IQBAL
RELIGION & PHYSICS OF THE NEW AGE

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IQBAL ACADEMY PAKISTAN

This book received
The National Presidential Iqbal Award
For the Years 2009-11

Publisher:
Ahmad Javaid
Director, Iqbal Academy Pakistan
6th Floor, Aiwan-i-Iqbal Complex,
Off Egerton Road, Lahore.
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Website: www.allamaiqbal.com

ISBN: 978-969-416-458-8

1st Edition	:	2011
2nd Edition	:	2015
Quantity:	:	500
Price	:	Rs. 200
Printed at	:	BPH Printers, Lahore

Sales Office: 116-McLeod Road, Lahore. Ph. 37357214

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INTRODUCTION

For thousands of years Man has been on a journey to find the answers to some of the most intricate questions about the world, the things around him and his place in the universe. This book explores this quest and looks at many of the scientific and philosophical advances made from as far back as the time of the Greeks in 300 B.C. It is incredible to see how far we have advanced since this time and this book details many of our astonishing achievements in the world of Science, and our progress in understanding the Universe. At the same time it asks the reader to consider the sublime faculties of Man's mind, and Man's spiritual and psychological development.

Space and time are complex subjects which have two facets, physical and metaphysical, but they are both aspects of the same reality. Therefore it is very difficult for us to fully grasp these two concepts through our normal mode of comprehension. This book attempts to present an intelligible way of understanding the physical universe as well as the metaphysical universe.

Alongside scientific theory we explore the theory that Man is the supreme creation of God. Iqbal (1877-1938), an eminent Pakistani philosopher, says that Man, in whom egohood has reached its relative perfection, occupies a genuine place in the heart of Divine creative energy, and thus possