਿਠੂੰ ਹੋਈ (ਪੰਨਾ ੭੯੭)

<sup>40</sup> ਮਨ ਤੂੰ ਜੋਤਿ ਸਰੂਪੁ ਹੈ ਆਪਣਾ ਮੂਲੁ ਪਛਾਣੁ ॥ ਮੰਨ ਮਝਾਹੁ ਲਖਿ ਤੁਧਹੁ ਦੂਰਿ ਨ ਸੁ ਖਿਰੀ (ਪੰਨਾ ੧੧੦੦). “If thou hast not seen the devil, look at thine own *Self* (Jalal-ud-din Roomi). “Your *Self* is your own Cain that murders your own Abel” (William Law)

p.1)<sup>41</sup> To the enlightened, ‘who purify their soul to attune with God’,<sup>42</sup> He is visible everywhere.

“It is not possible to solve the metaphysical puzzle and discover the latent essence of reality by examining matter first and then proceeding to examine life. We must begin with that which we know directly albeit not intimately and that is our *self*. If we can ferret out the ultimate nature of our own minds we shall perhaps have the external world.” (Schopenhauer in *SVD* p.100) This is exactly what the Guru said, “Recognise thyself and you recognise me. When you recognise me you get all comforts”<sup>43</sup>

### 2.3 Who created God?

The famous neurotheologist Prof. Pascal Boyer of Washington University claims “Instead of God creating our brains, our brains created God.” Similarly most Modern evolutionists under the influence of Charles Darwin are parroting the phrase that ‘matter created itself’ and as time passed developed into full-fledged human beings through various stages. It was the humans who then invented God. The idea sounds like saying that a few atoms of matter turned themselves into a radio and started producing music and broadcasting news. This is where the scientists’ theory of cause and effect gives way. They admit that they cannot tell us what cause brought about the tremendous transformation in the in-animate matter to turn it into a living organism.<sup>44</sup> They do not accept that if matter can create itself why can’t God similarly create Himself. The answer given by the Sikh Gurus to this all-important question is: - “He created Himself and only He knows His limits”<sup>45</sup>

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<sup>41</sup> ਆਦਿ ਸਚੁ ਜੁਗਾਦਿ ਸਚੁ ॥ ਹੈ ਭੀ ਸਚੁ ਨਾਨਕ ਹੋਸੀ ਭੀ ਸਚੁ (ਪੰਨਾ ੧) ਹੋਯੇ ਹੈ ਹੋਵੰਤੇ ਹਰਣ ਭਰਣ ਸੰਪੂਰਣੇ (ਪੰਨਾ ੧੩੬੧)

<sup>42</sup> ਆਤਮਾ ਪਰਾਤਮਾ ਏਕੋ ਕਰੈ (ਪੰਨਾ ੬੬੧)

<sup>43</sup> ਆਪੁ ਸਵਾਰਹਿ ਮੈ ਮਿਲਹਿ ਮੈ ਮਿਲਿਆ ਸੁਖੁ ਹੋਇ (ਪੰਨਾ ੧੩੮੨) ਆਪੁ ਪਛਾਣਹਿ ਤਾ ਸਚੁ ਜਾਣਹਿ ਸਾਰੇ ਸੋਝੀ ਹੋਈ (ਪੰਨਾ ੭੬੯) ਆਪੁ ਪਛਾਣਹਿ ਪ੍ਰੀਤਮੁ ਮਿਲੈ ਵੁਠਾ ਛਹਬਰ ਲਾਇ (ਪੰਨਾ ੧੪੨੦) ਆਪੁ ਵੀਚਾਰੇ ਗਿਆਨੀ ਸੋਈ (ਪੰਨਾ ੧੦੪੦)

<sup>44</sup> If every effect has a cause, then there must be a cause behind the existence of scientific laws. They could not have developed by themselves.

<sup>45</sup> ਆਪੇ ਆਪਿ ਉਪਾਇਅਨੁ ਆਪਿ ਕੀਮਤਿ ਪਾਈ (ਪੰਨਾ ੭੮੬) ਆਪੇ ਆਪਿ ਉਪਾਇ ਵਿਗਸੈ ਆਪੇ ਕੀਮਤਿ ਪਾਇਦਾ (ਪੰਨਾ ੧੦੩੫) ਆਪੇ ਆਪਿ ਉਪਾਇਦਾ ਪਿਆਰਾ ਸਿਰਿ ਆਪੇ ਧੰਧੜੈ ਲਾਹੁ ( ਪੰਨਾ ੬੦੪)

Unlike some other religions, Sikhism believes that God is not born and “He cannot be installed (like a statue) nor can He be created.”<sup>46</sup> He is all consciousness that exists everywhere, in everything, and is yet invisible<sup>47</sup>. The Guru says, “Like the fragrance which remains in the flower, and like the reflection in the mirror, the Lord dwells deep within; search for Him within your own heart, O brother. Outside and inside, know that there is only the One Lord; the Guru has imparted this wisdom to me. O servant Nanak, without knowing one’s own *self*, the moss of doubt is not removed” (AGGS p. 684).<sup>48</sup> Consciousness can only be realised but not seen. The Guru explains this point further when he says, “Latent fire is contained in all vegetation, and butter, though invisible, is contained in all milk. Similarly God’s light (consciousness) is contained in everything high or low and is latent. The Lord exists in all things. O saints, He is pervading and permeating each and every heart. The perfect Lord is completely permeating everything, everywhere; He is diffused in the water and the land. Nanak sings the praises of the Lord, the treasure of excellence; the True Guru has dispelled his doubt. The Lord is pervading everywhere, permeating all, and yet, He is unattached from all.”(AGGS P.700)<sup>49</sup>

We can find similar ideas expressed by some modern scientists. For example Dr.Fritjof Capra (University of Berkeley) in his book *The Tao of physics (p.300)* quotes from Eugene Wagner’s *scientific essays (p.172)* and writes, “It was not possible to formulate the laws (of quantum theory) in a fully consistent

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<sup>46</sup> ਬਾਪਿਆ ਨ ਜਾਇ ਕੀਤਾ ਨ ਹੋਇ (ਪੰਨਾ ੨). Hindus believe that Rama and Krishna were gods and Christians believe that Christ was God. The Sikhs believe that God cannot be imagined to be born. He is Unborn (ਅਜੂਨੀ) and self-created (ਸੈਭੰ)

<sup>47</sup> ਏਕਾ ਸੁਰਤਿ ਜੇਤਾ ਹੈ ਜੀਅ ਸੁਰਤਿ ਵਿਹੁਣਾ ਕੋਇ ਨ ਕੀਆ (ਪੰਨਾ ੨੪) “Consciousness is the most direct thing in experience; all else is remote inference” Sir A. Eddington.

<sup>48</sup> ਪੁਰਖ ਮਧਿ ਜਿਉ ਬਾਸੁ ਬਸਤੁ ਹੈ ਮੁਕਰ ਮਾਹਿ ਜੈਸੇ ਛਾਈ ॥ ਤੈਸੇ ਹੀ ਹਰਿ ਬਸੇ ਨਿਰੰਤਰਿ ਘਟ ਹੀ ਖੋਜਹੁ ਭਾਈ ॥ ਬਾਹਰਿ ਭੀਤਰਿ ਏਕੋ ਜਾਨਹੁ ਇਹੁ ਗੁਰ ਗਿਆਨੁ ਬਤਾਈ ॥ ਜਨ ਨਾਨਕ ਬਿਨੁ ਆਪਾ ਚੀਨੈ ਮਿਟੈ ਨ ਭ੍ਰਮ ਕੀ ਕਾਈ ( ਪੰਨਾ ੬੮੪)

<sup>49</sup> ਸਗਲ ਬਨਸਪਤਿ ਮਹਿ ਬੈਸੰਤਰੁ ਸਗਲ ਦੂਧ ਮਹਿ ਘੀਆ ॥ ਉਚ ਨੀਚ ਮਹਿ ਜੋਤਿ ਸਮਾਣੀ ਘਟਿ ਘਟਿ ਮਾਧਉ ਜੀਆ ॥ ਸੰਤਹੁ ਘਟਿ ਘਟਿ ਰਹਿਆ ਸਮਾਹਿਓ ॥ ਪੂਰਨ ਪੂਰਿ ਰਹਿਓ ਸਰਬ ਮਹਿ ਜਲਿ ਥਲਿ ਰਮਈਆ ਆਹਿਓ ॥ ਗੁਣ ਨਿਪਾਨ ਨਾਨਕੁ ਜਸ ਗਾਵੈ ਸਤਿਗੁਰਿ ਭਰਮੁ ਚੁਕਾਇਓ ॥ ਸਰਬ ਨਿਵਾਸੀ ਸਦਾ ਅਲੋਪਾ ਸਭ ਮਹਿ ਰਹਿਆ ਸਮਾਹਿਓ (ਪੰਨਾ ੬੧੭)

way without reference to consciousness.” The Sikhs call this consciousness God, which is described by Guru Nanak as follows:

“One universal Creator. His name is truth. Creative being personified. Without fear or hatred.<sup>50</sup> Undying. Unborn. Self-existent. The greatest and the most bounteous.”(AGGS p.1)

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<sup>50</sup> Some religions like Christianity think that God is revengeful. He sends locusts, brimstones, famines and earthquakes to punish people. Sikhism preaches that God is without enmity (ਨਿਰਵੈਰ). This idea of Sikhism finds favour with modern scientists. For example Einstein writes, “*Subtle is the Lord but malicious He is not*” (*The science and the life of Albert Einstein*. P.Abraham published by the Oxford University Press.) ਤੂੰ ਨਿਰਚਲੁ ਨਿਰਵੈਰੁ ਸਚੁ ਸਚਾ ਤੁਧੁ ਦਰਬਾਰੁ (ਪੰਨਾ ੯੬੨)

## Chapter 3

### Our Universe

**“If we want a concrete picture of creation we may think of the finger of God agitating ether”** (Sir James Jeans *Universe around us* p. 354)

Looking at the clear star-studded moonlit night one is really wonderstruck by the captivating beauty and immeasurable vastness of our universe and feels a sense of awe. One cannot not fail to realise that human beings are insignificant in comparison with the incomprehensible expanse of the Universe.<sup>51</sup> Our religious preceptors have tried to explain this wonderful experience in words. But words, as we all know, are inadequate to satisfactorily describe human emotions and experiences.

#### 3.1 Cosmology

**“In space, the universe engulfs me and reduces me to a pinpoint. But through thought, I understand that universe.”**  
(Pascal)

Cosmology<sup>52</sup> is the study of the origin, processes, evolution and the behaviour of the universe. Scientists have been attempting to grasp the vastness, shape and origin of our universe and their

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<sup>51</sup> Universe is the amount of radiation and matter that exists and the space occupied by the same and in between. “ਮਾਜਿ ਆਗਾਫ਼ ਓਜਿ ਅੰਜਾਮਿ ਜਹਾ ਬੋਖਬਰਮ । ਅੰਵਲ ਓ ਆਖ਼ੀਨ ਕੋਹਨਾ ਕਿਤਾਬ ਉਫ਼ਤਾਦ ਅਸਤ”  
The beginning and end of our universe are unknown. Creation is like an old book which has lost its first and last page. “ਨਾਨਕ ਕਰਤੇ ਕਾ ਨਹਿ ਸੁਮਾਰੁ” (ਪੰਨਾ ੨੯੧) ਕੋਇ ਨ ਜਾਣੈ ਤੇਰਾ ਕੋਤਾ ਕੇਵਡੁ ਚੀਰਾ (ਪੰਨਾ ੯)

<sup>52</sup> Scriptural references to cosmology in the Adi Granth are too numerous to be quoted here. The reader can consult pages 67, 223, 276, 350, 464, 929, 940, 1004 etc.

quest is never-ending. Their biggest telescopes are daily bringing us more and more evidence of the incredible vastness of the universe. We have come to know only recently that in our sky there is not even one star, which is less than four light years<sup>53</sup> away from us.

In comparison with the universe our sun is only a small dot in space no bigger than the full stop at the end of this sentence. There are other suns several thousand times bigger and million times more luminous than our sun and they are situated from each other at mind-boggling distances. For example *Betelgeuse* is another sun, which is 10 times bigger than our sun. There are still bigger super giant suns like *Epsilon Aurigae*, which are many times bigger than the *Betelgeuse*.<sup>54</sup>

On 13 June 2002 Sky News reported that the planet hunters had discovered a solar system 45 light years away from the earth. This solar system resembles our own solar system.

“The human mind is not capable of grasping the Universe. We are like a little child entering a huge library. The walls are covered to the ceilings with books in many different tongues. The child knows that some one must have written these books. It does not know who or how. It does not understand the languages in which they are written. But the child notes a definite plan in the arrangement of the books- a mysterious order which it does not comprehend, but only dimly suspects” (Albert Einstein “*Science, Philosophy & Religion: a symposium*” 1941 Chapter 13)

The planet that we call earth is so infinitesimal in relation to the universe that we can compare it with one grain of sand

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<sup>53</sup> Time taken by the light in one year to travel at the velocity of 186,000 miles per second is called a light year. It has been found that at this speed a beam of light travels 5878 million million miles (9460 million million km) in a year. Our modern radio telescopes have so far explored a distance of only up to 120 million light years. Our radio signals to the nearest star take at least four light years. The pole star is 40 light years away from us.

<sup>54</sup> Some other big bright suns are Sirius, Rigel, Deneb, Adhara, Hadar and Antares

among the total number of sand grains in the whole world. Our most powerful telescopes have so far been able to explore only that part of our universe whose radius is merely 1,000,000,000,000 light years. The unexplored part of the universe is so vast that we cannot see it even with our most powerful radio telescopes.

On 7th January 1610, an Italian physicist Galileo Galilee (1564-1642) theorised that “There are millions of stars which get together to form the Milky Way”. According to the latest estimate of the scientists there are more than 40 thousand million stars in the Milky Way alone.<sup>55</sup> The Milky Way (of which we are a part) is further surrounded by 13 other galaxies. The part of the universe that we have so far been able to explore contains in excess of 50 billion galaxies<sup>56</sup> and they are so big that our sun will look like a small particle of dust in them.

In 1997, British astronomers used a powerful new device known as ‘*Scuba*’ in Hawaii and spotted a cluster of six previously unknown galaxies so far away from the earth that even our most powerful Hubble telescope had not spotted them. It is believed that there are many super galaxies each containing clusters of innumerable galaxies in them.

A single quasar (dying star) is said to have emitted so much energy that it was 10,000 times more than the whole energy emitted by our entire galaxy. We are receiving its light on our earth 12 billion light years after it was emitted.<sup>57</sup> In other words the stars we see today are not there. They were there when they emitted their light. They have either burnt up by now or have

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<sup>55</sup> Muslims and Christians believe that there are seven upper and seven lower regions (सैदाँ उब्रक)

<sup>56</sup> Galaxies are collections of stars held together by their mutual gravitational attraction. Our earth is located in the Orion arm of the galaxy *Milky Way*. Some scientists believe that the nearest galaxy to the earth is Andromeda, which is two million light years away. It is surrounded by 9 other galaxies and is supposed to contain 400 billion stars. Some quasars are 13 million light years away from us. Some scientists believe that the nearest star system to the earth is Alpha Centauri, which is about 4.4 million light years away from the Earth

<sup>57</sup> The University of Texas and the Austin University of Minnesota have recently detected a light signal from as far as 15 million light years away. They consider it to be the light of a dying star.

moved away from their positions to new locations. Scientists claim that they have now detected radiation emitted by some stars 13 billion light years ago.

At one time the Western scholars considered the earth to be the centre of this immeasurable vastness. They thought that the planets in the cosmos revolved around the Earth. It was Copernicus (1473-1543)<sup>58</sup> who first rejected this theory and said that the sun, not the earth, was at the centre of the universe. Now we all know that even his idea of pinpointing the sun as the centre of the universe is meaningless. The unlimited vastness of the universe is so phenomenal and incomprehensible that our attempt at comprehending it is like an ant trying to comprehend the greatness of the Himalayas.

In comparison with our immeasurable universe we are living on a tiny bit of a rock no bigger than the millionth part of a poppy seed. Scientists believe that there are billions of earths like our own. The dweller of this microscopic cosmic dust particle, cannot fully comprehend the inconceivably long vistas of space and time or the infinite number of heavenly objects in the universe.

Talking about the planets beyond our solar system Dr. Andrew Bain of the Cambridge Institute of Astronomy said, “We do not know how far away they are with any accuracy. The universe has no beginning and no end.”

Our research about the universe is still very young and the information about the immense size of our universe and the movements of the heavenly bodies is still being gathered daily.

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<sup>58</sup> See Copernicus's "*De Revolutionibus Orbium Coelestium*" published in 1543. His theory was later rejuvenated by Galileo who became the butt of the Church's anger and died an ignominious death in prison.

## 3.2 The Sikh view of the universe

What the modern scientists have discovered after years and years of research and spending billions of pounds on their radio telescopes was explicitly stated many times by the Sikh Gurus more than five hundred years ago. For example Guru Nanak (1469-1539) wrote, “There are earths, beyond earths, beyond earths (AGGS p. 3)”<sup>59</sup> and “There are skies above skies and earths below earths. Human mind gets tired of search. All knowledge simply points to the one fact that there is no end of vastness.” (AGGS P.5)<sup>60</sup> “There is no end to the creation of the Lord”<sup>61</sup> (AGGS p. 3). About the sun and the moon he said, “There are numerous suns, moons and other galaxies.”(AGGS p. 7)<sup>62</sup>

The Sikh Gurus clearly stated that man’s powers are too limited to fully comprehend God’s marvellous creation. Any attempt to empirically state the expanse of the universe is futile. Our solar system is only one of the many like it.<sup>63</sup> “If one attempted to write down and calculate the vastness of the expanse, how much would that come to?”(AGGS p.3)<sup>64</sup> Qualifying the impossibility of such an attempt the Guru said, “To state that the ‘number of heavenly bodies is beyond count’ is itself an understatement”<sup>65</sup> In order to make his assertion clearer Guru Nanak wrote as follows:

“The extent of His creation is incomprehensible.  
The near and the farther ends of His creation are limitless.  
Many have attempted to comprehend His greatness but failed.

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<sup>59</sup> ਧਰਤੀ ਹੋਰੁ ਪਰੈ ਹੋਰੁ ਹੋਰੁ (ਪੰਨਾ ੩), ਅੰਤ ਨਾਹੀ ਕਿਛੁ ਪਾਰਾਵਾਰ (ਪੰਨਾ ੧੭੮)

<sup>60</sup> ਪਾਤਾਲ ਪਾਤਾਲ ਲਖ ਆਗਾਸ ਆਗਾਸ ॥ ਓਤਕ ਓਤਕ ਭਾਲ ਥਕੇ ਵੇਦ ਕਹਨ ਇਕ ਵਾਤੁ (ਪੰਨਾ ੫) ਅਨਿਕ ਅਕਾਸ ਅਨਿਕ ਪਾਤਾਲ (ਪੰਨਾ ੧੨੩੬) ਖੰਡ ਪਤਾਲ ਅਸੰਖ ਮੈ ਗਣਤ ਨ ਹੋਈ (ਪੰਨਾ ੧੨੮੩)

<sup>61</sup> ਕਰਤੇ ਕੈ ਕਰਣੈ ਨਾਹੀ ਸੁਮਾਰੁ (ਪੰਨਾ ੩) “ਨਾਨਕ ਕਰਤੇ ਕੀ ਜਾਨੈ ਕਰਤਾ ਰਚਨਾ” (ਪੰਨਾ ੨੭੫)

<sup>62</sup> ਕੇਤੇ ਇੰਦ ਚੰਦ ਸੂਰ ਕੇਤੇ ਕੇਤੇ ਮੰਡਲ ਦੇਸ (ਪੰਨਾ ੭) ਅਨਿਕ ਸੂਰ ਸਸੀਅਰ ਨਖਿਆਤਿ॥ ਕਈ ਕੋਟਿ ਸਸੀਅਰ ਸੂਰ ਨਖਤੁ (ਪੰਨਾ ੨੭੫) ਕੋਟ ਸੂਰ ਜਾ ਕੇ ਪਰਗਾਸ (ਪੰਨਾ ੧੧੬੨), ਕੋਟਿ ਚੰਦ੍ਰਮੋਂ ਕਰਹਿ ਚਰਾਕ (ਪੰਨਾ ੧੧੬੩)

<sup>63</sup> ਕੋਟਿ ਬ੍ਰਹਮੰਡ ਕੋ ਠਾਕੁਰੁ ਸੁਆਮੀ ਸਰਬ ਜੀਆ ਕਾ ਦਾਤਾ ਰੋ (ਪੰਨਾ ੬੧੨) ਕੋਟਿ ਬ੍ਰਹਮੰਡ ਜਾ ਕੇ ਧ੍ਰਮਸਾਲ (ਪੰਨਾ ੧੧੫੬) ਕਈ ਕੋਟਿ ਅਕਾਸ ਬ੍ਰਹਮੰਡ (ਪੰਨਾ ੨੭੬) ਕਈ ਕੋਟਿ ਦੇਸ ਤੂ ਮੰਡਲ (ਪੰਨਾ ੨੭੫) ਅਨਿਕ ਪੁਰੀਆਂ ਅਨਿਕ ਤਿਹ ਖੰਡ (ਪ. ੧੨੩੬)

<sup>64</sup> ਏਹੁ ਲੇਖਾ ਲਿਖਿ ਜਾਣੈ ਕੋਇ ਲੇਖਾ ਲਿਖਿਆ ਕੇਤਾ ਹੋਇ (ਪੰਨਾ ੩))

<sup>65</sup> ਅਗੰਮ ਅਗੰਮ ਅਸੰਖ ਲੋਅ ਅਸੰਖ ਕਹਹਿ ਸਿਰਿ ਭਾਰੁ ਹੋਇ (ਪੰਨਾ ੪)

Nobody can describe His greatness.” (AGGS p. 24)

“Many millions are the winds, waters and fires. Many millions are the countries and realms of the universe. Many millions are the moons and suns. Many millions are the fields of creation and the galaxies. Many millions are the skies and the solar systems.” (AGGS p. 276)<sup>66</sup>

Throughout the holy book (AGGS) of the Sikhs this fact is mentioned umpteen times and is amply supported by scientists of today.

“O Nanak the limits of the creator are incomprehensible.” (AGGS P. 274)<sup>67</sup>

“The creation can never fully comprehend the creator.” (AGGS p. 285)<sup>68</sup>

“The Almighty created nights, seasons, days and weekdays  
So also air, water, fire and space,  
In the mutual gravitation of these,  
He installed earth in this space for righteous actions.<sup>69</sup>  
Therein He created life of different kinds and colours.  
Whose names are varied and endless” (Japuji Pauri 34)

The Guru further says,

“The extent of His creation is known to none.  
The more we state the more remains to be stated.”<sup>70</sup>

Herbert Spencer is using the same language as was used by Guru Nanak. He writes, “The more is known, the more grows

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<sup>66</sup> ਕਈ ਕੋਟਿ ਪਵਣ ਪਾਣੀ ਬੈਸੰਤਰ ॥ ਕਈ ਕੋਟਿ ਦੇਸ ਭੂ ਮੰਡਲ ॥ ਕਈ ਕੋਟਿ ਸਸੀਅਰ ਸੂਰ ਨਖੁਤੁ.....ਕਈ ਕੋਟਿ ਖਾਣੀ ਅਰ ਖੰਡ ॥ ਕਈ ਕੋਟਿ ਅਕਾਸ ਬ੍ਰਹਮੰਡ (ਪੰਨਾ ੨੭੬) ਖੰਡ ਪਤਾਲ ਅਸੰਖਾ ਮੈ ਗਣਤ ਨ ਹੋਈ (ਪੰਨਾ ੧੨੮੩). Innumerable are the continents and underworlds. I cannot quantify them.

<sup>67</sup> ਨਾਨਕ ਕਰਤੇ ਕਾ ਅੰਤੁ ਨਾ ਪਾਵਹਿ (ਪੰਨਾ ੨੭੪)

<sup>68</sup> ਕਰਤੇ ਕੀ ਮਿਤਿ ਨ ਜਾਨੈ ਕੀਆ ॥ ਨਾਨਕ ਜੋ ਤਿਸੁ ਭਾਵੈ ਸੋ ਵਰਤੀਆ ( ਪੰਨਾ ੨੮੫)

<sup>69</sup> Scientist Albert Einstein expresses the same idea when he says, “Two things inspire me to awe—the starry heavens and the moral universe within” (*Science philosophy & Religion*)

<sup>70</sup> ਏਹੁ ਅੰਤੁ ਨ ਜਾਣੈ ਕੋਇ ॥ ਬਹੁਤਾ ਕਰੀਏ ਬਹੁਤਾ ਹੋਇ (ਪੰਨਾ ੫) ਅੰਤ ਨ ਜਾਪੈ ਕੀਤਾ ਆਕਾਰੁ ਅੰਤ ਨ ਜਾਪੈ ਪਾਰਾਵਾਰੁ ॥ ਅੰਤ ਕਾਰਣਿ ਕੇਤੇ ਬਿਲਲਾਹਿ ਤਾ ਕੇ ਅੰਤ ਨ ਪਾਏ ਜਾਹਿ (ਪੰਨਾ ੨੪)

the unknown. Ultimate scientific ideas are all representations of realities that cannot be fully comprehended. In all directions scientists' investigations bring him face to face with an insoluble enigma; and he evermore perceives it to be an insoluble enigma.”  
(Herbert Spencer *First Principles* p. 56)

## Chapter4 Creation

**“We are held to the earth; the earth is held to the sun; the sun is held to the Milky Way and the Milky Way is held to a cluster of galaxies”** (Gregor’s ‘*A Short history of Universe* p. 98)

Scientists use physical eyes to analyse what they see but Religious philosophers use divine eyes and intuition to delve into the secrets of Nature. Religious philosophers simply state a fact without admitting fallibility; scientists speculate, admit fallibility and remain open to corrections and suggestions. All the conclusions of saints and scientists may not coincide but at least on one count they seem to agree that man is only a transient microbe living on a minute speck of the cosmic dust. Both of them are trying to understand how this speck of cosmic dust, with all the life forms on it, came into being.

There are two main lines of thought. One line of thought is that matter (पुक्खिउडी) somehow turned itself into the universe. It is believed that ‘*Matter*’ having been acted upon by ‘*force*’ began to revolve and thus produced the universe. ‘*Force*’ is *something*, which acts upon the ‘*matter*’ and lends it motion and ‘*Matter*’ is *something*, which must be acted upon by force to make it revolve and then evolve. The theory can be called a logician’s seesaw. It leaves ‘*something*’ undefined. This only proves that reasoning can go only up to a certain extent. What are *force* and *matter* and how they came into existence is still unknown.<sup>71</sup>

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<sup>71</sup> Matter is usually defined as *something* that has *mass* and occupies space. *Mass* has the tendency to resist being moved or if moving, to resist a change in speed or direction. This property of matter is called *Inertia*.

The other line of thought is that there are signs of designing and planning in the universe and therefore it must have been created by a superpower. For example Sir James Jeans writes, "The universe shows evidence of a designing or controlling power that has something in common with our own individual minds."(*The mysterious universe* page 187)

Einstein was also of the opinion that there is a plan and a pattern in nature, which defies self-creation. The universe is not a chance happening. "*God does not play dice with the universe*" (Reader's Digest *exploring the universe* p.177). This supports the Sikh theory, which we will discuss at the end of this chapter

Some scientists believe that the rings around Saturn and the smog around its moon Titan might provide an answer to the creation of the universe because its rings have primordial matter in them. The Saturn rocket, involving 17 nations and costing £2.2 billion, was launched from Cape Canaveral (Florida) on 15 October 1997 to explore the mysterious rings. It will enter Saturn's orbit in 2004 and will release flying saucer like Huygens to descend through the smog that wraps Titan. The scientists expect that it will hopefully broadcast useful information back to the earth.

NASA is trying to map the universe as accurately as possible by sending Planck Explorer into space. It is expected that it will give a much better and clearer map of the skies and will look billions of years back in time to unravel the mystery of the formation of our universe.

We will consider some of the scientific theories of creation which have influenced the thinking of modern society.

## 4.1 Tidal theory

According to this theory of creation a big nebula (cloud of gaseous matter) revolving around itself became our sun. Millions of years later a big star came too close to it. The gravitational pull between the two caused tidal waves on the surface of the sun. These powerful waves threw off sprays of gas, which spread through space. In another 5,000,000,000 years these sprays cooled down and became planets. Our earth is one of them.

Obviously this theory assumes that the nebula and a big star existed but it does not explain how the nebula and the big star came into existence.

## 4.2 Protoplanet theory

According to this theory a gas cloud (nebula) somehow formed about 10 to 12 billion years ago. It then collapsed and became a protostar. Six billion years ago thermonuclear reactions ignited it. The protostar began to spin about its axis. The spinning flattened the material and thus caused the formation of various planets and planetoids. About 4.5 billion years ago the planetoids accreted to form the Earth. Life appeared on the cooled earth 3.8 billion years ago.

## 4.3 Higgs boson theory

Professor Peter Higgs of Edinburgh University advanced this theory in 1964. He argued that the universe is permeated by a field of tiny, sticky particles, which move through space and are the cause of all that the world is made of. Through their motion these 'God particles' (Which he named *Higgs boson* after his name) picked up cosmic dust and grew bigger and bigger resulting in the formation of our planets and all that exists on them.

This theory does not say where the sticky particles originated. The world famous scientist Stephen Hawking does not agree with this theory and says, “The so-called God-particle is a phantom.”<sup>72</sup>

#### 4.4 Lou William theory

Lou William and Thornton Page are of the opinion that planets and satellites were once formed out of the coalescing of smaller bodies. These icy, conglomerate planetesimals were made of matter embedded in ice.

*(Origin of the Solar system 1962 Vol - 3)*

Branley supports this theory when he says, “Frozen gas makes up a large part of the total size of the major planets” *(Exploring our planets P. 6)*.

#### 4.5 Super-String Theory

The theory of relativity deals with bigger objects. The Quantum theory of gravity is based on movements of small objects. It was discovered that if one of these theories was true, the other was proved false. Both theories could not be right. This led to the justification of both by advancing super-String theory (in 1985).

This theory states that the world was full of very minute sub-atomic particles, which were one million, million millionth part of an atom. They existed in strings and vibrated at different frequencies like the strings of a violin each producing a different note. As time passed they developed into a plasma, which grew bigger and bigger until it exploded with energy, resulting in the birth of the universe.

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<sup>72</sup> Gordon Kane (University of Michigan) is positive that boson is real and exists whereas Stephen Hawking has placed a bet of \$100 to be paid to anybody who proves its existence. Professor Kane says that if the Tevatron (a powerful atom smasher) at Fermilab in Illinois fails to find boson, it will be discovered by £1.4 billion large Hadron Collider to be set up at CERN in 2007.

Many scientists have found faults with the string theory. Now there are 5 different string theories in existence.

## 4.6 Speculative theories

Plato had surmised that the universe came out of inanimate matter like a chicken from an egg.<sup>73</sup>

According to Kant there was darkness and chaos, which generated gravity in the inanimate matter. Gravity generated heat and revolutions of matter around itself. When the matter cooled down it became our universe.

R.A. Littleton advanced the double star theory in 1930. According to this theory at one time our sun and another star formed a double star. Some how the companion star exploded into a cloud of gas, which was captured by the gravity of our sun. The planets developed from this cloud.

Against this, was advanced 'The condensation theory' according to which there was only one star, which exploded to form the planets after condensation. The large part that remained behind became the sun.

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<sup>73</sup> The idea is supported fully by Hinduism. In Chhandog Upanishad Chapter 19 (ਛਾਂਦੋਗ ਉਪਨਿਸ਼ਦ ਖੰਡ ੧੯) we find that a golden egg (ਬ੍ਰਹਮ+ਅੰਡਾ = ਬ੍ਰਹਮੰਡ) appeared from nowhere. "ਹਿਰਨਯਾਗਰਭਾ ਸਮਾਵਰਤਾਗਰੇ ਭੂਤਸਯਾ ਜਾਤਾ ਪਤਰ ਏਕਾ ਅਸਿਤਾ." (See Rig Veda 10.72, 10.121, 16.190 and Manu Simirti). After 1000 years it broke into two parts. One part became the sky and the other became the earth. Out came *Brahmadev* (male), who then turned half of himself into a female and thus created the entire world. According to another story *Brahma* is said to have been born from the Lotus flower that grew in the naval of *Vishnu*. It took him 36 Yugas to get out of the lotus flower. Brahma is red in colour, has four arms and four mouths. Each mouth gave rise to one of the four Vedas (Hindu scriptures). According to Yajur Veda Brahmans were born from his mouth, Kashatryas from his arms, Vaish from his thighs and Sudras from his feet. God seen as G=Generator/creator (*Brahma*), O=Operator (*Vishnu*) and D=destroyer (*Siva*) appears to be a later invention because according to the above story *Vishnu* was the first to be born. Like the Semitic scholars some Indian philosophers have also stated that there are seven worlds above us and seven below us. Bhu, Bhawar, Sawa, Meh, Jan, tap and sat are above and Atal, satal, vital, talatal, mahantal, rasatal and pataal are below us. The Sikh Gurus did not accept this. Guru Nanak wrote "There are numerous nether regions and uncountable upper regions "ਪਾਤਾਲਾ ਪਾਤਾਲ ਲਖ ਅਗਾਸਾ ਅਗਾਸ"

## 4.7 Big bang theory

This theory was advanced by Garis Lambatre of Belgium in 1930 and was fully supported by Garag Gamov of Russia in 1940. According to this theory 15 to 20 billion years ago there was an explosion and in the millionth part of a second the universe came into existence and expanded into space. The explosion produced matter, motion, energy, time and space. The gases from this explosion turned into galaxies, planets, our earth and the sun. This theory also received full support and corroboration from Russian scientist Friedman's mathematical calculations done earlier in 1920-21. Scientist Stephen Hawking of Cambridge also believes that the universe emerged as a result of an explosion of energy. In 1964 Arno Penzia and Robert Wilson discovered very high frequency radio microwaves coming from all directions of the sky. They believed that these microwaves were the remnants of the "echo" of the Big Bang, which is still pulsating and reverberating through the universe.

This theory rests on the expansion of matter into space. It provides no information about the size of our universe and neither does it tell us how big is the space in which the matter expanded? If space has a limit, then what is beyond that limit? Is it matter or more space? What will the exploded matter eventually expand into and when will this expansion cease?

This theory also does not give any explanation of the cause of the explosion and the source of the matter/gas, which exploded. Scientists like Herman Boody, Thomas Gould and John Boseley criticised this theory and nearly demolished it.

## 4.8 The Sikh view

The Sikh Gurus were more enamoured of the wonders of creation than its origins. Their vision was not that of theoretical scientists' but of enlightened mystics. They looked at the Lord's

wonders with divine intuitive eyes. Guru Nanak wrote: (AGGS p. 463)<sup>74</sup>

“Wonderful is the life, wonderful are the varieties of life.  
Wonderful is the form, wonderful are the colours.  
Wonderful are the creatures some of which exist naked.  
Wonderful is the air, Wonderful is water.  
Wonderful is the fire which works many wonders”

The world’s greatest scientist Albert Einstein appreciates the mystical wonder. He writes, “Religious feeling takes the form of a rapturous amazement at the harmony of nature which reveals an intelligence of such superiority that compared with it, all the systematic thinking and acting of human beings is an utterly insignificant reflection.” (Albert Einstein in ‘*The World as I see it*)

Guru Nanak, the first Sikh Guru, was greatly impressed by the theories of creation prevalent in India in his time. He tells us that broadly speaking there were six theories of creation.<sup>75</sup> The most popular of these theories was the *Sankhyan* theory, which states that matter (ਪਰਕਿਰਤੀ) existed eternally and was capable of developing consciousness. The act of matter becoming conscious was known as MAHAT (the great seed). When the three *Gunas* (properties- *Rajas*, *Tamas*, *Satvic*) of matter (*Prakirti*) somehow lost their equilibrium and became imbalanced, they gave rise to creation. The Sikh Gurus did not accept this theory. Guru Arjan

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<sup>74</sup> ਵਿਸਮਾਦ ਨਾਦ ਵਿਸਮਾਦ ਭੇਦ..... (ਆਸਾ ਦੀ ਵਾਰ ਪੰਨਾ ੪੬੩)॥ ਵੇਖਿ ਵਿਡਾਣੁ ਰਹਿਆ ਵਿਸਮਾਦੁ (ਪੰਨਾ ੪੬੪)ਅਚਰਜੁ ਕਿਛੁ ਕਹਣੁ ਨ ਜਾਈ ॥ ਬਸਤੁ ਅਗੋਚਰ ਭਾਈ ॥ ਮੇਲੁ ਨਾਹੀ ਕਛੁ ਕਰਣੈ ਜੋਗਾ ਕਿਆ ਕੇ ਕਹੈ ਸੁਣਾਵੈ ॥ ਕਥਨ ਕਹਣ ਕਉ ਸੋਈ ਨਾਹੀ ਜੋ ਪੇਖੈ ਤਿਸੁ ਬਣਿ ਆਵੈ (ਪੰਨਾ ੮੮੩)

<sup>75</sup> ਛਿਆ ਘਰ ਛਿਆ ਗੁਰ ਛੇ ਉਪਦੇਸ (ਜਪੁਜੀ) . ਖਟ ਦਰਸਨ ਵਰਤੈ ਵਰਤਾਰਾ (ਪੰਨਾ ੩੬੧) Niyae (of Gauatma), vashaishak (of Kanad), Sankh (of Kapil), Yog (of Patanjli), Mimansa (of Jaimani), and Vedant (of Viasa) are the six main shastras outlining the six lines of thought. They were collectively known as *Khatdarshan* (ਖਟ ਦਰਸਨ=ਛੇ ਸ਼ਾਸਤਰ). Expositions of these lines of thought are recorded in many Hindu scriptures. For example see Katha (3.11), Maitrayani (6.10), Svetasvatara (4.10 and 6.16).

Dev said, “Many more laws of nature are involved in the creation of the universe”<sup>76</sup>

According to the theory propounded by Guru Nanak, the universe did not come into existence by itself. The Creator created it.<sup>77</sup> Guru Nanak regards the Creator as the Prime Mover and calls him *SAT* (ਸਤਿ= cosmic consciousness).<sup>78</sup> *Sat* is like the plant in the seed which is always present but not apparent. Just as the seed germ expands into a big tree so does *Sat* expand itself and cause the creation. *Sat* itself is primal and unborn therefore the beginning and the end of the universe are beyond human comprehension.

According to Guru Nanak, the creation sprouted from *Sunn*<sup>79</sup> (void, nothingness, vacuum) in which the creator (*Sat*) existed. “In the Primal Void, the Infinite Lord assumed His Power. He Himself is unattached, infinite and incomparable. He Himself exercised His creative power, and He gazes upon His creation from the primal void. He formed the void and from this primal void, He fashioned air and water. He created the universe and the consciousness in the fortress of the body. His light pervades fire, water and souls. His Power rested in the primal void. (AGGS P. 1037)<sup>80</sup>

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<sup>76</sup> ਨਾਨਕ ਰਚਨਾ ਪ੍ਰਭ ਰਚੀ ਬਹੁ ਬਿਧ ਅਨਿਕ ਪਰਕਾਰ (ਸੁਖਮਨੀ) ਕਈ ਜੁਗਤ ਕੀਨੋ ਵਿਸਥਾਰ (ਪੰਨਾ ੨੭੫)

<sup>77</sup> ਓਅੰਕਾਰਿ ਸਭ ਸ੍ਰਿਸਟ ਉਪਾਈ ॥ ਸਭ ਖੋਲੁ ਤਮਾਸਾ ਤੇਰੀ ਵਡਿਆਈ॥ ਆਪੇ ਵੇਕ ਕਰੇ ਸਭ ਸਾਚਾ ਆਪੇ ਭੰਨਿ ਘੜਾਇਦਾ॥ (ਪੰਨਾ ੧੦੬੧) “ਨਾਨਕ ਸਭੁ ਕਿਛੁ ਪ੍ਰਭ ਤੇ ਹੋਇ “ (ਪੰਨਾ ੧੧੪੯) ਅਪਨਾ ਖੋਲੁ ਆਪਿ ਕਰਨੈਹਾਰੁ (ਪੰਨਾ ੨੮੦) ਅਪਨਾ ਖੋਲੁ ਆਪਿ ਕਰਿ ਦੇਖੈ ਨਾਕੁਰਿ ਰਚਨੁ ਰਚਾਇਆ (ਪੰਨਾ ੭੪੮) ॥ ਇਹੁ ਜਗੁ ਆਪਿ ਉਪਾਇਓਨ ਕਰਿ ਚੋਜ ਵਿਡਾਨੁ (ਪੰਨਾ ੭੮੬)

<sup>78</sup> The word Sat (ਸਤਿ) is usually translated as *Truth*. It also means ‘pervasive at all times and in all places’ ‘not limited by space or time’ ਆਦਿ ਸਚੁ ਜੁਗਾਦਿ ਸਚੁ ਹੈ ਭਿ ਸਚ ਨਾਨਕ ਹੋਸੀ ਭਿ ਸਚੁ (He is, He was and He shall ever be.) ਸਤਿ also means ‘existence’.

<sup>79</sup> A similar theory of *Sunn*, but with some difference, appears in Nasa Diya Sukta of Rig Veda, the Hindu scripture.

<sup>80</sup> ਸੁੰਨ ਕਲਾ ਅਪਰੰਪਰਿ ਧਾਰੀ ॥ ਆਪਿ ਨਿਰਾਲਮ ਅਪਰ ਅਪਾਰੀ ॥ ਆਪੇ ਕੁਦਰਤਿ ਕਰਿ ਕਰਿ ਦੇਖੈ ਸੁੰਨਹੁ ਸੁੰਨੁ ਉਪਾਇਦਾ ॥ ਪਉਣ ਪਾਣੀ ਸੁੰਨੈ ਤੇ ਸਾਜੇ ॥ ਸ੍ਰਿਸਟਿ ਉਪਾਇ ਕਾਇਆ ਗੜ ਰਾਜੇ ॥ ਅਗਨਿ ਪਾਣੀ ਜੀਉ ਜੋਤਿ ਤੁਮਾਰੀ ਸੁੰਨੈ ਕਲਾ ਰਹਾਇਦਾ॥ (ਪੰਨਾ ੧੦੩੭)

“From this primal void, came the moon, the sun and the earth. His light pervades all the three worlds. The Lord of this primal void is unseen, infinite and immaculate; He is absorbed in the primal trance of deep meditation. From this primal void, the earth and the intergalactic ethers were created. He supports them without any visible support, by exercising His true power. He fashioned the three worlds,<sup>81</sup> and the illusion of Maya; He Himself creates and destroys.” (AGGS P. 1037)<sup>82</sup>

Guru Nanak believed that the Lord instilled his creative power in the world so that the creation continues until He stops it.<sup>83</sup> The Guru says, “Innumerable creators are busy in creation all the time producing forms of great beauty, adorned and dressed in many colours. There are so many worlds and lands for working out their assigned tasks.” (AGGS p.7)<sup>84</sup> There appear to be three distinct functions that the Lord continually performs through His creation. The Guru says, “From the absolute Lord emanated three functions one of creation, another of sustenance and third of destruction. He causes the creation to perform these functions as He desires.” (AGGS p. 7)<sup>85</sup>

Guru Nanak’s theory was not without critics. It was scathingly criticised by the *Sidhas* (wandering Hindu saints). The

<sup>81</sup> The three worlds are the skies, the land and the oceans.

<sup>82</sup> ਸੁੰਨਹੁ ਚੰਦ ਸੂਰਜੁ ਗੈਣਾਰੇ ॥ ਤਿਸ ਕੀ ਜੋਤਿ ਤ੍ਰਿਭਵਣ ਸਾਰੇ ॥ ਸੁੰਨੇ ਅਲਖ ਅਪਾਰ ਨਿਰਾਲਮੁ ਸੁੰਨੇ ਤਾੜੀ ਲਾਇਦਾ ॥ ਸੁੰਨਹੁ ਧਰਤਿ ਅਕਾਸੁ ਉਪਾਏ ॥ ਬਿਨੁ ਥੰਮਾ ਰਾਖੇ ਕਲ ਪਾਏ ॥ ਸੁੰਨਹੁ ਖਾਣੀ ਸੁੰਨਹੁ ਬਾਣੀ ॥ ਸੁੰਨਹੁ ਉਪਜੀ ਸੁੰਨਿ ਸਮਾਣੀ (ਪੰਨਾ ੧੦੩੭)

<sup>83</sup> “God has made the world autonomous and self-active by bestowing upon it once and for all the three principles of ‘becoming’, ‘enduring’, and disintegration” (Jasbir Singh Ahluwalia *The sovereignty of the Sikh doctrine* page 59)

<sup>84</sup> ਕੇਤੇ ਬਰਮੇ ਘਾੜਤਿ ਘੜੀਅਹਿ ਰੂਪ ਰੰਗ ਕੇ ਵੇਸ ॥ ਕੇਤੀਆ ਕਰਮ ਭੂਮੀ ਮੇਰ ਕੇਤੇ ਕੇਤੇ ਧੂ ਉਪਦੇਸ ( ਪੰਨਾ ੭)

<sup>85</sup> ਏਕਾ ਮਾਈ ਜੁਗਤਿ ਵਿਆਈ ਤਿਨਿ ਚੇਲੇ ਪਰਵਾਣੁ ॥ ਇਕੁ ਸੰਸਾਰੀ ਇਕੁ ਭੰਡਾਰੀ ਇਕੁ ਲਾਏ ਦੀਬਾਣੁ ॥ ਜਿਵ ਤਿਸੁ ਭਾਵੈ ਤਿਵੈ ਚਲਾਵੈ ਜਿਵ ਹੋਵੈ ਫੁਰਮਾਣੁ (ਪੰਨਾ ੭). Some translators have translated these three powers as Hindu gods Brahma, Vishnu & Shiva. This is not correct. The Guru says, “ਪਵਣੁ ਪਾਣੀ ਅਗਨਿ ਤਿਨਿ ਕੀਆ ॥ ਬੁਹਮਾ ਬਿਸਨੁ ਮਹੇਸੁ ਅਕਾਰ.” (ਪੰਨਾ ੫੦੩) God created air, water and warmth but man turned them into physical bodies of Brahma, Vishnu and Shivji. (AGGS P. 503). ਬੁਹਮਾ ਬਿਸਨੁ ਮਹੇਸੁ ਨ ਕੋਈ (ਪੰਨਾ ੧੦੩੫). ਕੋਟਿ ਬਿਸਨ ਅਵਤਾਰ ਸੰਕਰ ਜਟਾ ਧਾਰ (ਪੰਨਾ ੪੫੬) “ਕੋਟਿ ਬਿਸਨ ਕੀਏ ਅਵਤਾਰ, ਕੋਟ ਬੁਮੰਡ ਜਾਕੈ ਧਰਮਸਾਲ॥ ਕੋਟਿ ਮਹੇਸੁ ਉਪਾਇ ਸਮਾਇ, ਕੋਟਿ ਬੁਹਮੇ ਜਗ ਸਾਜਣ ਲਾਏ.(ਪੰਨਾ ੧੧੫੬) Brahma ,Vishnu and Mahesh (Shivji are millions (ਕੋਟ) not three as sometimes misunderstood. ਬੁਹਮਾ ਬਿਸਨੁ ਸਿਰੇ ਤੋ ਅਗਨਤ (ਪੰਨਾ ੧੪੦੩) O God, you created innumerable Brahmas and Vishnus.

Guru himself recorded their criticism for posterity in his composition *Sidh Gosht* (debate with *Sidhas*). (For a fuller debate the reader should refer to *Sidh Gosht* in the Guru Granth Sahib). Here are some of the issues the *Sidhas* raised.

Question: “Where did the undisturbed void come from?”(AGGS p. 943) What is your view of the origin of creation and where did the void exist? <sup>86</sup> (AGGS P. 940)

Answer: “The beginning is draped in wonder and the void existed ever and ever in Him.”<sup>87</sup> (AGGS P. 940) “For a long time He remained by Himself. For another long period He existed in void. After this He existed for a long time in indescribable darkness. Then He made Himself manifest through His creation”. (AGGS p. 1081)<sup>88</sup>

Question: “Where did the creation come from, where is it going and where did it remain before existence?”<sup>89</sup>

Answer: - The creation takes shape through His Word<sup>90</sup>; it disappears through His will and exists in Him only as long He desires it to exist.

The process of development and evolution is explained in the Sikh scriptures in Raag Maru (AGGS p.1034) through a long hymn of 48 lines. Some of the lines of this hymn are as follows:

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<sup>86</sup> “ਸੁੰਨਹੁ ਸੁੰਨ ਕਰੈ ਸਭੁ ਕੋਈ ॥ ਅਨਹਤ ਸੁੰਨੁ ਕਹਾ ਤੇ ਹੋਈ” (ਪੰਨਾ ੯੪੩) “ਆਦਿ ਕਉ ਕਵਨੁ ਬੀਚਾਰੁ ਕਥੀਅਲੇ ਸੁੰਨ ਕਹਾ ਘਰ ਵਾਸੋ” (ਪੰਨਾ ੯੪੦)

<sup>87</sup> “ਆਦਿ ਕਉ ਬਿਸਮਾਦਿ ਬੀਚਾਰੁ ਕਥੀਅਲੇ ਸੁੰਨ ਨਿਰੰਤਰਿ ਵਾਸੁ ਲੀਆ” (ਪੰਨਾ ੯੪੦)

<sup>88</sup> ਕੇਤਤਿਆ ਦਿਨ ਗੁਪਤੁ ਕਹਾਇਆ ॥ ਕੇਤਤਿਆ ਦਿਨ ਸੁੰਨਿ ਸਮਾਇਆ ॥ ਕੇਤਤਿਆ ਦਿਨ ਧੁੰਧੁਕਾਰਾ ਆਪੇ ਕਰਤਾ ਪਰਗਟਤਾ (ਪੰਨਾ ੧੦੮੧) “ਖੰਡ ਬ੍ਰਮੰਡ ਪਾਤਾਲ ਅਰੰਭੇ ਗੁਪਤਹੁ ਪਰਗਟੀ ਆਇਦਾ” (ਪੰਨਾ ੧੦੩੬)

<sup>89</sup> “ਕਹਾ ਤੇ ਆਵੈ ਕਹਾ ਇਹੁ ਜਾਵੈ ਕਹਾ ਇਹੁ ਰਹੈ ਸਮਾਈ” (ਪੰਨਾ ੯੪੦)

<sup>90</sup> “ਹੁਕਮੀ ਸਹਜੇ ਸ੍ਰਿਸਟਿ ਉਪਾਈ (ਪੰਨਾ ੧੦੪੩) “ ਆਪੇ ਸ੍ਰਿਸਟਿ ਹੁਕਮਿ ਸਭ ਸਾਜੀ ਆਪੇ ਥਾਪਿ ਉਥਾਪਿ ਨਿਵਾਜੀ” (ਪੰਨਾ ੧੦੫੯) “ਹੁਕਮੇ ਸਾਜੇ ਹੁਕਮੇ ਢਾਹੇ ਹੁਕਮੇ ਮੇਲਿ ਮਿਲਾਇਦਾ” (ਪੰਨਾ ੧੦੬੯)

“In the beginning there was indescribable darkness<sup>91</sup>  
 Neither the earth nor the sky existed;  
 Only His unfathomable Will<sup>92</sup> prevailed.  
 The sun and the moon were not there,  
 The night and the day had not taken shape.  
 The Lord alone existed in His meditative undisturbed mood.  
 There was no source of life, neither wind nor water,  
 Neither creation nor destruction.  
 The infinite Lord sustained the void with His own device.  
 He was detached and unlimited.  
 He had Himself created void out of void.  
 This He does and enjoys” (P. 1034-35)

According to the Sikh Gurus the above mentioned,  
 “Indescribable darkness lasted for many ages” (AGGS  
 p.1034).<sup>93</sup> Then the Lord wished to create and at “His command  
 the universe came into existence” (AGGS p.1003).<sup>94</sup>

As is clear Guru Nanak’s theory of creation is based on an  
 intuitive process. It is the approach of a mystic rather than that of  
 a scientist. It will, therefore be futile to interpret it in terms of  
 science because intuition is beyond the realm of intellect.

Modern science has now accepted that the universe came  
 into existence from an atom. The atom according to *Charge cloud  
 model* (also known as quantum-mechanical model) is nothing but

<sup>91</sup> ਅਰਬਦ ਨਰਬਦ ਧੰਦੂਕਾਰਾ ਧਰਨ ਨ ਗਨਾ ਹੁਕਮ ਅਪਾਰਾ .....(ਪੰਨਾ ੧੦੩੪)

The word ਅਰਬਦ means beginning and ਨਰਬਦ means un-imaginable. The Sikh theory is closer to big bang theory in that both think there was a gaseous state (ਅਰਬਦ ਨਰਬਦ ਧੰਦੂਕਾਰਾ =In the beginning there was enormous dark Supernova), which gave rise to water. Sir James Jeans writes on p. 12 of his book “Vapours condensed into liquids and rivers and oceans came into being while the so-called permanent gases-oxygen, nitrogen, helium, neon formed an atmosphere.”Guru Nanak had earlier written the same ਕੀਤਾ ਪਸਾਉ ਏਕੋ ਕਵਾਉ ਤਿਸ ਤੇ ਹੋਏ ਲਖ ਦਰਿਆਉ (ਜਪੁਜੀ)

<sup>92</sup> The idea finds full support in modern philosophy. For example R. Falckenberg in his’ *History of modern philosophy* writes, “ At the beginning of the first development God is ‘Will’ without object, eternal quietude and rest, unqualified groundlessness without determinate volition”

<sup>93</sup> ਕੋਤੇ ਜੁਗ ਵਰਤੋ ਗੁਬਾਰੈ ॥ ਤਾਤੀ ਲਾਈ ਅਪਰ ਅਪਾਰੈ ॥ ਧੰਦੂਕਾਰ ਨਿਰਾਲਮ ਬੋਨਾ ਨਾ ਤਦਿ ਧੰਧ ਪਸਾਰਾ ਹੇ ॥ (ਪੰਨਾ ੧੦੨੪)

ਪ੍ਰਥਮੈ ਸਾਸ ਨ ਮਾਸ ਸਨ ਅੰਧ ਧੰਧ ਕਛ ਖਬਰ ਨ ਪਾਈ (ਭਾਈ ਗੁਰਦਾਸ ਵਾਰ ੧.੨-੧)

<sup>94</sup> “ ਕੀਤਾ ਪਸਾਉ ਏਕੋ ਕਵਾਉ” (ਪੰਨਾ ੩) “ਖੰਡ ਦੀਪ ਸਭਿ ਲੋਆ ॥ ਏਕ ਕਵਾਵੈ ਤੇ ਸਭਿ ਹੋਆ” (ਪੰਨਾ ੧੦੦੩ )

a cloud whose particles are undetectable. It is not solid but all space or void. This theory is based on the uncertainty principle established by Heisenberg. Dr.Fritjof Capra (University of Berkeley) in his book *The Tao of physics* (p. 221-223) writes, “The field theories of modern physics force us to abandon the classical distinction between material particles and the void. The vacuum is far from empty. On the contrary it contains an unlimited number of particles which come into being and vanish without end.”

So we see that the Sikh theory finds favour with many scientists of today. Another scientist Arthur S.George in his book ‘*A short history of the Universe*’ has captioned one of its chapters as ‘*Something out of nothing*’ and argues that the world came out of nothing (void).

Questions have been raised and explanations sought about this theory ever since the Gurus propounded it. One of the questions is “Who created the Creator?” The Guru has answered this question by saying, “The peerless God created Himself” (AGGS p.1036)<sup>95</sup>

## 4.9 Birth day of the universe

A question has often been raised about the time of creation of the earth (and the universe) and has engaged the attention of scientists as well as the mystics.

“There is no doubt that Physics postulates a date at which either entities of the universe were created in a state of high organisation or pre-existing entities were endowed with organisation which they have been squandering ever since.” (Sir A. Eddington. *The nature of physical world* SVD page 78)<sup>96</sup>

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<sup>95</sup> ਆਪੇ ਆਪ ਉਪਾਏ ਨਿਰਾਲਾ (ਪੰਨਾ ੧੦੩੬) “ਨਾਨਕ ਆਪਨ ਰੂਪ ਆਪ ਹੀ ਉਪਰਜਾ” (ਪੰਨਾ ੨੯੧)

<sup>96</sup> Christian & Jewish scholars calculate the age of our earth (up to 2003) as 5752 years.

Archbishop Usher of Ireland (1650) declared that our earth came into existence on Sunday 23

Estimates of scientists vary between four billion and twenty billion years. Some put it between 2000- 600,000<sup>97</sup> million years. The World book encyclopaedia puts it at 4.5 billion years. Modern American research estimates that the origin of the universe took place 12 to 18 billion years ago.

Diderot, Holbach and Karl Marx conceived the world as an automatic machine, which is wound like a clock. According to them the universe has been operating through eternity in accordance with certain laws. Hence pinpointing the moment of creation is meaningless. Kant and Hegel opposed this theory.

Guru Nanak was also asked this question and he has recorded the question and his answer in the Sikh scriptures as follows:<sup>98</sup> (AGGS P. 4)

Question: - “What was the time, the season, the day and the month when the creation came into existence?”

Answer: - The Hindu scholars do not know otherwise we could read in their Puranas.<sup>99</sup>  
The Muslim scholars do not know otherwise we could read in the Quran.  
The Yogis knew not the date, season and the month of creation.  
Only the Lord alone, who created the universe,  
Knows the answer.

“How can the son claim to witness the birth of His father?”

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October 4004 BC. This is also the date accepted by the Masons who think that Adam was born four years later in 4000 B.C. They start their calendar from 4000 B.C. and call it A.L. (Anno Lucis).

<sup>97</sup> Sir James Jeans (*Our Mysterious universe* P. 12). Hindu Scholar Dyanand surmised that the creation came into existence 1,96,085,3095 years ago (see Rigvedadibhashya Bhumika chapter 7) He revealed it through interpreting hymn 7 chapter 31 of Yajurveda.

<sup>98</sup> ਕਵਣੁ ਸੁ ਵੇਲਾ ਵਖਤੁ ਕਵਣੁ, ਕਵਣ ਬਿਤਿ ਕਵਣੁ ਵਾਰੁ (ਪੰਨਾ ੪)

<sup>99</sup> ਵੇਲ ਨ ਪਾਈਆ ਪੰਡਤੀ ਜਿ ਹੋਵੈ ਲੇਖੁ ਪੁਰਾਣੁ ॥ ਵਖਤੁ ਨ ਪਾਇਓ ਕਾਦੀਆ ਜਿ ਲਿਖਨਿ ਲੇਖੁ ਕੁਰਾਣੁ ॥ ਬਿਤਿ ਵਾਰੁ ਨਾ ਜੋਗੀ ਜਾਣੈ ਰੁਤਿ ਮਾਰੁ ਨਾ ਕੋਈ ॥ ਜਾ ਕਰਤਾ ਸਿਰਠੀ ਕਉ ਸਾਜੇ ਆਪੇ ਜਾਣੈ ਸੋਈ (ਪੰਨਾ ੪)

(AGGS p. 248)<sup>100</sup>

The creation of the universe cannot be discussed without reference to time and space and both are immeasurable and limitless. Therefore, the possibility of ascertaining the birthday of the universe, which depends on time and space, is beyond human capabilities. All efforts to find the time of creation end up in nothing and only point towards eternity.

“God did not leave any record of time, day or month when He manifested His creation.” (Bhai Gurdas 18.7)<sup>101</sup>

Modern scientists like Bondi, Gold and Hoyle have advanced the theory of, ‘Continuous Creation Hypothesis’, which agrees fully with the thesis propounded by the Sikh Gurus. They say, *“It is aesthetically more pleasing and intellectually more acceptable to consider that there can be no particular instant when the universe could have been created. It has no beginning and the creation never ends.”*

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<sup>100</sup> ਪਿਤਾ ਕਾ ਜਨਮੁ ਕਿ ਜਾਨੈ ਪ੍ਰਭੁ ॥ ਸਗਲ ਪਰੋਈ ਅਪੁਨੈ ਸੂਤਿ (ਪੰਨਾ ੨੮੪)

<sup>101</sup> ਓਅੰਕਾਰ ਆਕਾਰ ਕਰਿ ਬਿਤਿ ਨ ਵਾਰੁ ਨ ਮਾਹੁ ਜਣਾਇਆ (ਭਾਈ ਗੁਰਦਾਸ ਵਾਰ ੧੮.੨)

# Chapter 5

## Life

**“The body is the ultimate in technological perfection”**  
(Dr W.W. Akers Rice University)

**N**O simple definition of life can be provided.<sup>102</sup> Although there are some properties that distinguish animate from inanimate matter but as we shall see later, the distinction between living and non-living entities is not definite. It is also not clear how life first began.

A number of theories have been advanced to settle the age-old question, “Who came first, the chicken or the egg?” In other words did matter appear first or life and how, when and why did one change into the other, if it did? What triggered specific changes in anatomy, behaviour and intelligence?

Some of the popular theories are given here.

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<sup>102</sup> The difference between non-life and life may be one of degree of consciousness rather than difference of kind. There is no conclusive research on this topic yet. Even some plants behave like living organisms. For example Venus-flytrap plant of North Carolina eats ants, spiders, flies, snails and slugs. European butterworts bladderworts and the pitcher plants of Borneo are all carnivorous plants and behave like living creatures eating meat and discarding skeletons. Some plants breathe like humans and are susceptible to air pollution. In the 18<sup>th</sup> century sponges were thought to be plants but now they have been classified as animals. Viruses defy any classification.

## 5.1 Life descended from space

In 1821 Sales Guyon de Montivault suggested that life on earth actually came from the Moon. Towards the end of that century the belief gathered momentum that life came from space in meteorites.

In 1905 a Swedish chemist named Svante Arrhenius proposed 'panspermia theory'. According to this theory, life existed from the beginning of the universe in spores. They descended on the earth with asteroids and began to develop.

Scientist Chandra Wickramasinghe of Cardiff Centre for Astrobiology and his late friend Fred Hoyle again proposed this theory in 1970. Wickramasinghe still believes it to be true. He says, "Life on earth is connected with life everywhere in the universe." Some British biologists and an Indian biologist (Dr.Rama Chandra) also believe that microbes are aliens living as uninvited guests on our planet.

## 5.2 Matter transformed itself into life

Most modern scientists and evolutionists however, seem to agree that all life on earth developed from matter. It started and died several times between 4.5 and 3.8 billions years because of big asteroids and comets that struck the earth.<sup>103</sup>

The oldest known evidence of life was first discovered in 3.5 billion-year-old green algae specimens, which were discovered in Australia. Later a 3.8 billion-year-old rock was found in Greenland that showed similar signs of life (The Amoebae).

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<sup>103</sup> Scientists believe that a large number of animals became extinct at the end of Permian period about 250 million years ago and again at the end of Cretaceous period 65 million years ago when at least 50% of life was wiped off the face of the earth.

The Amoeba, over millions of years, developed into the most complex modern human body (100,000 billion complex cells)<sup>104</sup>. All this happened through supposed physical and chemical changes, which occurred over millions of years.

How did inanimate matter develop ambitions, aesthetic tastes and aspirations for art, literature and religion etc. is not known. The most common belief is that Human beings are the topmost developed animals in the chain of life on earth and therefore the evolution of life has come to an end.

### 5.3 Spontaneous Generation theory

This theory states that about 10 million years ago energy somehow materialized into matter with a rest mass. It was from this matter that our earth took shape. The heavy elements sank to the planet's core but the comparatively lighter elements- like hydrogen, oxygen, and carbon- remained closer to the surface. Micro organisms developed from these lighter elements through very improbable events and evolved into intelligent life.

The spontaneous generation theory came into prominence towards the end of the 18<sup>th</sup> Century. An example was given that maggots emerge from meat without any eggs being laid on it by any insect.

French zoologist, Jean Baptiste Lamarck extended the theory by saying that once life came into existence, the characteristics acquired by one generation of living organisms were passed on to its offspring and thus life spread on the earth.

The theory was disproved by Italian physician, Francesco Redi (1688) and Lazzaro Spallanzani (1780)

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<sup>104</sup> Anthropologists are not sure as to the time when this happened or when mankind became bipedal.

## 5.4 Higgs Boson theory

This theory has already been discussed in the last chapter. According to it '*Boson*' is the source of all animate and inanimate life. Vast laboratories (Tevatron) costing about £6 billion have been set up by CERN <sup>105</sup>on the border of France and Switzerland to hunt for the '*Boson*' (known as God-particle) by the collision of electrons on positrons at velocities close to the speed of light. This is being attempted by 5000 scientists in a tunnel, which is 17 miles long. The results are expected by 2007.

## 5.5 Sugar theory

George Cooper of NASA's Ames Research Centre California has recently studied some meteorites, which had struck the earth near Lake Murray Oklahoma (1933) and at Victoria Australia (1969). He has discovered a sugar-like biologically important organic compound in these meteorites, which he named *polyols*. Since *polyols* is essential for DNA and has extraterrestrial features, Cooper theorized that at one stage the interstellar space was full of gas. Light triggered chemical reactions within the gas and changed it into *polyols*. The clouds of gas collapsed and became our solar system with potential for producing life from *Polyols*.

Sir James Jeans in his book '*Universe around us*' (p.12) writes, "Our home in space came into being as a globe of hot gases on which no life of any kind could retain a foothold."

## 5.6 Amino-acid theory

This theory states that life developed from amino acids, which came into existence from the atmospheric gases. Amino

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<sup>105</sup> CERN is the name of the nuclear research council in French language. Recently its name has been changed to "European Organisation for particle physics"

acids gave rise to one-celled living organisms such as Amoebae (known as animal protozoa which is not supposed to die). In 1953 Stanley Miller and Harold Urey produced a molecule (water, hydrogen, methane and ammonia etc) similar to the one that they thought existed in the atmosphere 4 billion years ago and subjected it to similar conditions of temperature and lightning which existed at the time of creation. From this they produced amino acids; nucleotides, sugars and fatty acids, which they said, were precursors to more complex molecules essential for life. Melvin Calvin and Sydney Fox later confirmed the findings of this experiment.

In 1979 J.Bard and Herald Reiche disproved the theory producing the same results by simply adding Platinum and Titanium oxide to the solution.

## 5.7 Choanoflagellate theory

According to this theory hydrothermal vents on the earth's deep ocean floor gave rise to conditions of life. Choanoflagellate or Collar is a microscopic sperm-like single-cell organism. It has the same relation with animals, which chimps have with humans. Sean Carroll, Professor of Genetics at the University of Wisconsin, Madison and his colleague, Nicole King studied this organism. They found that it contained characteristics, which are found only in animals, and humans. They therefore, concluded that, at one stage these single-cell genes (protozoa) began to divide themselves and during the course of time evolved into multi-celled (Metazoa) animals 600 million years ago. According to Professor Carroll, "the evolution of Metazoans from Protozoa is the milestone in the history of life development."

## 5.8 Theories of Evolution

**"We are extremely close cousins of other species and yet we have grown light years away from them"**

*(Richard Dawkins 1992)*

These days it is commonly believed that once life came into existence, it multiplied into various shapes, varieties, species and sizes through the process of evolution

### **(a) Darwin's theory of evolution**

**“Evolution had no room for the supernatural. The earth and its inhabitants were not created; they evolved”** (Sir Julian Huxley. *New York Times* November 9, 1959)

The English naturalist Erasmus Darwin (grandfather of Charles Darwin) and his French colleague scientist Comte de Buffon stated in the eighteenth century that environment changed the characteristics of plants and animals. This change triggered never-ending evolution. Later French zoologist Jean de Lamarck supported this theory and confirmed their conclusions.

It was Charles Darwin (1809-1882) who really worked hard in the field of evolution. His theory of ‘*Natural Selection*’ (1859), commonly known as the theory of the ‘*survival of the fittest*,’ has influenced the thinking of the whole world. Because of its great influence on modern human thought we will discuss it here in some detail.

Evolution means that plant and animal life progressed from one-celled organisms to its highest state (humans-trillions of cells) by transforming one kind of life into another kind. The human beings are, therefore, the result of a series of automatic biological changes<sup>106</sup> taking place over billions of years. It involves three main ideas:

“(1) Living things change from generation to generation producing descendants with new characteristics. (2) This process

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<sup>106</sup> “Of the vital processes which brought about these changes we are as yet ignorant” *Encyclopaedia Britannica* Vol 14 page 767). Darwin himself had used at least 800 phrases like ‘*Let us assume*, ‘*we may well suppose*’ etc in his *Origin of species*. It is also a fact that 75% of the evolutionary chain is missing.

of change has been going on so long that it has produced all the groups now living, as well as others that lived long ago and have died out, or become extinct. (3) These different living things are related to each other.”

*(The World book encyclopaedia Vol. 6 page 330)*

Evolutionists say that although the results are not very apparent, the process of evolution continues every day every minute. Significant changes occur only after billions of years.

Thus we see that Darwin’s theory does not primarily deal with the origins of life as such but with evolution (adaptation of species to their surrounding environments). It does not tell us how life first began but it does admit the watery origin of life from small organisms.

Darwin theorized that man has evolved over a period of billions of years (through the process known as macroevolution). He passed through a series of animal ancestors starting from Amoebae.<sup>107</sup> According to him humans are direct descendants of *Ramaphithecus* (Rama’s ape = *Hanuman*), an ape-like humanoid that roamed in the Siwalik Hills of northwest India about 8 to 14 million years ago.<sup>108</sup>

### **(b) De Vries theory of mutation**

Dutch botanist Hugo De Vries supported Darwin’s theory but said that evolution progressed through mutations. He stated that living organism adapted themselves to the environment through mutating new organs.

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<sup>107</sup> Ledyard Stebbins calculated that it would take nearly 20,000 generations for a small animal like a mouse (*Mus musculus*) to become an 8 Ton heavy and 13 feet high elephant.

<sup>108</sup> In 1980 using molecular biology, it was established that the fossils of *Ramaphithecus* were not those of the ancestors of human beings (*Homo sapiens*).

## 5.9 Evaluation of the theories of creation

### (a) **Inanimate matter changes into life**

We all know that a living cell is comparatively far more complicated than our modern computer and yet we tend to assume that the cell constructed itself from matter. Can we say that the computer evolved itself into the most complex machine that it is or that Empire state building mysteriously constructed itself overnight? After considering this theory, John Clover wrote on page 176 of *'The evidence of God in an expanding Universe'* "The simplest man-made mechanism requires a planner and a maker. How a mechanism ten thousand times more involved and intricate can be conceived of as self-constructed and self-developed is completely beyond me."

Similarly Dr W.W. Akers of Rice University doubted if life could develop from inanimate matter. He said, "The body is the ultimate in technological perfection. Almost any machine you can dream up – no matter how sophisticated- you can look into the body and find one better."(*Sanfrancisco examiner and Chronicle* September 11, 1966) "The nervous system of a single starfish, with all its various nerve ganglia and fibres, is more complex than London's telephone exchange" (*Natural History* November 1961 p.17). How could such a marvellous development result from inanimate matter by itself?

It is true that there is a conceivable difference between the living and the non-living but it defies belief that in-animate matter somehow developed the ability to change into a living cell. The newborn cell then mysteriously began to breathe and reproduce itself and send messages to other cells. It also developed consciousness, and acquired the capability to evolve and appear in millions of diverse living forms without changing its basic structure. One wonders how it learnt to fly as a bird. "We know

that birds fly thousands of miles leaving behind their chicks.”<sup>109</sup> How did the birds begin to find their way back home flying over thousands of miles of featureless oceans, whereas for similar flights modern man needs radars, sextants, charts and compasses? How do the small-feathered blackcaps find their way in the dark night? How do the migratory birds fly thousands and thousands of miles and arrive at their nesting grounds off the coast of Australia and land on almost the same day every year? Why is it that the DNA of living organisms has different ‘blue-prints?’

Evolutionists are also silent about the development of the instinctive wisdom of animals.<sup>110</sup> Mr. Bergson writes, “There are three rheumatic joints in materialistic mechanism between matter and life, between body and mind and between determinism and choice (SVD p. 79).” In other words, Bergson questions how lifeless atoms became living organisms and progressed into developing complex brain and mind. Even the modern man of science, with all the technology at his command, cannot create this miracle. How did the humans automatically evolve with trillions of cells and how did their instincts take root?

## **(b) Evolution of species**

According to Darwin the living species have developed from other living species but it is strange that there are no transitional forms today? The apparent similarity between Chimpanzees, Gorillas, Monkeys and humans is talked about as a

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<sup>109</sup> ਉੱਡੇ ਉੱਡਿ ਆਵੈ ਸੈ ਕੋਸਾ ਤਿਸੁ ਪਾਛੈ ਬਚਰੇ ਛਰਿਆ (ਪੰਨਾ ੧੦) A common tern was branded on 30 June 1996 in Finland and freed. It was discovered in January 1997 at Rotamah Island (Australia) 16150 miles away across the oceans.

<sup>110</sup> Bears and elephants eat clay. Clay contains kaolin which de-activates toxins from their diet. Birds use agrimony and yarrow to line their nests because these herbs kill off parasites in their nests and keep their chicks healthy. When the hedgehogs are ill they sun themselves to kill infectious organisms on their skin. Dogs have been seen to eat grass to vomit out the contents of their upset stomach. Why do squirrels eat away a part of the acorn from white oaks (but not that from the red oaks) before burying them for use in winter? How do animals avoid eating poisonous plants growing in the wild? (For details Read *How animals keep themselves well by Weidenfield and Nicholson*) Why do single-celled ocean organisms swarm exactly every 23 hours to cause bioluminescence glow in the oceans?

link between them.<sup>111</sup> But it is misleading because the inner structure of humans is comparatively closer to a frog than to the ape world and no transitional forms between man and ape have been found so far.

Efforts of the protagonists of Darwin's theory to prove the transformation of dog-sized Eohippus (*a small fox-like animal*) into the present day Equine (*Horse*) have not been successful. It still needs to be explained why genes have remained unchanged for millions of years and why the cell has not altered its basic size, properties and chemical composition. The theory does not answer why a cat has remained a cat and a rat has remained a rat generation after generation. These facts only point to the belief that the fixity of families of living organisms is the universal law of Nature.

The theory of '*Natural selection*' or '*Survival of the fittest*' rests on the premise that all life continually adapts itself to environment so that it becomes the fittest for survival. But we see that the horse and the cow both eat grass but the horse has front upper teeth, which the cow hasn't and yet they both are enjoying equal chances of survival. Similarly most birds eat fruit from the trees but they have different kinds of beaks and have equal chances of survival. The theory also points to the fact that only the fittest of each species would survive but we find many varieties of the same species surviving with equal ease. For example there are more than a hundred species of dogs all enjoying equal chances of survival?

According to the theory the females developed mammary glands after millions of years of evolution, a step towards being the fittest to survive. How did the females feed their babies before developing mammary glands? If they were able to feed their

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<sup>111</sup> In genetics humans are closer to Chimpanzees but chimpanzees cannot swim and hold their breath in water like humans. They fear water and easily get drowned. Humans also consume more water than chimpanzees.

babies without mammary glands why did they need to develop breasts? If breasts were necessary for survival, why do we still find animals that do not have breasts to feed their babies and yet survive just as well? If the development of male and female sex organs was necessary for survival then why do we still have asexual (e.g. Amoeba, which have no sex and multiply by self-division) and bisexual cells still surviving side by side with equal ease? If one celled organisms could reproduce themselves satisfactorily by dividing and subdividing and are still doing so, then in what way did sexual reproduction help in evolution?

“Divine creation is the only possible initiator of life” (Luis Pasteur quoted in *Scientific American* 1965 p.52)

### (c) **Theory of mutation**

De Vries theory of evolution through mutations (From the Latin *mutare*, meaning change) was considered an advance on Darwin’s theory. It has been strongly criticised and proved fallacious.

Evolutionists believe that mutations improve the chances of survival and are necessary for perfection. This is belied by the theory itself. The legless fish developed legs in millions of years and in another millions of years became an elephant, a step towards perfection. The elephant then reversed the process and in millions of years not only lost its tail, trunk and tusks but also lost two legs and became human (considered to be the fittest of all species). Such a regression (devolution?) cannot be called Evolution. Nature cannot be so wasteful.

It still needs to be explained why we do not have any transitional (mutated) forms between animals and plants? Why have the once fittest evolved mammoths and dinosaurs not survived but the humble amoeba and the ubiquitous ant are still living?

Mutation does not always lead to evolution. Nobel Prize winner (1946) Mr. H.J. Muller says, “Most mutations are bad, in fact good ones are so rare that we may consider them all as bad” (*Time* November 11, 1946 page 96). For example, mutations produced through the use of the drug thalidomide, did not produce improved species but deformed and mutilated babies. In 1956 an experiment at mutation on Africanised super honeybees in Brazil went drastically wrong and produced killer bees. These bees attack people and animals but have no better chances of survival in comparison with the ordinary honeybees. They are comparatively lazier and smaller and their speed of flight is slow. We have also seen that when the ants mutate, they grow wings. The wings do not help them survive; on the other hand they become the cause of their untimely death.

It was claimed that before the year 1700 the British *Biston betularia* moth was mottled with white and brown but when coal began to be used in houses and factories by 1860, it mutated into dark grey to become better camouflaged against birds of prey. This was interpreted as a form of evolution. The fact however is that *Biston betularia*'s adaptability (mimicry) has been confused with evolution. In everyday life we find that the same cats, cows, sheep and buffaloes give birth to some babies with spots and others without spots or colour contrast. It does not therefore seem to prove evolution.

“I think however that we should go further than this and admit that the only accepted explanation is creation. I know that it is anathema to physicists, as it is to me, but we must not reject a theory that we do not like if the experimental evidence supports it”

(H.J. Lipson in *Physics Bulletin Vol. 31 1980 p. 138*)<sup>112</sup>

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<sup>112</sup> Kansas Board of Education deleted references to Darwin's theory from their Science curriculum in August 1999. Illinois Board followed suit in October 1999 and banned it. Oklahoma State Textbook committee also recommended its removal from textbooks on 5th November 1999. A conference recently held in Ohio (23.8.2002) condemned Darwin's theory as untrue and dangerous and asked it not to be taught in schools. The conference concluded that there is “intelligent design” in all creation.

#### (d) Genetically modified plants and geeps

DNA (deoxyribonucleic acid) is considered the carrier of inheritance code but it remains the same in the living group. What we find happening is only the shuffling or permutation of genes.

Examples of mutational changes through cross breeding have been found to be far-fetched. For example cross breeding between a horse and a donkey producing a mule is cited as a transformation. But the biologists agree that the DNA keeps the organism within the parameters set by nature for a particular *Genus*. A mule remains within its *genus*.<sup>113</sup> Nature permits crossbreeding only within limits. It abhors continuity of crossbreeding and therefore the hybrid mule is sterile and cannot produce babies. The same is the case with a geep<sup>114</sup>. It remains within its *Genus* and can only produce either pure sheep or pure goat as offspring. Genetically modified (mutated) plants have also remained within their *Genus*. No botanist has succeeded in changing maize to mustard or vice versa.

The theory of Biogenesis (*bio=life* and *genesis=birth*) propounded by modern anthropologists has already questioned the hypothesis of Charles Darwin as stated in his "*Origin of species*". This theory states, "*The parent organism and its offspring are always the same kind. Man has long since ceased to evolve. Present day man, the human being that we are, does not differ from the human being who lived 100,000 years ago*" (*Science world* Feb1, 1961 p.5).

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<sup>113</sup> Living organisms related to each other are called *Species*. One or more *Species* related to each other are called *Genus*. For example tiger, Lion (*Felis Leo*) and cat (*Felis domestica*) all belong to *Felis* Family. Lynx and bobcat do not belong to this family but together they are all members of *Felidae* *genus*. Nature permits interbreeding only among the members of a particular *Genus*.

<sup>114</sup> Through the process of cell-fusion the Cambridge scientists produced a 'geep' from a goat and a sheep in 1982. They named it *Geep*. Geeps only produce goats or sheep but no Geeps.

Other critics say that if “*Survival of the fittest*” is believed then a time is bound to come when only one fittest animal (one of the humans?) will survive on the earth. There are no signs of such a thing happening.

It is on the basis of such facts that Gaylord Simpson wrote, “Search for the cause of evolution has been abandoned. It is now clear that evolution has no single or simple cause” (*The geography of evolution* P. 17)

“*Neither physical nature nor life can be understood unless we fuse them together as essential factors in the composition of really real things whose interconnections and individual characters constitute the Universe*”(Adventure of Ideas by A.N.Whitehead).

#### **(e) Life from outer space**

This theory once captivated the minds of the scientists all over the world. Von Daniken wrote two books “*Chariots of the gods*” and “*Gold of the gods*” which rocked the world. Later the theory was strongly supported by Graham Hancock through his book, “*Fingerprints of gods.*” They even argued that life from other planets has been regularly visiting our earth.

Some scientists have discarded this theory as improbable. They believe that the spores could not have survived such a long journey through the harsh conditions of outer space. William Grant of the University of Leicester and Jack Cohen the biologist at University of Warwick reject this theory as fanciful.

### 5.10 The Sikh view of life

**“If all nature obeyed the law of causation, why should life be exempt?”** (Sir James Jeans *The Mysterious Universe* P.29)

Unlike evolutionists, the Sikh Gurus believe that the whole universe (including living organisms) was “created by God under His inexplicable Will”.<sup>115</sup> “First, He created Himself and then He willed the nature to develop.”<sup>116</sup>(AGGS p.463) The developmental differences in creation are not automatic or based on “*survival of the fittest*”. “The differences have been created consciously by the creator”<sup>117</sup> and in a form suited to the work that each species is assigned to do. Monkeys or chimpanzees may become more and more intelligent but they will still remain monkeys or chimpanzees. “My True Lord has enacted a mysterious play. He has created each form different from the other.”<sup>118</sup>

One of the most important things created by God was ‘Air’<sup>119</sup> which under His Will became the source of all life. The Guru says, “From the True Lord came the air, and from the air came water. From water, He created the three worlds (of life in water, on earth and in air); in each and every heart He has infused His Light.”<sup>120</sup>

Scientists, state similarly, that Hydrogen and oxygen gases in the air combined to form water (H<sub>2</sub>O) and life emerged from water some 350 million years ago.<sup>121</sup> According to Alister Hardy’s ‘aquatic ape theory’ (1960) living creatures began to emerge from

<sup>115</sup> ਹੁਕਮੀ ਹੋਵਣ ਆਕਾਰ ਹੁਕਮ ਨ ਕਹਿਆ ਜਾਈ “ There is indeed no way in which we can represent to ourselves the process by which the Supreme Will brings things into being”(The Philosophy of religion by Galloway.) ਹੁਕਮੀ ਸਹਜੇ ਸ੍ਰਿਸਟਿ ਉਪਾਈ (ਪੰਨਾ ੧੦੪੩)

<sup>116</sup> ਆਪੀਨੇ ਆਪ ਸਾਜਿਓ ਆਪੀ ਨੇ ਰਚਿਓ ਨਾਓ॥ ਦੁਯੀ ਕੁਦਰਤਿ ਸਾਜੀਐ ਕਰ ਆਸਣ ਡਿਠੋ ਚਾਓ (ਪੰਨਾ ੪੬੩) “ ਆਪੋ ਕਰਤਾ ਕਰਿ ਕਰਿ ਵੇਖੋ ਸਾਚਾ ਵੇਪਰਵਾਰਾ ਹੋ (ਪੰਨਾ ੧੦੩੨) ਆਪੋ ਆਪ ਉਪਾਇ ਨਿਰਾਲਾ” (ਪੰਨਾ ੧੦੩੬)

<sup>117</sup> ਆਪੋ ਫਰਕੁ ਕਰੇ ਵੇਖਿ ਵਿਗਸੈ ਸਭਿ ਰਸ ਦੇਹੀ ਮਹਿ ਹੋ (ਪੰਨਾ ੧੦੫੬) Also read Asa M;1 p. 387,Gujri Ki var M:3 p. 736, Nat M;4 P. 277 “God tastes an infinite joy in infinite ways” (Browning)

<sup>118</sup> ਸੋਰੈ ਪ੍ਰੰਭਿ ਸਾਚੈ ਇਕੁ ਖੇਲੁ ਰਚਾਇਆ ॥ ਕੋਇ ਨ ਕਿਸਰੀ ਜੋਹਾ ਉਪਾਇਆ (ਪੰਨਾ ੧੦੫੫)

<sup>119</sup> ਪਵਣੈ ਖੇਲੁ ਕੀਆ ਸਭ ਥਾਈ ਕਲਾ ਖਿਚਿ ਢਾਹਾਇਦਾ (ਪੰਨਾ ੧੦੩੩) (The air started the whole play everywhere) ਪਵਣੈ ਪਾਣੀ ਅਗਨੀ ਜੀਉ ਪਾਇਆ ( ਪੰਨਾ ੧੦੩੧) ਪਵਣੈ ਪਾਣੀ ਜਾਣੈ ਜਾਤਿ ( ਪੰਨਾ ੧੨੫੬). In 1660 much later than the first publication of Guru Granth Sahib, Robert Boyle established the fact that air is indispensable for life.

<sup>120</sup> ਸਾਚੇ ਤੇ ਪਵਨਾ ਭਇਆ ਪਵਨੈ ਤੇ ਜਲੁ ਹੋਇ ॥ ਜਲ ਤੇ ਤ੍ਰਿਭਵਣੁ ਸਾਜਿਆ ਘਟਿ ਘਟਿ ਜੋਤਿ ਸਮੋਇ (ਪੰਨਾ ੧੯) “ਨਾਨਕ ਇਹੁ ਜਗਤੁ ਸਭੁ ਜਲੁ ਹੈ ਜਲ ਹੀ ਤੋ ਸਭ ਕੋਇ” (ਪੰਨਾ ੧੨੮੩). The dependence of life on water and the theory of water cycle in nature were propounded by Bernard Palissy in the sixteenth century after the death of Guru Nanak.

<sup>121</sup> The main constituent of life cells is cytoplasm, which is made of 80% water.

water when the Ozone layer on the earth became thick enough to protect the living creatures from the lethal rays of space.

Asked how God produced life from water, the Guru's answer was, "Only the Creator knows His methods"<sup>122</sup> In answer to the same question, Scientist A.I.Oparin similarly said in 1938 that, " life arose from the oceans through some processes yet unknown."

Most scientists believe that when living creatures emerged from water their fins turned into legs, lungs, scale, fur and wings etc. They seem to say that over time, stone became amoebae, fish, snake deer, lion, and finally a monkey, which turned into man.

Nobel Laureate Ilya Prigogin does not agree with the above view. He says, "This principal cannot explain the formation of biological structures. The probability that at ordinary temperatures a microscopic number of molecules assembled to give rise to the highly ordered structures and to the coordinated functions characterizing living organisms is vanishingly small. The idea of spontaneous genesis of life in its present form is therefore highly improbable, even on the scale of billions of years during which prebiotic evolution occurred"*(Physics Today vol. 25 p. 28)*.

No one can say with any certainty that a living cell<sup>123</sup> is merely a collection of ordinary atoms arranged in some as yet mysterious permutation. No skilful chemist has so far succeeded in creating life out of atoms. Is it only atoms or is the living organism composed of something more in addition to atoms?

There is no doubt that humans are made from the same chemical elements (Carbon, Hydrogen, Oxygen, Calcium and

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<sup>122</sup> ਜਿਨਿ ਉਪਾਏ ਸੇ ਬਿਧਿ ਜਾਣੈ (ਪੰਨਾ ੧੦੬੦)

<sup>123</sup> English scientist Robert Hooke discovered cells in 1665. Each cell is the minutest living unit. There are nearly 75 trillion cells in the body and each second in each cell there are at least 6 trillion chemical reactions taking place and yet they are as small as the full stop at the end of this sentence.

Phosphorus etc) as other objects of nature and obtain nourishment from the same earth, yet they are different from them in many ways. The main difference between species is that humans have the ability to control and manipulate their surroundings, acquire knowledge and make use of other species to serve them. The biochemist Isaac Asimov, tells us that in a whole lifetime, the human brain can absorb and retain more than one million bits of information whereas the brains of other species have much limited capability. Sikhism firmly asserts this fact and says, “O Human being you are the Lord of the world. The other species are subservient to you.”<sup>124</sup>

Sikhism believes that matter cannot by itself develop consciousness to reach the apex of development. The human body is composed of a pound worth of chemicals and water but nobody has succeeded in creating a living human being out of them. The Sikh belief is that “The Lord created all creatures and they have been assigned different tasks.”<sup>125</sup> All things are well and wisely put by the Creator. “He has so constructed His World that no one creature or species is exactly like the other.” (AGGS p. 1056)<sup>126</sup> Each organism has been assigned a special role in life. A human being, however intelligent, cannot do what other species are capable of.

Human beings are social and ethical and can store their emotions and sentiments. All this is possible through an additional element in humans. This additional element according to Sikhism is the Discerning intellect (ਬਿਬੇਕ ਬੁੱਧੀ),<sup>127</sup> a property of the soul. It is discerning intellect that helps the human to be rational and to be able to discriminate between right and wrong, good and evil. The Sikh Gurus say, “The air, the water and the

<sup>124</sup> ਅਵਰ ਜੋਨਿ ਤੇਰੀ ਪਨਿਹਾਰੀ ॥ ਇਸੁ ਧਰਤੀ ਮਹਿ ਤੇਰੀ ਸਿਕਦਾਰੀ (ਪੰਨਾ ੩੭੪) and “ਲਖ ਚਉਰਾਸੀ ਜੋਨਿ ਸਬਾਈ ਮਾਣਸ ਕਉ ਪ੍ਰੀਭ ਦੀਈ ਵਡਿਆਈ (ਪੰਨਾ ੧੦੭੫) “ਸਗਲ ਜੂਨਿ ਮਹਿ ਤੂ ਸਿਰਿ ਧਰਿਆ” (ਪੰਨਾ ੯੧੩)

<sup>125</sup> ਜੀਅ ਜੰਤ ਸਭੁ ਤੁਪ ਉਪਾਏ ਜਿਤ ਜਿਤ ਭਾਣਾ ਤਿਤਿ ਲਾਏ (ਪੰਨਾ ੧੦੩) ਨਾਮ ਕੇ ਧਾਰੇ ਸਗਲੇ ਜੰਤ (ਪੰਨਾ ੨੮੨)

<sup>126</sup> ਮੇਰੈ ਪ੍ਰਭਿ ਸਾਰੈ ਇਕੁ ਖੇਲੁ ਰਚਾਇਆ ॥ ਕੋਇ ਨ ਕਿਸਹੀ ਜੇਹਾ ਉਪਾਇਆ (ਪੰਨਾ ੧੦੫੬)

<sup>127</sup> ਬਿਬੇਕ ਬੁਧਿ ਸਭ ਜਗ ਮਹਿ ਨਿਰਮਲ ਬਿਚਾਰਿ ਬਿਚਾਰਿ ਰਸੁ ਪੀਜੈ (ਪੰਨਾ ੧੩੨੫)

fire unite to create all animate objects. But it is the restless discerning intellect that dominates the game.”<sup>128</sup> Scientists at one time called this mysterious constituent “vital force” or “pre-determined plan” Evolutionist Sir James Gray acknowledges it when he writes, “There seems to be some *directive principle* at work.” (*Science today* page 26)

Again the Sikh Gurus say that all creatures are equipped with the potential for evolution within their own species<sup>129</sup> but in comparison with humans, the other species have much less ability to evolve. The birds have been building their nests from times immemorial but have not been able to improve upon their techniques. Man, once a cave dweller, is now building skyscrapers, computers and rockets and exploring the other planets. Another unique factor in humans is that they are endowed with the faculty of reason, which differentiates them from all other animals.<sup>130</sup>

The Sikh theory of life also had its critics. The Guru has recorded the questions and answers about the theory in the Guru Granth Sahib for posterity. Here are some of the questions asked by the intellectuals of the Guru’s time:

1. Question: - How did life originate, where did it reside before manifesting itself and where does it end?<sup>131</sup>

Answer: - All creatures were created by Him. How can anybody evaluate His doings? (AGGS p.1193)

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<sup>128</sup> ਪਉਣ ਪਾਣੀ ਅਗਨੀ ਕਾ ਮੇਲੁ॥ ਚੰਚਲ ਚਪਲ ਬੁਧ ਕਾ ਖੇਲ (ਪੰਨਾ ੧੫੨ ਏ ਸਰੀਰਾ ਮੇਰਿਆ ਹਰਿ ਤੁਮ ਮਹਿ ਜੋਤਿ ਰਖੀ ਤਾ ਤੂੰ ਜਗ ਮਹਿ ਆਇਆ (ਪੰਨਾ ੯੨੩) , “ਘਟ ਘਟ ਅੰਤਰਿ ਬ੍ਰਹਮ ਲਕਾਇਆ ਘਟਿ ਘਟਿ ਜੋਤ ਸਬਾਈ (ਪੰਨਾ ੫੯੭).

<sup>129</sup> “ਏਕਾ ਮਾਈ ਜੁਗਤ ਵਿਆਈ ਤਿਨ ਚੇਲੇ ਪਰਵਾਣ”. Nature is one but it has been mysteriously endowed with three properties (of ‘becoming’, ‘enduring’, and ‘disintegration’).

<sup>130</sup> The Sikh Gurus have consecrated reason as the noblest and highest function of the humans. Human intellect is God’s gift but the Guru sharpens the intellect and polishes it to make it shine in its godly glory.

<sup>131</sup> ਕਿਥਹੁ ਉਪਜੈ ਕਹ ਰਹੈ ਕਹ ਮਾਹਿ ਸਮਾਵੈ ॥ Answer ਜੀਅ ਜੰਤ ਸਭਿ ਖਸਮ ਕੇ ਕਉਣ ਕੀਮਤਿ ਪਾਵੈ (ਪੰਨਾ ੧੧੯੩)

2. Question: “When this heart and body did not exist, where did the mind reside?” (AGGS P. 945)<sup>132</sup>

Answer: -” When the heart and the body did not exist, O hermit, then the mind resided with the Absolute detached Lord in the void” (AGGS P. 945).

3. Question: - “How and in what way, was the world formed, O man? And what disaster will end it?”<sup>133</sup> (AGGS P. 946)

Answer: - “In egotism, the world was formed, O man; Forgetting the Naam, it suffers and dies.”

## 5.11 Modes of reproduction

In the times of the Sikh Gurus it was a deeply held view that there are four modes (ਖਾਣੀਆਂ) of reproduction. “The four types of life such as egg, placenta, sweat, and germination and many more are provided by you”<sup>134</sup> The Sikh Gurus mentioned the current belief of their time but did not restrict reproduction to these four categories. Modern man is exploring other planets and there may be other modes of reproduction on them. So the Sikh Gurus disagreed with the current concept and instead said,

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<sup>132</sup> ਜਾ ਇਹੁ ਹਿਰਦਾ ਦੇਹ ਨ ਹੋਤੀ ਤਉ ਮਨੁ ਕੈਠੈ ਰਹਤਾ ॥ (ਪੰਨਾ ੯੪੫) ਹਿਰਦਾ ਦੇਹ ਨ ਹੋਤੀ ਅਉਧੂ ਤਉ ਮਨੁ ਸੁੰਨਿ ਰਹੈ ਬੈਰਾਗੀ (ਪੰਨਾ ੯੪੫)

<sup>133</sup> ਕਿਤੁ ਕਿਤੁ ਬਿਧਿ ਜਗੁ ਉਪਜੈ ਪੁਰਖਾ ਕਿਤ ਕਿਤੁ ਦੁਖ ਬਿਨਸਿ ਜਾਈ (ਪੰਨਾ ੯੪੬) ਹਉਮੈ ਵਿਚਿ ਜਗੁ ਉਪਜੈ ਪੁਰਖਾ ਨਾਮਿ ਵਿਸਰਿਐ ਦੁਖੁ ਪਾਈ (ਪੰਨਾ ੯੪੬)

<sup>134</sup> ਅੰਡਜ ਜੇਰਜ ਸੇਤਜ ਉਤਭੁਜ ਬਹੁ ਪਰਕਾਰੀ ਪਾਲਕਾ (ਪੰਨਾ ੧੦੮੪) The division of life into four categories# was firmly but wrongly believed in the time of Guru Nanak. ਅੰਡਜ (from eggs as birds) ਜੇਰਜ (from placenta as humans & animals) ਸੇਤਜ (from sweat or heat as lice and millipedes) ਉਤਭੁਜ (from breaking of earth as plants) is mentioned at many places in the Holy Granth. However the Sikh Gurus did not accept this idea. At that time this idea of four modes was also current in the west. They were named Monera, Protista, Plantae and Animalia. After research the classification was extended to include Fungi as sixth kingdom. These days the list contains 13 kingdoms. In addition the scientists still do not know where to put viruses because they have not decided whether the viruses are living or non-living? Life is believed to have evolved from Monera, which are either bacteria or blue-green algae (it is still undecided whether they are plants or bacteria).

“Countless are the modes of reproduction, countless are the worlds, skies and galaxies.”<sup>135</sup>

## 5.12 Mysteries of life

The idea of four modes of reproduction does not appear to be sound even on our earth. Asexual organisms (like *Amoebae* and *starfish*) produce identical replicas of themselves through dividing their bodies. Similarly ‘Coelenterate’ is an organism, which if cut into pieces each part starts behaving like an independent individual and develops into a full-grown organism. *Echinodermata* is a marine organism, which has no head. If a part of its body is cut off, it can regenerate that part.

Again there are viruses, which remain alive for centuries. They look like solid crystals in powdery form. Tobacco mosaic virus<sup>136</sup> is a crystal and to all appearances displays no sign of life. As soon as it is dissolved in water and sprayed on a tobacco leaf it becomes a living organism and starts multiplying itself. It is about life of this type that the Sikh Gurus said, “If God wills He can keep an organism alive without breath”<sup>137</sup> (AGGS p. 277)

Using their research submarine *Alvin*, Woods Hole Oceanographic Institute’s divers went underwater in Pacific Ocean’s Galapagos rift in 1977. There they discovered living plants in the underwater volcanic cracks. They were astonished to

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<sup>135</sup> ਕਈ ਕੋਟ ਖਾਣੀ ਅਰੁ ਖੰਡ ਕਈ ਕੋਟ ਅਕਾਸ ਬ੍ਰਹਮੰਡ (ਪੰਨਾ ੨੭੬) ਕੋਤੀਆ ਖਾਣੀ ਕੋਤੀਆ ਬਾਣੀ (ਪੰਨਾ ੭),

<sup>136</sup> Martinus Willem Beijerinck first discovered viruses in 1898 by experimenting on tobacco. As soon as the viruses enter the living cell they become alive and multiply rapidly. Having entered a healthy cell they replicate themselves into thousands and trick the host cell into producing harmful acids rather than healthy cells. The healthy cell thus destroys itself. AIDS, influenza, small pox, rabies, polio, measles, shingles and mumps etc are caused by viruses. Although vaccines can control and kill certain viruses, the HIV virus that causes AIDS cannot be killed because it attacks the body’s immune system itself. Sometimes viruses cause epidemics. In 1918 Influenza virus killed more people than were killed in the 1<sup>st</sup> world war. It wiped off 4% of India’s population and 8% that of Alaska. America was the worst hit. Small Pox virus was once the scourge of human beings but it has now been controlled. Since 1978 its deadly microbes have been lying frozen in Moscow and Atlanta. The HIV virus is still causing deaths and no vaccine has so far been discovered to control it.

<sup>137</sup> “ਪੁਭ ਭਾਵੈ ਬਿਨੁ ਸਾਸ ਤੇ ਰਾਖੈ ”(ਪੰਨਾ ੨੭੭)

find that these plants lived by chemosynthesis (converting chemicals into food) rather than on photosynthesis by which all plants live. The rift water has a temperature of 399<sup>0</sup>C. Ordinarily life does not survive in such high temperatures. Since then, 295 other new species of life (*called pyrococcus furiosus*) have been discovered in the hot waters of the Galapagos rift alone. That life can exist in such high temperatures is mentioned by the Sikh gurus in the Holy Guru Granth Sahib as follows, “Such is our Lord that He provides sustenance even to those that exist in fire.” (AGGS p. 488)<sup>138</sup>

A worm-like organism (known as *phylum*) lives in a self-built 25 feet long tube and has neither a mouth nor intestines. It lives by assimilating bacteria through the cells of its body. In the last week of July 2003 a team of Southampton University Oceanography Centre led by Dr.Bramley Murton and Dr.Chris German sent down their divers from their ship RRS Charles Darwin to the floor of the Indian Ocean. They discovered a super-heated chemically enriched plume of smoky water emerging violently from the underwater rupture of the earth’s crust. In this pitch-black murky water of the plume they discovered 8 feet long worms, giant clams and blind shrimps living by feeding on chemicals.<sup>139</sup> Dr.German said, “Some smaller plumes enabled us to discover up to two new species a fortnight”

All these have been discovered only recently and yet there is no end to the forms and mysteries of life and the search is going on. About such marine life the Guru said, “He has created life in the deep dark recesses of the ocean and provides

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<sup>138</sup> ਦੇਇ ਅਹਾਰੁ ਅਗਨਿ ਮਹਿ ਰਾਖੈ ਐਸਾ ਖਸਮੁ ਹਮਾਰਾ (ਪੰਨਾ ੪੮੮) ਮਨਹੁ ਕਿਉ ਵਿਸਾਰੀਐ ਏਵਡੁ ਦਾਤਾ ਜਿ ਅਗਨਿ ਮਹਿ ਆਹਾਰੁ ਪਹੁਚਾਵਏ (ਪੰਨਾ ੯੨●)

<sup>139</sup> These facts may sound strange to scientists and to us but the Guru says, “ਜੇਤੇ ਜੀਅ ਜੀਵਹਿ ਨੈ ਸਾਹਾ ਜੀਵਾਲੇ ਤਾ ਕਿ ਅਸਾਹ ॥ਨਾਨਕ ਜਿਉ ਜਿਉ ਸਚੇ ਭਾਵੈ ਤਿਉ ਤਿਉ ਦੇਇ ਗਿਰਾਹ”(ਪੰਨਾ ੧੪੪) All beings and creatures live by breathing, but He could keep us alive, even without the breath. O Nanak, as it pleases the True Lord, He gives us sustenance.

sustenance for them. There one life lives by feeding on another one” (AGGS P. 955).<sup>140</sup>

Most of these animals do not fall into the generally believed four categories of reproduction. It was these mysteries and varieties that prompted Guru Nanak to exclaim with wonder, “Wondrous is the earth and wondrous are the modes of reproduction”(AGGS P. 464), “ Wondrous are the living creatures and wonderful are their varieties”(AGGS P. 463)“ God exists in a variety of forms” (AGGS p. 13)<sup>141</sup>

### 5.13 Life in stones

Recently scientists discovered a million-year-old rock which when placed in water showed signs of life. Very old living microbes have been found in the permafrost of Fox Tunnel in Alaska, which is the coldest known place on earth and has been frozen solid for millions of years. It has also been discovered that life exists even up to 30 feet below the surface of the earth.

Scientists were surprised at the feats of nature but the fact that myriads of insects creep and crawl in rocks and stones was mentioned by the Sikh Gurus more than 500 years ago when they wrote, “In rocks and stones He created living beings; He places their nourishment before them” (AGGS p. 10)<sup>142</sup>

### 5.14 Varieties of living organisms

According to Aristotle(c 350) there are 500 known species/types or families (*Genuses*) of life. He grouped them into 8 classes, which he called kingdoms. Oriental religions state that

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<sup>140</sup> “ਵਿਚਿ ਉਪਾਏ ਸਾਇਰਾ ਤਿਨਾ ਭਿ ਸਾਰ ਕਰੇਇ” “ਜੀਆ ਕਾ ਆਹਾਰੁ ਜੀਅ ਖਾਣਾ ਏਹੁ ਕਰੇਇ” (ਪੰਨਾ ੯੫੫)

<sup>141</sup> ਵਿਸਮਾਦੁ ਧਰਤੀ ਵਿਸਮਾਦੁ ਖਾਣੀ” (ਪੰਨਾ ੪੬੪) “ਵਿਸਮਾਦੁ ਜੀਅ ਵਿਸਮਾਦੁ ਭੇਦ” ( ਪੰਨਾ ੪੬੩) ਨਾਨਕ ਕਰਤੇ ਕੇ ਕੋਤੇ ਵੇਸ” (ਪੰਨਾ ੧੩)

<sup>142</sup> ਸੈਲ ਪਥਰ ਮਹਿ ਜੰਤ ਉਪਾਏ ਤਾ ਕਾ ਰਿਜਕੁ ਆਗੈ ਕਰਿ ਧਰਿਆ (ਪੰਨਾ ੧੦) ਕੀਟ ਹਸਤਿ ਪਾਖਾਣ ਜੰਤ ਸਰਬ ਮੈ ਪ੍ਰਤਿਪਾਲ ਤੁ (ਪੰਨਾ ੧੨੩੧) ਪਾਖਣਿ ਕੀਟੁ ਗੁਪਤੁ ਹੋਇ ਰਹਤਾ ਤਾ ਚੇ ਮਾਰਗੁ ਨਾਹੀ (ਪੰਨਾ ੪੮੮)

there were 84 *lakh*<sup>143</sup> living types of creatures. The Sikh Guru referred to this commonly held belief when he wrote “All the supposed 8,400,000 species of life are offered sustenance by the Great provider.”<sup>144</sup> The Sikh Gurus however, did not put any limit on the number of living species. They said, “The species, their families, colours and names are all recorded by His moving pen. If one tries to enumerate them, there will be no end to his calculations”<sup>145</sup>

The belief, that there are only 8,400,000 varieties of organisms rests on the fact that the number of varieties of life remains constant. This is not correct. We know that since life first appeared on our planet, more than 2 billion species have vanished. Some scientists estimate that the number of species now living on our earth is 30 million. More and more species unknown before are being discovered.

Life is all pervading consciousness.<sup>146</sup> We can say that it is sleepy in stone; dreamy in the animal kingdom and wide awake in the humans. Two types of life are in our common knowledge. Ordinary life can exist in more than one environment. For example humans can exist in hot or cold temperatures but they cannot exist where there is no oxygen. Dormant or hibernating life needs an appropriate environment and atmosphere to come to full life activity.<sup>147</sup> Hibernating animals usually appear to be dead but they come to full life activity at a certain period. Furthermore there are seeds that remain in the earth but sprout only at certain times. The oldest (10,000 years old) seed so far discovered, is that

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<sup>143</sup> A *Lakh* in Indian system of counting is equal to 100,000. British anthropologist David Attenborough in his book (*Life on earth p. 11*) appears to agree with this number.

<sup>144</sup> ਚਵਰਾਸੀਹ ਲਖ ਜੋਨਿ ਉਪਾਈ ਰਿਜਕ ਦੀਆ ਸਭ ਹੂ ਕਉ ਤਦ ਕਾ ( ਪੰਨਾ ੧੪੦੩)

<sup>145</sup> ਜੀਅ ਜਾਤਿ ਰੰਗਾ ਕੇ ਨਾਵ ਸਭਨਾ ਲਿਖਿਆ ਵੁੜੀ ਕਲਾਮ॥ ਏਹੁ ਲੇਖਾ ਲਿਖਿ ਜਾਣੈ ਕੋਇ ਲੇਖਾ ਲਿਖਿਆ ਕੇਤਾ ਹੋਇ (ਪੰਨਾ ੩)

<sup>146</sup> “The basic oneness of the universe is not only the central characteristic of the mythical experience, but is also one of the most important revelations of modern physics. It becomes apparent at the atomic level, and manifests itself more and more as one penetrates deeper into matter, down into the realm of sub-atomic particles” (Dr. Fritjof Capra *Tao of physics* p. 130-131)

<sup>147</sup> This is known as dormancy (temporary cessation of growth and activity). It may last a day or a million years.

of North American Arctic Lupine.<sup>148</sup> When planted, it still grew into a plant similar to the present day Lupine. A single-seed fruit known as double coconut is found on the Seychelles Islands. It weighs 45 pounds. If planted, it takes up to 10 years before it begins to grow.

Some varieties of life defy classification. For example *Euglena* has chlorophyll like a plant but it eats and excretes like living animals. Guru Nanak was talking about such life when he wrote, “Only ignorant fools argue about eating or not eating meat. It is not possible to distinguish between meat and vegetables so how can we define sin?”(AGGS p. 1289)<sup>149</sup>

“There are varieties within varieties (AGGS p.6)<sup>150</sup>. “Like a thaumaturg, The Almighty manifests Himself in different shapes and colours” (AGGS p. 726).<sup>151</sup>

## 5.15 Is there life on other planets?

### (a) Reasons for the belief

It was Giordano Bruno of Italy who first claimed in 1572 that there were millions of other planets<sup>152</sup> that have life on them.<sup>153</sup> In our own times scientist Chris Chyba has stated that there is a great possibility of life on Europa.<sup>154</sup> The belief about

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<sup>148</sup> Ice age arctic Lupine seeds were found buried in the Yukon Territory of Canada in 1954.

<sup>149</sup> ਮਾਸੁ ਮਾਸੁ ਕਰਿ ਮੂਰਖ ਝਗੜੇ ਗਿਆਨੁ ਧਿਆਨੁ ਨਹੀ ਜਾਣੇ, ਕਉਨੁ ਮਾਸੁ ਕਉਣ ਸਾਗ ਕਹਾਵੈ ਕਿਸੁ ਮਹਿ ਪਾਪ ਸਮਾਣੇ (ਪੰਨਾ ੧੨੮੯)

<sup>150</sup> ਚੰਗੀ ਚੰਗੀ ਭਾਤੀ ਕਰਿ ਕਰਿ ਜਿਨਸੀ ਮਾਇਆ ਜਿਨਿ ਉਪਾਈ (ਪੰਨਾ ੬)

<sup>151</sup> ਬਾਜੀਗਰਿ ਜੈਸੇ ਬਾਜੀ ਪਾਈ ॥ ਨਾਨਾ ਰੂਪ ਭੇਖ ਦਿਖਲਾਈ (ਪੰਨਾ ੭੩੬)

<sup>152</sup> ‘Planet’ is a Greek word, which means ‘a wanderer’. Here it is used for all heavenly bodies. Greek writer Plutarch believed that our moon was inhabited by living beings. He called them Moon-demons.

<sup>153</sup> Giordano Bruno opposed Platonic theory of Geocentric Universe recorded in Ptolemy’s *Almagest* and stated that the planets revolved round the sun and the Universe was Heliocentric. The Church however believed that the sun and the planets were moving round the earth. Bruno was arrested by the Inquisition, which had been established by Pope Gregory in 1231 to counteract agnosticism. He was burnt alive at the stake on 16 February 1600.

<sup>154</sup> Scientists have so far detected signs that there was once water on three out of the nine planets in our Solar system. Where there is water, there may be life.

life in space rests on the argument that if conditions are right for life to exist on our earth, there may be other such planets in the universe with similar conditions.

Many people in various countries have reported unidentified flying objects (UFOs) with alarmingly unpredictable regularity. Some people even claim face-to-face rapport with aliens. Crop circles have mysteriously appeared overnight at many places in the world especially in Britain and Canada. Scientists dismiss such claims as mistaken observations or dreams.

An alien craft is reported to have crashed at Roswell in New Mexico (4 July 1947) and it is reported that post-mortem was performed on its occupants. The state Government is silent about it.

Fossilized microbial worm-like life was detected in 1989 in a 4.5 billion-year-old rock from Mars known as ALH 84009

#### (b) Search for life in space

The search for life in the universe has been a common theme with exobiologists since the last century. A Project called META (Mega Channel Extraterrestrial Assay) has been launched by Harvard University and META 2 has been launched from the Argentine Institute of Radio Astronomy near Buenos Aires to search for life in space.

One of our un-manned spacecrafts is supposed to land on Europa in 2010. In addition to this, another project known as Phoenix is being set up to look for life in space. This project will install instruments on the dark side of the moon for exploration. Entrepreneurs like Dr. Alan Katz are conducting research independently as an intergalactic hobby.

Professor Pillinger and his colleagues have now developed a machine, which can detect signs of life. This machine (Known

as Beagle) has been catapulted to the Mars (on 3.6.2003) and is expected to land on Mars on Christmas Day 2003. It is hoped that it will soon radio back messages about life to the earth.

(c) Communication with life in space

Efforts to communicate with life in space were first made in 1960 when Frank Drake sent radio signals to Epsilon Eridani and Tau Ceti from Green Bank National Radio Astronomy Observatory. Americans launched Pioneer 10 and Pioneer 11 with messages and a map on a gold plaque in 1972 and 1973. On November 16, 1974 radio messages were sent from Arecibo Radio Observatory in Puerto Rico to a cluster of stars known as Messier 13. In 1978 the Americans sent Voyager 1 and Voyager 2 carrying "*Sounds of earth*" into space. On 5 May 1999 NASA sent a message to outer space in binary code.

These attempts have been made with the assumption that the supposed creatures living in the universe are technologically advanced and intelligent enough to pick up our radio signals and T.V. programmes and can decipher our maps and messages. Unfortunately the odds appear to be against this assumption. Our messages may take thousands of years to be received up there and their answers may take thousands of years to be received back on earth.

Some people claim that U.S.A received a message from outer space on 23 July 1947 but political expediency prompted the U.S.Government to deny it. Similarly Greenwich Observatory in Virginia is said to have received a message in September 1998 and the distorted picture of a dog-like animal. It was reported by KB TV news as "ET is coming". Another signal is said to have been received on April 18, 1999 by Project Mogul.

Dr. Jill Tarter of SETI (Search for Extra Terrestrial Intelligence at Mountain View California), who has worked in this area for 20 years, has reported that a signal has been received

(5 August 1997) from outer space but it is as yet indecipherable. SETI are at present spending 6000 dollars a day on research using a dish, which is 140 feet across and is very powerful. It can tune in to 8 million different frequencies simultaneously. CETI (Communication with Extraterrestrial Intelligence) are trying to understand the signals received from outer space.

Radio telescopes in Ohio and Massachusetts scan the sky day and night for radio messages from space. A very sophisticated dish, 1000 ft in diameter, is being installed at Puerto Rico. This dish has so sensitive antennae that it can even pick up signals from a mobile phone being used on Europa, which is circling Jupiter.

#### (d) The present position

Scientists are divided on the issue. Some scientists think that extra terrestrial life is possible. Others say that the signals we receive from space are interstellar hissing and have no value.

So far there is no definite statement from any Government Department in the world regarding intelligent life on other planets. However, the common belief is that Man is perhaps not the only living, thinking, breathing creature in the universe. Therefore, rockets, radar and radio computers are busy searching for life in space.

### 5.16 The Sikh View

The Sikh Gurus have not directly mentioned anything about the certainty of life on other planets but there are references, which can only be construed as having relevance to life on other planets. For example, we hear that there are only 8,400,000 forms of life on earth but according to Sikhism the limit of God's creation is beyond human comprehension. The Guru says, "O Lord, You have embellished the creation with beauty creating the beings of various kinds, you infused your power into them. **No**

**one knows your limits**, (AGGS p.1094)<sup>155</sup>. The Guru also states “God has established his stocks and stores in many worlds. He has replenished them once and for all so that the supplies never run out” (AGGS P. 7).<sup>156</sup> “I see none as great a giver as you. O Great Giver; You give in charity to the beings of all the continents, worlds, solar systems, nether regions and universes.”(AGGSp.549)<sup>157</sup>

Regarding these other worlds he says, “Having created the creation, He watches over it. By His glance of Grace, He bestows happiness. 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. He watches over all, and contemplating the creation, He rejoices. O Nanak, to describe this is as hard as steel.”(AGGS p. 8)<sup>158</sup>

Obviously the Guru believed that there was life on other planets, otherwise the above lines of the Guru would have no meaning and he would not have said, “Many solar systems, many galaxies. Many forms, colours and celestial realms. Many gardens, many fruits and roots. He Himself is mind, and He Himself is matter. Many ages, days and nights. Many apocalypses, many creations. *Many beings are in His home. The Lord is perfectly pervading all places.*” (AGGS page 1236)<sup>159</sup>

<sup>155</sup> ਨਵ ਖੰਡ ਪ੍ਰਿਥਮੀ ਸਾਜਿ ਹਰਿ ਰੰਗ ਸਵਾਰਿਆ ॥ ਵੇਕੀ ਜੰਤ ਉਪਾਇ ਅੰਤਰਿ ਕਲ ਧਾਰਿਆ ॥ ਤੇਰਾ ਅੰਤੁ ਨ ਜਾਣੈ ਕੋਇ ਸਚੁ ਸਿਰਜਣਹਾਰਿਆ (ਪੰਨਾ ੧੦੯੪) ਤਿਥੈ ਲੋਅ ਲੋਅ ਆਕਾਰ (ਪੰਨਾ ੮) ਧਰਤਿ ਅਕਾਸੁ ਕੀਏ ਬੈਸਣ ਕਉ ਥਾਉ (Earth and sky are made seats) ( ਪੰਨਾ ੮੩੯)

<sup>156</sup> ਆਸਣੁ ਲੋਇ ਲੋਇ ਭੰਡਾਰ ॥ ਜੋ ਕਿਛੁ ਪਾਇਆ ਸੁ ਏਕਾ ਵਾਰ (ਪੰਨਾ ੭)

<sup>157</sup> ਤੁਧੁ ਜੇਵਡੁ ਦਾਤਾਰੁ ਮੈ ਕੋਈ ਨਦਰਿ ਨ ਆਵਈ ਤੁਧੁ ਸਭਸੈ ਨੋ ਦਾਨੁ ਦਿਤਾ ਖੰਡੀ ਵਰਭੰਡੀ ਪਾਤਾਲੀ ਪੁਰੀਈ ਸਭ ਲੋਈ (ਪੰਨਾ ੫੪੯)

<sup>158</sup> ਕਰਿ ਕਰਿ ਵੇਖੈ ਨਦਰਿ ਨਿਹਾਲ ॥ ਤਿਥੈ ਖੰਡ ਮੰਡਲ ਵਰਭੰਡ ॥ ਜੇ ਕੋ ਕਥੈ ਤ ਅੰਤ ਨ ਅੰਤ ॥ ਤਿਥੈ ਲੋਅ ਲੋਅ ਆਕਾਰ ॥ ਜਿਵ ਜਿਵ ਹੁਕਮੁ ਤਿਵੈ ਤਿਵ ਕਾਰ ॥ ਵੇਖੈ ਵਿਗਸੈ ਕਰਿ ਵੀਚਾਰੁ ॥ ਨਾਨਕ ਕਥਨਾ ਕਰਤਾ ਸਾਰੁ

<sup>159</sup> ਅਨਿਕ ਪੁਰੀਆ ਅਨਿਕ ਤਹ ਖੰਡ ॥ ਅਨਿਕ ਰੂਪ ਰੰਗ ਬ੍ਰਹਮੰਡ ॥ ਅਨਿਕ ਬਨਾ ਅਨਿਕ ਫਲ ਮੂਲ ॥ ਆਪਹਿ ਸੂਖਮ ਆਪਹਿ ਅਸਥੂਲ ॥ ਅਨਿਕ ਜੁਗਾਦਿ ਦਿਨਸ ਅਰੁ ਰਾਤਿ ॥ ਅਨਿਕ ਪਰਲਉ ਅਨਿਕ ਉਤਪਾਤਿ ॥ ਅਨਿਕ ਜੀਅ ਜਾ ਕੇ ਗ੍ਰਿਹ ਮਾਹਿ ॥ ਰਮਤ ਰਾਮ ਪੁਰਨ ਸੁਬ ਠਾਇ (ਪੰਨਾ ੧੨੩੬)

There are copious references to life on other planets in the hagiographic literature of Sikhism (*Janam Sakhis*).<sup>160</sup>

Sir James Jeans writes, “There are millions of stars in the sky each similar to our sun, and each doubtlessly surrounded, like our sun, by a family of planets on which life may be kept in being by the light and heat received from its sun (Sir James Jeans *Our mysterious Universe P. 8*)

Scientists are waiting for the time when they receive a definite signal from the outer space to prove that we are not the only inheritors of this Universe.

## 5.17 Components of life

Our present day chemists have based their work on the Chinese and Egyptian alchemists. The alchemists tried to turn base metals into gold. Their art was known as chemistry, which literally means ‘gold cooking’. These alchemists believed that everything in the world was composed of fire, air, water, and earth.

The Sikh Gurus have stated at many places in the Holy Granth that living organisms are composed of five elements. Earth, air, fire, water and spirit<sup>161</sup>

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<sup>160</sup> Janam Sakhies are the life stories of Guru Nanak. Their authorship has not been established with any certainty.

<sup>161</sup> ਪੰਜ ਤਤੁ ਮਿਲਿ ਦੇਹੀ ਕਾ ਆਕਾਰਾ॥ ਘਟ ਵਧ ਕੇ ਕਰੇ ਵਿਚਾਰਾ (ਪੰਨਾ ੧੧੨੮), ਪੰਚ ਤਤੁ ਮਿਲਿ ਇਹੁ ਤਨੁ ਕੀਆ ( ਪੰਨਾ ੧੦੩੯), ਪੰਚ ਤਤ ਮਿਲਿ ਕਾਇਆ ਕੀਨੀ (ਪੰਨਾ ੧੦੩੦), ਪੰਚ ਤਤ ਕਰਿ ਤੁਧੁ ਸ੍ਰਿਸਟਿ ਸਭ ਸਾਜੀ (ਪੰਨਾ ੭੩੬). It should be understood that ਤੱਤ in Gurbani does not have the same meaning as ‘element’ in science. An ‘element’ in science has been defined as ‘A substance that contains only one kind of atoms’ for example Oxygen contains only oxygen atoms. Water is not an element in scientific terms. It is a compound of hydrogen and oxygen. Some elements exist in more than one physical form called *Isotope or allotropes*. For example sulphur. Graphite and diamond exist in more than one allotropic form. Ninety scientific elements occur naturally but some have been created by scientists from other elements by changing the number of atoms in their nucleus. So ਤੱਤ in Gurbani actually means components or essential ingredients of life.

In his book *Exploring our Universe* (p.39) scientist Branley writes, “The earth is made of three primary divisions Water, earth, and air” which he thinks are essential ingredients for life.

The human mind is the product of earth, air, fire, water and spirit, which constitute our body.<sup>162</sup> The Guru says, “The mind is the product of five elements in the body.”<sup>163</sup> It is the storehouse of impulses, thoughts, aspirations, hopes and desires, which last only as long as the body lasts. The biological and physical sciences accept this as ‘*the theory of subjectivism.*’

Air is of paramount importance. A scientist named Hooke proved in 1660 that “air is essential for respiration and that there is no substitute for it” (Taylor’s *History of Science* p.95). This fact was mentioned by the Sikh Gurus years earlier at many places in the Holy Scripture. For example the Guru says, “Born of water, life is sustained by air.”(AGGS p. 884)<sup>164</sup> The Guru gave the order of importance as follows:

“The air is the breath of spiritual life (Guru), the water like our father is the cause of our being and the earth acts as a mother for us. Day and night act like two nurses. This is how the play of the world is enacted” (AGGS p. 8)<sup>165</sup>

## 5.18 Life in plants

Life in plants was discovered by an Indian scientist Sir Jagdish Chander Bose (1858-1937) for which he was awarded the Noble Prize. However, the Sikh Gurus had stated this in the Guru Granth Sahib nearly 400 years earlier. The Sikh scripture says “All grains have life in them” (AGGS p. 472).<sup>166</sup> The fact that not

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<sup>162</sup> Five elements are supposed to be the counterparts of five senses.

<sup>163</sup> ਇਹੁ ਮਨੁ ਪੰਚ ਤਤੁ ਤੇ ਜਨਮਾ (ਪੰਨਾ ੪੧੫) ਇਹੁ ਮਨੁ ਪੰਚ ਤਤੁ ਕੇ ਜੀਉ (ਪੰਨਾ ੩੪੨)

<sup>164</sup> ਪਵਨੁ ਵਿਚੋਲਾ ਕਰਤ ਅਕੇਲਾ ਜਲ ਤੇ ਓਪਤਿ ਹੋਆ (ਪੰਨਾ ੮੮੪), ਪਵਣੈ ਕੇ ਵਸਿ ਦੇਹੁਰੀ ਮਸਤਕਿ ਸਚੁ ਨੀਸਾਣੁ (ਪੰਨਾ ੬੩)

<sup>165</sup> ਪਵਣੁ ਗੁਰੂ ਪਾਣੀ ਪਿਤਾ ਮਾਤਾ ਧਰਤਿ ਮਹਤੁ ॥ ਦਿਵਸੁ ਰਾਤਿ ਦੁਇ ਦਾਈ ਦਾਇਆ ਖੇਲੈ ਸਗਲ ਜਗਤੁ (ਪੰਨਾ ੮)

<sup>166</sup> ਜੇਤੇ ਦਾਣੇ ਅੰਨ ਕੇ ਜੀਆ ਬਾਝੁ ਨ ਕੋਇ (ਪੰਨਾ ੪੭੨)

only grains but also plants have life in them is stated as follows; “The gardener’s wife plucks the flower petals to offer them to a stone statue. Little does she know that the flower petals she plucks have life in them and the stone idol has no life in it” (AGGS p. 479).<sup>167</sup>

“Evidence now supports the vision of the poet and the philosopher that plants are living, breathing, communicating creatures, endowed with personality and attributes of the soul. It is only we, in our blindness, who have insisted on considering them automata” (The *Secret life of the Plants* by Peter Tompkins and Christopher Bird)

## 5.19 Pollination

The secret of reproduction in plants remained a mystery for a long time. Prospero Alpini stated in 1580 that the plants had male and female sexes. In 1694 Rudolph Jakob Camerarius identified male and female parts in plants. Later in 1763 Joseph Gottlieb Kolreuter conducted fertilization experiments on plants using animal pollinators. It was then that pollination of plants through wind and insects like flies, bees, birds and bumblebees etc was established as a fact. The Sikh Gurus had mentioned this earlier than this when they wrote, “Such is the result of a bumble bee enjoying fragrance that (by carrying pollen) it causes the trees to bloom and the woods to become lush green and fructify.”(AGGS p.1190)<sup>168</sup>

## 5.20 Life within life

For a long time, people believed that diseases occurred through wrath of God, sorcery, magic, witchcraft and evil spirits. Modern medical science has proved that it is microbes that cause diseases in living organisms. Biologists have discovered many

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<sup>167</sup> ਪਾਤੀ ਤੋਰੇ ਮਾਲਿਨੀ ਪਾਤੀ ਪਾਤੀ ਜੀਉ, ਜਿਸ ਪਾਹਨ ਕਉ ਪਾਤੀ ਤੋਰੇ ਸੋ ਪਾਹਨ ਨਿਰਜੀਉ (ਪੰਨਾ ੪੭੯) ਸਰਜੀਉ ਕਾਟਹਿ ਨਿਰਜੀਉ ਪੂਜਹਿ ਅੰਤ ਕਾਲ ਕਉ ਭਾਰੀ (ਪੰਨਾ ੩੩੨)

<sup>168</sup> ਐਸੀ ਭਵਰਾ ਵਾਸੁ ਲੇ ਤਰਵਰ ਫੂਲੇ ਬਨ ਹਰੇ (ਪੰਨਾ ੧੧੯●)

different forms of disease causing microbes. Some microbes attack the skin of the living organisms.<sup>169</sup> Others enter the body through respiration, food, stings (of parasites) and cracks in the skin etc.<sup>170</sup> Some (harmful and also harmless bacteria) are contained in the guts even when a new baby is born. Snake-like organisms (ਮਲੋਘ) develop inside the animals (including humans) and it is common knowledge that people living in Africa suffer from Guinea worms, which develop inside their bodies. Tapeworms inhabit the intestines of fish and humans. Nematodes parasites have been discovered inside whales. Hookworms are found in the faeces of 1.3 billion people in the world. Liver flukes have been commonly found in the livers and gallbladders of sheep, goats, pigs, horses rabbits, dogs, squirrels and humans.

It was Robert Hooke who first claimed (in 1665) that diseased cells and healthy cells grow side by side in the living organisms.<sup>171</sup> Anton van Leuwenhoek later confirmed this fact in 1677, when he discovered that the sperm was full of small living microbes, which were the source of human reproduction. He called them *human larva*. Later he also discovered protists (known as *animalculae*) which are micro organisms living in animate matter.

Guru Nanak had stated this much earlier when he wrote, “There are living organisms within living organisms and even they are punished by the Lord for their transgressions.”<sup>172</sup>

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<sup>169</sup> Coryne bacteria, micrococci and coliform bacterias. Millions of them are supposed to live and feed on our body.

<sup>170</sup> Bacteria were first discovered by Anton Van Leuwenhoek in 1683. They are the most abundant form of life on earth. They grow on and inside living things and multiply by cell division. Our saliva alone contains at least six types of bacteria including spirochetes, fusobacteria and bacilli etc. Escherichia coli, clostridia and streptococci live in our bowels.

<sup>171</sup> This gave rise to the science of Cytology and cytoplasm.

<sup>172</sup> ਕੀਟਾ ਅੰਦਰਿ ਕੀਟੁ ਕਰਿ ਦੇਸੀ ਦੇਸੁ ਧਰੇ (ਪੰਨਾ ੨). Our intestines contain around 11 trillion bowel bacteria, which ferment and break down undigested fibre. 70 % of them (like Lactobacilli and Bifidobacteria) are probiotic bacteria, which improve intestinal health. The other 30% are harmful which are punished by the friendly bacteria when they overstep their allotted tasks and boundaries.

## 5.21 Priorities of life on earth

Scientists agree that life passed through many stages on this earth. They divide them into Stone Age, Bronze Age and Iron Age etc. It is stated that there were times when dinosaurs inhabited this earth in large numbers. At another time mammoths were the rulers. Man is said to have appeared on the scene last of all and is the most intelligent of all life. These ideas are not new to the Sikhs. The Sikh Gurus had already stated that life (consciousness) has passed through different stages. At different times different species dominated this planet. After ages and ages consciousness reached its apex and appeared in the human form. For example the Guru says,  
“For ages and ages Life existed as worms and insects.  
For ages and ages life existed as elephants, fish and deer.  
For ages and ages life existed as birds and snakes.  
For ages and ages life existed and laboured as horses and oxen.  
At long last came the human form, an opportunity to merge in the universal consciousness (God).” (AGGS p. 176)<sup>173</sup>

## 5.22 Death of life

All creatures from amoebae to elephant and the whole universe from atom to myriads of solar systems are born in time and are therefore subject to certain death.<sup>174</sup> There are many theories explaining why life must come to an end sooner or later.

The second law of thermodynamics states, “everything is marching to its final destination through an increase in entropy.”<sup>175</sup> When entropy reaches a stage where no further

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<sup>173</sup> ਕਈ ਜਨਮ ਭਏ ਕੀਟ ਪਤੰਗਾ, ਕਈ ਜਨਮ ਗਜ ਮੀਨ ਕੁਰੰਗਾ॥ਕਈ ਜਨਮ ਪੰਖੀ ਸਰਪ ਹੋਇਓ॥ ਕਈ ਜਨਮ ਹੈਵਰ ਬ੍ਰਿਖ ਜੋਇਓ॥ ਮਿਲੁ ਜਗਦੀਸ ਮਿਲਨ ਕੀ ਬਰੀਆ॥ ਚਿਰੰਕਾਲ ਇਹ ਦੇਹ ਸੰਜਰੀਆ॥ (ਪੰਨਾ ੧੭੬)

<sup>174</sup> ਜੋ ਉਪਜੋ ਸੋ ਕਾਲਿ ਸੰਘਾਰਿਆ (ਪੰਨਾ ੨੨੭) ਨ ਸੂਰ ਸਸਿ ਮੰਡਲੋ ॥ ਨ ਸਪਤ ਦੀਪ ਨਹ ਜਲੋ ॥ ਅੰਨ ਪਉਣ ਬਿਰੁ ਨ ਕੁਈ॥ ਏਕੁ ਤੁਈ ਏਕੁ ਤੁਈ (ਪੰਨਾ ੧੪੪) ਜੋ ਆਇਆ ਸੋ ਚਲਸੀ ਅਮਰੁ ਸੁ ਗੁਰੁ ਕਰਤਾਰੁ (ਪੰਨਾ ੬੩)

<sup>175</sup> Entropy is the totality of a system's thermal energy. It is a way of measuring the disorder or Randomness of matter. For example all atoms in a healthy apple are in order but when the same apple begins to rot the atoms become less ordered. Its entropy increases. Boltzman has given us a formula to measure the entropy or the rate of disorderliness. It is  $S = K \log w$

increase in it is possible, the whole universe will be at one and the same temperature. This temperature will be so low that life will be impossible. They call it “heat-death” or “universal death”<sup>176</sup>. In other words ‘our progress is our death’.

The free-radical theory states that living organisms produce free radicals, which are harmful to healthy cells. These free radicals gradually overpower and destroy the healthy cells until they are no longer able to function properly.

“The sun having no extraneous supply of heat must necessarily emit ever less and less of its life-giving radiation, and as it does so, the temperate zone of space, within which alone life can exist, must close in around it. To remain a possible abode of life, our earth would need to move in ever nearer and nearer to the dying sun. Yet science tells us that, so far from its moving inwards, inexorable dynamical laws are even now driving it ever farther away from the sun into the outer cold and darkness.” (Sir James Jeans *The Mysterious Universe* P.24)

Some scientists believe that life cannot exist without oceans. The atmosphere is getting hotter and hotter year after year (Greenhouse effect).<sup>177</sup> A time will come when the heat will evaporate the oceans and life on earth will perish. They estimate that it will happen after 7 billion years.<sup>178</sup>

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<sup>176</sup> “There can be but one end to the universe—a heat death.” (Sir James Jeans *The mysterious universe* page 24)

<sup>177</sup> Hadley Centre for Climate Prediction and Research in Bracknell has predicted that the average global temperatures could be 5.5°C higher by the year 2100. They base their prediction on the factors like increasing levels of carbon dioxide, the atmospheric pollutants like phosphates, burning of fossil fuels and oils, Volcanoes, fluctuations in the sun’s activity, changing level of greenhouse gases and ozone etc.

<sup>178</sup> This idea finds full support in Islam. See Quran 16:27 and 54:46

Einstein proved that all radiation is energy and that mass can be converted to energy. When an atom emits energy, its mass diminishes by the amount of radiation<sup>179</sup> emitted by it. The total emission of radiation of our sun has been calculated to be 250 million tons a minute. According to Mr. Shapley the total weight of meteoric mass falling on the sun cannot be more than 120,000 tons a minute. So our sun is melting like ice at a rate of 519880000 tons a minute. Our sun is dying and life on earth will not survive without the sun.

Cosmic radiation from outer space is falling on the earth in large quantities. According to Professor Millikan and his colleague Cameron this radiation equals one tenth of the total radiation from all stars in the sky. It has very great power of destruction. For example it can penetrate several yards of lead. It is breaking up twenty atoms of matter a second in every cubic inch of our atmosphere. It is also adversely affecting millions of atoms in our bodies. The destructive effect of this radiation will sooner or later kill life and its effect on the earth's magnetic field may result in slowing down the earth's motion.<sup>180</sup>

The universe obeys certain laws as a result of which radioactive substances disintegrate into smaller atoms. For example Radium disintegrates into lead and helium with the passage of time. In 1903 Rutherford and Soddy advanced the theory of 'Spontaneous disintegration' and proved that the amount of radium disintegrates at exactly the same rate as the population of the world provided there is no birth. This proves that there is a co-relation between the disintegration of inanimate and animate matter. The matter in the universe must disintegrate and this will result in death of the universe and the life in it.

Evolutionist Rostand says, "It seems that mankind must fear decadence rather than anticipate progress." (*The Orion book*)

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<sup>179</sup> According to scientists "Radiation is matter moving with the speed of light (186000 miles per second) and in general matter is radiation moving with a speed less than that of light. All radiation x-ray, gamma ray and electromagnetic radiation etc. have the same uniform speed. It is estimated that our sun will die in 7 Billion years from now after having spent all its energy.

<sup>180</sup> The effects of cosmic radiation were studied by Professor Millikan at Pasadena.

*of Evolution P.9)*

The programmed 'sense scene' theory suggests that the rate of deterioration of our bodies is predetermined. The seeds of our death are present in our make up from birth and our genetic make-up programmes our ageing and eventual death. Sikhism appears to agree with the 'sense scene' theory and we find various references to it in the Sikh scripture. Such as "When the human-being was conceived, his death was recorded at the same time."<sup>181</sup> "Whatever is born must die, we only wait for our turns."<sup>182</sup>

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<sup>181</sup> ਜਿਤੁ ਦਿਹਾੜੈ ਧਨ ਵਰੀ ਸਾਹੇ ਲਏ ਲਿਖਾਇ (ਪੰਨਾ ੧੩੭੭)ਮਰਣੁ ਲਿਖਾਇ ਆਏ ਨਹੀ ਰਹਣਾ (ਪੰਨਾ ੧੫੩)

<sup>182</sup> ਜੋ ਆਇਆ ਸੋ ਚਲਸੀ ਸਭੁ ਕੋਈ ਆਈ ਵਾਰੀਐ (ਪੰਨਾ ੪੭੪) ਜੋ ਉਪਜੈ ਸੋ ਸਗਲ ਬਿਨਾਸੈ ਰਹਨੁ ਨ ਕੋਊ ਪਾਵੈ (ਪੰਨਾ ੧੨੩੧) ਜੋ ਆਇਆ ਸੋ ਸਭੁ ਕੋ ਜਾਸੀ (ਪੰਨਾ ੧੦੪੭) ਜੋ ਉਪਜਿਓ ਸੋ ਬਿਨਸਿ ਹੈ ਪਰੇ ਆਜੁ ਕੈ ਕਾਲਿ (ਪੰਨਾ ੧੪੨੯)

## Chapter 6

### Motion

“Motion is relative<sup>183</sup> and nothing is at rest” (*Albert Einstein*)

Science and religion both seem to agree that the laws of time, space, and energy govern all animate and inanimate objects in varying degrees. Both agree that from cat to camel and from microbes to mammoths the constituent elements of all objects are the same and the same creative principles work in everything.

#### 6.1 Motion inside matter

Matter in its constituent parts (atoms and molecules)<sup>184</sup> is a form of energy. This energy in atoms (ਅਣੂ) is locked up within the body of all matter. The living and the non-living all have this energy but the living have the capability of manipulating this energy better than the non-living. Among the living, the humans

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<sup>183</sup> Relativity: The earth moves round the sun; the sun is moving as the galaxy spins, and galaxy itself is in motion. Everything in the universe is moving and consequently motion cannot be measured absolutely. We can only say that a certain object is moving at a certain velocity relative to another object.

<sup>184</sup> “Matter consists of electrons and it is a form of energy” (Dr. Radha Krishnan). Electrons and protons are parts of an atom. ‘Atom’ is a Greek word, which means “indivisible”. Two or more atoms join together to form a molecule. A molecule of water has two atoms of hydrogen and one atom of oxygen. In Punjabi an Atom is called ਅਣੂ and an electron is called a ਪ੍ਰਮਾਣੂ or ਪ੍ਰਮਾਣ. An atom was once considered a solid part of matter. Now it is considered only as ‘space.’ 99.9% of an atom is concentrated in its nucleus. If we magnify an atom into a football, even then its nucleus would be invisible to the naked eye and its electrons would be going round it at a distance of 0.5 mile. Electrons and protons behave as if they were waves (*Known as de Broglie Waves*). An electron is difficult to pinpoint and it is on this fact that the German Scientist Werner Heisenberg propounded his ‘*uncertainty principle*’. Breaking the nucleus chain causes enormous amount of energy release for measuring which Einstein devised the formula  $E = mc^2$  Where E stands for energy, m for mass and c for velocity of light.

reign supreme because they have intellect, which leads to their comparative supremacy over other forms of life.

Atom was first discovered by Dr. Dalton (1766- 1844) who proposed his atomic theory in 1803. Maxwell called this discovery, “The imperishable foundation of the universe.” Later John Cockcroft and Earnest Walton succeeded in breaking the Atom.<sup>185</sup> Einstein (1879-1955) discovered that in atom electrons (ਪ੍ਰਮਾਣੂ) were mysteriously moving around the nucleus. The nucleus, if split, produces 100 million to several hundred million volts of energy. This discovery later culminated in the production of the Atom Bomb.<sup>186</sup> Energy emerged explosively and violently from an atom of Uranium 235, which was used in the Atom bomb.

The discovery of electrons revolving around the nucleus at great speeds was not new. It had already been mentioned by the Sikh Gurus in the Sikh scripture. For example the Guru wrote,

“Even if the mortal could reduce himself to the size of an electron, and shoot through the worlds and realms in the blinking of an eye, O Nanak, without the guidance of a Holy Saint, he shall not be saved.” (AGGS p.1360)<sup>187</sup>

## 6.2 Motion outside matter

**“Nothing is static in the universe, stars, planets, meteors, satellites, all move at speeds varying from a few kilometres per second to a hundred kilometres per second” (Josip Kleczek & Peter Jakes ‘The Universe and Planet earth’ page 70)**

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<sup>185</sup> They were honoured with Noble Prize in 1951 for their discovery.

<sup>186</sup> This energy arises from the forces that hold the nucleus (protons and neutrons) together and are akin to, but not quite the same, as magnetism. Simon Vander Meer has now discovered still smaller particles of matter, which he named Wz. They are popularly known as quarks.

<sup>187</sup> ਪਰਮਾਣੂ ਪਰਜੰਤ ਆਕਾਸ਼ ਦੀ ਪ ਲੋਅ ਸਿਖੰਡਣਹ ॥ ਗਛੇਣ ਨੈਣ ਭਾਰੇਣ ਨਾਨਕ ਬਿਨਾ ਸਾਧੂ ਨ ਸਿਪੁਤੇ (ਪੰਨਾ ੧੩੬੦) An ਅਣੂ is an atom and a ਪ੍ਰਮਾਣੂ is an electron.

Since the time of Aristotle (384-322 BC), the earth was believed to be stationary and the sun and the stars were supposed to be revolving around it. It was Polish astronomer Copernicus (1473-1543), a contemporary of Guru Nanak,<sup>188</sup> who challenged this idea in 1543 AD but the western Church rejected his views. In those days people opposing the religious views were arrested, tortured or burnt alive. In 1600 AD, Giordano Bruno was burnt at the stake because he said; “There are endless worlds similar to our earth. I regard this world as a star. Similar to it are moons, planets and other stars which are infinite in number and all these bodies are worlds.”<sup>189</sup> Galileo (1564-1642) said, “Man’s home in space is only one of a number of small bodies revolving round a huge central sun” He too was arrested, persecuted and made to abjure his belief.<sup>190</sup> Galileo’s findings have now been confirmed by modern science.

Unknown to western scholars, Guru Nanak had already stated these facts in his compositions umpteen times before Galileo and Giordano. The annual and diurnal rotation of the earth and the relative motion of other planets are mentioned in the Guru Granth Sahib at many places. For example in his Asa Di Var, Guru Nanak wrote

“The sun and the moon obey His laws. They move billions of miles and never stop.”<sup>191</sup>

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<sup>188</sup> It is improbable that Copernicus and Guru Nanak knew of each other’s views because of long distances and different languages.

<sup>189</sup> Bruno’s books are still on the ‘prohibited books’ list of the Vatican.

<sup>190</sup> He was imprisoned for five years and was so afraid that he did not publish his book *dialogue*. He became blind and died in misery. Now he is extolled as the father of experimental science. In 1921 the Church apologised for torturing Galileo.

<sup>191</sup> ਤੈ ਵਿਚਿ ਸੂਰਜੁ ਤੈ ਵਿਚਿ ਚੰਦੁ॥ ਕੋਹ ਕਰੋੜੀ ਚਲਤ ਨ ਐਤੁ (ਪੰਨਾ ੪੬੪)

And this is what modern scientist Sir James Jeans says, “By going farther into space we not only find no standard of absolute rest, but encounter greater and greater speeds of motion.” (*The mysterious Universe* p.113)<sup>192</sup>

The earth revolves around the sun at a speed of 18.5 miles per second and the whole family of our sun (Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus, Neptune and Pluto) is revolving round Betelgeuse in the constellation Lyra. It is believed that one revolution of our sun around Betelgeuse takes 250,000,000 years.

The movements of heavenly bodies can only be described as a whirlpool. Guru Nanak says that this, “Whirlpool is awesome and unfathomable.”<sup>193</sup>

In this whirlpool of planets our earth is revolving around its own axis at a rate of 43000 miles per hour and completes one round in 26 days. (*World book encyclopaedia* p. 782)

What was not known to Scientists until recently was that the movements outside and inside the matter are of many types. For example the Guru wrote:

“The oil-press, the spinning wheel, the grinding stones, the potter’s wheel, the numerous countless whirlwinds, the spinning tops, the churning sticks, the threshers, the breathless tumbling of the birds, and the men moving round and round on spindles O Nanak, the movements are countless and endless. The Lord binds us in the bondage of motions so everything is in motion without an end” (AGGS p. 465).<sup>194</sup>

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<sup>192</sup> American Astronomer Edwin Hubble stated that the farther away a galaxy is, the faster is it moving away. The universe is expanding. This is known as Hubble’s Law.

<sup>193</sup> ਯੂਮਨਘੋਰ ਅਗਾਹ ਗਾਖਰੀ (ਪੰਨਾ ੪੪੪) ਯੂਨਘੋਰਿ ਮਹਾਂ ਅਤਿ ਬਿਖਤੀ (ਪੰਨਾ ੯੧੬)

<sup>194</sup> ਕੋਲੂ ਚਰਖਾ ਚਕੀ ਚਕੁ ॥ ਬਲ ਵਾਰੋਲੋ ਬਹੁਤੁ ਅਨੰਤੁ ॥ ਲਾਟੁ ਮਾਧਾਣੀਆ ਅਨਗਾਹ ॥ ਪੰਖੀ ਭਉਦੀਆ ਲੈਨਿ ਨ ਸਾਹ ॥ ਸੂਐ ਚਾਤਿ ਭਵਾਈਅਹਿ ਜੰਤ ॥ ਨਾਨਕ ਭਉਦਿਆ ਗਣਤ ਨ ਅੰਤ (ਪੰਨਾ ੪੬੫)

Modern science has now confirmed that the movements of atoms inside matter and the movements of the heavenly bodies in space are not always regular. They are of many types and that all living and non-living matter is continually in motion. This is exactly what Guru Nanak had said, “The planets and solar systems **dance** in the three qualities, as do those who bear love for You, Lord. The beings and creatures all **dance**, and the four sources of creation **dance**. (AGGS p. 506)<sup>195</sup>

Einstein echoes the same words when he says, “Everything is determined by forces over which we have no control. It is determined for the insect as well as for the star-human beings, vegetables or cosmic dust- we all **dance** to a mysterious tune intoned in the distance by an invisible piper”(Albert Einstein in ‘Saturday Evening Post’ dated October 26, 1929.

Will Durant (*The story of philosophy* p.17) asks, “How did the motion begin? Who created the first motion?” Scientists have not provided the answer to this question.

The Guru says that the force that created the first motion was the force of the Creator. “You yourself became the first force and you yourself enforced your commandments” (AGGS P.1076). “You yourself are the Creator Lord, the Cause of causes. You created the universe and You support the whole earth” (AGGS P.1082)<sup>196</sup>

“*The universe is nothing but an ocean of conscious energy in motion*”. (Sir Arthur Eddington. *The nature of the physical world.*)<sup>197</sup>

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<sup>195</sup> “ਖੰਡ ਬ੍ਰਹਮੰਡ ਤੋਂ ਗੁਣ ਨਾਚੇ ਜਿਨ ਲਾਗੀ ਹਰਿ ਲਿਵ ਤੁਮਾਰੀ ॥ ਜੀਅ ਜੰਤ ਸਭੇ ਹੀ ਨਾਚੇ ਨਾਚਹਿ ਖਾਣੀ ਚਾਰੀ (ਪੰਨਾ ੫੦੬)

<sup>196</sup> “ਤੂੰ ਆਪੇ ਕਰਤਾ ਕਾਰਣ ਕਰਣਾ ॥ ਸ੍ਰਿਸਟਿ ਉਪਾਇ ਧਰੀ ਸਭ ਧਰਣਾ ( ਪੰਨਾ ੧੦੭੬) ਆਪੇ ਸਕਤੀ ਸਬਲੁ ਕਹਾਇਆ ॥ ਆਪੇ ਸੂਰਾ ਅਮਰੁ ਚਲਾਇਆ (ਪੰਨਾ ੧੦੮੨) ਸ਼ਿਵ ਸਕਤਿ ਆਪਿ ਉਪਾਇਕੈ ਕਰਤਾ ਆਪੇ ਹੁਕਮ ਵਰਤਾਏ (ਪੰਨਾ ੯੨੦)

<sup>197</sup> According to Sikhism Just as light (energy) transforms itself into darkness (invisible form of energy), so do all objects originate from God and eventually revert to Him.

The words “*ocean of conscious energy*” have their echo in the Sikh scriptures. The Guru says, “You have placed your expanse in the *field of energy*”<sup>198</sup>

“The tendency of modern physics is to resolve the whole material universe into **waves and nothing but waves**. These **waves** are of two kinds; bottled-up waves, which we call matter, and unbottled waves, which we call radiation or light. The process of annihilation of matter is merely that of unbottling imprisoned wave-energy and setting it free to travel through space. These concepts reduce the whole universe to a world of radiation, potential or existent, and it no longer seems surprising that the fundamental particles of which matter is built should exhibit many of the properties of **waves**.” (Sir James Jeans *The mysterious universe page 99*)

The Sikh Gurus also considered the universe as an ocean of waves. For example Guru Arjan Dev writes, “He Himself is All-pervading, in endless **waves**. The playful sport of the Supreme Lord God is inscrutable.” (AGGS p. 275)<sup>199</sup>

### 6.3 Macrocosm in microcosm

“**In the inside there is also a universe**” (Goethe)

The Sikh Gurus, at various places of the sacred Granth, mention another thing, which scientists have discovered only in this century. The Gurus tell us that microcosm is but a miniature repetition of the macrocosm. “What ever is in the cosmos is also to be found within the matter. The enlightened can know this through the Guru’s word.” (AGGS p. 695)<sup>200</sup> In other words the macrocosm is fully reflected in microcosm.

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<sup>198</sup> ਜੋਤੀ ਅੰਤਰਿ ਧਰਿਆ ਪਸਾਰੁ (ਪੰਨਾ ੯੭੨) ਜੋਤੀ ਅੰਤਰਿ ਬੁਰਮੁ ਅਨੂਪੁ (ਪੰਨਾ ੯੭੨)

<sup>199</sup> ਪਸਰਿਓ ਆਪਿ ਹੋਇ ਅਨਤ ਤਰੰਗ ॥ ਲਖੇ ਨ ਜਾਹਿ ਪਾਰਬੁਰਮ ਕੇ ਰੰਗ (ਪੰਨਾ ੨੭੫) ਹਰਿ ਸਰੁ ਸਾਗਰੁ ਹਰਿ ਹੈ ਆਪੇ ਇਹੁ ਜਗੁ ਹੈ ਸਭੁ ਖੇਲੁ ਖੇਲਈਆ ॥ ਜਿਉ ਜਲ ਤਰੰਗੁ ਜਲੁ ਜਲਹਿ ਸਮਾਵਹਿ ਨਾਨਕ ਆਪੇ ਆਪਿ ਰਮਈਆ (ਪੰਨਾ ੯੩੫) ਘਟਿ ਘਟਿ ਪੂਰਨੁ ਕਰਿ ਬਿਸਥੀਰਨੁ ਜਲ ਤਰੰਗੁ ਜਿਉ ਰਚਨੁ ਕੀਆ (ਪੰਨਾ ੧੨੩੬) ਹਰਿ ਹਰਿ ਨਾਮ ਜਪ ਅਨਤ ਤਰੰਗਾ (ਪੰ. ੩੬੭)

<sup>200</sup> ਜੋ ਬੁਹਮੰਡੇ ਸੋਈ ਪਿੰਡੇ ਜੋ ਖੋਜੈ ਸੋ ਪਾਵੈ (ਪੰਨਾ ੬੬੫) ਕਾਇਆ ਅੰਦਰਿ ਸਭੁ ਕਿਛੁ ਵਸੈ ਖੰਡ ਮੰਡਲ ਪਾਤਾਲਾ (ਪੰਨਾ ੭੫੪) ਜੋ ਬਾਹਰਿ ਸੋ ਭਤਿਰਿ ਜਾਨਿਆ (ਪੰਨਾ ੩੪੨) ਜੋ ਬੁਹਮੰਡ ਪਿੰਡੇ ਸੋ ਜਾਨੁ (ਪੰਨਾ ੧੧੬੨)

Now it is common knowledge that the Universe is epitomized in matter. The same universal physical and chemical laws work inside the matter as in the surrounding universe. Electrons are revolving around the nucleus just as the satellites are moving around bigger heavenly bodies in the cosmos.<sup>201</sup> “The arrangement within the atom is similar to that of the solar system, where lighter planets orbit the heavy sun.” (Josip Kleczek and Peter Jakes in *The Universe and the planet earth* page 13)

Some scientists believe that thought is also a kind of vibration like the electrons vibrating inside an atom. It is on this premise that Telepathy has been explained. People now believe that it is because of thought vibrations that children and animals pick up emotional moods. “*We may think of the electrons as objects of thought, and time as the process of thinking*” (Sir James Jeans *The Mysterious universe* p.147)

According to Sikhism the universe is the macrocosm and the human body is the microcosm. The spark of life (consciousness or soul-ਆਤਮਾ)<sup>202</sup> that God infused in living organisms is a part of the higher soul (ਪਰਮ ਆਤਮਾ-Universal consciousness or soul). The higher consciousness and the lower consciousness are the same in essence. The higher is reflected in the lower. The Nath yogis of India had firm faith in this theory. This belief is now accepted universally. For example Emanuel Swedenborg (1688-1772) writes, “Nothing exists in nature that does not resemble its origin. Every object in the natural world is a reflection of the self-same object in the world of spirit. Everything

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<sup>201</sup> The carbon atom consists of six electrons going around its nucleus exactly like our nine planets going around the sun.

<sup>202</sup> ਸਰਬ ਜੋਤਿ ਤੇਰੀ ਪਸਰਿ ਰਹੀ। ਜਹ ਜਹ ਦੇਖਾ ਤਹ ਨਰ ਹਰੀ (ਪੰਨਾ ੮੭੬) ਘਟ ਘਟ ਅੰਤਰਿ ਬ੍ਰਹਮ ਲੁਕਾਇਆ। ਘਟ ਘਟ ਜੋਤਿ ਸਬਾਈ (ਪੰਨਾ ੫੯੭) The most common word used by the Sikh Gurus is *Jote* (ਜੋਤਿ or ਜੋਤੀ).

Literally the word means 'light' which is a form of energy. In Sikhism this energy is considered as universal consciousness. When one Guru died, the Sikhs said, “His light has passed to the next Guru.” (ਜੋਤੀ ਜੋਤ ਸਮਾਏ). Obviously it meant that 'divine consciousness' of one Guru passed into the other.

in itself is a perfect image of the total form of being. A drop of water contains the form and substance of the whole ocean.” The Sikh Guru had used this simile a long time before Swedenborg when he said, “The drop of water is the sea and the sea in the drop of water. How can we solve this riddle without knowing the secret? (AGGS p.878). At another place he stated this more succinctly by saying, “Whatever is in the universe is also in the matter. Only the researchers understand this” (AGGS P. 695)<sup>203</sup>

Swedenborg further says, “Nature exists in leasts. We live here and walk here as little universes and carry heaven and the world, consequently the kingdom of God is ourselves”. And this is how the Sikh Gurus had expressed the same idea before him, “The Consciousness (energy) that we are, will merge in the universal consciousness on death and revert to the source of their birth “(AGGS P. 1426)<sup>204</sup>

## 6.4 Gravitation

A question is sometimes raised as to how such heavy objects in the cosmos move around other objects without flying away through a centrifugal force. The answer given by scientists is that there exists a centripetal force between the revolving bodies and their tethers. They call it gravitation. Newton was the first to frame his laws of motion and define inertia. He gave us the formula  $F_{\text{grav}} = GM_1 M_2 / d^2$  where  $M_1$  and  $M_2$  are the masses of the two bodies and  $d$  is the distance between them. Asked “can pulls and pushes happen without external causes?” Newton said, “No. If a thing is in motion it will keep in motion for ever, if it is

<sup>203</sup> ਸਾਗਰ ਮਹਿ ਬੂੰਦ ਬੂੰਦ ਮਹਿ ਸਾਗਰੁ ਕਵਣੁ ਬੁਝੈ ਬਿਧਿ ਜਾਣੈ ॥ ਉਤਭਜੁ ਚਲਤ ਆਪਿ ਕਰਿ ਚੀਨੈ ਆਪੇ ਤਤੁ ਪਛਾਣੈ (ਪੰਨਾ ੮੭੮) “ਜੋ ਬ੍ਰਹਮੰਡਿ ਖੰਡਿ ਸੋ ਜਾਣਹੁ ॥ ਗੁਰਮੁਖਿ ਬੁਝਹੁ ਸਬਦਿ ਪਛਾਣਹੁ (ਪੰਨਾ ੧੦੪੧) ਜੋ ਬਾਹਰਿ ਸੋ ਭਤਿਰਿ ਜਾਨਿਆ (ਪੰਨਾ ੩੪੨). “Atomic physics provided the scientists with the first glimpses of the essential nature of things. Like the mystics, physicists were now dealing with a non-sensory experience of reality and, like the mystics; they had to face the paradoxical aspects of this experience. From then on, therefore, the models and the images of modern physics became akin to those of Eastern philosophy” (Dr. Fritjof Capra *Tao of Physics* p.51) ਰੋਮ ਰੋਮ ਵਿਚ ਰਖਿਓਨ ਕਰ ਬ੍ਰਹਮੰਡ ਕ੍ਰੋੜ ਸੁਮਾਰਾ (ਭਾਈ ਗੁਰਦਾਸ ੧.੪-੫)

<sup>204</sup> ਜੋਤੀ ਜੋਤਿ ਮਿਲਾਇ ਜੋਤਿ ਰਲਿ ਜਾਵਹਗੇ (ਪੰਨਾ ੧੩੨੧) ਜਿਹ ਤੇ ਉਪਜਿਓ ਨਾਨਕਾ ਲੀਨ ਤਾਹਿ ਮੈ ਮਾਨ (ਪੰਨਾ ੧੪੨੬)

stationary it will remain stationary for ever unless an external force makes it change its course.” (Newton’s First Law of motion).

The Sikh Gurus have also expressed their ideas about this force (ਕਲਾ=invisible mysterious power of God, gravitation) that keeps revolving bodies in position. The Guru says, “The force of His Will keeps worlds in place. He suspends the heavens upon the feet of His Command.” (AGGS p. 1071)<sup>205</sup>

## 6.5 Expansion and contraction

**“The actual space of an aged universe ought to be either expanding or contracting and the various objects in it all rushing away from one another, or all rushing towards one another, at a great rate”**(Sir James Jeans *The Mysterious universe p. 80*)

Russian scientist Friedman proved through his calculations that the universe is expanding and the density throughout the universe is getting thinner and thinner. Later De Sitter independently proved the same. The great scientist Edwin Hubble using the Doppler Effect<sup>206</sup> further confirmed their findings.

Adrian Lee of the University of California and Brian Schmidt from the Australian National University have recently discovered that the farther the galaxies, the greater are their

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<sup>205</sup> ਕਲਾ ਉਪਾਇ ਧਰੀ ਜਿਨਿ ਧਰਣਾ ॥ ਗਗਨੁ ਰਹਾਇਆ ਹੁਕਮੇ ਚਰਣਾ (ਪੰਨਾ ੧੦੭੧) ਸੁੰਨਹੁ ਧਰਤਿ ਅਕਾਸੁ ਉਪਾਏ ਬਿਨੁ ਬੰਸਾਂ ਰਾਖੇ ਸਚੁ ਕਲ ਪਾਏ (ਪੰਨਾ ੧੦੩੭) ਧਰੈ ਧਾਰਿ ਕਲਾ ਜਿਨਿ ਛੋਡੀ ਹਰਿ ਚੀਜੀ ਜਿਨਿ ਰੰਗ ਕੀਆ (ਪੰਨਾ ੪੩੩)

<sup>206</sup> An Austrian scientist Christian John Doppler (1803-1853), discovered that a change in sound wave results if the source of sound and the observer are both in motion. For example when a police car blowing a siren approaches us, the sound pitch goes on rising but as soon as it passes us the sound waves begin to spread out and the pitch lowers. He called this effect the *Doppler Effect*. The Doppler Effect applies to all waves including water, sound or light waves. This principle is used to find if the galaxies are moving closer to us or are moving away. If the colour of light changes to red, the light source is taken to be moving away but if it changes to blue then it is approaching the earth. The amount of red or blue tinge reveals the velocity of movement. Our radar systems use this principle to measure the speed of an aircraft, the movement of the clouds and the speeds of cars on the Motorway.

velocities of expansion. The mysterious cosmic anti-gravity force with which they are flying away has been called by them “Dark energy.” They estimate that this dark energy is 2/3 of the whole energy in the universe and may be emanating from unseen “dark matter” ten times more than ordinary matter. They also say that this mysterious energy is all pervasive in the Universe.

According to Sikhism God (*Sat*) existed and pervaded everywhere in indeterminate form (ਨਿਰਗੁਣ = Transcendent, indefinable consciousness). There was neither matter nor mind. The universe came into being as a result of His involuntary impulse. “He willed and it came into existence”<sup>207</sup> His manifest form is determinate (ਸਰਗੁਣ = immanent, definable consciousness). Sikhism believes that *Sat* is present everywhere and is eternal.<sup>208</sup> Like a tortoise *Sat* expands and withdraws into himself at will. When it expands, the universes come into existence, when it contracts it withdraws them back into Himself.<sup>209</sup> The Guru explains the relationship of the universe with God through metaphors like ‘Ocean and waves’, ‘seed and the tree’, ‘snake and its coils’, or an actor who appears in many garbs and remains the same.<sup>210</sup> This process of expansion and contraction goes on without end. “The Creator is still on the job.”(Millikan)

The Quality less *Sat* (ਸੁੰਨ= Zero or void) expands and turns from indefinable (ਨਿਰਗੁਣ transcendent indefinable consciousness) to Immanent (ਸਰਗੁਣ=definable consciousness)). To give a

<sup>207</sup> ਕੀਤਾ ਪਸਾਉ ਏਕੋ ਕਵਾਉ (ਪੰਨਾ ੩) ਖੰਡ ਦੀਪ ਸਭ ਲੋਆ ਏਕ ਕਵਾਏ ਤੇ ਸਭ ਹੋਆ (ਪੰਨਾ ੧੦੭੬)

<sup>208</sup> “ਆਦਿ ਸਚੁ ਜੁਗਾਦਿ ਸਚੁ ਹੈ ਭਿ ਸਚ” (ਜਪੁਜੀ) ਹੋਯੇ ਹੈ ਹੋਵੰਤੋ ਹਰਣ ਭਰਣ ਸੰਪੂਰਣ (ਪੰਨਾ ੧੩੬੧)

<sup>209</sup> ਤਿਸ ਭਾਵੈ ਤਾ ਕਰੇ ਵਿਸਥਾਰੁ ॥ ਤਿਸ ਭਾਵੈ ਤਾ ਏਕੰਕਾਰੁ (ਪੰਨਾ ੨੯੪) Kabir gives the analogy as follows:-

“ Just as the gigantic banyan tree is latent in its seed, so are the universes in the Lord. They exist only in His Will.”

<sup>210</sup> (i) ਇਹੁ ਪਰਪੰਚੁ ਕੀਆ ਪ੍ਰਭ ਸੁਆਮੀ ਸਭੁ ਜਗਜੀਵਨੁ ਜੁਗਣੇ ॥ ਜਿਉ ਸਲਲੈ ਸਲਲ ਉਠਹਿ ਬਹੁ ਲਹਰੀ ਮਿਲਿ ਸਲਲੈ ਸਲਲ ਸਮਣੇ (ਪੰਨਾ ੯੭੭) (ii) ਆਪੇ ਪੇਡੁ ਬਿਸਥਾਰੀ ਸਾਖ ॥ ਅਪਨੀ ਖੋਤੀ ਆਪੇ ਰਾਖ (ਪੰਨਾ ੩੮੭) (iii) ਬਾਜੀਗਰਿ ਜੈਸੇ ਬਾਜੀ ਪਾਈ ॥ ਨਾਨਾ ਰੂਪ ਭੇਖ ਦਿਖਲਾਈ ॥ ਸਾਂਗੁ ਉਤਾਰਿ ਬੰਮਿਓ ਪਾਸਾਰਾ ॥ ਤਬ ਏਕੋ ਏਕੰਕਾਰਾ (ਪੰਨਾ ੭੩੬) ਬਿਚਖ ਹੋਵੈ ਬੀਓ ਬੀਜੀਐ ਕਰਦਾ ਪਾਸਾਰਾ (ਭਾਈ ਗੁਰਦਾਸ ੨.੯-੧)

mathematical analogy we can say that Zero (ਨਿਰਗੁਣ ਸਤਿ Transcendent) expands to become ONE (ਸਰਗੁਣ Immanent). The unknown becomes known. Like the number ‘One,’ which forms a part of every conceivable number great or small; God expands from *Sunn* (zero) and becomes a part of every created object. Thus the immanent *Sat* is “many and one at the same time.”<sup>211</sup>

This Sikh idea finds favour with German Philosopher Eckhart when he says the *Nicht* (Nothing) becomes *Icht* (Something)

“Just as the zero added to any number increases its intrinsic value ten times so does God (ੴ) join his creation to expand it by putting Himself in His creation. Like putting zeroes with a number He expands the creation enormously.”<sup>212</sup>

“When the Lord manifests Himself, He expands and creates worlds and life. When He contracts Himself every created thing is assimilated back into Him” (Chaupai)<sup>213</sup>

“When He wishes to create, the world comes into existence. When He wills otherwise it is retracted into Himself.” (AGGS p. 292)<sup>214</sup>

<sup>211</sup> ਨਿਰੰਕਾਰ ਆਕਾਰ ਆਪਿ ਨਿਰਗੁਣ ਸਰਗੁਣ, ਏਕਾ ਹੀ ਏਕ ਵਖਾਨਨੋ ਨਾਨਕ ਏਕ ਅਨੇਕ (ਪੰਨਾ ੨੫●) ਆਪੇ ਹਰਿ ਇਕ ਰੰਗੁ ਹੈ ਆਪੇ ਬਹੁ ਰੰਗੀ (੭੨੬)

<sup>212</sup> “ਨਉ ਅੰਗਿ ਸੁੰਨ ਸੁਮਾਰੁ ਸੰਗਿ ਨਿਰਾਲਿਆ, ਨੀਲ ਅਨੀਲ ਵੀਚਾਰਿ ਪਿਰਮ ਪਿਆਲਿਆ” ਭ.ਗੁਰਦਾਸ ੩.੧੫ When zero sits with nine numerals, it works wonders. Such is the love of its intoxication that the more the number of zeros, the greatest is the value of the numeral.

<sup>213</sup> ਸੰਗ ਉਤਾਰ ਬਸਿਉ ਪਾਸਾਰਾ ਤਹਿ ਏਕੋ ਏਕੰਕਾਰਾ (ਪੰਨਾ ੭੩੬) ਇਹ ਜਗੁ ਤਾਗੋ ਸੂਤ ਕੋ ਭਾਈ ਦਹ ਦਿਸ ਬਾਧੋ ਮਾਇ (ਪੰਨਾ ੬੩੫) “ਏਕੈ ਸੂਤਿ ਪਰੋਏ ਮਣੀਏ ॥ ਗਾਠੀ ਭਿਨਿ ਭਿਨਿ ਭਿਨਿ ਭਿਨਿ ਤਣੀਏ ॥ ਫਿਰਤੀ ਮਾਲਾ ਬਹੁ ਬਿਧਿ ਭਾਇ ॥

ਖਿੰਚਿਆ ਸੂਤੁ ਤ ਆਈ ਥਾਇ” (ਪੰਨਾ ੮੮੬). Like the beads in a rosary he keeps the objects as separate knots. He runs the world in many ways. When He withdraws the string all knots disappear into one thread.” (AGGS p. 886) ਆਪੇ ਹੀ ਸੂਤਰਧਾਰੁ ਹੈ ਪਿਆਰਾ ਸੂਤ ਖਿੰਚੇ ਢਹਿ ਢੇਰੀ ਹੋਇ (ਪੰਨਾ ੬੫)

<sup>214</sup> “ਜਾ ਤਿਸ ਭਾਵੈ ਤ ਸਿਸਟ ਉਪਾਏ॥ ਆਪਨੋ ਭਾਣੈ ਲਏ ਸਮਾਏ” (ਪੰਨਾ ੨੯੨) “ਆਪਨ ਖੋਲੁ ਆਪਿ ਕਰਿ ਦੇਖੈ, ਖੋਲ ਸੰਕੋਚੈ ਤਉ ਨਾਨਕ ਏਕੈ (ਸੁਖਮਨੀ ੨੧-੭) “ਨਾਨਕ ਵੈਖੋ ਆਪਿ ਫੂਕ ਕਢਾਏ ਢਹਿ ਪਵੈ” (ਪੰਨਾ ੧੨੪੪). It is significant that unlike scientists using the words *Explosion* and *Implosion*, the Guru uses exactly the same word KAWAO (ਕਵਾਉ) for expansion and contraction. ਕੀਤਾ ਪਸਾਉ ਏਕੋ ਕਵਾਉ (ਪੰਨਾ ੩) and ਤੂੰ ਜਾਣੋਈ ਸਭਸੈ ਦੇ ਲੈਸਹਿ ਜਿੰਦੁ ਕਵਾਉ (ਪੰਨਾ ੪੬੩) Kawao literally means ‘Word’ or ‘Hukm’ (volition or law).

## 6.6 Death of the Universe

Robert Kirshner, known as the supernova hunter, thinks that the expansion of the universe has started slowing down and that a time will come when the stars and galaxies will have moved so far away from each other that there will be horrible cold and the universe will die.

Another explanation given by scientists is the irregular orbits of some planets like Pluto. There may be a time when the planets may crash into each other or on to our earth and bring about catastrophic destruction.<sup>215</sup> They argue that such a cataclysmic event killed dinosaurs from our planet. A meteorite caused incalculable damage in Russia in 1908 at Tunguska knocking down and burning all trees within a 20-mile radius.<sup>216</sup> The earth may cross the path of a big irregular comet orbiting the sun and as a consequence may get destroyed causing enormous gravitational chaos in the universe.

According to the world famous Cambridge physicist Stephen Hawking, two black holes<sup>217</sup> may collide and bring about the end of our universe (Theory of space time singularity). He also predicts that at some stage all matter will end up in a black hole and the black hole will convert its mass into radiation and thus the universe will disappear altogether. Einstein's theory also alludes to such cataclysmic astrophysical events due to space-time curvature.

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<sup>215</sup> When Immanuel Velikovsky published his famous book *Worlds in collision* in 1950 his ideas were mocked and ridiculed as nonsense and scientists tried to have his book banned. Guru Nanak also mentions irregularity of some planetary motions. See section 6.2.

<sup>216</sup> According to scientists 50 tons of small meteorites enter the earth's atmosphere every day. Only about one tenth of them reach the earth or our oceans (Nearly 70% of our earth is occupied by oceans). The others get burnt up in the atmosphere.

<sup>217</sup> Black holes are collapsed stars. They attract matter, compress it and then do not let it escape. Even photons of light cannot escape it. Scientists have observed a black hole, which is three million times the weight of our sun. Some scientists believe that there are white holes as well. They believe that all matter entering the black holes eventually ends up going into the white holes. It is also believed that there is anti-matter (anti-protons and anti-electrons) in the universe so there must be an *anti-universe*, a sort of mirror image of our universe.

Scientists Abbe Lemaitre and De Sitter of Leiden say that the death of the universe is certain. They have proved that periodic expansions and contractions of the universe are taking place with enormous velocities. At present the universe is expanding at a tremendous speed and the various galaxies are rushing towards or moving away from each other at speeds of hundreds of miles per second. According to Dr. Hubble and Dr. Humason their telescope at Mount Wilson recorded the terrific receding speed of a galaxy at 15000 miles per second. Ultimately the galaxies will end up in a black hole and that will be the end of the universe we know. If the galaxies start contracting, they will end up in a pinpoint. Either way the death of the universe is certain.

Some modern scientists believe that protons- previously thought to be stable in atoms- will decay and bring about the end of the universe. Others think that every particle in the universe has its antiparticle with properties opposite to that of the particle itself. They think that somewhere in the universe there are stars and planets, which are composed of anti-matter. When heavenly bodies composed of matter collide with those made of anti-matter, the universe will come to an end. This could happen at any time because scientists believe that there are *tachyons* (particles of matter that move faster than the speed of light)<sup>218</sup> and also there are *neutrinos* (particles of anti-matter that travel at tremendous speeds in the universe).

Astronomers calculate that the sun has mass to allow thermonuclear reactions only for 13 billion years. It has existed for 6 billion years. In another 7 billion years the whole of the sun's hydrogen will fuse into helium and it will bring disaster to solar system causing gravitational disturbances and turmoil in the universe as a whole.

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<sup>218</sup> If *Tachyon* can be harnessed, man would be able to communicate anywhere in the universe instantaneously. So far they have not been detected.

In 1982-83 it was recorded that the rotation of the earth slowed down by 1/5000 of a second and in 1990 the earth's day lengthened by 1/2000 seconds. The time required by the earth to complete one revolution round the sun is decreasing at a rate of 0.53 seconds per century. Changes like this may be happening throughout the universe and as a consequence a time is bound to come when the universe will be adversely affected or be destroyed altogether.

We end this section by quoting the view of Albert Einstein as quoted by Lincoln Barnett. "The sun is slowly but surely burning out, the stars are dying ambers, and everywhere in the universe the cosmic heat is turning into cold, matter is dissolving into radiation, and energy is being dissipated into empty space. The universe is thus progressing to an ultimate heat death and there is no way of avoiding this destiny." (*The universe and Dr. Einstein p. 102*)

"About a million million years in the future, the universe will just die" (Reader's Digest *Exploring the Universe page 183*)

## 6.7 Sikh view of the death of our universe

There is absolutely nothing new in what Einstein is saying in the above quotation. The Sikh Gurus said so a long time ago when they wrote, "Beauty disintegrates, islands disintegrate, and the sun, the moon, the stars and sky are fading away. The earth, mountains, forests and all lands will fade away."<sup>219</sup> (AGGS p. 1354)

As for the expansion and contraction of the universe we find this fact mentioned in the Sikh scriptures at various places. The Sikh Gurus say that expansions and contractions of the universe have occurred many times. This process of appearance

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<sup>219</sup> ਘਟੰਤ ਰੂਪੰ ਘਟੰਤ ਦੀਪੰ ਘਟੰਤ ਰਵਿ ਸਸੀਅਰ ਨਖੁਤੁ ਗਗਨੰ ॥ ਘਟੰਤ ਬਸੁਧਾ ਗਿਰਿ ਤਰ ਸਿਖੰਡੰ (ਪੰਨਾ ੧੩੫੪) ਧਰਤਿ ਆਕਾਸੁ ਪਾਤਾਲੁ ਹੈ ਚੰਦੁ ਸੂਰੁ ਬਿਨਾਸੀ (ਪੰਨਾ ੧੧੦੦) ਜੋ ਦੀਸੈ ਸੋ ਵਿਣਸਣਾ ਸਭ ਬਿਨਾਸਿ ਬਿਨਾਸੀ (ਪੰਨਾ ੧੧੦੦) ਜਗ ਰਚਨਾ ਸਭ ਝੁਠ ਹੈ ਜਾਨਿ ਲੇਹੁ ਚੇ ਮੀਤ ॥ ਕਹਿ ਨਾਨਕ ਬਿਰੁ ਨਾ ਰਹੈ ਜਿਉ ਬਾਲੁ ਕੀ ਭੀਤਿ (ਪੰਨਾ ੧੪੨੯)

and disappearance goes on forever.<sup>220</sup> It is not peculiar to our own earth; the numerous suns and other planets also meet the same inglorious end. The universe emerged from void and will end up in void.

The Guru says, “He has unfolded the universe in many ways. He has expanded it umpteen times. Only the Lord Himself is immortal.”<sup>221</sup> And “All the continents, nether worlds, islands and worlds — God Himself has made them all subject to death. The One Imperishable Lord Himself is unmoving and unchanging.”<sup>222</sup> (AGGS P. 1076)

Some times the language used today by scientists tallies so exactly with that used by the Sikh Gurus that one is wonderstruck. For example Sir James Jeans writes, “A **soap bubble** with irregularities and corrugations on its surface is perhaps the best representation, in terms of simple and familiar materials, of the new universe revealed by the theory of relativity.... And the substance out of which this bubble is blown, the soap film, is empty space welded on to empty time” (*The mysterious Universe* p. 139). Our modern scientist Dr Branch (University of Oklahoma) also compares the impermanence of the universe with a **bubble** when he writes, “We could simply be exploring the nature and future of just one **bubble** in a cosmic sea of champagne” (Sunday Telegraph dated 11.1.98 p. 18). The 9<sup>th</sup> Guru of the Sikhs had written the same thing 300 years ago when he wrote, “As the **soap bubble** on the surface of water appears and disappears, Nanak says, hear my friend this is exactly how the universe behaves” (AGGS p.1427)<sup>223</sup>

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<sup>220</sup> Maya people of Central America were the first people to have floated the idea in their religious book Popol Vuh (Book of council) that the existence of the universes is cyclical, one that experiences recurring creations and destructions without end. They called the cycle ‘Baktun’ and believed that our universe has passed through 13 Baktuns.

<sup>221</sup> ਕਈ ਜੁਗਤਿ ਕੀਨੋ ਬਿਸਥਾਰ ॥ ਕਈ ਬਾਰ ਪਸਰਿਓ ਪਾਸਾਰ ॥ ਸਦਾ ਸਦਾ ਇਕੁ ਏਕੰਕਾਰ (ਪੰਨਾ ੨੭੬)

<sup>222</sup> ਖੰਡ ਪਤਾਲ ਦੀਪ ਸਭ ਲੋਆ ॥ ਸਭ ਕਾਲੇ ਵਸਿ ਆਪਿ ਪ੍ਰੀਭ ਕੀਆ ( ਪੰਨਾ ੧੦੭੬)

<sup>223</sup> ਜੈਸੇ ਜਲ ਤੇ ਬਦੁਬੁਦਾ ਉਪਜੇ ਬਿਨਸੇ ਨੀਤ ਜਗ ਰਚਨਾ ਤੈਸੇ ਰਚੀ ਕਹੁ ਨਾਨਕ ਸੁਣ ਮੀਤ (ਪੰਨਾ ੧੪੨੭) ਜਲ ਤਰੰਗ ਅਰੁ ਫੇਨ ਬੁਦਬੁਦਾ ॥ ਜਲ ਤੇ ਭਿੰਨ ਨ ਹੋਈ (ਪੰਨਾ ੪੮੫) “ਨਾਨਕ ਵੇਖੋ ਆਪਿ ਫੂਕ ਕਢਾਏ ਢਹਿ ਪਵੈ (ਪੰਨਾ ੧੨੪੪)

Lincoln Barnett says that according to Einstein's unified field theory "The Universe is revealed as one eternal field in which each star, each atom, each wandering comet and slow-wheeling galaxy and flying electron, is seen to be but a **ripple** in the underlying space-time unity."(*The universe and Dr. Einstein* p.120-122. We find similar words written by Guru Arjan Dev.

"He pervades everywhere like an unfathomable **ripple**. No one can understand His play."  
(AGGS p. 275)<sup>224</sup>

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<sup>224</sup> "ਪਸਰਿਓ ਆਪਿ ਹੋਇ ਅਨਤ ਤਰੰਗ (ripple)॥ ਲਖੇ ਨ ਜਾਹਿ ਪਾਰਬ੍ਰਹਮ ਕੇ ਰੰਗ" (ਪੰਨਾ ੨੭੫)

## Chapter 7

### Laws of Nature

**“There is nothing in nature which is not bound by law, and that means that whatever happens once must go on and must have been going on”**

(Swami Viveka Nanda *What Religion is* p.315)

The humans try to interpret nature from their own angle. For example Plato said that God constructed the universe using five regular solid shapes a cone, a cube, an octahedron, a tetrahedron and an isohedra. Kepler related the sizes of planetary orbits to musical intervals and claimed that the Creator of the universe (God) was a musician. He wrote, “The intense pleasure I have received from this discovery can never be told in words.”(Sir James Jeans *The mysterious universe* p.163)

Galileo wrote,” Nature’s great book is written in mathematical language.”<sup>225</sup> This idea became so ingrained in the minds of people that when the question of contacting people supposedly living on Mars arose it was decided to burn fires in the Sahara to form a diagram of the famous theorem of Pythagoras<sup>226</sup>. It was believed that the Martians would hopefully recognise the theorem.

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<sup>225</sup> Galileo quoted on page 154 of *The mysterious universe*. “God is a mathematician of a very high order, and He used very advanced mathematics in constructing the Universe” (*Scientific American* May 1963 p. 53)

Mathematics is not a perfect science. Mathematicians have so far failed to divide 1 by 3 or 22 by seven exactly. The Perfect God cannot be imagined to have imperfection in His creation.

<sup>226</sup> Pythagoras theorem: “The sum of the areas of squares on the two smaller sides of a right angled triangle is equal to the area of a square on the hypotenuse.

It appears simplistic to imagine that nature models her behaviour on the whims, fancies and passions of human philosophers. Theories like these are simply reflections of the fertile minds of their thinkers. They are fanciful attempts of the humans to mould Mother Nature to their own pre-conceived notions. It is like different people watching a scene through different coloured spectacles each claiming that reality exists only in one colour.

Scientists discover one law and when it does not hold good they make another one better. For example at one time they believed that liquids flow downwards only to find that tons and tons of water is sucked up skywards into every leaf of the trees.<sup>227</sup> So they developed the law of capillaries. At one stage they said that water always keeps its level but later found that it forms a downward curve (called *meniscus*) in capillary tubes. At one stage they believed that light travels in straight lines but now they believe that it can bend. Science is merely the accumulation of the discovered laws of Nature but it does not explain who made these laws. The fact remains that Nature makes laws and scientists simply discover them

It may seem utterly futile and a sheer waste of time to attempt the corroboration of scientific laws in the scriptures of the world. Yet it is interesting to find that even religious leaders expressed their ideas about nature and human experiences in a language, which often coincides with the scientific language and in some cases conveys exactly the same sense.

The Sikh Gurus were mystics and as such their theories are theological. Their primary concern was man's social amity and spiritual relationship with God. However it was only natural that they touched other spheres as well that influenced and shaped the world around the human beings. The Sikh Gurus gave a

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<sup>227</sup> Even otherwise the law does not hold good always. Helium is liquid near absolute zero temperature (-273°C) but becomes *super fluid*. If it is put in a container it strangely flows up the walls of the container.

generic term to the innumerable laws of Nature. They used the word *Hukm* (ਹੁਕਮ) for the universal laws and said, “All creation obeys the *Hukm* but the *Hukm* can not be fully explained.”<sup>228</sup> Lamarck puts the same idea succinctly as follows:

“Nature is but an order of things subject to laws originating from the Will of the Supreme Being of whose existence and boundless power man from observation conceives an indirect though sound idea” (Lamarck: *System Analytique P. 43*). There is nothing in nature, which is not bound by the Laws of the Almighty.

Although the Sikh Gurus have stated their ideas in the context of spiritualism, it is surprising to find that many of their ideas are expressed in a language, which, when interpreted in modern scientific jargon, matches with many of the physical laws enunciated, by the modern scientists. Here are some examples. The researcher may find many more in the Sikh scriptures.

## 7.1 Law of conservation of mass & energy

**“The universal laws of nature and the eternal decrees of God are one and the same thing. God means unchangeable laws of nature.”** (Spinoza. As quoted on p. 66 of SVD)

Science recognises three laws of conservation, which were established by Antoine Lavoisier (1743-94). They are (a) Law of conservation of mass (b) Law of conservation of energy<sup>229</sup> and (c) law of conservation of matter (other minor laws like those of the conservation of linear and angular momenta were later added to

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<sup>228</sup> ਹੁਕਮੀ ਹੋਵਨਿ ਆਕਾਰ ਹੁਕਮੁ ਨ ਕਹਿਆ ਜਾਈ (ਪੰਨਾ ੧) ਹੁਕਮੀ ਸਹਜੇ ਸਿਸਟਿ ਉਪਾਈ (ਪੰਨਾ ੧੦੪੩) ਹੁਕਮੀ ਸਗਲ ਕਰੇ ਆਕਾਰ (ਪੰਨਾ ੧੫੦) ਹੁਕਮੀ ਸਭੇ ਉਪਜਹਿ ਹੁਕਮੀ ਕਾਰ ਕਮਾਹਿ (ਪੰਨਾ ੫੫) Here and there the Guru also calls it Bhau ( ਭਉ) or Bhai (ਭੈ) as “ਸਗਲਿਆ ਭਉ ਲਿਖਿਆ ਸਿਰਿ ਲੇਖੁ॥ ਨਾਨਕ ਨਿਰਭਉ ਨਿਰੰਕਾਰ ਸਚੁ ਏਕੁ (ਪੰਨਾ ੪੬੪)

<sup>229</sup> Energy is of many kinds. Kinetic energy, Potential energy, Solar energy, Nuclear energy, Radiant energy, Chemical energy, Heat energy, Light energy, Electrical energy and Sound energy etc. All of them obey the law of conservation. This was proved by Hermann Helmholtz in 1847. In the process of production of nuclear energy mass changes into energy.

the above as corollaries). These laws state that matter, energy or mass can never be created or destroyed by any known physical or chemical means; they only change their form. For example water may change into snow, ice, steam or cloud but its mass remains the same. Our speech (sound energy) is mechanically converted into electromagnetic waves and broadcast on the air. At the other end the electromagnetic waves are once again converted into sound energy. When we burn anything it does not disappear from the surface of the earth. It changes into carbon dioxide, water, ashes, light and other products. Atoms in the matter do not change their identities but play different parts in differing guises. Their total mass remains constant.<sup>230</sup>

At one stage this law was challenged. If Hydrogen peroxide ( $H_2O_2$ ) is left in a bottle in the light, it changes into water and releases oxygen ( $2H_2O_2 = 2H_2O + O_2$ ). Scientists found that the mass of newly created water when added to the mass of released Oxygen was more than the mass of original Hydrogen peroxide. In another Similar experiment a photographic plate with Silver bromide on it was exposed to light. It gained weight.

It was Einstein who in 1905 proved that the theory was not wrong. He found out that sound, heat, light and other conceivable forms of energy also have a mass of their own. He therefore modified and restated the law saying, "*The rest-mass and the energy-mass always remain constant.*"

"One simple fundamental entity which may take many forms, matter and radiation in particular,<sup>231</sup> is conserved through

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<sup>230</sup> When coal burns it leaves ashes behind. The weight of the ashes is less than the weight of the coal. The scientists explain that if we add the weight of light, heat and gases produced by the burning to the weight of the ashes then it will come to be equal to the original weight of the coal.

<sup>231</sup> Scientists believe that the whole universe is nothing but an ocean of waves of energy. The bottled-up waves are called matter. It is a sort of congealed radiation. Un-bottled-up waves are called radiation. All through the universe conversion of matter into radiation and radiation into matter is going on continuously. Material worlds disappear into radiation to reappear again in matter elsewhere. Rest mass is weight of matter and energy mass is weight of energy.

all changes, the sum total of this entity forms the whole activity of the universe which does not change in total quantity” (Sir James Jeans *The Mysterious Universe* p. 96-97)

This fact is mentioned in the Sikh scriptures at many places. Guru Nanak says, “On all the worlds created by Him there are storehouses of His bounties which have been replenished once for all”<sup>232</sup> At another place the scriptures tell us more clearly “Nothing is produced and nothing is lost. I say it by God’s grace.” (AGGS p. 695)<sup>233</sup> The principle is further applied to the death of living organisms and matter. The Guru says, “Nothing is born and nothing dies. Birth and death are only the Lord’s game.” (AGGS p. 281)<sup>234</sup> When a living organism dies, “The wind merges into the wind. The light blends into the light. The dust becomes one with the dust. What support is there for the one who is lamenting? Who has died? O, who has died? O God-realised beings meet together and consider this. What a wondrous thing has happened!”<sup>235</sup>

“All things resolve into configuration of four dimensional continuum”<sup>236</sup> which is the universe”  
(*Nature of physical world- Einstein* p. 120)

<sup>232</sup> ਆਸਣੁ ਲੋਇ ਲੋਇ ਭੰਡਾਰ ॥ ਜੋ ਕਿਛੁ ਪਾਇਆ ਸੁ ਏਕਾ ਵਾਰ ॥ (ਪੰਨਾ ੭) ਧਰਤੀ ਦੇਗ ਮਿਲੈ ਇਕ ਵੇਰਾ (ਪੰਨਾ ੧੧੯●) ਜੋ ਦੀਨੋ ਸੋ ਏਕਹਿ ਬਾਰੁ (ਪੰਨਾ ੨੫੮). The Sikh belief is that “The vacuity between the earth and the skies is filled with light (ਜੋਤ energy) which neither increases nor decreases”. The word ਜੋਤਿ literally means light and light is a form of energy.

<sup>233</sup> ਨਾ ਕਛੁ ਆਇਬੋ ਨਾ ਕਛੁ ਜਾਇਬੋ ਰਾਮ ਕੀ ਦੁਹਾਈ (ਪੰਨਾ ੬੯੫) “ਨਾ ਕਿਛੁ ਆਵਤ ਨਾ ਕਿਛੁ ਜਾਵਤ ਸਭਿ ਖੇਲੁ ਕੀਓ ਹਰਿ ਰਾਇਓ (ਪੰਨਾ ੨●੯) ਨਾ ਕੋ ਆਵੈ ਨਾ ਕੋ ਜਾਵੈ ਗੁਰਿ ਕੀਆ ਭਰਮੀਜਾ ਹੋ (ਪੰਨਾ ੧●੭੪)

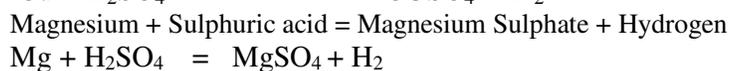
<sup>234</sup> ਨਹ ਕਿਛੁ ਜਨਮੈ ਨਹ ਕਿਛੁ ਮਰੈ ਆਪਨ ਚਲਤਿ ਆਪਿ ਹੀ ਕਰੈ (ਪੰਨਾ ੨੮੧) ਨਾ ਕੋਈ ਮਰੈ ਨ ਆਵੈ ਜਾਇਆ (ਪੰਨਾ ੮੮੫)

<sup>235</sup> ਪਵਨੈ ਮਹਿ ਪਵਨੁ ਸਮਾਇਆ ॥ ਜੋਤੀ ਮਹਿ ਜੋਤਿ ਰਲਿ ਜਾਇਆ ॥ ਮਾਟੀ ਮਾਟੀ ਹੋਈ ਏਕ ॥ ਰੋਵਨਹਾਰੇ ਕੀ ਕਵਨ ਟੇਕ ॥ ਕਉਨੁ ਮੂਆ ਰੇ ਕਉਨੁ ਮੂਆ ॥ ਬ੍ਰਹਮ ਗਿਆਨੀ ਮਿਲਿ ਕਰਹੁ ਬੀਚਾਰਾ ਇਹੁ ਤਉ ਚਲਤੁ ਭਇਆ (ਪੰਨਾ ੮੮੫)

<sup>236</sup> Things can move forward, backward, right, left, up or down. This makes three directions. Since every thing moves in time as well as space, time is the fourth dimension. These four dimensions are known as **Space-time continuum or four-dimensional continuum.**

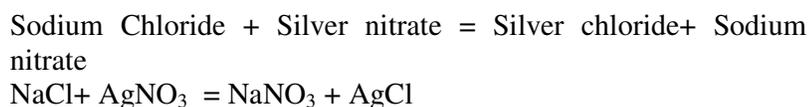
## 7.2 Law of displacement

This law states that no two or more objects can occupy the same space. For example when a dropper is dipped in a liquid, pressed and released, the liquid rises into the dropper replacing air. Chemically when sulphuric acid is poured on copper, Hydrogen is displaced from the acid and copper takes its place.



Here one molecule of magnesium displaces one molecule of Hydrogen from the Sulphuric acid to form Magnesium sulphate.

Sometimes there is double displacement. For example if we add common household salt to silver nitrate, the  $\text{NO}_3$  and  $\text{Cl}$  radicals swap their places.



The principle is succinctly stated in the Sikh scripture as “When one element is to get into another it displaces something” (AGGS p.474)<sup>237</sup>

Using the law of chemical displacement Lord Rutherford changed nitrogen into Oxygen in 1919 by bombarding nitrogen gas with a stream of Alpha particles from uranium. An atom of nitrogen (7 protons and 7 neutrons) captured an alpha particle (2 protons) and later discarded one proton leaving 8 protons in the nucleus. Thus an atom of nitrogen changed into an atom of oxygen.

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<sup>237</sup> ਵਸਤੂ ਅੰਦਰਿ ਵਸਤੁ ਸਮਾਵੈ ਦੂਜੀ ਹੋਵੈ ਖਾਸਿ (ਪੰਨਾ ੪੭੪)

Chemistry also admits that the constituents of a newly formed compound lose their individuality in the chemical reactions. This is reflected in the Guru's words as, "When a thing becomes part of another, then it loses its individual identity"<sup>238</sup>

### 7.3 Latent heat

Scientists have discovered that when a solid melts and turns into a liquid or Gas, it absorbs heat. This heat is known as the Latent heat of vaporisation. On the other hand when a liquid or Gas becomes solid (for example water becoming ice) it loses heat. This heat is known as the latent heat of crystallisation. The law says that Heat gained is always equal to heat lost. During the time these changes take place the temperature of the substance remains constant.

This fact is mentioned in the Sikh scriptures in very simple terms. The Guru says, "The latent heat from the sun rays turns the ice floe into water"<sup>239</sup> (AGGS p. 846)

### 7.4 Composition of water

For a long time all gases combined together were known as air. In 1766 AD Henry Cavendish (1731-1810) discovered Hydrogen and called it 'inflammable air' (phlogiston) and when Sheeley and Joseph Priestley (1733-1804) discovered Oxygen they called it 'fire air' (dephlogisticated air). Later the French scientist Antoin Laurent Lavoisier (1743-94) decomposed water and proved that it was composed of Hydrogen and Oxygen gases. In 1784 Henry Cavendish proved that water was composed of two parts of hydrogen and one part of Oxygen (H<sub>2</sub>O).

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<sup>238</sup> ਬਸਤੁ ਮਾਹਿ ਲੋ ਬਸਤੁ ਗਛਾਈ । ਤਾ ਕਉ ਤਿੰਨ ਨ ਕਰਨਾ ਜਾਈ (ਪੰਨਾ ੨੮੫)

<sup>239</sup> ਸੂਰਜ ਕਿਰਣਿ ਮਿਲੇ ਜਲਕਾ ਜਲੁ ਹੂਆ ਰਾਮ (ਪੰਨਾ ੮੪੬) . For a fuller explanation see Professor Sahib Singh's Guru Granth Sahib Darpan Vol. 6 page 279 ਓਰਾ ਗਰਿ ਪਾਨੀ ਭਇਆ ਜਾਇ ਮਿਲਿਓ ਢਲਿ ਕੂਲਿ (ਪੰਨਾ ੧੩੭੪)

The Sikh Gurus had already stated that water was a compound and not an element (in scientific terms) and that it transformed itself from air. The Guru wrote, “The True Lord created air, air transformed itself into water and water gave rise to life in the three worlds (of skies, land and oceans)”<sup>240</sup>

## 7.5 Law of combination and decomposition

Scientists have discovered that atoms<sup>241</sup> in the universe join together or separate from each other and result in compounding or disintegrating the substances. This is a universal law that works equally in living and non-living matter. Scientists have also discovered that chemically there are two types of substances called acids and alkalis. When substances join together one is from the group of acids and the other is from the group of alkalis (or bases)<sup>242</sup> and the resultant compound has properties, which do not exactly match up with either constituent. In other words it is like a husband and a wife copulating to produce a child.<sup>243</sup> The child may look like father or mother but is a unique product having a unique individuality.<sup>244</sup> A common domestic example in chemistry is water. Hydrogen gas catches fire and oxygen gas supports burning. They join together to produce water, which does not catch fire and does not support burning. The soap in our homes is made from oil, which stains a cloth and caustic soda, which burns it, but the soap does neither.

<sup>240</sup> ਸਾਚੇ ਤੇ ਪਵਨਾ ਭਇਆ ਪਵਨੈ ਤੇ ਜਲੁ ਹੋਇ ॥ ਜਲ ਤੇ ਤੁਭਵਣ ਸਾਜਿਆ ਘਟ ਘਟ ਜੋਤ ਸਮੋਇ (ਪੰਨਾ ੧੯)

<sup>241</sup> An atom was once considered the smallest solid particle of matter. Now scientists believe that it consists mainly of space. At its nucleus lie protons and neutrons. Protons have positive charge whereas the neutrons are neutral. Circulating around the nucleus are even smaller particles called electrons, which have a negative charge. An atom is only a few hundred millionth of a centimetre across. A proton is so light that 160 million million million million of protons would weigh only one gramme. An electron is 1800 times lighter than a proton. The number of protons in an element is known as its atomic number.

<sup>242</sup> Chinese call them Yang (active, warm, bright and creative positive male force) and Yin (passive, still cold, dark and fertile negative female force)

<sup>243</sup> ਮਾ ਕੀ ਰਕਤੁ ਪਿਤਾ ਬਿੰਦੁ ਧਾਰਾ ॥ ਮੂਰਤਿ ਸੂਰਤਿ ਕਰਿ ਆਪਾਰਾ (ਪੰਨਾ ੧੦੨੨) ਮਾਤ ਪਿਤਾ ਸੰਜੋਗਿ ਉਪਾਏ ਰਕਤੁ ਬਿੰਦੁ ਮਿਲਿ ਪਿੰਡੁ ਕਰੇ (ਪੰਨਾ ੧੦੧੩) ਬਿੰਦੁ ਰਕਤੁ ਮਿਲਿ ਪਿੰਡੁ ਸਰੀਆ ॥ ਪਉਣੁ ਪਾਣੀ ਅਗਨੀ ਮਿਲਿ ਜੀਆ (ਪੰਨਾ ੧੦੨੬)

<sup>244</sup> These days DNA (Deoxyribonucleic Acid) is used to detect culprits because no two DNA's (except those of twins) are alike. There is only one in 3 million chance for two persons to have the same DNA

When the process is reversed, things disintegrate back into their constituents. This is known as decomposition.

The Sikh Gurus used the words *Sanjog* for combination and *Vijog* for disintegration and said, “Combination and disintegration run the play of the universe and the resultant is unique (*Bhag*).”<sup>245</sup> The Guru says that *Sanjog* (combination) and *Vjog* (decomposition or disintegration) have been “created by God right from the beginning of the universe.”<sup>246</sup> “He Himself is the cause behind both *Sanjog* and *Vijog*”<sup>247</sup>. Living organisms are composed of antagonistic elements of fire, water and air etc. Scientifically speaking the negative and positive charged atoms exist side by side in the body. It is like saying  $(+1) + (-1) = 0$  (neutral). Nature abides in the law of the union of opposites. No living organism can survive with only one type of charge. It is like saying; if a road goes to the East it must also be going to the West. The Sikh scripture appears to have a literal and a spiritual meaning of *Sanjog* (Chemical combination) and *Vijog* (Chemical decomposition).

In modern science we find exactly what Guru Nanak had said more than 500 years earlier. For example modern scientists call the union of nuclei as Fusion (*Sanjog - implosion*) and the disintegration of nuclei as Fission (*Vijog- explosion*)<sup>248</sup>

The Guru also applies this principle to the birth and death of living creatures. For example the Guru explains the birth through the law of combination when he says, “From the union (*Sanjog*) of the sperm and the female egg, the body was formed

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<sup>245</sup> ਸੰਜੋਗੁ ਵਿਜੋਗੁ ਦੁਇ ਕਾਰ ਚਲਾਵਹਿ ਲੇਖੇ ਆਵਹਿ ਭਾਗ ॥ (ਪੰਨਾ ੬). The term *Bhag* (ਭਾਗ) is used in mathematics for the result when a number is divided by another number. *Bhag* is also used to mean the punishment or reward of one’s good or bad deeds (in other words the effect of a cause). ਭਾਗ also means luck, fate destiny or something that happens without plausible human explanation.

<sup>246</sup> ਸੰਜੋਗੁ ਵਿਜੋਗੁ ਉਪਾਇਓਨੁ ਸਿਸਟੀ ਕਾ ਮੂਲੁ ਰਚਾਇਆ (ਪੰਨਾ ੫੦੯) ਸੰਜੋਗੁ ਵਿਜੋਗੁ ਧੁਰਹੁ ਹੀ ਹੁਆ (ਪੰਨਾ ੧੦੦੭)

<sup>247</sup> ਆਪੇ ਜੋਤਿ ਵਿਛੋੜੇ ਆਪੇ (ਪੰਨਾ ੧੦੪੫) ਜੁਤਿ ਜੁਤਿ ਵਿਛੋੜੇ ਵਿਛੋੜੇ ਜੁਤੇ ਜੀਵ ਮੁਏ ਮੁਏ ਜੀਵੈ (ਪੰਨਾ ੧੨੩੮)

<sup>248</sup> Atom bomb was constructed by splitting the atomic nuclei. Fission and Fusion both produce enormous amounts of energy. Modern nuclear power plants use this principle to produce electricity.

(AGGS p.1026).<sup>249</sup> Referring to human death the Guru applies the principle of disintegration and says, “Light blends into light, elements disintegrate into dust. What support is there for the one who is lamenting (AGGS p. 885)? The Guru further says, “The Creator Lord created this creation. It comes and goes, subject to the Will of the Infinite Lord. No one dies; no one is capable of dying.” (AGGS P.885)<sup>250</sup> The Guru said, “The universe is bound by the Lord’s law and no other law can operate within it” (AGGS p.432)<sup>251</sup> and this is exactly what Aristotle had said, “*Divine providence coincides completely with the operation of natural causes.*”(SVD p.66)

It is also a fact that properties of positivity and negativity exist within the atoms where negative electrons orbit around positrons which are positive. Similarly male (positive properties) and female (negative properties) sometimes exist side by side in the same matter. For example in a magnet the positive and negative poles exist on the same bar magnet. This fact is also manifested in some living organisms. For example in 1958 a lizard was discovered in Armenia. It reproduced itself by parthenogenesis (without fertilisation by male sperms from outside). Among plants we know that bananas fertilise their flowers through self-pollination.

## 7.6 Change of matter into energy ( $E=MC^2$ )

Conversion of energy into matter and matter into energy is now commonly known. In nuclear reactions mass is converted into energy. Mystics believe that God is all-powerful. In other words God is the storehouse of all energy and hence invisible. This state of God is called ਨਿਰਗੁਣ in Sikhism. In this state God is by Himself and is indefinable. When God Wills, His energy is manifested in forms, which human senses can detect. The whole

<sup>249</sup> ਬਿੰਦੂ ਰਕਤੁ ਮਿਲਿ ਪਿੰਡੁ ਸਰੀਆ (ਪੰਨਾ ੧੦੨੬) ਮਿਲਿ ਮਾਤ ਪਿਤਾ ਪਿੰਡੁ ਕਮਾਇਆ (ਪੰਨਾ ੯੮੯)

<sup>250</sup> ਇਹੁ ਤਉ ਰਚਨੁ ਰਚਿਆ ਕਰਤਾਰਿ ॥ ਆਵਤ ਜਾਵਤ ਹੁਕਮਿ ਅਪਾਰਿ ॥ ਨਹ ਕੇ ਮੂਆ ਨ ਮਰਣੈ ਜੋਗੁ ॥ ਨਹ ਬਿਨਸੈ ਅਬਿਨਾਸੀ ਹੋਗੁ (ਪੰਨਾ ੮੮੫)

<sup>251</sup> ਬੋਧਨਿ ਜਾ ਕੈ ਸਭੁ ਜਗੁ ਬਾਧਿਆ ਅਵਰੀ ਕਾ ਨਹੀ ਹੁਕਮੁ ਪਇਆ (ਪੰਨਾ ੪੩੨)

world is the manifested form of God. In Sikhism this change of God from His unmanifested form into His manifested form is termed as a change from *Nirgun* (ਨਿਰਗੁਣ) to *Sargun* (ਸਰਗੁਣ)<sup>252</sup>

**“By His Command we come, and by His command we merge into Him again. By His Command, the world was formed. By His Command, the heavens, this world and the nether regions were created; by His Command, His Power supports them. ”**

(AGGS Page 1037)

**“By His law, the sky is spread above. By His law, His creatures dwell in the water, on the land and throughout the created worlds. By His law, we draw our breath and receive our food. Through His laws, He watches over us, and inspires us to see.”**

(AGGS page 949)

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<sup>252</sup> ਨਿਰਗੁਨ ਤੇ ਸਰਗੁਨ ਦ੍ਰਿਸ਼ਟਾਰੰ (ਪੰਨਾ ੨੫●) ਨਿਰਗੁਣੁ ਸਰਗੁਣੁ ਆਪੇ ਸੋਈ (ਪੰਨਾ ੧੨੮) ਨਿਰਗੁਨ ਹਰੀਆ ਸਰਗੁਨ ਧਰੀਆ ਅਨਿਕ ਕੋਠਰੀਆ ਭਿੰ ਭਿੰ ਭਿੰ ਭਿੰ ਕਰੀਆ (ਪੰਨਾ ੨੪੬) The nirgun Hari establishes the sargun World (ਧਰੀਆ= ਧਰਤੀ) and in it creates various types of abodes (ਕੋਠਰੀਆ= ਕੋਠੇ =storhouses of energy). And there are numerous varieties of such storehouses.

## Chapter 8

### The Moon

**“Our earth is the third planet that came out of the Sun”**  
(*Exploring our Universe* -Branley)

Ever since man became aware of his environment and his position in the universe, he has been trying to understand the marvels of nature. One of the marvels of nature is our moon. A number of myths have been associated with the moon. In some countries, like India, the moon has also been the object of worship.<sup>253</sup> People end their fasts by looking at the moon. Full moon (ਪੂਰਨਮਾਸ਼ੀ) is considered by some people as very auspicious and religious gatherings are held on the day of the full moon.

Although the Sikh Gurus loved nature and its glory in all spheres, they did not attach any special spiritual importance to the moon in general or the full moon (*Puranmashi*). The Guru says, “The glorious night of the full moon is effulgent but God alone is perfect; He is the All-powerful cause of causes.” (AGGS p. 300)<sup>254</sup> The Guru said there is nothing new or sacred about the full

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<sup>253</sup> According to the Hindu belief the moon is one of the 14 precious objects, which the gods discovered on churning the oceans. The moon travels on a three wheeled cart pulled by ten milk-white horses. Another belief tells us that the moon was born to Anusuya, wife of Atri Rishi and was married to the 27 daughters of King Dakshsha. It is depicted as the king of Brahmans in Vishnu Puran. Hindus and Muslims do not end their fasts without seeing the moon. Romans worshipped the moon as goddess Luna or Diana. Moon goddesses of the Greeks were Solene and Artemis. The Egyptians worshipped the moon as Khousu. The English word ‘Lunatic’ means ‘struck by the moon.’ Sikhism rejects Moon-worship. “ਕੋਈ ਪੂਜੇ ਚੰਦ ਸੂਰ, ਕੋਈ ਧਰਤ ਅਕਾਸ਼ ਮਨਾਵੈ ॥ ਪਾਉਣ ਪਾਣੀ ਬੇਸੰਤਰੇ, ਧਰਮਰਾਜ ਕੋਈ ਤ੍ਰਿਪਤਾਵੈ ॥ ਫੋਕਟਿ ਧਰਮੀ ਭਰਮਿ ਭੁਲਾਵੈ (ਭਾਈ ਗੁਰਦਾਸ ਪਉੜੀ ੧੮.੧)

<sup>254</sup> ਪੂਰਨਮਾ ਪੂਰਨ ਪੁਭ ਏਕ ਕਰਣ ਕਾਰਣੁ ਸਮਰਥ (ਪੰਨਾ ੩੦੦)

moon. “On the night of the full moon, the full moon fills the sky. Its power is diffused through its gentle light.” (AGGS p. 344)<sup>255</sup>

Giordano Bruno was the first person to have stated that the moon was one of the planetoids like our own earth. Galileo later supported this theory in 1610. The theory contradicted the current religious ideas about the universe held at that time and therefore even intellectuals (like the Professor of Philosophy at the University of Padua) declined to look through Galileo’s telescope and stuck to their deep-held beliefs. In 1665 Newton once again talked about the moon and its gravitational pull. It was only in the 20<sup>th</sup> century that our ideas about the moon underwent a sea change when on 21 July 1969 Neil Armstrong and Edwin Arnold actually set foot on the moon.

Scientists have now discovered at least 60 other known moons in addition to ours. Saturn has at least 20 going round it. The Earth and Pluto each have one moon. The fact that there are innumerable moons and suns was mentioned by Guru Nanak when he said, “There are many Indras, moons and suns and many other worlds and galaxies” (AGGS p.7)<sup>256</sup>

## 8.1 The origin of our moon

Numerous theories about the origin of the moon and its light have been advanced from time to time. George Darwin, son of Charles Darwin, surmised that a part of the fast spinning earth flung off from it and formed the moon. This is known as *fission theory*. The place left by it on our earth is the Pacific Ocean.

A similar but slightly different theory was propounded in 1980. According to this theory a Mars-size object struck the earth and the cataclysmic impact of this strike threw a large part of the earth into space. This part later accreted to form the moon.

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<sup>255</sup> ਪ੍ਰਾਨਿਉ ਪੂਰਾ ਚੰਦ ਅਕਾਸ਼ ॥ ਪਸਰਹਿ ਕਲਾ ਸਰਜ ਪਰਗਾਸ (ਪੰਨਾ ੩੪੪)

<sup>256</sup> ਕੇਤੇ ਇੰਦ ਚੰਦ ਸੂਰ ਕੇਤੇ, ਕੇਤੇ ਮੰਡਲ ਦੇਸ (ਪੰਨਾ ੭) ਅਨਿਕ ਬਿਸਥਾਰ ਏਕ ਤੇ ਭਏ (ਪੰਨਾ ੨੮੯)

The *Capture* theory states that the moon is an independent body. It was captured by the earth as it travelled past it and has since been going around it.

In 1879 George H. Darwin, an English mathematician suggested that the earth and the moon were once a single body. The latest theory also states that both the moon and the earth formed side-by-side from one and the same nebula material.<sup>257</sup>

According to Sikhism the Lord created both the sun and the moon together. This view seems to support the last theory given above. The Guru says, "Both the sun and the moon were created together from the void"<sup>258</sup> (AGGS p. 1037)

## 8.2 How Far is the Moon?

Until astronauts visited the Moon, man was not sure what the moon was and how far it was from the earth. Now we have moon rock available for analysis and we also know the distance between the moon and the earth. Using a mirror left on the moon by the Apollo astronauts, an international group of scientists fired laser beams to the moon from Hawaii, France, Germany and Texas. The laser beams returned to their respective telescopes after 2.652584 seconds. Using the technique known as laser ranging scientists discovered that the Moon was 15,654,023,458 inches (247064.76417298 miles) away from the earth. This is so far the most accurate calculation of the distance between the earth and the moon. The distance keeps changing and the mean distance

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<sup>257</sup> Some scientific calculations conclude that the moon was closer to the earth  $4.6 \times 10^9$  years ago, a time, which approximates to the formation of our earth. According to World Book Encyclopaedia at one time it was a mere 10,000 miles away from our earth. Analysis of the moon rock brought back by Apollo astronauts proves that the moon is 4.2 billion years old.

<sup>258</sup> ਸੁੰਨਹੁ ਚੰਦੁ ਸੂਰਜੁ ਗੈਣਾਰੇ ॥ ਤਿਸ ਕੀ ਜੋਤਿ ਤ੍ਰਿਭਵਣ ਸਾਰੇ (ਪੰਨਾ ੧੦੩੭) ਚੰਦੁ ਸੂਰਜੁ ਦੋਇ ਸਾਥ ਚਲਾਈ (ਪੰਨਾ ੪੮੪)

commonly used by Scientists is 238,866 miles.<sup>259</sup>

Dr. Peter Shelus of McDonald Observatory in Austin (Texas) was one of the scientists conducting the above experiment. He says, “Although we can measure the distance to an inch of accuracy, it is only correct for a moment in time because the earth and the Moon are rotating, and both are in elliptical orbits.”<sup>260</sup>

The Sikh Gurus were not scientists and were not interested in calculating distances between planets. But we find a story<sup>261</sup> in the *Janam Sakhi* (Biography) of Guru Nanak where the earth-moon distance is said to have been estimated by the Guru. It is given as 52000 *Yojan*.<sup>262</sup> This gives us the distance between the earth and the moon as 236363.63 miles. The difference between the scientific calculations and the Guru’s supposed estimate is merely 2503 miles, which is very insignificant when we measure such long distances. Even scientists had calculated this distance as 225742 miles when the astronauts first visited the moon in 1969. It is also a fact that this distance keeps changing because the orbits of the earth and the moon are elliptical (egg shaped). It also depends on the moment of measurement. The distance of the Moon from us at its farthest point is 250,000 miles. (*Origin of our solar system p. 264*).

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<sup>259</sup> Depending on the position of the moon there are three distances. (1) *Perigee* distance is 222,756 miles (2) *Apogee* distance is 254,186. The mean of the two (3) is 238,866 miles. These

distances keep changing. The scientists have been monitoring the distance of the moon from the earth since the visit of the Apollo astronauts and now testify that the moon is one foot farther from the earth than it was then.

<sup>260</sup> The scientists have discovered that the moon is moving away from the earth at a rate of a few centimetres every year. This will mean that the moon may eventually end up being so far away from the earth that its revolution may then be 47 days. Our day on the earth is also getting longer by .00000002 seconds everyday.

<sup>261</sup> See story No. 42 p. 291 of *Janam Sakhi Bhai Bala* published by Messrs Kirpal Singh and sons Amritsar.

<sup>262</sup> A *Yojan* is equal to 4.5454545 *Kos*. And a *Kos* is equal to 1.1363636 miles.

Taking these facts into account one marvels at the distance given in the *Janam Sakhi*, which is so close to the accurate distance.

### 8.3 The Moon's relationship with the sun

Some scientists believe that the moon was once a part of the sun. Although it came out of the bright source it has cooled down and does not have any light of its own. In 1564 Galileo proved that the moon did not have light of its own and that it only reflected the light from the sun.

The Sikh Gurus had already said so earlier than Galileo, "He has given us two lamps but the Sun lights up the Moon."<sup>263</sup> It is marvellous that the Sikh Gurus stated these facts at a time when no one even believed that the moon and other heavenly bodies were planets and earths.

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<sup>263</sup> ਚੰਦ੍ਰ ਸੂਰਜ ਦੋਇ ਦੀਪਕ ਰਾਖੇ ਸਸਿ ਘਰਿ ਸੂਰੁ ਸਮਾਇਦਾ (ਪੰਨਾ ੧੦੩੩), ਸਸਿ ਘਰਿ ਸੂਰੁ ਵਸੈ ਮਿਟੈ ਅੰਧਿਆਰਾ (ਪੰਨਾ ੯੪੩) ਸਸੀਅਰ ਕੈ ਘਰਿ ਸੂਰੁ ਸਮਾਵੈ (ਪੰਨਾ ੮੪੦) ਸੂਰਜ ਚੰਦ ਕਰਹਿ ਉਜੀਆਰਾ (ਪੰਨਾ ੩੨੯) ਸਸਿ ਘਰਿ ਸੂਰੁ ਦੀਪਕੁ ਗੈਣਾਰੇ (ਪੰਨਾ ੧੦੪੧)

## Chapter 9

### Religion & Social sciences

**“Most of what is popularly regarded as evolution of man is social, not biological evolution”**

*(Encyclopaedia Americana Vol. 10 p. 613)*

According to the noted biologist Sir Julian Huxley, “man’s evolution is not biological but psycho-social” (*Evolution after Darwin V.iii. p. 251*). Professor Wilson in his book “Sociobiology” and Robert Alexedo (University of Michigan) in his book “Evolutionary Psychology” argue this point at length and agree with Julian Huxley’s views. The Sikh Gurus had realised this five centuries ago and were therefore, interested in reforming both the spiritual and the social fabric of man’s life. They expressed their opinions on almost all aspects of human life, temporal as well as spiritual. We shall briefly discuss the Gurus’ opinions on some global challenges and issues touched by modern psychological, physiological, political, and social sciences.

#### 9.1 Religion and Politics

**“Church is a distinct institution entitled to govern the spiritual concerns of mankind independent of state.”** (*History of political theory- Sabine*)

Politics are the science of government. True religion helps purify the thinking of those in authority and gives direction to their humanism. Only purified altruistic thoughts can prevent the erosion of social values and bring about the realisation of responsibilities.

According to Wilson, “A state is a people organised for law within a definite territory.” The main duty of the state is to bring about the greatest happiness of the greatest number of people, by maintaining law and order, progress, social service and justice. There was a time, when these duties were performed either by the bigot religious elite or under their guidance by autocratic kings. They used religion as their handmaiden. For example, the chief *Shaman* Tebtengri had pronounced that Genghis Khan (Real name Temuchin), the greatest and the cruellest dictator, was God. Intoxicated with such divine sanction from the corrupted religious authority of the time, Genghis Khan made his oft-quoted speech, **“Be afraid of me, for I am the punishment sent by God on you. If you had not committed great sins, the Almighty God would not have punished you by sending me.”** (*Chronicles of Rashid al Din 1 Book 2*)<sup>264</sup> In the history of India, we find a similar example in Manu. He wrote that even an infant king cannot be despised because he is, as he put it, “God in human form.”<sup>265</sup> It was under such sanction from the priests that the phrase **ਈਸ਼ਵਰੋ ਵਾ ਦਿਲੀਸ਼ਵਰੋ ਵਾ** (The Emperor of Delhi is God incarnate) became current in India and was ingrained in the psyche of the Indian people. Up to the Second World War, the king in Japan was considered as the vice-regent of God.

As time passed the church and the state both became corrupt. They trampled the human rights, became intolerant to opposition and acted as the machinery of repression. They

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<sup>264</sup> Rashid Al Din, a Jewish doctor, was the court historian and Vizier of Genghis Khan and Tebtengri (Tebtengri means “Most heavenly”. His real name was Kochuchu) was his priest. Tebtengri said that he held conversation with God through trance and, “God spoke to me saying, I have given the whole earth to Temuchin and his sons and I have named him Genghis Khan” Encouraged by such blatant lies Genghis Khan claimed, “ My strength was fortified by Heaven and Earth; fore-ordained by the Almighty Heaven. I was brought here by Mother Earth”(See *Genghis Khan-His life and legacy* by Paul Ratchnevsky Page 98). Although Tebtengri and his father Monglik had rendered very meritorious services to Genghis Khan, the tyrant had Tebtengri killed through stratagem under the law of *Yasa* because the later was getting too strong.

<sup>265</sup> **निचकल्लेक** ॥ The priests were also considered sinless and they assumed great powers to themselves. “Even an illiterate and morally degraded Brahman is an angel” (Manu smirti 317, 319). See Gita XV, II-47 and iv-131

committed many atrocities in the name of religion. Reaction started against their absolute authority, which soon challenged their powers. Some stalwarts, whose motivation was drawn from true religious conviction, have left a very pacifying influence on the society. The Sikh Gurus were prominent among them. They had the strength and the moral courage to face the violent opposition with non-violence and spirituality and to advocate that true and unbiased religion should be the torchlight for the politicians.

The Sikh Gurus were not against any established Government but they denounced dictatorship and oppression. They challenged the divine right of kings and the superiority of Brahmins so vehemently preached by Manu and others in India. According to Sikhism, a state must not be co-terminus with religion neither can it transcend religion. Sikhism preaches that, whereas the spiritual interests are the exclusive territory of religion, secular interests are not fully governed by the state alone. In all secular fields, the guiding principle must be ethics. This later came to be known as the principle of two swords (ਮੀਰੀ ਪੀਰੀ).<sup>266</sup> The Sixth Guru of the Sikhs demonstrated this by wearing the two swords one of *Meeri* (Temporal authority) and the other of *Peeri* (religious authority), signifying religious freedom and political tolerance, where moral obligations remain the guiding principles. Where the two duties conflicted the Gurus suggested that man should stick to religion.

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<sup>266</sup> In Christianity Pope Gelasius preached the concept of *Meeri* and *Peeri*. He used to wear two swords. "Martin Luther challenged the doctrine of the two swords, with its claim that the Pope was the ultimate source of all authority, temporal as well as spiritual"(Read *Political Ideas* edited by David Thomson, Pelican Book 1972 p. 36) At one time a Muslim Caliph too wore two swords claiming to be the spiritual and temporal authority. In Sikhism the concept was clarified by Guru Arjan Dev, who wrote ਘਰ ਬੰਧਹੁ ਸਚ ਧਰਮ ਕਾ ਗਡਿ ਬੰਮ ਅਹਲੈ ॥ ਓਟ ਲੈਹੁ ਨਾਰਾਇਣੈ ਦੀਨ ਦੁਖੀਆ ਖਲੈ (ਪੰਨਾ ੩੨੦). "Build your home on the unshakable pillars of truth and righteousness and seek the protection of the Lord to stand by the oppressed and the needy." Guru Hargobind established *Meeri* and *Peeri* by wearing two swords and later Guru Gobind Singh bestowed the *Meeri* and *Peeri* on the Khalsa.

Sikhism's concept of religious involvement in statecraft is not that of big brotherly attitude of dictatorship but that of friendly and fatherly condemnation and censure of the Government when it deviates from justice in doing the greatest good to the greatest number of people.

The Guru's concept of rulers and administrators is encapsulated in the word *Panch* (ਪੰਚ).<sup>267</sup> A *Panch* (ਸਚਿਆਰਾ) is a truly religious, God-fearing person who is totally secular in his official dealings with people. Plato had called such people "Guardians," and had recommended strict, rigid discipline to build up their character. People like Thomas Carlyle, Nietzsche and Hegel have all supported this idea.

Explaining this concept the Gurus wrote that the right to the throne (authority) should not be hereditary but should be based on the merits of the candidate.<sup>268</sup> In a nutshell the Gurus proposed that only truly god-fearing and just people should be permitted to come forward to form Governments.

Today the direct authority of the church in Government has nearly disappeared but here and there we still find protagonists of complete religious control over everything (including Government). Conflict between religion and politics is still raising its head in some countries. Therefore once again a question has risen whether religion and politics should go together or remain separate. The loudest slogan of the politicians today is "Keep religion out of politics." Others value the contribution of religion to politics but, like the French writer Charles Peguy, feel that "every spiritual ideal is perverted and strangled when the world gets hold of it."

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<sup>267</sup> ਪੰਚ ਪਰਵਾਣ ਪੰਚ ਪਰਧਾਨ, ਪੰਚੇ ਪਾਵਹਿ ਦਰਗਹਿ ਮਾਨੁ, ਪੰਚੇ ਸੋਹਹਿ ਦਰ ਰਾਜਾਨੁ (ਪੰਨਾ ੧੧) ਪੰਚ ਲੋਕ ਵਸਹਿ ਪਰਧਾਨਾ (ਪੰਨਾ ੧੦੩੯), ਪੰਚ ਸਹਾਈ ਸਭ ਜਨ ਸੋਭਾ ਭਲੇ ਭਲੇ ਨ ਕਹਾਵਉਗੇ (ਪੰਨਾ ੯੭੩) ਤਖਤ ਨਿਵਾਸੀ ਪੰਚ ਸਮਾਇ (ਪੰਨਾ ੪੧੧)

<sup>268</sup> ਤਖਤਿ ਬਹੈ ਤਖਤੈ ਕੀ ਲਾਇਕ (੧੦੩੯) ਤਖਤਿ ਰਾਜਾ ਸੋ ਬਹੈ ਜਿ ਤਖਤੈ ਲਾਇਕ ਹੋਈ॥ਜਿਨੀ ਸਚੁ ਪਛਾਣਿਆ ਸਚੁ ਰਾਜੇ ਸੋਈ (ਪੰਨਾ ੧੦੮੮) ਤਖਤਿ ਨਿਵਾਸੁ ਸਚੁ ਮਨਿ ਭਾਣੈ (ਪੰਨਾ ੮੪੦)

On this topic M.K.Gandhi wrote, “I can say without hesitation, and yet in all humility, that those who say religion has nothing to do with politics, do not know what religion means.”

Plato was of the view that “Police is a brutal and costly method. There should be some sanction of supernatural authority and we must have religion. A nation cannot be strong unless it believes in religion.”(SVD p.111) “Render unto Caesar the things which are Caesar’s and unto God the things that are God’s” said Christ.

Religion has the onerous duty of correcting and influencing the functioning of the state, to improve its delivery for all. The two must exist side-by-side and be complementary to each other. The state must not exercise absolute authority but recognise the autonomy of religion and receive guidance from its moral power to establish the rule of justice.<sup>269</sup>The Guru termed the process *cleansing*.

“For the Brahmin, *cleansing* means contentment; for the householder, it is truth and charity. For the ruler, *cleansing* means justice; for the scholar, it is true meditation.” (AGGS p. 1240).<sup>270</sup>

Plato said, “Until kings are philosophers, or philosophers are kings, cities will never cease from ill: no nor the human race, nor will our ideal polity ever come into being.” (Republic Book v) Guru Nanak might have said the same thing by substituting *Panches* for philosophers.

## 9.2 Secularism

The word ‘secular’ is derived from the Latin word *Saeculum* (meaning present age or this world). It was first used in

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<sup>269</sup> “ਜਲਾਲਿ ਪਾਤਸ਼ਾਹੀ ਹੋ ਯਾ ਜਮਹੂਰੀ ਤਮਾਸ਼ਾ ਹੋ, ਜੁਦਾ ਹੋ ਦੀਂ ਸਿਆਸਤ ਸੇ ਤੋ ਰਹਿ ਜਾਤੀ ਹੈ ਚੰਗੇਜ਼ੀ” (ਸਰ ਮੁਹੰਮਦ ਇਕਬਾਲ) Whether it is glorious imperialism or a democratic show, separation of religion from politics leaves behind barbarism and brute force. (Sir Muhammed Iqbal)

<sup>270</sup> “ਬ੍ਰਹਮਣ ਚੁਲੀ ਸੰਤੋਖ ਕੀ ਗਿਰਹੀ ਕਾ ਸਤੁ ਦਾਨੁ ॥ ਰਾਜੇ ਚੁਲੀ ਨਿਆਵ ਕੀ ਪਤਿਆ ਸਚੁ ਧਿਆਨੁ” (ਪੰਨਾ ੧੨੪●)

1648 in the treaty of Westphalia at the end of religious wars in the west. At that time it denoted “the removal of territory or property from the control of ecclesiastical authorities.”<sup>271</sup> George Jacob Holyoake (1817-1906) was the main exponent of this doctrine and defined it as “well being of mankind in the present life to the exclusion of all considerations drawn from belief in God and a future state.”<sup>272</sup> Soon it acquired negative connotations and began to be used as a weapon of counter-religious ideologies. It was defined as non-ecclesiastical, non-religious and non-sacred anti-clerical act. Its simple definition became “*Liberation of modern man from religious tutelage.*” The dictionary meaning of secularism is ‘concerned with the affairs of this world, worldly, not sacred, not monastic, not ecclesiastical, temporal, profane’ (The concise Oxford Dictionary 1958 page 1124)

Considered in this context secularism can mean individualism and goodbye to morality, truth, justice, compassion and fair play. In Sikhism sacred and secular are co-mingled but purified. The Guru condemned the secular authorities as “beasts and animals” (AGGS p.1288)<sup>273</sup> and the religious leaders as “butchers and liars.”(AGGS p.471)<sup>274</sup> He said that ‘truth, fair play and justice have taken flight from both.’<sup>275</sup> He secularised religion by divesting it of mystery, miracles, magic, divine incarnation and supernatural mediation between man and God and purified secularism by investing it with equality, mutual respect, goodwill, morality, equal opportunity, religious toleration and openness in administration.

<sup>271</sup> “*The Social Reality of Religion*” by Peter L. Berger page 10. He defines the term to mean “the process by which sectors of society and culture are removed from the domination of religious institutions and symbols”(page 197) Professor Roger Mehl defines it as “the process by which a society disengages itself from the religious ideas, beliefs and institutions which have ordered its existence in order to constitute itself an autonomous reality, and in order to enclose religion in the private sector of life” (*The secular and secularisation*” page5)

<sup>272</sup> “*Shorter Oxford Dictionary*” page 1164. For further reading refer to Archbishop of Canterbury A.M. Ramsey’s “*Sacred and secular*” or Harvey Cox’s “*The sacred city*”

<sup>273</sup> ਰਾਜੇ ਸੀਹ ਮੁਕਦਮ ਕੁਝੇ ॥ (ਪੰਨਾ ੧੨੮੮) ਭੂਪਤਿ ਰਾਜੇ ਰੰਗ ਰਾਇ ਸੰਚਹਿ ਬਿਖ ਮਾਇਆ ॥ ਕਰਿ ਕਰਿ ਹੇਤੁ ਵਧਾਇਦੇ ਪਰ ਦਰਬ ਚੁਰਾਇਆ (ਪੰਨਾ ੧੨੪੫)

<sup>274</sup> ਹਥਿ ਫੁਰੀ ਜਗਤ ਕਾਸਾਈ (ਪੰਨਾ ੪੭੧) ਦੇ ਕੇ ਚਉਕਾ ਕਢੀ ਕਾਰ ॥ ਉਪਰ ਆਇ ਬੈਠੇ ਕੂੜਿਆਰ (ਪੰਨਾ ੪੭੨) ਅਖੀ ਤ ਮੀਟਹਿ ਨਾਕ ਪਕੜਹਿ ਨਗਣ ਕਉ ਸੰਸਾਰੁ (ਪੰਨਾ ੬੬੨) ਬਾਹਰਿ ਭੈਖ ਅੰਤਰਿ ਮਲੁ ਮਾਇਆ (ਪੰਨਾ ੨੬੭)

<sup>275</sup> ਕਲਿ ਕਾਤੀ ਰਾਜੇ ਕਾਸਾਈ ਧਰਮੁ ਪੰਖ ਕਰਿ ਉਡਰਿਆ ॥ ਕੁਝੁ ਅਮਾਵਸ ਸਚੁ ਚੰਦ੍ਰਮਾ ਦੀਸੈ ਨਾਹੀ ਕਹ ਚੜਿਆ (ਪੰਨਾ ੧੪੫)

Even in the most advanced western countries like England and the U.S.A, secularism is not practised in the real sense. For example only a Protestant Christian can become the head of state in Britain. In America President Ronald Reagan declared 1983 as “Year of the Bible” in his speech in the House of Representatives on 5<sup>th</sup> April, 1982 and celebrated it at the state’s expense.

In the Sikh concept of secularism, “All have equal rights in affairs. Nobody is an outsider.”<sup>276</sup>(AGGS p. 97)

The Guru treated all religions equally and wanted all to share in the bounties of nature. “O Nanak a truly religious leader should be known as such only if he brings all people together.”<sup>277</sup> To demonstrate this Guru Granth Sahib contains verses of Dhana, a farmer from Rajasthan; Sadhna, a butcher from Sindh; Sain a barber from Rewa; Ravidas, a cobbler from Benares; Namdev, a calico printer from Maharashtra; Jaidev a Brahman from Bengal and Farid and Kabir who were Muslims. Hindus, Muslims and Vaishnavites all find a place on the pages of the Sikh Holy Granth.

“Everybody is my friend and I am a friend of everybody”<sup>278</sup> (AGGS 671)

### 9.3 Unionism

Modern society consists of trade unions, cultural associations, colleges, universities, political parties, religious groups, charitable bodies and economic organisations. In Sikh terminology, the word used for a joint body of all such

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<sup>276</sup> ਸਭੇ ਸਾਝੀਵਾਲ ਸਦਾਇਨਿ ਤੂੰ ਕਿਸੈ ਨ ਦਿਸਹਿ ਬਾਹਰਾ ਜੀਉ (ਪੰਨਾ ੯੭) ਸਭੇ ਜੀਅ ਸਮਾਨਿ ਅਪਣੀ ਮਿਹਰ ਕਰੁ (ਪੰਨਾ ੧੨੫੧)

<sup>277</sup> ਨਾਨਕ ਸਤਿਗੁਰੁ ਐਸਾ ਜਾਣੀਐ ਜੋ ਸਭਸੈ ਲਏ ਮਿਲਾਇ ਜੀਉ (ਪੰਨਾ ੭੨)

<sup>278</sup> “ਸਭ ਕੇ ਮੀਤ ਹਮ ਆਪਨ ਕੀਨਾ ਹਮ ਸਭਨਾ ਕੇ ਸਾਜਨ” (ਪੰਨਾ ੬੭੧)

organisations is *Panth*.<sup>279</sup> It is similar to the term ‘*continuity*’ used by Rousseau. On joining the ‘*Panth*’ each member surrenders his/her individual interests to the collective whole and the collective decision, known as *Gurmata* (ਗੁਰਮਤਾ), becomes the accepted policy. Every member of the ‘*Panth*’ must be a *Khalsa* (a person pure in thought, word and deed) and must work for *Sarbat da Bhala* (common good of all). These two conditions are compulsory and the *Gurmata* (based on truth, morality and justice) is religiously binding on every member of the *Panth*. It is like saying, “What is good for the hive is good for the bee.” This was the pattern of society that Guru Gobind Singh, the 10<sup>th</sup> Guru of the Sikhs, tried to establish in 1699, long before the French revolution of 1789, which brought with it the slogan of liberty, equality and fraternity. The contribution made by Guru Gobind Singh to democracy is now the aspiration of the whole world. It was to such people that the great Guru is said to have dedicated everything.

#### 9.4 Right of self-defence

In modern times the thorniest issue is that of the “right of resistance.” If the state is atrociously oppressive and persecutes people, do people have the right of resistance? The political philosophers such as Althusius, Grotius, Milton and Karl Marx justify resistance. Some, like Mahatma Gandhi, justify only passive resistance quoting scriptures, “If someone slaps you on one cheek, turn to him the other too” (Luke 6.29).<sup>280</sup>

The Sikh Gurus suggested, “reconciliation first through indirect contact (by letter or media etc), if that fails through direct

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<sup>279</sup> The concept of *panch* preached by Guru Nanak was for an individual. It was changed to *Panth* in the time of Guru Arjan Dev when many differing communities started joining the Sikh faith. “ਮਾਰਿਆ ਸਿੱਕਾ ਜਗਤ ਵਿੱਚ, ਨਾਨਕ ਨਿਰਮਲ ਪੰਥ ਚਲਾਇਆ” (ਭਾਈ ਗੁਰਦਾਸ). Guru Gobind Singh used it extensively for the society. The word *Panth* literally means “path or way of life.” Sikh nation is now called ‘*Panth*’.

<sup>280</sup> “They that take the sword shall perish with the sword”(Matthew 27:51-52). It should be noted that The Bible also instructs, “Eye for eye, tooth for tooth, hand for hand, foot for foot. Burn for burn, wound for wound, bruise for bruise” (Exodus 21-24,250)

contact person to person and then to try any other method of conflict resolution if available” (AGGS p. 371).<sup>281</sup> When all means fail, then, ***as a last resort***, it is lawful to engage in active resistance. The Guru says, “If your living means suffering indignities then fie on your being alive”<sup>282</sup>

The world came to this conclusion only after two bloody world wars. Today in the human rights charter of the U.N.O, dated 10<sup>th</sup> December 1948, we find similar words to those of the Guru. It reads, “*It is essential, if man is not to be compelled to have recourse, ***as a last resort***, to rebellion against tyranny and oppression, that human rights should be respected by the rule of law*”

The fifth Guru of the Sikhs was summoned by Emperor Jehangir to Lahore because of his stand against intolerant policies of the Emperor.<sup>283</sup> Before he departed to Lahore he left the following message for his son. This fully explains the policy of the Sikhs when it comes to resistance by force.

*“My dear son, very hard times are ahead for the Sikh community. The forces of Evil are cutting down the very roots of fundamental human rights. I have tried to break the shackles of slavery of common man in a peaceful manner but now the times have changed. The Moghul kings have lost all humaneness and have turned into beasts. I will still persuade Jahangir to leave this policy but if the peaceful persuasion, even at the cost of my bodily tortures fails, then take it for granted that it is no use enduring tortures for changing the conscience of the Moghul rulers just as*

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<sup>281</sup> ਪ੍ਰਥਮੇ ਮਤਾ ਜਿ ਪੜੀ ਚਲਾਵਉ ॥ ਦੁਤੀਏ ਮਤਾ ਦੁਇ ਮਾਨੁਖ ਪਹੁਚਾਵਉ ॥ ਤ੍ਰਿਤੀਏ ਮਤਾ ਕਿਛੁ ਕਰਉ ਉਪਾਇਆ (ਪੰਨਾ ੩੭੧)

<sup>282</sup> ਜੇ ਜੀਵੈ ਪਤਿ ਲਥੀ ਜਾਇ ॥ ਸਭੁ ਹਰਾਮੁ ਜੇਤਾ ਕਿਛੁ ਖਾਇ (ਪੰਨਾ ੧੪੨) ਮਰਣੁ ਮੁਣਸਾ ਸੂਚਿਆ ਹਕੁ ਹੈ ਜੇ ਹੋਇ ਮਰਨਿ ਪਰਵਾਣੇ (ਪੰਨਾ ੫੭੯) “it is the right of the just to fight and die for a just cause.”

<sup>283</sup> Jahangir killed the Guru under the law of Yasa (ਬ ਯਾਸਾ ਰਸਾਨਦ) on 30.5.1606 by making him sit on a hot iron plate. Under the law of Yasa the victim was killed through tortures without letting blood. Full details of the Guru’s tortuous death are said to be recorded in a newspaper published from Portugal in 1609. His body was floated away in river Ravi (ਜ਼ਾਤਿ ਆਲੀ ਦਰ ਬਹਿਰ ਰਾਵੀ ਅੰਦਾਖਤੰਦ)

*it is useless to lie down for sympathy before a horned beast. In that case, then, try to meet the Evil with armed resistance.*"(C.H.Paine as quoted by Satbir Singh in *History of the Punjab*)

Sikhism advises a citizen to meet the political offence with political defence. But for the sake of protecting his just rights, the citizen is justified and entitled to use the force of arms if all other methods of peaceful persuasion have been exhausted. It was under this directive, that the sixth Guru of the Sikhs raised an army and thus declared that *Meeri* (temporal) and *Peeri* (spiritual) power must exist side by side for the sake of justice.

## 9.5 Status of women

Modern society is based on social equality but it is only recently that women have been accorded equality with men.<sup>284</sup> Even the so-called socially advanced western countries labelled women as inferior to men. For example, up until 1998, women were banned from looking at the Goya frescoes in Spain.<sup>285</sup> On August 26, 1970 the Women's liberation movement conducted a long march in New York asking for equal rights for women. They called it 'strike for equality.' Little did the women in the west know that what they were asking for through this movement (known as the suffragette movement), had already been granted by the Sikh Gurus when Guru Nanak wrote, "From woman, man is born; within woman, man is conceived; to woman he is

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<sup>284</sup> "Men are in charge of women because Allah hath made the one to excel the other and because they spend their property (for supporting women) Holy Quran 4:34. Also see Quran 4:3, 4:129, and 2:223. " A man can divorce his wife by simply saying *Talaq, Talaq, Talaq* three times (Holy Quran 2:229). "Men have authority over women" (Quran 4.31).

A good woman is worse than a bad man (Taitriya samhita) "The Hindu woman, religiously, is a shudra and is not entitled to the gaytri mantra."(D.P. Mukherjee *Modern Indian culture*. p. 17) Padma Purana gives details of *Sati* (immolation of women on the funeral pyres of their dead husbands) rites. Basing his views on Rig Veda (10-85-45) and Athrav Veda (14-2-18) Hindu scholar Swami Dyanand advocated and justified *Nyoga* (sexual involvement of a woman with eleven men) as religiously sanctioned. (See *Rig Vedadebhashya Bhumika*). Although he advocated worship of women (See *our women* p.41) and called them embodiments of divine mother, he forbade them from touching the Saligrama Sila (household idol) –(see *Our women* p.64). Hindu lawgiver Manu permitted polygamy and he himself had 10 wives.

<sup>285</sup> Ironically these pictures were painted by women themselves in 1774

engaged and married. Woman becomes his friend; through woman, the future generations come. When his woman dies, he seeks another woman; to woman he is bound. So why call her inferior? From her, kings are born. From woman, woman is born; without woman, there would be no men. O Nanak, only the True Lord is without a woman. The mouth (male or female) that praises the Lord continually is blessed and beautiful. O Nanak, such faces shall be radiant in the court of the True Lord.”(AGGS P. 473) <sup>286</sup>

Sikhism accords full equality and social status to women.<sup>287</sup> Women can hold property,<sup>288</sup> perform all social and religious functions and lead the nation.<sup>289</sup> Guru Amar Das put an end to veil wearing and *Sati* (*The Hindu custom of widows burning themselves alive at the funeral pyres of their dead husbands*).

The Sikh Gurus denounced celibacy forbade adultery and advocated equal status for women.

## 9.6 Caste

Caste is a Portuguese word meaning ‘social division’.’ The Hindu word for caste is *Warna* (colour). Indian historians think that Caste in India came into being when the fair skinned Aryans, who conquered India around 1500 B.C, enslaved the dark skinned aboriginals and hated them as inferior breed. Around 200 B.C Manu codified the castes into four broad groups *Brahman, Kashatrya, vaish and Shudra*. This division later became such a

<sup>286</sup> ਭੰਡਿ ਜੰਮੀਐ ਭੰਡਿ ਨਿੰਮੀਐ ਭੰਡਿ ਮੰਗਣੁ ਵੀਆਹੁ ॥ ਭੰਡਹੁ ਹੋਵੈ ਦੋਸਤੀ ਭੰਡਹੁ ਚਲੈ ਰਾਹੁ ॥ ਭੰਡੁ ਮੁਆ ਭੰਡੁ ਭਾਲੀਐ ਭੰਡਿ ਹੋਵੈ ਬੰਧਾਨੁ ॥ ਸੋ ਕਿਉ ਮੰਦਾ ਆਖੀਐ ਜਿਤੁ ਜੰਮਹਿ ਰਾਜਾਨ ॥ ਭੰਡਹੁ ਹੀ ਭੰਡੁ ਉਪਜੈ ਭੰਡੈ ਬਾਬੁ ਨ ਕੋਇ ॥ ਨਾਨਕ ਭੰਡੈ ਬਾਹਰਾ ਏਕੋ ਸਚਾ ਸੋਇ ॥ ਜਿਤੁ ਮੁਖਿ ਸਦਾ ਸਾਲਾਹੀਐ ਭਾਗਾ ਰਤੀ ਚਾਰਿ ॥ ਨਾਨਕ ਤੇ ਮੁਖ ਉਜਲੈ ਤਿਤੁ ਸਚੇ ਦਰਬਾਰਿ (ਪੰਨਾ ੪੭੩) ਏਤੋ ਅਉਰਤ ਮਰਦਾ ਸਾਜੇ ਏ ਸਭ ਰੂਪ ਤੁਮਾਰੇ (ਪੰਨਾ ੧੩੪੯) ਸਭਿ ਘਟ ਆਪੇ ਭੋਗਵੈ ਪਿਆਰਾ ਵਿਚਿ ਨਾਰੀ ਪੁਰਖ ਸਭੁ ਸੋਇ (ਪੰਨਾ ੬੦੫) ਲੋਕ ਵੇਦ ਗੁਰ ਗਿਆਨ ਵਿਚ ਅਰਧਸਰੀਰੀ ਮੋਖ ਦੁਆਰੀ (ਭਾਈ ਗੁਰਦਾਸ)

<sup>287</sup> ਏਕ ਭਾਇ ਦੇਖਉ ਸਭ ਨਾਰੀ (ਪੰਨਾ ੩੨੭) ਕਿਸੁ ਤੂੰ ਪੁਰਖੁ ਜੋਰੁ ਕਉਣ ਕਹੀਐ ਸਰਬ ਨਿਰੰਤਰਿ ਰਵਿ ਰਹਿਆ (ਪੰਨਾ ੩੫੦)

<sup>288</sup> Women got right to property in England only in 1875.

<sup>289</sup> Mai Bhago, Maharani Sada Kaur and Sahib Kaur of Patiala led the Sikh armies. Ahmad Shah Batalvi in his *Tarikh-e-Panjab* mentions a Sikh woman Rajinder Kaur whose intelligence, courage and bravery he extols to the skies. See also *History of the Sikhs* by Hari Ram Gupta V.1 p. 81 for bravery of Sikh women.

rigid social structure that nobody could dare to cross the caste boundaries.

According to Dr. Radhakrishnan the chief features of caste are (1) Heredity: One cannot change his caste.<sup>290</sup> (2) Endogamy: A member of one caste must marry members of the same caste (3) Communal restrictions: accepting food and drinks from other castes or mixing with them in convivial meetings as equals. (*See Indian philosophy*) Heredity, occupation, intermarriage, social intimacies, drawing of water from wells and visiting temples are all considered factors deciding one's caste.

Although modern society does not approve of discrimination, it is still practised on the basis of skin colour in the western countries and, on the basis of caste and social status in India. Sikhism preached perfect equality between human beings a long time ago. The Guru said, "God created light and infused it in everybody. How can then some be good and others Evil?" (AGGS p. 1349)<sup>291</sup>

Guru Nanak condemned 'Caste' or any other discrimination between human beings as humbug and said that human beings are judged according to their deeds. He explained it

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<sup>290</sup> A *Shudra* named Matanga so pleased Indra with his devotion; prayers and austerities that Indra agreed to fulfil Matanga's heart's desire. When Matanga asked Indra to obliterate his caste and thus liberate him; Indra flatly refused saying, "This is impossible." Another *Shudra* Shambhook was beheaded by the Hindu god Ram Chandra because the later being a *shudra*, had no right to engage in religious rites. (See *Ramayana chapter vii 74-76*) "In its social doctrine, the Gita was not egalitarian, but staunchly attached to the caste system, and to it only the *Brahman* and the *Kshatriya* were noble by birth" (*Hinduism* by Nirad Chaudhri p. 266). "ਬ੍ਰਾਹਮਣੋ ਸਯਾ ਮੁਖਮਸਿਧ ਬਹੁ ਰਜਨਯਈਆ ਕਰਤਾ, ਉਰੂ ਤਦੰਸਯ ਯਾਦਵੈਸ਼ਯ ਪਦਮੇਨ ਸੂਦਰੋ ਅਜਾਯਤ" (Rig-Veda X 90-12). "A Brahman must be honoured though devoid of every virtue and merit; but a shudra never, though distinguished for every virtue and learning" (*Living religions of Indian people* by Macnicol p.67). The teachings of Vedas are considered 'ਅਸਪੁਰੁਸ਼ਆ' (Not written by man). According to Manu, the Vedas descended from God but others say that Brahma wrote them. Arya Smajists believe that Vedas came into existence on the day of creation.

<sup>291</sup> ਅਵਲਿ ਅਲਹ ਨੂਰੁ ਉਪਾਇਆ ਕੁਦਰਤਿ ਕੇ ਸਭ ਬੰਦੇ ॥ ਏਕ ਨੂਰ ਤੇ ਸਭ ਜਗ ਉਪਜਿਆ ਕੋਣ ਭਲੇ ਕੇ ਮੰਦੇ (ਪੰਨਾ ੧੩੪੯) ਸਭੁ ਕੇ ਉਚਾ ਆਖੀਐ ਨੀਚੁ ਨ ਦੀਸੈ ਕੋਇ (ਪੰਨਾ ੬੨) ਸਭ ਮਹਿ ਇਕੁ ਵਰਤਦਾ ਏਕੋ ਰਹਿਆ ਸਮਾਇ (ਪੰਨਾ ੨੨)

by saying, “Your caste is betrayed by your actions and behaviour”<sup>292</sup>(AGGS P. 1330).

“False is the distinction of caste and status. Everybody has equal protection of God” (AGGS p. 83).<sup>293</sup>The Guru’s life-long friend Mardana was twice condemned by the society of the time, first because of his low caste and second because he was a Muslim whose association with Guru Nanak was galling to the Hindu society in which Guru Nanak was born. Yet the Guru loved Mardana and kept his friendship with him right up to the end of Mardana’s life without even once asking him to renounce Islam.

## 9.7 Food and drink

### (a) Food

Modern doctors and dieticians preach moderation and selection in eating. Five centuries ago Guru Nanak preached that man must be selective in his eating habits. He said, “O Brother, the pleasures of foods are false. Eat not that with which the body is ruined, and wickedness and corruption enter into the mind” (AGGS p.16).<sup>294</sup> The general instruction to the Sikhs is to eat simple food in moderation and to avoid too rich (in cholesterol) food. (AGGS p.1287)<sup>295</sup> “Fareed, my bread is simple and hard, and hunger is my appetizer. Those who eat buttered bread (food rich in cholesterol) will suffer terrible problems.” (AGGS p.1379)<sup>296</sup>

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<sup>292</sup> ਸਾ ਜਾਤਿ ਸਾ ਪਤਿ ਹੈ ਜੇਹੇ ਕਰਮ ਕਮਾਇ (ਪੰਨਾ ੧੩੩●) ਜਾਤਿ ਕਾ ਗਰਬੁ ਨ ਕਰਿ ਮੂਰਖ ਗਵਾਰਾ ॥ ਇਸ ਗਰਬੁ ਤੇ ਚਲੇ ਬਹੁਤ ਵਿਕਾਰਾ ॥... ਮਾਟੀ ਏਕ ਸਗਲ ਸੰਸਾਰਾ ॥ ਬਹੁ ਬਿਧਿ ਭਾਂਡੇ ਘੜੈ ਕੁਮਾਰਾ (ਪੰਨਾ ੧੧੨੭) “ਜਾਤਿ ਕਾ ਗਰਬੁ ਨ ਕਰੀਅਹੁ ਕੋਈ (ਪੰਨਾ ੧੧੨੭) ਜਾਤੀ ਦੈ ਕਿਆ ਹਥਿ ਸਚੁ ਪਰਖੀਐ ॥ ਮਹੁਰਾ ਹੋਵੇ ਹਥ ਮਰੀਐ ਚਖੀਐ (ਪੰਨਾ ੧੪੨)

<sup>293</sup> ਫਕੜ ਜਾਤੀ ਫਕੜੁ ਨਾਉ ॥ ਸਭਨਾ ਜੀਆ ਇਕਾ ਛਾਉ (ਪੰਨਾ ੮੩)

<sup>294</sup> ਬਾਬਾ ਹੋਰੁ ਖਾਣਾ ਖੁਸੀ ਖੁਆਰੁ ॥ ਜਿਤੁ ਖਾਏ ਤਨੁ ਪੀੜੀਐ ਮਨ ਮਹਿ ਚਲਹਿ ਵਿਕਾਰ (ਪੰਨਾ ੧੬) ਸੀਗਾਰ ਮਿਠ ਚਸ ਭੋਗ ਭੋਜਨ ਸਭੁ ਝੂਠੁ ਕਿਤੇ ਨ ਲੇਖਏ (ਪੰਨਾ ੨੪੨) ਫਿਟੁ ਇਵੇਹਾ ਜੀਵਿਆ ਜਿਤੁ ਖਾਇ ਵਧਾਇਆ ਪੇਟੁ (ਪੰਨਾ ੭੯●)

<sup>295</sup> ਜੇਤੇ ਰਸ ਸਰੀਰ ਕੇ ਤੇਤੇ ਲਗਹਿ ਦੁਖ (ਪੰਨਾ ੧੨੮੭) ਮਿਥਿਆ ਰਸਨਾ ਭੋਜਨ ਅਨ ਸਵਾਦ (ਪੰਨਾ ੨੬੯)

<sup>296</sup> ਫਰੀਦਾ ਰੋਟੀ ਮੇਰੀ ਕਾਠ ਕੀ ਲਾਵਣੁ ਮੇਰੀ ਭੁਖ ॥ ਜਿਨਾ ਖਾਧੀ ਚੋਪੜੀ ਘਣੇ ਸਹਨਿਗੋ ਦੁਖ (ਪੰਨਾ ੧੩੭੯)

In some religions restrictions are placed on the consumption of certain foods. In some others restrictions also exist on the preparation of food in a certain way (*Halaal*) otherwise the food is not permissible to be eaten (*Haraam*).<sup>297</sup> The Sikh Gurus only stressed the need for cleanliness and moderation and did not place any restrictions on the methodology of food preparation.

The Guru redefined the words *Halaal* and *Haraam*. He said *Halaal* is that which is earned through honest work and *Haraam* is the one, which is earned through dishonest means (like bribery, theft, skiving, shirking, malingering and trampling over other's rights). To those who earned their living by cheating, trickery and skulduggery and then called it *Halaal*, he said, "To take what rightfully belongs to another is like Muslim eating pork, or a Hindu eating beef.<sup>298</sup> Our spiritual guides stand by us only as long as we do not eat those carcasses. By mere talk, people do not earn passage to Heaven"<sup>299</sup> (AGGS P.141). "By adding spices to forbidden foods (*Haraam*), they are not made acceptable (*Halaal*). One wrong act only Leads to another"<sup>300</sup> "Let what you earn righteously be your blessed food. Cleanse the dirt of sin from your mind."<sup>301</sup> (AGGS p. 1084)

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<sup>297</sup> In Islam only an animal killed slowly by cutting the jugular vein is considered suitable for eating (*Halaal*). Some Sikhs eat meat but they kill the animal by one stroke of the sword so that the animal does not suffer unnecessary pain.

<sup>298</sup> Pig meat is forbidden for Muslims and beef is forbidden for Hindus.

<sup>299</sup> ਹਕੂ ਪਰਾਇਆ ਨਾਨਕਾ ਉਸੁ ਸੁਅਰ ਉਸੁ ਗਾਇ ॥ ਗੁਰੂ ਪੀਰੁ ਹਾਮਾ ਤਾ ਭਰੇ ਜਾ ਮੁਰਦਾਰੁ ਨ ਖਾਇ ॥ ਗਲੀ ਭਿਸਤਿ ਨ ਜਾਈਐ ਛੁਟੈ ਸਚੁ ਕਮਾਇ (ਪੰਨਾ ੧੪੧). Beef eating is sin for Hindus and Pork eating is sin for Muslims.

<sup>300</sup> ਮਾਰਣ ਪਾਹਿ ਹਰਾਮ ਮਹਿ ਹੋਇ ਹਲਾਲੁ ਨ ਜਾਇ ॥ ਨਾਨਕ ਗਲੀ ਕੂੜੀਈ ਕੂੜੇ ਪਲੈ ਪਾਇ (ਪੰਨਾ ੧੪੧)

<sup>301</sup> ਹਕੁ ਹਲਾਲੁ ਬਖੋਰਹੁ ਖਾਣਾ ॥ ਦਿਲ ਦਰੀਆਉ ਧੋਵਹੁ ਸੈਲਾਣਾ (ਪੰਨਾ ੧੦੮੪)

## (b) Drugs

These days, abuse of substances such as paint, glue, gasoline and cleaning fluids mainly by teen-aged children is common. They are very toxic to the liver, heart and kidney. It has been established that some of them even cause progressive brain degeneration. One way or another, all intoxicants alter the normal functioning of the human body and in the long-term cause serious damage.

Quite recently, it has been discovered that athletes use anabolic steroids to enhance their athletic performance. It is true that they stimulate the growth of muscle tissue and slow the process of tissue breakdown but they also cause irreparable damage to the human body in other ways. They have been known to cause such behavioural changes as Psychosis, mania, homicide, impaired judgement, impulsive and anti-social behaviour. Some even cause coma and eventually death.

The first international attempt to study the effects of drugs<sup>302</sup> on human body was launched with the establishment of the Opium Commission in Shanghai in 1909. For years the world slept over the issue and nearly abandoned it. In 1961 once again, the UN held its first convention on drugs but the control over their sale began to be applied only in 1971 when the UN held its convention on Psychotropic substances. In their 1988 convention for the first time, the UN addressed the question of drug trafficking. Up until then, drugs were extracted from plants (For example cocaine from coca plant, Opium from poppies) but from that year onwards, most drugs of abuse began to be mass-produced by synthesising various chemicals. Their harmful effects; included elevated blood pressure, violent and aggressive behaviour, impaired judgement, paranoia, sensory distortion,

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<sup>302</sup> The most common drugs used today are Cannabis (also Marijuana or Hashish), LSD, amphetamines, cocaine, morphine, opium, and codeine. New synthetic drugs are being produced day after day and peddled to gullible school children. Some of them are definite death warrants.

visual hallucinations, depression, neurological disorders and even death.<sup>303</sup>

The use of all kinds of intoxicants and drugs is forbidden for the Sikhs.<sup>304</sup>

### (c) Alcoholism

The use of alcohol is still very common in the world but doctors and nutritionists agree that it causes cirrhosis, impaired cognition and motor dysfunction. According to Nigel Hughes, the chief executive of British Liver Trust, our liver is a very vital organ in our body. It is involved in metabolism and re-circulates blood in the body after removing toxins and useless by-products. Although it continuously repairs itself (through a process called fibrosis- thickening of connective tissue damage), it can be damaged beyond repair through continuous and too much drinking which leads to cirrhosis. Once cirrhosis has occurred, the damage is irreversible. The Sikh Guru pointed to this fact when he wrote, “Those who have cirrhosis within — they alone know the pain it causes.”(AGGS p. 311)<sup>305</sup>

The Sikh Gurus wrote, “The fools drink wine and their evil-mindedness leads them to the prostitutes. True inebriation

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<sup>303</sup> Drugs of abuse like LSD etc and most of the Psychotropic formulations available today were not available in the time of Guru Gobind Singh but his general orders ban all intoxicants by inference.

<sup>304</sup> See Sikh Rehat Maryada SGPC Amritsar English edition 1978 page 22

<sup>305</sup> ਜਿਨਾ ਅੰਦਰਿ ਉਮਰਥਲ ਸੋਈ ਜਾਣਨਿ ਸੁਲੀਆ (ਪੰਨਾ ੩੧੧) ‘ਉਮਰਥਲ’ means cirrhosis (See Mahan Kosh p. 16) ਉਮਰਥਲ is caused through excessive drinking and is very painful. The habit of consistent drinking causes fat to get deposited in the liver. This causes the liver to develop alcoholic hepatitis or cirrhosis leading to discomfort, nausea and pain in the abdomen. In some extreme cases it leads to death. The damaged liver tries to repair itself and re-grow to its original size and shape. If the inflammation is severe and continuous, it causes ‘scar tissue’ called *fibrosis*. Irregular nodules replace smooth tissue. The combination of nodules and fibrosis is called cirrhosis, which is very painful. The Cancer research U.K. conducted a research in 50 countries of the world. On 12.11.2002 they reported that alcohol counts for 4% of breast cancers in the developed world and around 2000 cases each year in U.K.

comes only through remembering the Lord.”<sup>306</sup> “One person brings a full bottle, and another comes to fill his cup. Drinking it, his intelligence departs, and madness enters his mind. He cannot distinguish between his own and others’ — he is struck down by his Lord and Master. Drinking it, he forgets his Lord and Master, and he is punished in the court of the Lord. Don’t drink the false wine at all, if it is in your power. O Nanak, by His Grace, one obtains the true wine, when the True Guru comes and meets him. He shall dwell forever in the Love of the Lord and Master, and obtain a seat in the mansion of His Presence.” (AGGS p. 554)<sup>307</sup>

#### (d) Smoking

Mr. A.C Selmon in his book, ‘*Health and longevity*,’ proves that alcohol and tobacco<sup>308</sup> injure respiratory organs. His findings have now been confirmed and smoking has been banned in public places in many countries. Modern biologists and medical men have amply substantiated the efficacy and correctness of the instructions issued to the Sikhs by their 10<sup>th</sup> Guru about smoking and drug addiction. It has been proved that tobacco contains nicotine “Nicotine acts like a stimulant in small doses but in large doses it has paralysing effects” (*The habit of smoking* by Dr. W. Koskowski). The medical journal *Lancet*

<sup>306</sup> “ਦੁਰਮਤਿ ਮਦੁ ਜੋ ਪੀਵਤੋ ਬਿਖਲੀ ਪਤਿ ਕਮਲੀ ॥ ਰਾਮ ਰਸਾਇਣਿ ਜੋ ਰਤੋ ਨਾਨਕ ਸਚ ਅਮਲੀ” (ਪੰਨਾ ੩੯੯)

<sup>307</sup> ਮਾਣਸੁ ਭਰਿਆ ਆਣਿਆ ਮਾਣਸੁ ਭਰਿਆ ਆਇ ॥ ਜਿਤੁ ਪੀਤੋ ਮਤਿ ਦੂਰਿ ਹੋਇ ਬਰਲੁ ਪਵੈ ਵਿਚਿ ਆਇ ॥ ਆਪਣਾ ਪਰਾਇਆ ਨ ਪਛਾਣਈ ਖਸਮਹੁ ਧਕੇ ਖਾਇ ॥ ਜਿਤੁ ਪੀਤੋ ਖਸਮੁ ਵਿਸਰੈ ਦਰਗਹ ਮਿਲੈ ਸਜਾਇ ॥ ਝੁਠਾ ਮਦੁ ਮੂਲਿ ਨ ਪੀਚਈ ਜੋ ਕਾ ਪਾਰਿ ਵਸਾਇ ॥ ਨਾਨਕ ਨਦਰੀ ਸਚੁ ਮਦੁ ਪਾਈਐ ਸਤਿਗੁਰੁ ਮਿਲੈ ਜਿਸੁ ਆਇ ॥ ਸਦਾ ਸਾਹਿਬ ਕੈ ਰੰਗਿ ਰਹੈ ਮਹਲੀ ਪਾਵੈ ਥਾਉ” (ਪੰਨਾ ੫੫੪) ਹੋਛਾ ਮਦੁ ਚਾਖਿ ਹੋਏ ਤੁਮ ਬਾਵਰ ਦੁਲਭ ਜਨਮ ਅਕਾਰਥ (ਪੰਨਾ ੧੦੦੧). By tasting the useles, insipid wine, you have gone insane. You have simply wasted this precious time of human life.

<sup>308</sup> Apart from Sikhs and Parsee monks in Korea and Tibbet, Tsai-li sect of China and Ethiopian Christians also prohibit smoking. The Mehdīs of Sudan and the Wahabīs of Arabia consider smoking as incompatible with Islam. In 1604 King James I of England condemned it as “Loathsome to the eye, hateful to the nose, harmful to the brain and dangerous to the lungs. In 1642 Pope Urban 8th prohibited its use in the churches. Efforts are now afoot throughout the world to ban its production, sale, transport and use in any form. According to the World Health Organisation report 1999 released by Dr. Gro Harlem Brundtland, the Director General of WHO, 3.5 million people die of tobacco use every year. According to WHO tobacco-related illness will be the world’s leading killer by 2020. For more information read their report and their booklet “Leave the pack behind.”

wrote, “We most earnestly desire to see the habit of smoking diminished and we entreat the youth of this country to abandon it altogether.” It is now widely known that smoking causes cancer but unfortunately it is still being glamourised by the tobacco advertising agencies as a sign of maturity.

Preaching against smoking Guru Tegh Bahadur is said to have addressed the Sikhs at Barna (Karnal- Haryana) and said, “Save the people from the vile drug. When they abandon the degrading smoke, their prosperity shall greatly increase.”<sup>309</sup> Recognising the importance of the Guru’s instructions to the Sikhs Mahatma Gandhi wrote, “Faith in Guru Gobind Singh’s injunction is the only remedy to get rid of this unclean, unhygienic, anti-social and morally indefensible habit of smoking” (*My experiments with Truth* Mahatma Gandhi, 1940)

In the field of Physiology, the idea of prohibition of drugs, tobacco and liquor to the Sikhs finds full support in the modern scientific research on the subject.

#### (e) Fasting

Fasting is a feature of many religions<sup>310</sup>. It is considered very efficacious and meritorious in deserving God’s grace. It is believed that it cleanses the devotee of sins. According to Sikhism fasting may bring some benefits to health but there is no spiritual merit in fasting. The Guru says, “One who discards food for spiritual benefit, is practising hypocrisy”<sup>311</sup>

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<sup>309</sup> “ਜਬ ਲਗ ਕੌੜਾ ਧੂਮ ਨ ਪੀਓ, ਤਬ ਲਗ ਸਤਿਗੁਰ ਸਭ ਕੁਛ ਦੀਓ” (ਗੁਰਪਰਤਾਪ ਉਦੈ )

<sup>310</sup> Muslims fast for 40 days in Ramzan and the Hindus have many *Varats (fasts)* In Hinduism fasting on *Shivratri* is considered to make a person immortal. Jains observe fast for 8 days. This period of eight days is called *Shamshri*. Sins are believed to be obliterated after these fasts.

<sup>311</sup> ਛੋਡਹਿ ਅੰਨੁ ਕਰਹਿ ਪਾਖੰਡ (ਪੰਨਾ ੮੭੩) ਅੰਨੁ ਨ ਖਾਇਆ ਸਾਦੁ ਗਵਾਇਆ (ਪੰਨਾ ੪੬੭) ਅੰਨੁ ਨ ਖਾਹਿ ਦੇਹੀ ਦੁਖੁ ਦੀਜੈ (ਪੰਨਾ ੯੦੫) ਅੰਨੈ ਬਿਨਾ ਨ ਹੋਇ ਸੁਕਾਲੁ (ਪੰਨਾ ੮੭੩)

## 9.8 Power and prestige

In the world today, self-respect, social status and political recognition are tied up solely with the accumulation of wealth. This is creating business magnates on one side and paupers on the other. Technologically advanced countries are not bridging this gap but widening it, by further exploiting the helplessness of the poor countries.

In his book, *The Art of living* Psychologist Erich Fromm writes, “Not he who has much is rich but he who gives much. The hoarder, who is anxiously worried about losing something, is, psychologically speaking a poor, impoverished man, regardless of how much he has.” This only confirms what Guru Nanak had said 500 years earlier when he wrote, “Earn through honest hard work and share your earnings with the needy. This is the way to virtuous living.”<sup>312</sup>(AGGS p.1245) Too much wealth creates ego and superiority complex. It leads one to unbridled ambitions resulting in moral decay. The history of mankind vindicates that prosperity and affluence without spiritual base lead to moral haemorrhage.

Sikhism discourages too much accumulation of wealth without putting aside a reasonable share for the needy and the less fortunate members of society. Excess of wealth, without holiness, makes human beings devils. The Guru said, “Why are you puffing yourself up with pride having acquired material possessions? You may have acquired a few bushels of grain and earned a few coins but that should not make you deviate from social responsibility. You may have been gifted with a hundred or so villages yielding hundreds of thousands of pounds. Believe me your opulence is only a nine-day’s wonder. All this will vanish like dry leaves of the trees which fall off at the onset of autumn.”

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<sup>312</sup> “ਆਲਿ ਖਾਇ ਕਿਛੁ ਹਬਹੁ ਦੇਇ ਨਾਨਕ ਰਾਹੁ ਪਛਾਣੇ ਸੇ” (ਪੰਨਾ ੧੨੪੫). The Sikhs are instructed to give away at least one tenth of their earnings in charity. This is called *Daswandh*.

(AGGS P. 1604)<sup>313</sup>

The Guru says, “Happiness does not come from wealth, position or power nor does it lie in entertainments”

(AGGS p. 1147)<sup>314</sup>

## 9.9 Education

The word ‘education’ is derived from the word ‘educer’ which means ‘to bring out’. The aim of education, therefore, is to bring out the best in human mind. According to Sikhism, human mind is the seat of the divine and when it is piously stimulated, it provides its best for humanity. The Guru says, “O my mind, you are the light of the Divine. Recognize your true self.”(AGGS p.441)<sup>315</sup>

Our educational practices today are geared towards materialistic considerations. Certificates and degrees are looked upon as passports to lucrative jobs and luxurious living. This has simply produced terrible instruments of exploitation and spiritual degradation. Material possessions may provide a little physical comfort but they most often impoverish the mind and lead to depression, despair, psychosis and eventually suicide. Sikhism provides the answer. Sikhism preaches that our education must make us rationalists, charitable, humble, and free from greed, ego and undue accumulation of wealth.

Sikhism places great value on education and expects every member of the society to be well educated. The Guru says, “Some knowledge is absolutely necessary to condition the mind” (AGGS p.340)<sup>316</sup> Although Sikhism advocates research based education

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<sup>313</sup> “ਕਹਾ ਨਰ ਗਰਬਸਿ ਬੋਰੀ ਬਾਤ॥ ਮਨ ਦਸ ਨਾਜੁ ਟਕਾ ਚਾਰਿ ਗਾਂਠੀ ਅਡੋ ਟੇਢੇ ਜਾਤੁ ॥ ਰਹਾਉ॥ ਬਹੁਤ ਪ੍ਰਤਾਪੁ ਗਾਉ ਸਉ ਪਾਏ ਦੁਇ ਲਖ ਟਕਾ ਬਰਾਤ ॥ ਦਿਵਸ ਚਾਰਿ ਕੀ ਕਰਹੁ ਸਾਹਿਬੀ ਜੈਸੇ ਬਨ ਹਰ ਪਾਤ” (ਪੰਨਾ ੧੬੦੩)

<sup>314</sup> ਸੁਖੁ ਨਾਹੀ ਬਹੁਤੈ ਧਨਿ ਖਾਟੇ॥ ਸੁਖੁ ਨਾਹੀ ਪੇਖੇ ਨਿਰਤਿ ਨਾਟੇ (ਪੰਨਾ ੧੧੪੭)

<sup>315</sup> ਮਨ ਤੂੰ ਜੋਤਿ ਸਰੂਪੁ ਹੈ ਆਪਣਾ ਮੂਲੁ ਪਛਾਣੁ (ਪੰਨਾ ੪੪੧)

<sup>316</sup> ਮਨ ਸਮਝਾਵਨ ਕਾਰਨੇ ਕਛੁਅਕ ਪਤੀਐ ਗਿਆਨ (ਪੰਨਾ ੩੪੦) ਜਹ ਗਿਆਨ ਪ੍ਰਗਾਸੁ ਅਗਿਆਨੁ ਮਿਟੰਤ (ਪੰਨਾ ੭੯੧)

(AGGS p.285)<sup>317</sup> it acknowledges that science alone is not sufficient. “One can not be emancipated though knowledge of science alone.”(AGGS p.903)<sup>318</sup> Says the Guru. “A truly educated person should be able to understand the purpose of life,” (AGGS p.343)<sup>319</sup> “desist from degrading others as inferior” (AGGS p. 473)<sup>320</sup> and “as long as he lives in the world he must go on acquiring knowledge.”(AGGS p.461)<sup>321</sup> The sole aim of education should be ‘service.’ The Guru says, “The essence of wisdom lies in the service of humanity.”(AGGS p.356)<sup>322</sup>

As for the teacher, Sikhism says that a teacher must be well educated and practical. A truly educated person would be a “fool if he indulges in ego, greed and meanness.”(AGGS p.140)<sup>323</sup> “The teacher is truly educated only if he practises his education in a state of poise” (AGGS P. 937)<sup>324</sup>. He should be the example of an ideal person for his students.

“The Sikhs keep on the track by learning daily through contemplation on the Guru’s Philosophy” (AGGS p.1604)<sup>325</sup>

## 9.10 History & religion

History interacts with society and is thus an important part of human experience but when history becomes an inalienable part of religion, it places enormous strain on humanity because it imposes mannerisms, which have long since outlived their utility. Sikhism is not immersed in history as for example Judaism, Christianity and Islam. References to ancient historical events form a large part of their scriptures. For example the custom of

<sup>317</sup> ਬੂਝੈ ਬੁਝਨਹਾਰ ਬਿਬੇਕ (ਪੰਨਾ ੨੮੫). Only discriminating intellect can understand the reality.

<sup>318</sup> ਮੁਕਤਿ ਨਹੀ ਬਿਦਿਆ ਬਿਗਿਆਨਿ (ਪੰਨਾ ੯੦੩)

<sup>319</sup> ਗਿਆਨਵੰਤ ਕਉ ਤਤੁ ਬੀਚਾਰ (ਪੰਨਾ ੩੪੩)

<sup>320</sup> ਸੰਦਾ ਕਿਸੈ ਨ ਆਖੀਐ ਪਤਿ ਅਖਰੁ ਏਹੋ ਬੁਝੀਐ (ਪੰਨਾ ੪੭੩)

<sup>321</sup> “ਜਬ ਲਗੁ ਦੁਨੀਆ ਰਹੀਐ ਨਾਨਕ ਕਿਛੁ ਸੁਣੀਐ ਕਿਛੁ ਕਹੀਐ (ਪੰਨਾ ੬੬੧)

<sup>322</sup> ਵਿਦਿਆ ਵੀਚਾਰੀ ਤਾਂ ਪਰਉਪਕਾਰੀ (ਪੰਨਾ ੩੫੬)

<sup>323</sup> ਪਤਿਆ ਮੂਰਖੁ ਆਖੀਐ ਜਿਸੁ ਲਬੁ ਲੋਭੁ ਅਹੰਕਾਰਾ (ਪੰਨਾ ੧੪੦)

<sup>324</sup> ਪਾਧਾ ਪਤਿਆ ਆਖੀਐ ਬਿਦਿਆ ਬਿਚਰੈ ਸਹਿਜੁ ਸੁਭਾਇ (ਪੰਨਾ ੯੩੭)

<sup>325</sup> “ਸਿਖੀ ਸਿਖਿਆ ਗੁਰ ਵੀਚਾਰਿ (ਪੰਨਾ ੪੬੫)

sacrifice is based on the story of Abraham's dream, which happened centuries ago. The Sikhs do value their history but their religion is not based on history or parables of the Gurus but on what Guru Granth Sahib says. Again Sikhism does not believe that at some time long ago God had a son who spoke to people, angels came and conveyed a message to a person, Satan beguiled the humans making them sinners or that a historical personality would come to this world again and again.

The Jews must follow *Halaka* (the rules by which one walks) and the Muslims must follow *Sunna* (mannerisms of the prophet). The Sikhs only follow the instructions, which their Guru left for them, in the Holy Granth. They are instructed to "follow the general directions given by the Guru through his word rather than blindly copy the Guru's actions."<sup>326</sup>

The following three main principles guide the Sikhs:

- (1) Remembering God and acting in His name.  
"Remember the pure name of Lord my friend and discard the filth of your ego." (AGGS P. 262)<sup>327</sup>
- (2) Engaging in voluntary social service and pious deeds.  
"One must be unselfish in one's deeds" (AGGS p. 274)<sup>328</sup>
- (3) Acquiring knowledge all through life.  
"Everything is clear to one whose eyes are blessed with the ointment of spiritual wisdom" (AGGS p. 610)<sup>329</sup>

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<sup>326</sup> ਗੁਰਿ ਕਹਿਆ ਸਾ ਕਾਰ ਕਮਾਵਹੁ ॥ ਸਬਦੁ ਚੀਨਿ ਸਹਜ ਘਰਿ ਆਵਹੁ (ਪੰਨਾ ੮੩੨) ਗੁਰਿ ਕਹਿਆ ਸਾ ਕਾਰ ਕਮਾਵਹੁ ॥ ਗੁਰ ਕੀ ਕਰਣੀ ਕਾਹੇ ਧਾਵਹੁ (ਪੰਨਾ ੯੩੩) ਜੋ ਗੁਰੁ ਕਹੈ ਸੋਈ ਭਲ ਮਾਨਹੁ (ਪੰਨਾ ੬੬੭)

<sup>327</sup> ਸਿਮਰਹੁ ਰਾਮ ਨਾਮੁ ਅਤਿ ਨਿਰਮਲੁ ਅਵਰ ਤਿਆਗਹੁ ਹਉਮੈ ਕਉਰਾ (ਪੰਨਾ ੪੧੫)

<sup>328</sup> ਕਰਮ ਕਰਤ ਹੋਵੈ ਨਿਹਕਰਮ (ਪੰਨਾ ੨੭੪)

<sup>329</sup> ਗਿਆਨ ਅੰਜਨੁ ਜਾ ਕੀ ਨੇਤ੍ਰੀ ਪੜਿਆ ਤਾ ਕਉ ਸਰਬ ਪ੍ਰਗਾਸਾ (ਪੰਨਾ ੬੧੦)

## 9.11 Law

**“Law does not change the heart, it only restrains the heartless”** (Martin Luther King)

Some religions delve into law and stipulate very severe punishments for small anti-social acts like pilfering<sup>330</sup> etc. Sikhism leaves the law to secular governments because the social ethics of man differs with change of time, place and civilization. The Sikhs would find no difficulty in obeying the law of any country as long as it does not interfere in their faith and is egalitarian in character. Sikhism believes that evil exists in our mind. The solution therefore lies not in legal remedies or capital punishment but in reforming the mind. The Guru says, “If you conquer the mind, you conquer the world.”<sup>331</sup>

## 9.12 War and Peace

**“It is mere illusion and pretty sentiment to expect much (even anything at all) from mankind if it forgets how to make war”**

(Nietzsche quoted in *The Outline of history* H.G.Wells p. 1005)

Although man is the creator of science and technology and all that we call culture and civilisation; he is also today acting as the destroyer of his own creation. The biggest problem that faces the world today is the looming destruction from the stockpiles of nuclear, biological and chemical weapons stored by many nations.<sup>332</sup> It is weapons like these that prompt the nations to enter into power block politics and alliances. Such alliances formed by world leaders only aggravate the situation because they are based on the premise, “My friend, right or wrong, is my friend.” Justice is quite often thrown to the winds and expediency dictates the

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<sup>330</sup> In Islam the penalty for theft is cutting the hand of the thief.

<sup>331</sup> “ਮਨੁ ਜੀਤੇ ਜਗੁ ਜੀਤਿਆ” (ਪੰਨਾ 1103)

<sup>332</sup> The First World War killed 37,000,000 soldiers and 5,000,000 civilians. The Second World War killed 22,000,000 soldiers and wounded 34,000,000. In addition thousands died of food shortages and diseases caused by war pollution. “The machine as an object of adoration is the modern diabolism” (Bertrand Russell *Impact of Science on Society* p.77)

policies. Political machinations have disturbed the hornet's nest of hatred and awakened the sleeping ogre of religious fundamentalism.

Perhaps the Guru foresaw the tendencies of modern politics. He mentions the egoistic tendencies of politicians when he says, "Some are proud that their thunder has a bite, others are puffed because they are wealthy." (AGGS p.1071).<sup>333</sup> "Some form alliances with powerful friends, sons and relatives. Some form alliances with in-laws and influential relations. Some form alliances with chiefs and leaders for their own selfish motives. My alliance is with the Lord of Justice (Truth), who is pervading everywhere. Those, with whom you form alliances, shall perish. Making false alliances, the mortals repent and regret in the end. Those who practise falsehood shall not last." (AGGS p. 366).<sup>334</sup>

The Guru depicted the image of the leaders of his time in the words, which can easily be applied to our political leaders today. He wrote, "By telling lies, they eat carrion. And yet, they go out to teach others. They are deceived, and they deceive their companions. O Nanak, such are the leaders of men (AGGS p. 139-140).<sup>335</sup> The Guru further says, "Their turbans are crooked, and they walk crookedly. They chew betel leaves and say that they don't find time for worship. They brag and say 'I wield judicial authority.' (AGGS p.1124)<sup>336</sup> It is not difficult to come across such leaders today who are law unto themselves. They would heartily support law enforcement but react resentfully if an

<sup>333</sup> ਕਿਸ ਹੀ ਜੋਰੁ ਅਹੰਕਾਰ ਬੋਲਣ ਕਾ ॥ ਕਿਸ ਹੀ ਜੋਰੁ ਦੀਬਾਨ ਮਾਇਆ ਕਾ (੧੦੭੧) "ਰਾਜ ਭੂਪ ਰਾਜੇ ਵੱਡੇ ਮਲ ਦੇਸ ਲੜਦੇ ॥ ਮੁਲਕ ਅੰਦਰਿ ਪਾਤਿਸਾਹ ਜਾਇ ਜੰਗ ਜੁੜਦੇ ॥ ਹਉਮੈ ਕਰਿ ਹੰਕਾਰ ਲਖ ਮਲ ਮਲ ਘੁਲੰਦੇ ॥ ਭਾਈ ਗੁਰਦਾਸ ਵਾਰ ੩੮.੬ Bhai Gurdas was a devoted Sikh of the fifth Sikh Guru. He wrote a lot on Sikhism and was instrumental in scribing the Sikh Holy Granth.

<sup>334</sup> ਕਿਸ ਹੀ ਧੜਾ ਕੀਆ ਮਿਤ੍ਰ ਸੁਤ ਨਾਲਿ ਭਾਈ ॥ ਕਿਸ ਹੀ ਧੜਾ ਕੀਆ ਕੁਤਮ ਸਕੇ ਨਾਲਿ ਜਵਾਈ ॥ ਕਿਸ ਹੀ ਧੜਾ ਕੀਆ ਸਿਕਦਾਰ ਚਉਧਰੀ ਨਾਲਿ ਆਪਣੈ ਸੁਆਈ ॥ ਹਮਾਰਾ ਧੜਾ ਹਰਿ ਰਹਿਆ ਸਮਾਈ .....ਜਿਨ੍ਹ ਸਿਉ ਧੜੇ ਕਰਹਿ ਸੇ ਜਾਹਿ ॥ ਬੁਠ ਧੜੇ ਕਰਿ ਪਛੋਤਾਹਿ ॥ ਬਿਰੁ ਨ ਰਹਹਿ ਮਨਿ ਖੋਟੁ ਕਮਾਹਿ (ਪੰਨਾ ੩੬੬) ਮਿਥਿਆ ਦੂਜਾ ਭਾਉ ਧੜੇ ਬਹਿ ਪਾਵੈ (ਪੰਨਾ ੩੬੬)

<sup>335</sup> ਕੂੜੁ ਬੋਲਿ ਮੁਰਦਾਰੁ ਖਾਇ ਅਵਰੀ ਨੋ ਸਮਝਾਵਣਿ ਜਾਇ ॥ ਮੁਠਾ ਆਪਿ ਮੁਹਾਏ ਸਾਥੈ ॥ ਨਾਨਕ ਐਸਾ ਆਗੂ ਜਾਪੈ (ਪੰਨਾ ੧੩੯-੪੦)

<sup>336</sup> ਟੇਢੀ ਪਾਗ ਟੇਢੇ ਚਲੇ ਲਾਗੇ ਬੀਰੇ ਖਾਨ ॥ ਭਾਉ ਭਗਤਿ ਸਿਉ ਕਾਜੁ ਨ ਕਛੁਐ ਮੇਰੇ ਕਾਮੁ ਦੀਵਾਨ (ਪੰਨਾ ੧੧੨੪)

honest police man cautions their son or daughter for an offence. It is a common belief that leaders themselves create most of the rioting, hatred, crime, hypocrisy, dishonesty and immorality we see today. The Gurus words said more than five hundred years ago are true even today. He said, “Every beggar aspires to be a ruler. Every blockhead sets up as a philosopher. The blind are considered as connoisseurs of gems. The hypocrite sets up as a spiritual leader. And thus falsehood has supplanted the Truth” (AGGS p.1288)<sup>337</sup>

The alliances and factional rivalries have only divided the world and blurred our concept of a just and egalitarian society. World peace is possible only through the eradication of social injustice and political exploitation.

“War is not man’s great and terrible disease; war is a symptom, a result. The real disease is the virus of national sovereignty” (*The Urantia Book 1491.1*).

Wars are a disease of the mind. According to Schopenhauer “The greatest of all wonders is not the conqueror of the world but the conqueror of self” (cited in *SVD* p. 93). This is also the view of Sikhism when the Guru says, “Conquer your mind and you conquer the world”<sup>338</sup>

Sikhism preaches that peace should be the aspiration of every member of the Society but one must always be ready to defend one’s basic human rights. This idea is now enshrined in the preamble of the constitution of UNESCO as follows, “Since wars begin in the minds of men, it is in the minds of men that defences of peace must be constructed.”

## 9.13 Ecology

Ecology (from Greek *oikos* meaning house and *Logos*

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<sup>337</sup> ਨਾਉ ਫਕੀਰੋ ਪਾਤਿਸਾਹੁ ਮੁਰਖ ਪੰਡਿਤੁ ਨਾਉ ॥ ਅੰਧੇ ਕਾ ਨਾਉ ਪਾਰਖੂ ਏਵੈ ਕਰੇ ਗੁਆਉ ॥ ਇਲਤਿ ਕਾ ਨਾਉ ਚਉਧਰੀ ਕੂੜੀ ਪੂਰੇ ਬਾਉ (ਪੰਨਾ ੧੨੮੮)

<sup>338</sup> ਮਨਿ ਜੀਤੈ ਜਗੁ ਜੀਤੁ (ਪੰਨਾ ੬) ਮਨੁ ਜੀਤੈ ਜਗੁ ਜੀਤਿਆ ਜਾਂ ਤੇ ਬਿਖਿਆ ਤੇ ਹੋਇ ਉਦਾਸੁ (ਪੰਨਾ ੧੧੦੩)

meaning study) is a term which was coined by Ernst Haeckle in 1869. It is the science of the interaction of living organisms with their environment. Care for ecology and the conservation of natural resources has attracted world attention only recently. It is now common knowledge that destruction of trees and indiscriminate use of fossil fuels is poisoning our atmosphere and is causing the greenhouse effect, leading to global warming and harmful changes in our stratosphere.<sup>339</sup> Man is now seriously seeking remedies against a pending man-made disaster, which has more or less become a certainty. The world leaders held a conference of 180 world representatives at The Hague in the year 2001 to discuss the issue.<sup>340</sup>

In the fifteenth and sixteenth centuries these problems were not as acute as they are today and were not the cause of any international concern. However even at that early age the Sikh Gurus recognised the human responsibility towards conservation and restoration of the Eco-system. They impressed upon humans the necessity of studying and respecting Nature. Guru Nanak, the founder of Sikh religion advised humans to always remain in tune with Nature. He said, “Air is the breath of spiritual life (Guru), the water like our father is the cause of our being and the earth acts as a mother for us.”<sup>341</sup> Humans are polluting air by burning coal,

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<sup>339</sup> All vegetation breathes gases from the air to survive. Pollutants found in smog clog the stomata of the plants by reducing the amount of light reaching them. It increases production of ozone, which in turn damages the palisades (thin walls of the cells) of the plants. Fluorides cause leaf tissue to collapse and nitrous oxides and sulphur emitted by the burning of fossil fuels destroys the vegetation through acid rain and inhibits the production of enzymes. By eating the polluted plants, the animals are developing numerous diseases. For example female pseudo-hermaphrodite polar bears, panthers with atrophied testicles and Trout with growing eggs in the testes, have been discovered. Bio accumulative chemicals build up in animal tissue and through their meat pass on to the humans. Artificial manures and brominated flame-retardants get washed into our oceans and affect marine life. Andreas Kortenkamp, a toxicologist at the University of London says, “I firmly believe there are warning signs and if we wanted to we could act on them now.”

<sup>340</sup> The first inconclusive discussion on the issue was held in 1992. A conference was held in Johannesburg (26 to 31 August 2002) once again to address world poverty and environment issues. Generally broad goals are discussed and neat achievable targets escape discussion due to world politics. U.N.O observed 5.6.2003 as environment day but it was no more than an academic exercise.

<sup>341</sup> ਪਵਣੁ ਗੁਰੂ ਪਾਣੀ ਪਿਤਾ ਮਾਤਾ ਧਰਤੀ ਮਹਤੁ (ਪੰਨਾ ੯) Bhai Gurdas explains the concept of “Air Guru” as follows. “ਪਉਣ ਗੁਰੁ ਗੁਰ ਸਬਦ ਹੈ ਵਾਹਿਗੁਰੁ ਗੁਰ ਮੰਤੁ ਸੁਣਾਇਆ”

oil, gas and other fossil fuels<sup>342</sup> and polluting water and earth by chemical spills, untreated sewage, industrial wastes, landfills, septic tanks, chemical fertilisers and garbage dumping. Devastating actions like these have already resulted in shrinking the world's fourth largest sea of Russia (Aral Sea). Mono Lake in California is currently suffering the same fate

It was to prevent such disasters that, the Sikh Gurus stated, “The fortress of the body is created out of air, water and warmth (from vegetation)”<sup>343</sup> which we should use sparingly and wisely. The Sikh Gurus saw God through nature and environment. Bhai Gurdas explains the Guru's philosophy when he writes, “Nobody has seen God. He only manifests Himself through His created nature”<sup>344</sup>. God manifests Himself through Nature but man has ignored God by putting nature out of mind.<sup>345</sup> The Sikh opinion is, “In all the ten directions, the resplendent Lord manifests Himself through greenery and foliage. Equipoise through moderation is the best sweet reward.”(AGGS P. 1109)<sup>346</sup>

“He Himself is the Essence of the forests and fields, and all the three worlds. The universe is strung on His Thread”. (AGGS p.1150)<sup>347</sup>

Scientists have also discovered that noise causes pollution. Modern traffic, aeroplanes, industry, commercial enterprises and even the noises from our loudspeakers, TVs and human voices

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<sup>342</sup> This has resulted in acid rain, which has destroyed large parts of forests in Scandinavia, America and Germany. Landfills and pesticides leak out toxic chemicals into the nearby potable surface water and cause numerous health problems. Fear of leaks from nuclear wastes adds to the problems further. Destruction of forests is leading to soil erosion. It was to save the environment that Guru Nanak said, “The earth is your mother”(ਮਾਤਾ ਧਰਤ ਮਹਤ). Respect for ‘mother earth’ is the only solution to these problems.

<sup>343</sup> “ਪਾਉਣ ਪਾਣੀ ਅਗਨੀ ਕਾ ਬੰਧਨ, ਕਾਇਆਂ ਕੋਟ ਰਚਾਇੰਦਾ” (ਪੰਨਾ 1036)

<sup>344</sup> “ਕਾਦਰੁ ਕਿਨੇ ਨਾ ਲਖਿਆ, ਕੁਦਰਤਿ ਸਾਜਿ ਕੀਆ ਅਵਤਾਰਾ”(ਭਾਈ ਗੁਰਦਾਸ ਵਾਰ 1.4-3)

<sup>345</sup> “ਕਾਦਰੁ ਮਨਹੁ ਵਿਸਾਰਿਆ, ਕੁਦਰਤਿ ਅੰਦਰ ਕਾਦਰੁ ਵਸੈ”(ਭ.ਗੁ ਵਾਰ 37.14) ਵਣਿ ਤ੍ਰਿਣਿ ਤ੍ਰਿਭਵਣਿ ਪੂਰਨ ਗੋਪਾਲ (ਪੰਨਾ ੧੯੯) ਵਣੁ ਤਿਣੁ ਪ੍ਰਭ ਸੰਗਿ ਮਉਲਿਆ ਸੰਮੁਥ ਪੁਰਖ ਅਪਾਰੁ (ਪੰਨਾ ੧੩੪)

<sup>346</sup> “ਦਹ ਦਿਸਿ ਸਾਖ ਹਰੀ ਹਰਿਆਵਲ, ਸਹਿਜ ਪਕੈ ਸੋ ਮੀਨਾ (ਪੰਨਾ ੧੧੦੯)

<sup>347</sup> ਆਪੇ ਵਣੁ ਤ੍ਰਿਣੁ ਤ੍ਰਿਭਵਣ ਸਾਰੁ ॥ ਜਾ ਕੈ ਸੂਤਿ ਪਰੋਇਆ ਸੰਸਾਰੁ (ਪੰਨਾ ੧੧੫੦)

cause behavioural and chemical changes in the human body. The Sikh Gurus advised against such pollution by saying, “The more noise you make the more you suffer” (AGGS P. 870) and “To speak too much and babble is a useless waste of energy” (AGGS p. 661).<sup>348</sup>

We humans are the most developed form of life on earth and as such we must act wisely and responsibly, to maintain and further develop our evolutionary process. By polluting air and water, and by destroying vegetation indiscriminately, we are inflicting terrible punishment on life and the future of our planet. We can do so only at our peril.

Flora and Fauna have a relationship, which must be respected. Fauna churn out carbon dioxide and the Flora convert it into Oxygen. It is this mutual universal cooperation that maintains the correct proportion of gases in the atmosphere. “God manifests Himself through His creation. He is present in the nature around us,” says Bhai Nand Lal.<sup>349</sup>

“There is no such thing as a solitary organism. The activities of plants and animals and man are interrelated in a vast and complicated system of life which has superficially the appearance of being in a state of balance, yet which is below the surface seething with perpetual disturbances and readjustments.” G.N.Ridley in *The verdict of science*)

## 9.14 Democracy

**“Democracy is the aristocracy of scoundrels”** (Lord Byron)

Ideas of democracy well up naturally and spiritually in wide-awake individuals. Sikhism aspires to achieve democracy

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<sup>348</sup> ਬੋਲਤ ਬੋਲਤ ਬਦਹਿ ਬਿਕਾਰਾ (ਪੰਨਾ ੮੭●) “ਬਹੁਤਾ ਬੋਲਣੁ ਝਕਣੁ ਹੋਇ (ਪੰਨਾ ੬੬੧)

<sup>349</sup> “ਕਾਦਰੇ ਮੁਤਲਕ ਬ ਕੁਦਰਤ ਜਾਹਰ ਅਸਤ, ਦਰਮਿਆਨੇ ਕੁਦਰਤੇ ਖੁਦ ਕਾਦਰ ਅਸਤ” (ਭਾਈ ਨੰਦ ਲਾਲ ਕੁਲੀਆਤ ੨੯●)

Bhai Nand Lal was a poet laureate of Guru Gobind Singh, the 10th Guru of the Sikhs. His exposition of Sikhism is considered authentic.

not through saleable votes, empty slogans and blind representation but through moral conviction and leisurely persuasion. Only democracy thus created has any chance of success in the world today. The Guru explains, “The person in authority should occupy his position only if he has the requisite qualities. He should act under the direction of *Panches* (truthful and God-fearing advisers).<sup>350</sup> (AGGS p. 992)

H.L. Mencken is of the view that in the modern day democracy “a good politician is quite as unthinkable as an honest burglar.”<sup>351</sup> In some countries, like India, democracy is failing today because people look towards the sky and they are pick-pocketed. They expect basic good behaviour but the corrupt politician keeps lining his own pockets and delivers next to nothing. The wealthy politicians throw a few crumbs to the needy, purchase the votes and always rule. This type of democracy is spurious and is a contradiction in terms. It was about democracy of this type that Lord Byron said, “Democracy is the aristocracy of scoundrels.”

Democracy can be successful only if the people and especially leaders are sufficiently educated, honest, just egalitarian and God-fearing in approach and are truly spiritual in personal life and truly secular in public life (*Panch*). The modern trend towards democracy would have been acceptable to the Sikh Gurus, only if it was run by the *Panches* as defined by the Sikh Gurus.<sup>352</sup> The Guru said, “Only *Panches* are acceptable, only they are honourable and only they should adorn the places of authority

<sup>350</sup> ਰਾਜਾ ਤਖਤਿ ਟਿਕੈ ਗੁਣੀ ਭੈ ਪੰਚਾਇਣ ਰਤੁ (ਪੰਨਾ ੯੯੨) ਰਾਜੇ ਧਰਮੁ ਕਰਹਿ ਪਰਥਾਏ (ਪੰਨਾ ੧੦੨੪)

<sup>351</sup> Some large corporations like I.B.M; A.T.& T and General Motors had a meeting in New Mexico in July 1986 to find ways and means of exploiting occult, metaphysics and Hindu mysticism to enhance their share of the market. (See ‘The New York Times’ Sept 29,1986)

<sup>352</sup> ਪੰਚ ਦਾ ਅਰਥ ਹੈ “ਸਾਧੂ ਜਨ, ਗੁਰਮੁਖ “ (ਮਹਾਨ ਕੋਸ਼ ਪੰਨਾ ੭੮੮) “ਪੰਚ ਕਰਹਿ ਸੋ ਨਿਫਲ ਨ ਚੀਨ” (ਗੁਰ ਪ੍ਰਤਾਪ ਸੂਰਜ)। ਗੁਰੂ ਨਾਨਕ ਸਾਹਿਬ ਜੀ ਨੇ ਪੰਚ ਲਈ ਸ਼ਬਦ ‘ਬ੍ਰਹਮ ਗਿਆਨੀ ,ਸਚਿਆਰਾ’ ਤੇ ‘ਗੁਰਮੁਖ’ ਵੀ ਵਰਤੇ ਹਨ। “ਕਿਵ ਸਚਿਆਰਾ ਹੋਈਐ”। ‘ਸਚਿਆਰਾ’ ਦਾ ਅਰਥ ਵੀ ‘ਪੰਚ’ ਹੈ। ਸਚਿਆਰ= ਸੱਚ ਦਾ ਧਾਰਣੀ (ਮਹਾਨ ਕੋਸ਼) ਗੁਰਮੁਖਿ ਅਨਦਿਨੁ ਉਸਤਤਿ ਹੋਵੈ (ਪੰਨਾ ੬੪੬) ਗੁਰਮੁਖਿ ਕੁਤੁ ਨ ਭਾਵਈ ਸਚਿ ਰਤੇ ਸਚ ਭਾਇ ॥ ਸਾਕਤ ਸਚੁ ਨ ਭਾਵਈ ਕੂੜੈ ਕੂੜੀ ਪਾਇ (ਪੰਨਾ ੨੨) ਗੁਰਮੁਖ ਹੈ ਨਿਰਵੈਰ ਨ ਵੈਰ ਵਿਚੋਧੀਐ (ਭਾਈ ਗੁਰਦਾਸ ਪਉੜੀ ੧੮)ਮਨਿ ਸਾਚਾ ਮੁਖਿ ਸਾਚਾ ਸੋਇ॥ ਅਵਰ ਨ ਪੇਖੈ ਏਕਸ ਬਿਨੁ ਕੋਇ॥ ਨਾਨਕ ਇਹ ਲਛਣ ਬ੍ਰਹਮ ਗਿਆਨੀ ਹੋਇ (ਪੰਨਾ ੨੨੨)

because they are always imbued with the name of God.” (AGGS p.3)<sup>353</sup> The *Panches*, like the five beloved ones (ਪੰਜ ਪਿਆਰੇ) of Guru Gobind Singh, are God-fearing people who are ready to sacrifice their all for humanity.

The benevolent world order of the Guru’s concept can be a worldwide possibility if individual states moderate their narrow national interests and strive to usher in a ‘Rational world society.’

## 9.15 Tolerance

Tolerance is the keynote of Sikhism. Lack of tolerance leads to prejudice, fanaticism and violence. Sikhism condemns the artificial man-made barriers of caste, creed, colour or sex and declares, “Let everybody share the bounties of the Lord, nobody is an outsider for you”<sup>354</sup> (AGGS p. 97). Thus we see that Sikhism seeks social justice and equality through its philosophy of classless, caste-less and egalitarian society that nurtures God-fearing citizens. It respects all religions and accords equal status to women.

“Live and let live,” is the slogan of today. Guru Gobind Singh, the 10<sup>th</sup> Guru of the Sikhs was the first person to have openly proclaimed Liberty, Equality and Fraternity for everybody. This slogan attracted the attention of the world leaders only after the French revolution of 1789.

Harimander (popularly known as the Golden Temple), the sanctum sanctorum of Sikhs, welcomes everybody irrespective of

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<sup>353</sup> ਪੰਚ ਪਰਵਾਣ ਪੰਚ ਪਰਧਾਨੁ ॥ ਪੰਚੇ ਪਾਵਹਿ ਦਰਗਹਿ ਮਾਨੁ ॥ ਪੰਚੇ ਸੋਹਹਿ ਦਰਿ ਰਾਜਾਨੁ ॥ ਪੰਚਾ ਕਾ ਗੁਰੁ ਏਕੁ ਧਿਆਨੁ (ਪੰਨਾ ੩) ਪੰਚ ਲੋਕ ਵਸਹਿ ਪਰਧਾਨਾ (ਪੰਨਾ ੧੦੩੯) “ਕਾਮ ਕ੍ਰੋਧ ਵਿਰੋਧ ਲੰਘਿ ਲੋਭ,ਮੋਹ ਅਹੰਕਾਰ ਵਿਹਾਣਾ ॥ ਸਤਿ, ਸੰਤੋਖ, ਦਇਆ ਧਰਮ ਅਰਥ ਸੁ ਗੁੰਥ ਪੰਚ ਪਰਵਾਣਾ” (ਭਾਈ ਗੁਰਦਾਸ). He who controls sex, anger, enmity, avarice, attachment and pride and develops truth, contentment, compassion, and righteousness as preached in the Holy Granth is a *Panch*.

<sup>354</sup> ਸਭੇ ਸਾਝੀਵਾਲ ਸਦਾਇਨਿ ਤੂੰ ਕਿਸੈ ਨ ਦਿਸਹਿ ਬਾਰਾ ਜੀਉ (ਪੰਨਾ ੯੭) ਨਾ ਕੇ ਬੈਰੀ ਨਹੀ ਬਿਗਾਨਾ ਸਗਲ ਸੰਗਿ ਹਮ ਕਉ ਬਨਿ ਆਈ (ਪੰਨਾ ੧੨੯੯) “ਏਕੁ ਪਿਤਾ ਏਕਸ ਕੇ ਹਮ ਬਾਰਿਕ” (ਪੰਨਾ ੬੧੧)

caste, religious orientation or social status. In some other religions this is not the case.<sup>355</sup> The spiritual writings of Hindus and Muslims are included in the Sikh scriptures to demonstrate equality. Amrit (The baptismal water) is sipped from one and the same bowl by everybody when people are admitted into the order of the Khalsa.

The Guru's refectory (*Langar*), attached to the Gurdwaras, is open to princes and paupers alike and anyone can attend it and dine with the Sikhs. In order to respect the religious susceptibilities of all religions, the food served in the *Langar* is always vegetarian.

Belief in racial prejudice and caste system is abhorred in Sikhism and the Sikhs are instructed, "Call every one superior to you. Nobody is inferior. All are fashioned from the same elements and in all shines the same light"<sup>356</sup>

"Everybody is my friend and I am inimical to nobody"<sup>357</sup> (AGGS p. 671).

## 9.16 Selfless service

*Sewa* (voluntary social service) is one of the cardinal principles of Sikhism. It is performed without expecting any reward. Guru Arjan Dev, the fifth Guru of the Sikhs, started a Leprosarium at Taran Taaran. Guru Amar Das, the third Guru of the Sikhs established a free dispensary. Sikhs run many charitable hospitals, orphanages and schools. Many Sikh organisations cater for the needs of blind and physically disabled people.<sup>358</sup> The Guru says, "Self-less service done in the society earns an honourable

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<sup>355</sup> Non-Muslims are not permitted to visit the Muslim shrine in Mecca.

<sup>356</sup> ਸਭੁ ਕੋ ਉਚਾ ਆਖੀਐ ਨੀਚੁ ਨ ਦੀਜੈ ਕੋਇ (ਪੰਨਾ ੬੨) ਮੰਦਾ ਕਿਸੇ ਨ ਆਖੀਐ ਪਤਿ ਅਖਰੁ ਏਹੋ ਬੁਝੀਐ (ਪੰਨਾ ੪੭੩)

<sup>357</sup> ਸਭੁ ਕੋ ਮੀਤੁ ਹਮ ਆਪਨ ਕੀਨਾ ਹਮ ਸਭਨਾ ਕੇ ਸਾਜਨ ॥ ( ਪੰਨਾ ੬੭੧) "ਨਾ ਕੋ ਬੈਰੀ ਨਹੀ ਬਿਗਾਨਾ ਸਗਲ ਸੰਗ ਹਮ ਕਉ ਬਨਿ ਆਈ" (ਪੰਨਾ ੧੨੯੯)

<sup>358</sup> He that does good to others, does good also to himself, not only in the consequence, but in the very act; for the consciousness of well-being is in itself, ample reward" (Seneca)

place in the court of God.”(AGGS p.26)<sup>359</sup> The world today appreciates the services performed by *Medicin sans frontiers*, Oxfam and the Red Cross. A similar organisation was established by Guru Gobind Singh, the 10<sup>th</sup> Guru of the Sikhs, under the management of Bhai Ghanaya. The members of this organisation are today known as *Sewa Panthis* (servants of society). The Guru goes a step further when he writes, “The wandering saints, warriors, celibates and hermits fail in life. Through the Perfect Guru, consider this: without selfless service, no one ever receives the fruits of their rewards.”(AGGS p. 992)<sup>360</sup>

## 9.17 Materialism

In his book *Methods and results* Thomas Huxley condemns materialism as a philosophy of life and calls it *an intruder* (Page 164-165). Materialism of the modern age is stifling the physical sciences as well as religion.

Man’s basic needs are food, clothing and housing. There are more than sufficient resources available in the world to ensure that all get these basic necessities. In spite of this, the economic exploitation is rampant in the entire world. Rich countries are manipulating resources in order to keep the poor countries poor. They offer aid to the poor countries like a “lion beefing up a cow.”(AGGS p. 898)<sup>361</sup> Individuals are engaged in a rat race for accumulation of wealth and other resources, which they might not even find the opportunity to consume during their lifetime. Unbridled ambition and cutthroat competition are the established principles of modern life. “One earns a thousand and his hunger grows to turn it into a million. His greed is never satisfied and he

<sup>359</sup> ਵਿਚਿ ਦੁਨੀਆ ਸੇਵ ਕਮਾਈਐ ॥ ਤਾ ਦਰਗਹ ਬੈਸਣੁ ਪਾਈਐ (ਪੰਨਾ ੨੬) ਜਿਚਰੁ ਅੰਦਰਿ ਸਾਸੁ ਤਿਚਰੁ ਸੇਵਾ ਕੀਚੈ ਜਾਇ ਮਿਲੀਐ ਰਾਮ ਮੁਰਾਰੀ (ਪੰਨਾ ੯੧੧) ਸੇਵਾ ਕਰਹਿ ਸੇਈ ਫਲੁ ਪਾਵਹਿ ਜਿਨ੍ਹੀ ਸਚੁ ਕਮਾਇਆ (ਪੰਨਾ ੪੩੨) ਸੇਵਾ ਕਰਤ ਹੋਇ ਨਿਰਕਾਮੀ (ਪੰਨਾ ੨੮੬). Khalsa Aid of England, Pingalwra at Amritsar and Sikh Aid International of Mandi Mullan Pur Panjab (see the last pages of this book) are actively engaged in *Sewa*.

<sup>360</sup> ਜੰਗਮ ਜੋਧ ਜਤੀ ਸੰਨਿਆਸੀ ਗੁਰਿ ਪੂਰੈ ਵੀਚਾਰੀ ॥ ਬਿਨੁ ਸੇਵਾ ਫਲੁ ਕਬਹੁ ਨ ਪਾਵਸਿ ਸੇਵਾ ਕਰਣੀ ਸਾਰੀ (ਪੰਨਾ ੯੯੨)

<sup>361</sup> ਗਊ ਕਉ ਚਾਰੇ ਸਾਰਦੁਲੁ ( ਪੰਨਾ ੯੯੮)

goes on accumulating money (AGGS p. 278).”<sup>362</sup> The Sikh Gurus have further described this condition as follows:

“The household which is filled with abundance — that household suffers anxiety. One, whose household has little, wanders around searching for more. He alone is happy and at peace, who is liberated from both these conditions.”

(AGGS P. 1018)<sup>363</sup>

“Accumulation of wealth only promotes ego, selfishness, pride and greed.” (AGGS p.188)<sup>364</sup> These days’ deceit, cheating and double-dealing have become valued and respectable qualifications for growing rich. The Sikh Gurus called it “leeching on other people’s blood,” (AGGS p. 140)<sup>365</sup> and stated that “With greed within them, their minds are filthy, and they spread filth around. They deal dishonestly in business, depend on falsehood and suffer in pain. (AGGS p.1062)<sup>366</sup>

“The world’s resources are neither equally available nor equitably distributed and this is causing fights”.<sup>367</sup> Modern wealth-dominated politics are further exploiting the gap. The solution simply lies in following the religious view of altruism.

## 9.18 Communism

**“Marxism was the illegitimate and rebellious offspring of the 19<sup>th</sup> Century liberalism.”** (*Issac Dentscher*)

The roots of communism can be traced back to the concept of Utopia in Plato’s ‘Republic’ but in our own times it was Karl

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<sup>362</sup> ਸਹਸ ਖਟੇ ਲਖ ਕਉ ਉਠਿ ਯਾਵੈ ॥ ਤ੍ਰਿਪਤਿ ਨ ਆਵੈ ਮਾਇਆ ਪਾਛੈ ਪਾਵੈ ( ਪੰਨਾ ੨੭੮)

<sup>363</sup> ਜਿਸੁ ਗ੍ਰਿਹਿ ਬਹੁਤੁ ਤਿਸੈ ਗ੍ਰਿਹਿ ਚਿੰਤਾ ॥ ਜਿਸੁ ਗ੍ਰਿਹਿ ਬੋਰੀ ਸੁ ਫਿਰੈ ਭ੍ਰਮੰਤਾ ॥ ਦੁਹੁ ਬਿਵਸਥਾ ਤੇ ਜੋ ਮੁਕਤਾ ਸੋਈ ਸੁਹੇਲਾ ਭਾਲੀਐ (ਪੰਨਾ ੧੦੧੯)

<sup>364</sup> ਕਉਨ ਵਡਾ ਮਾਇਆ ਵਡਿਆਈ (ਪੰਨਾ ੧੮੮)

<sup>365</sup> ਜੋ ਚਤੁ ਪੀਵਹਿ ਮਾਣਸਾ ਤਿਨ ਕਿਉ ਨਿਰਮਲੁ ਚੀਤੁ ( ਪੰਨਾ ੧੪੦)

<sup>366</sup> ਅੰਤਰਿ ਲੋਭੁ ਮਨਿ ਮੇਲੈ ਮਲੁ ਲਾਏ ॥ ਮੇਲੇ ਕਰਮ ਕਰੇ ਦੁਖੁ ਪਾਏ ॥ ਕੂੜੇ ਕੂੜੁ ਕਰੇ ਵਾਪਾਰਾ ਕੂੜੁ ਬੋਲਿ ਦੁਖੁ ਪਾਇਦਾ (ਪੰਨਾ ੧੦੬੨)

<sup>367</sup> ਕਿਸ ਹੀ ਵਾਧਿ ਘਾਟਿ ਕਿਸ ਹੀ ਪਹਿ ਸਗਲੇ ਲਰਿ ਲਰਿ ਮੁਆ (ਪੰਨਾ ੬੭੩)

Marx, who dexterously established it in the world in 1847 through his oft quoted maxim, “From each according to his ability, to each according to his work.” This was a copy of Louis Blanc’s Socialist party motto, which was popular at that time in France. Marx was greatly influenced by the writings of Ludwig Faverbach, Engels and Hegel.

Marx applied Hegel’s dialectic logic to state and said, “All philosophies have sought to explain the world, the point however, is to change it”. He therefore totally detached religion from the state and defined religion as, “a derivative of man’s material conditions.” Atheism became his hobbyhorse. The principles on which communism grew are (a) dialectic materialism (b) political economy based on the labour theory of value and (c) revolutionary methods to establish the supremacy of the working class. Thus, Marx rejected spiritualism as unnecessary and looked upon the world in purely materialistic terms. The theory ended up in a class struggle dividing the society into ‘haves’ and ‘have-nots’ trying to hoodwink each other, to control the means of production.

Sikhism approves some of the egalitarian ideas of communism but differs in that it considers society and ethics as interdependent and therefore the guiding principle of the society must be ethics. Again, Sikhism believes that the relations between individuals must be regulated through morality and harmonious working rather than through revolution, unless the state degenerates into dictatorship and a revolution, **as a last resort**, becomes inevitable. The near failure of communism in Russia has proved that class interest does not always succeed in strengthening the national interest.

Man is, by nature selfish and has the tendency to exploit and dominate others. Unless he is taught to exercise control over his uncontrolled desires and cravings, any system of Government

is bound to end up being run by “animal desires” and aggressive behaviour. No Government can teach social and ethical values to society. This can be done only through religion. Sikhism brings the principles of communism and ethics together in its doctrine of, “Do honest labour, Share your earnings and engage in spiritual exercise.”<sup>368</sup> According to Sikhism, class struggle is the most dangerous idea. All must learn to live together amicably.

Again in communism society and state become coterminous and everything is controlled by the state. When this happens, the state becomes the machinery of exploitation and extermination. This invariably results in bloodshed. The experiment turned sour in India when the state became tortuous and tyrannical under the Moghuls and hunted its own citizens to kill or convert them to a set religious philosophy.<sup>369</sup>

According to Sikhism no state has the authority over an individual’s conscience and therefore cannot impose a particular type of philosophy (religious or atheistic) on the people through political force. Such an attempt can only create unitary, monolithic society at war with itself. The duty of the state is to work for the greatest happiness of the greatest number, maintain law and order, plan for progress and engage in social justice. In all this, it must be guided by ethics and this is what Sikhism preaches.

Religious conviction cannot be easily expelled from the life of a human being. Extremes always boomerang on us.

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<sup>368</sup> ਕਿਰਤ ਕਰੋ , ਵੰਡ ਛਕੋ , ਨਾਮ ਜਪੋ

<sup>369</sup> ਰਾਜੇ ਸੀਹ ਮੁਕਦਮ ਕੁਤੇ,ਜਾਇ ਜਗਾਇਣ ਬੈਠੇ ਸੁਤੇ ॥ ਚਾਕਰ ਨਹਦਾ ਪਾਇਨ ਘਾਉ, ਰਤੁ ਪਿਤੁ ਕੁਤਿਹੋ ਚਟਿ ਜਾਚੁ (ਪੰਨਾ ੧੨੮੮)

## Chapter 10

### Spiritual Interests

#### 10.1 Claims of exclusivity

Exclusivity in religion goes against the grain and yet many religions and their followers claim that theirs is the only true religion, which can mould the world and lead it to salvation.<sup>370</sup> Here are some examples:

“The non-Christian Bibles are developments in the wrong direction.” (Professor Monier Williams)

“The truth capable of saving humanity is and shall be the product of Hindu Gurus forever and for ever.” (Sri Aurobindo)<sup>371</sup>

“Following a religion other than Islam is not acceptable.” (Quran 3:85)<sup>372</sup>

Sikhism does not claim such monopolies because monopolies invariably end up in confrontations and slanging

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<sup>370</sup> The Archbishop of Canterbury had declined to attend the Chicago Parliament of world religions (1893) organised by Catholic Cardinal Gibbons of America saying that the very meeting of such a parliament implied that all religions were equal. Representatives of most of the religions of the world attended this meeting but the archbishop did not. The ‘church of world creator’ is all white, anti-Semitic, claims monopoly and hates non-Christian religions as heathens.

<sup>371</sup> “ਯੋ ਏਵਮ ਵੇਦਾ, ਸਤਿਯਮ ਵੇਦਾ” Only he who knows the Veda, knows the Truth. “Those who do not follow the Vedas or criticise them should be cut up, burnt and destroyed”. (Athrav Veda Chapter 12 Sukat 5 Hymn No. 62). “Never offer religion instruction to a shudra” (Manu Smirti Ch.4 hymn 80)

<sup>372</sup> “ਰੈ ਫਕਤ ਤੋਹੀਦ ਓ ਸੁੰਨਤ ਹੀ ਅਮਨ ਓ ਰਾਹਤ ਕਾ ਤ੍ਰੀਕ (ਸਰ ਮੁਹੰਮਦ ਇਕਬਾਲ)” The Jews claim that God favoured the Jews and granted them the land of Israel.

matches. They produce only self-righteous and intolerant snobs. Sikhism preaches that exclusivity is the most damaging feature of any religion. Sikhism teaches, “The world is going up in flames O Lord— shower it with Your Mercy, Save it, and deliver it from sin through whichever door (religion) humanity approaches” (AGGS p. 853)<sup>373</sup> It advises that we “should not call any religion inferior or false” and thus, “give rise to controversies.”<sup>374</sup> “Many roads thou hast fashioned, all of them lead to the light.” (Rudyard Kipling)

## 10.2 Salvation

Almost all religions aspire for salvation (*Mokhsha, Nirvana*) and claim that it is possible only through their particular religion.<sup>375</sup> Sikhism declares, “I aspire for neither worldly pleasures nor do I crave for salvation. I crave for the love of the Lord’s feet.”<sup>376</sup> (AGGS p.534). The aim of Sikhism is stated clearly by Guru Nanak as follows: “To live the life truthfully (*Sachiara*) and to rent asunder the wall of illusion that separates us from God.” (AGGS P. 1)<sup>377</sup> Spiritual and moral life, free from fear, insecurity, injustice and prejudice is the goal of a Sikh.

For a Sikh salvation is two pronged. First it is freedom from fear, oppression, social slavery and political tyranny “Fear not and frighten no one,” (AGGS P. 1427)<sup>378</sup> and second, “Freedom from the entanglement of sex, anger, greed, undue attachment, mammon and ego.”<sup>379</sup> Therefore, salvation in Sikhism is not something that comes after death. The term used by the

<sup>373</sup> ਜਗਤੁ ਜਲੰਦਾ ਰਖਿ ਲੈ ਆਪਣੀ ਕਿਰਪਾ ਧਾਰਿ ਜਿਤੁ ਦੁਆਰੈ ਉਬਰੈ ਤਿਤੈ ਲੈਹੁ ਉਬਾਰਿ (ਪੰਨਾ ੮੫੩)

<sup>374</sup> ਬੇਦ ਕਤੇਬ ਕਹਹੁ ਮਤ ਬੁਠੇ ਬੁਠਾ ਜੋ ਨ ਬਿਚਾਰੈ” (ਪੰਨਾ ੧੩੫●) ਮੰਦਾ ਕਿਸੈ ਨ ਆਖਿ ਝਗੜਾ ਪਾਵਣਾ (ਪੰਨਾ ੫੬੬)

<sup>375</sup> “Outside the church there is no salvation” say the Christians.

<sup>376</sup> ਰਾਜੁ ਨ ਚਾਹਉ ਮੁਕਤਿ ਨ ਚਾਹਉ ਮਨਿ ਪ੍ਰੀਤਿ ਚਰਨ ਕਮਲਾਰੇ ( ਪੰਨਾ ੫੩੪)

<sup>377</sup> ਕਿਵ ਸਚਿਆਰਾ ਹੋਈਐ ਕਿਵ ਕੂੜੈ ਤੁਟੈ ਪਾਲਿ” (ਪੰਨਾ ੧) “Sachiara” is enlightened, emancipated individual invested with divine qualities.

<sup>378</sup> ਭੈ ਕਾਹੂ ਕਉ ਦੇਤ ਨਹਿ ਨਹਿ ਭੈ ਮਾਨਤ ਆਨ” (ਪੰਨਾ ੧੪੨੭)

<sup>379</sup> “ਕਾਮੁ ਕਰੋਧੁ ਲੋਭੁ ਮੋਹੁ ਅਭਿਮਾਨੁ ਬਿਖੈ ਰਸ ਇਨ ਸੰਗਤਿ ਤੇ ਤੂੰ ਰਹੁ ਰੇ” (ਪੰਨਾ ੧੧੧੮)

Guru is *Jeewan mukt* (Salvation while living).<sup>380</sup> “O Nanak, meeting the True Guru, one comes to know the perfect way. While laughing, playing, dressing and eating (in other words living ordinary, normal house-holders’ life), he is liberated.”<sup>381</sup> Guru Nanak tied up salvation with social service and wrote, “You have an honourable seat in the court of God only if you perform social service in this world.” (AGGS P. 26)<sup>382</sup> Commitment to such social service must be voluntary.

The stumbling block in the way of spiritual salvation is man’s Ego (ਹਉਮੈ) or self-assertion.<sup>383</sup> It is ego that gives rise to superiority complex. We know what devastation was caused when Hitler pronounced the theory of superior Aryan race and fought for *Lebensraum* (more land) for that race. Man’s insatiable hunger for self- glorification, is more dangerous for the society than even the most dangerous bombs. When this hunger exploits religion for its sinful end, the world sinks like lead.

“I see the world on fire because of ego that keeps it away from common good” (AGGS P. 651)<sup>384</sup> and hence away from salvation.

### 10.3 Conversion

**“Do not believe in the words of a teacher unless you yourself are convinced of the truth contained in his words.” (Berkeley)**

<sup>380</sup> *Jeewan Mukti* is explained by Guru Arjan Dev as follows, “One should be imbued with the name of the Lord, not be affected by evil and to be one with God Almighty. Greed of wealth touches him not. Hell and heaven or nectar and poison are the same for him. Copper for him is gold and gold is copper. Attachments or detachments, honour and dishonour flee from him. He is equanimous to both pleasure and pain. Such a person stands emancipated” (Gauri IX 220) ਆਪੁ ਪਛਾਣੈ ਮਨੁ ਨਿਰਮਲੁ ਹੋਇ॥ਜੀਵਨ ਮੁਕਤਿ ਹਰਿ ਪਾਵੈ ਸੋਇ (ਪੰਨਾ ੧੬੧) ਜੀਵਨ ਮੁਕਤਿ ਗੁਰ ਸਬਦੁ ਕਮਾਏ (ਪੰਨਾ ੧੦੫੮)

<sup>381</sup> “ਨਾਨਕ ਸਤਿਗੁਰਿ ਭੋਟਿਐ ਪੂਰੀ ਹੋਵੈ ਜੁਗਤਿ ॥ਹਸੰਦਿਆ ਖੇਲੰਦਿਆ ਪੈਨੰਦਿਆ ਖਾਵੰਦਿਆ ਵਿਚੇ ਹੋਵੈ ਮੁਕਤਿ (ਪੰਨਾ ੫੨੨)

<sup>382</sup> “ਵਿਚਿ ਦੁਨੀਆ ਸੇਵ ਕਮਾਈਐ ॥ ਤਾ ਦਰਗਹ ਬੈਸਣੁ ਪਾਈਐ” (ਪੰਨਾ ੨੬)

<sup>383</sup> ਜੀਵਨ ਮੁਕਤੁ ਸੋ ਆਖੀਐ ਜਿਸੁ ਵਿਚਹੁ ਹਉਮੈ ਜਾਇ (ਪੰਨਾ ੧੦੦੯)

<sup>384</sup> ਜਗਤੁ ਜਲੰਦਾ ਡਿਠੁ ਮੈ ਹਉਮੈ ਦੂਜੈ ਭਾਇ ( ਪੰਨਾ ੬੫੧)

Conversion<sup>385</sup> from one religion to another is preached and practised by many religions. In some religions, there are even merits available in the next world for those who convert others to their religion. Conversion restricts human freedom of thought and most often leads to inter-religious wars. Human conscience does not tolerate religious bigotry because it is contrary to reason. Society cannot develop if all human beings think exactly alike. Naturally, therefore, in almost every religion we find so many factions and sects.

Sikhism preaches that a man is judged by the nobleness of his character and not by labels of religion. Therefore nobody should be converted under pressure. If a man has to do away voluntarily with his traditional religion, he should better make certain that he has something of value to replace it. Until a person has strong feeling and commitment towards Sikhism and his study, knowledge and relationship with Sikhs motivate him to accept Sikhism he/she should not accept Sikhism. Therefore, before a novice is baptised as a Sikh, he/she has to beg for baptismal water with folded hands five times and every time he/she is reminded to follow the way of God (*Waheguru Ji Ki Fateh*) throughout his/her life time.

Conversion to Sikhism is through demonstration of the quality of life a Sikh lives. The Guru's philosophy is the ideal for a Sikh to follow. In order to bring the Sikh to this ideal standard the Guru's instruction is, "Do what the Guru asks you to do. Do not blindly copy His achievements."<sup>386</sup> The Guru expected the Sikhs' behaviour to be such as would inspire in others an urge to

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<sup>385</sup> Conversion seeks to stamp out other religions and enforces creedal and cultural conformation. The memories of Christian *crusades* and Islamic *Jihad* have become an inalienable and nostalgic part of human history.

<sup>386</sup> "ਗੁਰਿ ਕਹਿਆ ਸਾ ਕਾਰ ਕਮਾਵਹੁ ॥ ਗੁਰ ਕੀ ਕਰਣੀ ਕਾਰੇ ਧਾਵਹੁ" (ਪੰਨਾ ੯੩੩) ਗੁਰ ਕੀ ਕਾਰ ਕਮਾਇ ਮਹਲੁ ਪਛਾਣੀਐ (ਪੰਨਾ ੪੨੦) ਗੁਰ ਕੀ ਕਾਰ ਕਮਾਇ ਲਾਹਾ ਘਰਿ ਆਣਿਆ (ਪੰਨਾ ੭੫੨) ਗੁਰ ਕੀ ਕਾਰ ਕਮਾਵਣੀ ਭਾਈ ਆਪੁ ਛੋਡਿ ਚਿਤੁ ਲਾਇ (ਪੰਨਾ ੬੩੯). Circumstances change. An action (for example Guru's action) at one time may not be desirable or appropriate at another time but the Guru's general instruction holds good at all times.

become Sikhs. Therefore, the only conversion that Sikhism recommends is the conversion of manners and moral behaviour. Such a conversion can be better achieved through example rather than coercion.

In Sikhism a person is not baptised at birth, but only when he/she is capable of making his/her own choice. Sikhism does not hold promises of paradise or that of hours of retiring beauty to its followers.

Today's scientific mind would only approve the acceptance of any idea after careful analysis and testing. Most world religions preach that acceptance of a religion does not admit verification and questioning but Sikhism preaches thorough satisfaction before accepting a religion. The Guru says, "First, examine the merchandise carefully, and only then, make the deal." (AGGS p.1410)<sup>387</sup>

## 10.4 Prayer

**"The power of prayer has been devalued along with many of the world's currencies in recent years." (Pope John Paul I)**

Men of science usually place no value on prayer and call it selfish occupation. They believe that running away from life and delving into God is escapism. But the psychologists and philosophers believe "More things are wrought by prayer than this world dreams of."<sup>388</sup>

Einstein says, "Nobody will deny that the idea of the existence of an omnipotent, just, omnibeneficent personal God is able to accord man solace, help, and guidance; also by virtue of its simplicity it is accessible to the most undeveloped mind." (*Science, Philosophy and Religion: A symposium*. New York 1941)

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<sup>387</sup> ਪਹਿਲਾ ਵਸਤੁ ਸਿਵਾਇ ਕੇ ਤਾਂ ਕੀਚੈ ਵਾਪਾਰੁ (ਪੰਨਾ ੧੪੧੦)

<sup>388</sup> Tennyson

According to Sikhism God really exists and prayer is not a mere muttering of set *mantras* (incantations) but a sincere and affectionate outpouring of the yearning soul to God. The Sikh belief is that man is a spark of God-consciousness and the difference between him and God is not in essence but in degree. Prayer is thus an attempt of the part to be in tune with the whole. It is the small consciousness speaking to universal consciousness, a lower self, trying to ingratiate with its higher self. Just as an agonised friend outpouring his mind to a close-bosom friend enjoys catharsis (psychological relief) or a child sincerely begging pardon of his father feels mental consolation, the prayer pacifies the mind of the devotee.

Prayer before statues, angels, saints, gods and goddesses is forbidden in Sikhism. The Guru says, “One who worships gods and goddesses can achieve nothing from them. One washes the stone gods in water but they sink in it. How can the gods and goddesses ferry others across?”<sup>389</sup>

Unlike many other religions, the Sikh prayer does not require blowing of conch shells, spreading of prayer mats (*Mussalahs*), lighting candles, donning special costumes, dressing statues,<sup>390</sup> facing in a particular direction, burning incense, turning prayer wheels or adopting different postures in their prayers. The Sikh prayers are hymns, which can be enjoyed with or without articulation at any place and at any time and a person sitting next to a Sikh would not even know that a Sikh is praying. Sikh prayers can be performed anywhere, whether at work, on a journey or in company. The Guru says, “Use your hands and feet to do all the work you are supposed to do and yet keep your mind attuned to God.”<sup>391</sup>

(AGGS p. 1376)

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<sup>389</sup> ਦੇਵੀ ਦੇਵਾ ਪੂਜੀਐ ਭਾਈ ਕਿਆ ਮਾਗਉ ਕਿਆ ਦੇਹਿ ॥ ਪਾਹਣੁ ਨੀਚਿ ਪਖਾਲੀਐ ਭਾਈ ਜਲ ਮਹਿ ਬੁਢਹਿ ਤੇਹਿ (ਪੰਨਾ ੬੩੭)

<sup>390</sup> The Hindus perform Pranapratishtha before a statue or a photo. It is believed that by doing so the deity becomes alive. Milk and food are offered to the deity only after this ceremony.

<sup>391</sup> “ਹਾਥ ਪਾਉ ਕਰਿ ਕਾਮੁ ਸਭੁ ਚੀਤੁ ਨਿਰੰਜਨੁ ਨਾਲਿ” (ਪੰਨਾ ੧੩੭੬)

There are no set times or days<sup>392</sup> for prayer in Sikhism. Prayers can be performed at any time on any day.

## 10.5 Monotheism

Sikhism is strictly monotheistic. The very first visible mark in the Sikh scripture is the mathematical figure ONE (ੴ) representing the unity and uniqueness of God (ੴ). This is perfectly appreciated by modern thinkers. For example Encyclopaedia Britannica says, “Monotheism is the ripest expression of religious consciousness.”

## 10.6 Return of a prophet

The Jews believe that *hemistich* (the anointed one from the family of David) would come and bring about an age of peace, prosperity and harmony in the world. At that time, “each man will sit under his own vine and the wolf will lie down with the lamb”. He will re-build the Jewish temple.

The Muslims believe that Mehdi would come and rule the world. The dead will rise from their graves. The Christians also wait for the second coming of Lord Christ to claim his people. The Parsees believe that Zarathustra will be supernaturally reborn to a virgin from his own seed preserved in a lake and will appear as *Saoshiyant* (Messiah). He will raise the dead, save the righteous and pour molten lead on the earth and hell. The Hindus wait for the rebirth of Kalki Avtar.

The Sikhs do not believe that dead men come back. The dead are like the ripe fruit of a tree, “which, once separated from the branch, falls to the ground and does not come back to it”<sup>393</sup> (AGGS p. 1366). According to Sikhism, what is important is not

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<sup>392</sup> Friday is the fixed day of prayer for the Muslims and the daily prayers must be performed at exact times during the day. Jews keep Sabbath from sunset on Friday to sunset on Saturday. No work, no travelling and no cooking are permitted during this period. The Jews must say *Kiddush* (blessing over wine and bread). As a bare minimum the Sikhs are supposed to say their morning and evening prayers but unlike the Muslims or Jews their exact times or days are not fixed. ਇਹਿ ਬਿਤੀ ਵਾਰ ਚੂਜਾ ਚੋਇ (ਪੰਨਾ ੮੪੩)

<sup>393</sup> “ਜਿਉ ਬਨ ਫਲ ਪਾਕੇ ਭੁਇ ਗਿਰਹਿ ਬਹੁਰਿ ਨ ਲਗਹਿ ਡਾਰ” (ਪੰਨਾ ੧੩੬੬)

the person of the religious guide but the philosophy he preached.

It is a common belief that, the religious preceptors would save their followers at the time of reckoning and ensure heaven for them.<sup>394</sup> The Sikh Gurus condemned this idea and said that nobody would save anybody else. We swim or sink because of our own deeds. “As we act, so are the rewards we receive; no one can take the place of another”<sup>395</sup> (AGGS p.406). Our misdeeds and “vices are like chains around our necks” (AGGS p. 595)<sup>396</sup> while our virtues are like our saviours and friends.

## 10.7 Heaven and Hell

A common belief in most religions is the existence of Heaven or Paradise. It is considered to be a place somewhere in the imagined next world where abundance of means exist for sensual enjoyment. The Sikh Guru simply said, “I do not know where such a place exists.” (AGGS p.1161)<sup>397</sup>

Hell<sup>398</sup> is a frightening place where human sinners are tortured, thrown into infernos, squeezed between rollers like

<sup>394</sup> Refer to Quran 99-7 and Jewish *Madrash* chapter 7 volume 14

<sup>395</sup> ਅਹਿ ਕਰੁ ਕਰੇ ਸੁ ਅਹਿ ਕਰੁ ਪਾਏ ਕੋਈ ਨ ਪਕੜੀਐ ਕਿਸੈ ਥਾਇ (ਪੰਨਾ ੪੦੬) ਵਿਚ ਨ ਕੋਈ ਕਰ ਸਕੇ ਕਿਸ ਥੇ ਰੋਵਹਿ ਰੋਜ (ਪੰਨਾ ੧੩੫). Talking about the fires of hell the prophet of Islam said, “There would be people among Muslims with as heavy sins as mountains, but Allah would forgive them and He would place in their stead the Jews and the Christians” (Sahi Muslim Pages 6665-6669)

<sup>396</sup> ਨਾਨਕ ਅਉਗੁਣ ਜੋਤੋ ਤੋਤੇ ਗਲੀ ਜੰਜੀਰ (ਪੰਨਾ ੫੯੫)

<sup>397</sup> ਨਾਂ ਜਾਨਉ ਬੈਕੁੰਠ ਹੈ ਕਹਾਂ (ਪੰਨਾ ੧੧੬੧) ਨਾ ਜਾਨਾ ਬੈਕੁੰਠ ਕਹਾ ਹੀ (ਪੰਨਾ ੩੨੫) ਅਗਲੀ ਕਿਛੁ ਖਬਰਿ ਨ ਪਾਈ (ਪੰਨਾ ੮੯੦) Some Hindus believe that paradise is situated on *Meru* Mountain but others believe that it is situated between the sun and the pole star in the sky. According to Hinduism the place is ruled by *Indra*. There are gardens (*Nandan Baag*) beautifully decorated palaces inhabited by beautiful women (*Apasra*). The dwellers of earth deserve this place only if they have shed their sins. In Islam also the paradise dwellers enjoy rivers of milk and honey (Quran 77:41-44), drink wine (Quran 78:34), 72 varieties of food and cohabit with most beautiful women.

<sup>398</sup> Whereas the description of paradise is more or less the same in many religions, the number of hells and the punishments therein differ from religion to religion. The Muslim *Dozakh*, The Hindu *Narak*, or the *Dujotman* of the Parsees cannot be the same places. Hindu scriptures differ even in the number of hells. For example Manu Simirti says there are 21 hells, Bhagwat counts 28 and Brahm Waverat Puran lists 86 hells. Muslims believe in seven hells *Jahannam* for sinning Muslims, *Nati* for Christians, *Azma* for Jews, *Meer Abi* for star-worshippers, *Saqar* for fire-worshippers, *Hajeem* for idol-worshippers and *Haavia* for those whose fidelity towards Muhammad is doubtful. “Be a sinner and sin strongly, but yet more strongly believe and rejoice in Christ, who is the conqueror of sin, death and the world.” (Letter of Luther)

sesame seeds in the oil press, made to drink boiling water, and suffer excruciating pains in boiling cauldrons of oil.

Modern man asks for proof and simply frowns at the very idea of the existence of such places. The Sikh Gurus have neither denied the existence of the so-called heaven and hell nor acknowledged their existence.<sup>399</sup> They simply redefined the two terms. The Gurus say that Heaven or paradise is the state of human soul that reaches perfection or is imbued with the elixir of God's presence. "Heaven is where thy praises are sung," said the Guru.<sup>400</sup> The Guru disliked craze for salvation and said, "As long as the mind craves for heaven, there is no chance of devotion to the Lord" (AGGS p. 325).<sup>401</sup>

As for Hell the Guru said, "Those who are imbued with God's name do not even have to see the Hell"<sup>402</sup>

"Whatever is Hell or Heaven? The Saints reject them both." (AGGS p. 969)<sup>403</sup>

"Man would indeed be in a poor way if he had to be restrained by fear of punishment and hope of reward after death" (*Religion & Science* New York Times)

## 10.8 Sacred days and omens

Almost all religions consider some months or days sacred<sup>404</sup> and believe that it is meritorious to perform certain

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<sup>399</sup> ਨਰਕ ਸੁਰਗੁ ਨਹੀ ਜੰਮਣੁ ਮਰਣਾ ਨਾ ਕੋ ਆਇ ਨ ਜਾਇਦਾ (ਪੰਨਾ ੧੦੩੫) ਪਾਪ ਪੁੰਨ ਤਹ ਭਈ ਕਹਾਵਤ॥ ਕੋਊ ਨਰਕ ਕੋਊ ਸੁਰਗ ਬੰਢਾਵਤ (ਪੰਨਾ ੨੯੨)ਕਿਆ ਜਾਣਾ ਕਿਆ ਆਗੈ ਹੋਇ (ਪੰਨਾ ੧੫੪)

<sup>400</sup> ਤਹਾ ਬੈਕੁੰਠੁ ਜਹ ਕੀਰਤਨੁ ਤੇਰਾ ਤੂੰ ਆਪੇ ਸਰਧਾ ਲਾਇਹਿ (ਪੰਨਾ ੭੪੯)

<sup>401</sup> ਜਬ ਲਗੁ ਮਨਿ ਬੈਕੁੰਠ ਕੀ ਆਸ ॥ ਤਬ ਲਗੁ ਹੋਇ ਨਹੀ ਚਰਨ ਨਿਵਾਸੁ (ਪੰਨਾ ੩੨੫)

<sup>402</sup> ਨਰਕ ਨ ਡੀਠਿਤਿਆ ਸਿਮਰਤ ਨਾਰਾਇਣ(ਪੰਨਾ ੪੬੦)ਨਾਨਕ ਨਰਕਿ ਨ ਜਾਹਿ ਕਬਹੂੰ ਹਰਿ ਸੰਤ ਹਰਿ ਕੀ ਸਰਣੀ(ਪੰਨਾ ੪੬੦)

<sup>403</sup> "ਕਵਨ ਨਰਕ ਕਿਆ ਸੁਰਗ ਬਿਚਾਰਾ ਸੰਤਨ ਦੋਊ ਰਾਦੇ" (ਪੰਨਾ ੯੬੯) "ਧਨੁ ਨਹੀ ਬਾਛਹਿ ਸੁਰਗ ਨ ਆਛਹਿ" (ਪੰਨਾ ੨੫੧) "ਸੁਰਗ ਬਾਸੁ ਨ ਬਾਛੀਐ ਡਰੀਐ ਨ ਨਰਕਿ ਨਿਵਾਸੁ"(ਪੰਨਾ ੩੩੭) ॥

<sup>404</sup> For example the Muslims consider the month of Ramadan as more auspicious than other months and the Friday as more sacred than other days. The Jews observe Saturday as Sabbath and as such do not work on Saturdays. Ram Naumi and Shivratri are auspicious days for the Hindus.

rituals on those days. The Sikh Gurus considered all days equally good. They said, “Only idiots and fools worry about omens and special days.”<sup>405</sup>

These days astrology is as much valued as prayer. Newspapers are full of horoscopes and predictions. Sikhism condemns these practices as mere superstition. The Sikh Gurus preached discriminative thinking (ਬਿਬੇਕ)<sup>406</sup> and forbade the Sikhs from believing in anything without first rationalizing it. For example about astrology the Guru says, “The astrologer, calculating this and that, prepares our horoscope. Little does he perceive the reality of the Real.”(AGGS p. 904)<sup>407</sup> For the Sikhs magic, necromancy, numerology, tarot predictions and amulets are all unscientific and puerile distractions.<sup>408</sup>

The Guru’s views are amply substantiated by Dr. Michael Sonntag of the University of Lander in Greenwood (South Carolina) who conducted a research on superstitions and reported, “Superstitious behaviour appears to be associated with a host of socially less favourable attributes such as neuroticism, depression and lower intelligence.”

<sup>405</sup> ਬਿਤੀ ਵਾਰ ਸੇਵਹਿ ਮੁਗਧ ਗਵਾਰ (ਪੰਨਾ ੮੪੩)ਬਿਤੀ ਵਾਰ ਸਭਿ ਆਵਹਿ ਜਾਹਿ (ਪੰਨਾ ੮੪੨)

<sup>406</sup> The word means ‘Rationalization’ or ‘Reasoning’. Usually it is said that reasoning is the life-breath of agnosticism and the death-knell of religion. Sikhism vehemently preaches ਬਿਬੇਕ (reasoning) and rejects blind faith.

<sup>੪੦੭</sup> ਗਣਿ ਗਣਿ ਜੋਤਕੁ ਕਾਂਡੀ ਕੀਨੀ ॥ ਪੜੈ ਸੁਣਾਵੈ ਤਤੁ ਨ ਚੀਨੀ (ਪੰਨਾ ੯੦੪) ਸਗੁਨ ਅਪਸਗੁਨ ਤਿਸ ਕਉ ਲਗਹਿ ਜਿਸੁ ਚੀਤਿ ਨ ਆਵੈ (ਪੰਨਾ ੪੦੧) ਪੜਿ ਪੜਿ ਪੰਡਿਤ ਜੋਤਕੀ ਵਾਦ ਕਰਹਿ ਵੀਚਾਰੁ (ਸ੍ਰੀ ਰਾਗ ਮ:੩)

<sup>੪੦੮</sup> ਤੰਤ ਮੰਤ ਪਾਖੰਡ ਨ ਜਾਣਾ ਰਾਮੁ ਰਿਦੈ ਮਨੁ ਮਾਨਿਆ (ਪੰਨਾ ੭੬੬) ਅਉਖਦ ਮੰਤੁ ਤੰਤੁ ਸਭਿ ਛਾਰੁ (ਪੰਨਾ ੪੧੬)ਅਵਰ ਨ ਅਉਖਦ ਤੰਤ ਨ ਮੰਤਾ, ਹਰਿ ਹਰਿ ਸਿਮਰਣੁ ਕਿਲਬਿਖ ਹੰਤਾ (ਪੰਨਾ ੪੧੬) “ਸਜਾ ਖਬਾ ਸਉਣ ਨ ਮੰਨਿ ਵਸਾਇਆ, ਨਾਰਿ ਪੁਰਖ ਨੋ ਵੇਖਿ ਨ ਪੈਰਿ ਹਟਾਇਆ ॥ ਭਾਖ ਸੁਭਾਖ ਵੀਚਾਰਿ ਨ ਛਿਕ ਮਨਾਇਆ, ਦੇਵੀ ਦੇਵ ਨ ਸੇਵ ਨ ਪੂਜ ਕਰਾਇਆ ॥ਭੰਬਲ ਭੁਸੇ ਖਾਇ ਨ ਮਨ ਭਰਮਾਇਆ, ਗੁਰਸਿਖ ਸਚਾ ਖੇਤ ਬੀਜ ਫਲਾਇਆ” (ਭਾਈ ਗੁਰਦਾਸ ੨੦.੮)

## Chapter 11

### The universal religion

**“Sikhism contains the seeds of a Universal state and a Universal religion.”** (Arnold Toynbee)

In the fifteenth century Guru Nanak, the founder of Sikh religion, redefined human relationships and launched a revolutionary movement. It was a movement based on respect for all human beings irrespective of their caste, colour, creed or country of origin. The three simple principles he enunciated for the emancipation of humanity were *Naam japna* (prayer), *Kirt karna* (earning one's livelihood through honest labour) and *Wand shakna* (Share one's resources with the needy).

The movement was started at a time when people were divided on the basis of social status, religion, caste, sex and many other invidious distinctions. The rulers were oppressive and extortionate and the priests had become greedy and morally degraded. According to J.D.Cunningham Guru Nanak “extricated his followers from the accumulated errors of ages, and enjoined upon them devotion of thought and excellence of conduct as the first of duties. He left them, erect and free, unbiased in mind and unfettered by rules, to become an increasing body of truthful worshippers.” He was a spiritual innovator whose mind so revolutionised the society that he can be called a link between yesterday and tomorrow.

Guru Nanak's movement was later nourished vigorously by nine successors who reaffirmed the great Guru's philosophy through personal example and elaboration of the universal

principles inherited by them from the Master. They steadfastly stood for equality of human race, social parity of sexes, rejection of slavery and condemnation of economic and political exploitation. They hated religious intolerance and stood as a rock against ritualism.<sup>409</sup> This is exactly what the society needs today.

In the previous chapters an effort has been made to explain the salient beliefs and practices of this movement. The statements and ideas of this movement, when tested on modern thinking, turn out to be scientific and logical. For example the following ideas of Sikhism will find full favour with scientific thinking because they stand on logic.

“If salvation can be achieved by washing in water then a frog has a better chance because he remains in water everyday.”(AGGS p. 484)<sup>410</sup>

“You go to worship a stone image by walking over another stone. If the stone in front is a god (or goddess) then the other stone that is walked on is a greater god.”(AGGS p. 525)<sup>411</sup>

“If Yoga could be obtained by wandering around naked, then all the deer of the forest would be liberated. What does it matter whether someone goes naked, or wears a deerskin, if he does not remember the Lord within his soul? If the spiritual perfection of the Sidhas could be obtained by shaving the head, then why haven't the sheep found salvation? If someone could save himself by celibacy, O siblings of destiny, why then haven't

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<sup>409</sup> ਕਰਮ ਕਾਂਡ ਅਹੰਕਾਰ ਨ ਕਾਜੈ ਕੁਸਲ ਸੇਤੀ ਘਰਿ ਜਾਹਿ ਪੰਡਿਤ ॥ (ਪੰਨਾ ੮੯੧) ॥ ਕਰਮ ਕਾਂਡ ਬਹੁ ਕਰਹਿ ਅਚਾਰ (ਪੰਨਾ ੧੬੨). Abortion, cloning, euthenasia, blood transfusion, contraception, organ transplant, nuclear attacks, and biological warfare etc are fairly new issues. No religion has suggested any solutions to these problems directly but guidance on these and other issues can be easily inferred from religion.

<sup>410</sup> Hindus bathe at 68 religious places and claim that by doing so salvation is assured. ਜਲ ਕੈ ਮਜਨਿ ਜੇ ਗਤਿ ਹੋਵੈ ਨਿਤ ਨਿਤ ਮੋਡਕ ਨਾਵਹਿ (ਪੰਨਾ ੪੮੪)

<sup>411</sup> ਏਕੈ ਪਾਥਰ ਕੀਜੈ ਭਾਉ ॥ ਦੂਜੈ ਪਾਥਰ ਧਰੀਐ ਪਾਉ ॥ ਜੇ ਓਹੁ ਦੇਉ ਤ ਓਹੁ ਭੀ ਦੇਵਾ (ਪੰਨਾ ੫੨੫)

eunuchs obtained the state of supreme dignity?” (AGGS p. 324)<sup>412</sup>

Sikhism confronts superstition with a scientific argumentative approach. For example the Pandas at Hardwar questioned the Guru’s so-called sacrilegious act of throwing water to the West when everybody was throwing it to the sun in the East. The Guru said, “I am throwing water to my crops at Kartar Pur.” The Pandas asked, “How can your water reach hundreds of miles in Kartar Pur?” The Guru replied, “If your water can reach 93,000,000 miles at the sun, why can’t my water reach a few hundred miles on the earth?” The lesson went home to the Pandas and the general public that had gathered to see the spectacle.

Thus, we see that rationalism is never lost sight of in the Holy Guru Granth Sahib. The Guru stresses that “Only a person of keen intellect and precise understanding is immaculate in the entire world. In thoughtful contemplation he enjoys the elixir of divinity.” (AGGS p. 1325).<sup>413</sup>

Society today, aspires for democracy, non-violence, tolerance, peace, family life and respect for human rights. All these are enshrined in the fabric of Sikhism and form an integral part of Sikh belief. Again, it is a religion of action based on human freedom and moral laws, which no science has ever challenged. However much science developed, man will still require morality to lead a happy life. Sikhism is an attempt to bind humanity together for a spiritual and higher moral purpose.

Sikhism preaches moderation in everything. Recreational drugs, drinks and dances so common today, do not provide

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<sup>412</sup> ਨਗਨ ਵਿਰਤ ਜੋ ਪਾਈਐ ਜੋਗੁ ॥ ਬਨ ਕਾ ਮਿਰਗੁ ਮੁਕਤਿ ਸਭੁ ਹੋਗੁ ॥ ਕਿਆ ਨਾਗੇ ਕਿਆ ਬਾਧੇ ਚਾਮ ॥ ਜਬ ਨਹੀ ਚੀਨਿਸਿ ਆਤਮ ਚਾਮ ॥ ਮੁਭ ਮੁੰਡਾਏ ਜੋ ਸਿਧਿ ਪਾਈ ॥ ਮੁਕਤੀ ਭੇਡ ਨ ਗਈਆ ਕਾਈ ॥ ਬਿੰਦੁ ਰਾਖਿ ਜੋ ਤਰੀਐ ਭਾਈ ॥ ਖੁਸਰੈ ਕਿਉ ਨ ਪਰਮ ਗਤਿ ਪਾਈ ( ਪੰਨਾ ੩੨੪). Some world religions preach celibacy.

<sup>413</sup> ਬਿਬੇਕ ਬੁਧਿ ਸਭ ਜਗ ਮਹਿ ਨਿਰਮਲ ਬਿਚਰਿ ਬਿਚਰਿ ਰਸੁ ਪੀਜੈ (ਪੰਨਾ ੧੩੨੫) ਬਿਬੇਕ ਬੁਧਿ ਬੀਚਾਰਿ ਗੁਰਮੁਖਿ ਗੁਰ ਸਬਦਿ ਖਿਨੁ ਖਿਨੁ ਹਰਿ ਨਿਤ ਚਵੇ (ਪੰਨਾ ੧੧੧੪) ਬਿਬੇਕ ਬੁਧੀ ਸੁਖਿ ਰੈਣਿ ਵਿਹਾਣੀ ਗੁਰਮਤਿ ਨਾਮਿ ਪ੍ਰਗਾਸਾ (ਪੰਨਾ ੨੨੨)

happiness. Most of us confuse pleasure with happiness. Pleasure can be achieved in external things but happiness is found only in the innermost sanctuary of self. Some of us think that happiness can be enjoyed through accumulation of wealth but the Guru discredits this idea and says, “For the sake of this wealth, so many were ruined; because of this wealth, so many have been disgraced. It cannot be amassed without sin, and it does not go along with the dead.”<sup>414</sup> Accumulation of wealth by means of usurping the rights of others is the biggest sin. The Guru says, “Usurping another’s right is as abhorrent as pig meat for a Muslim or beef for a Hindu.”<sup>415</sup>

Eradication of hatred and inculcation of reverence for all, are the cardinal principals of Sikhism. The world today is simmering with discord and prejudice. Only Divine kinship based on the above stated principles can stem the tide. Sikhism is, therefore, the need of the time. In the words of the Sikh Philosopher Sardar Kapur Singh, the Khalsa was “the emergence of a race of God-conscious men,<sup>416</sup> who remain earth-aware and thus operate in the mundane world of phenomena, with the object of transforming and spiritualising it into a higher and more abundant plane of existence.”

Ritualism and formalism are crumbling under the tremendous sledgehammer blows of scientific research. The approach of Sikhism to the modern mind is based on reason. Therefore science poses no adverse challenge to Sikhism. On the other hand Sikhism has much to offer to the modern world. Not only are its beliefs simple and modern but also there is no inherent inconsistency between Sikhism and science. The reader

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<sup>414</sup> ਇਸੁ ਜਰ ਕਾਰਣਿ ਘਣੀ ਵਿਗੁਤੀ ਇਨਿ ਜਰ ਘਣੀ ਖੁਆਈ ॥ ਪਪਾਂ ਬਾਝਹੁ ਹੋਵੈ ਨਾਹੀ ਮੁਇਆਂ ਸਾਥਿ ਨਾ ਜਾਈ (ਪੰਨਾ ੪੧੭)

Ye seek happiness-alas, the day  
 Ye find it not in luxury not in gold,  
 Nor in fame, nor in the mired sway. (P.B.Shelley)

<sup>415</sup> ਹਕ ਪਰਾਇਆ ਨਾਨਕਾ ਉਸ ਸੁਅਰ ਉਸ ਗਾਏ (ਪੰਨਾ ੧੪੧). Love of money is the root of half the evil in the world, lack of money is the root of the other half” J.Weslay

<sup>416</sup> The word ‘men’ or ‘man’ used in Sikh literature applies to both sexes. It means mankind.

will have satisfied himself after reading this book that there is a great degree of concordance between rational scientific thought and Sikhism.

Sikhism walks hand in hand with modern scientific and technological theories. In many cases the modern theories and scientific thought simply confirm the Sikh teachings and as a consequence Sikhism has been ennobled and made more profound by science. Wherever there is divergence, Sikhism offers its own alternative views. The general instruction of Sikhism is to rationalize every opinion before accepting it and to continuously engage in research (ਖੋਜ)<sup>417</sup>

Sikhism can be called the focal point of all sciences. It is a process of discipline based on an enlightened philosophy, which passes the tests of spirituality and modernity at the same time. In the modern world where individuals are losing their moorings and floundering around in darkness, Sikhism is an anchorage. “Eastern thought, and more generally, mystical thought, provides a consistent and relevant philosophical background to the theories of contemporary science” (Dr.Fritjof Capra *Tao of Physics* p.25)<sup>418</sup>

In his *Autobiography*, R.A Millikan says, “It seems to me that the two great pillars upon which all human well-being and human progress rest are first, the spirit of religion, and second, the spirit of science—or knowledge. Neither can attain its largest effectiveness without support from the other. To promote the latter we have universities and research institutions. But the supreme opportunity for everyone with no exception lies in the first.”

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<sup>417</sup> ਖੋਜ ਖੂਠਾ ਜੁਠਾ ਕਰੈ ਬੀਚਾਰਾ (੩੪੨) ਖੋਜਤ ਖੋਜਤ ਬਹੁ ਪਰਕਾਰੇ ਸਰਬ ਅਰਥ ਬੀਚਾਰੇ (ਪੰਨਾ ੭੧੪) ਖੋਜੀ ਉਪਜੈ ਬਾਦੀ ਬਿਨਸੈ ਹਉ ਬਲਿ ਬਲਿ ਗੁਰ ਕਰਤਾਰਾ (੧੨੫੫) ਸਮਝੈ ਸੂਝੈ ਪੜਿ ਪੜਿ ਬੂਝੈ ਅੰਤਿ ਨਿਰੰਤਰਿ ਸਾਚਾ (ਪੰਨਾ ੯੩੦)

<sup>418</sup> Dr. Capra is of the opinion that “ the basic elements of the Eastern world-view are also those of the world-view emerging from modern physics”

We have seen that science and Sikhism are not irreconcilable antagonists. Indeed discerning the close inter-relation between Sikhism and science one can say that science and Sikhism can heartily embrace each other harmoniously and bring about all-round fulfilment of the human genius for the good of humanity.

Modern society can learn a lot from the Sikh practice of emphasis on respect for all religions, equality of nations and races and service to humanity. Voluntary service to mankind in the Sikh canon is almost a form of worship.

**“I am not without hope that when enlightened rulers become acquainted with the merits of the Sikh religion, they will not willingly let it perish in the great abyss in which so many creeds have been engulfed.”** (*M.A.Macauliffe*).

“ਗੁਰਬਾਣੀ ਇਸੁ ਜਗ ਮਹਿ ਚਾਨਣੁ ਕਰਮਿ ਵਸੈ ਮਨਿ ਆਏ ॥ (ਪੰਨਾ ੬੭)

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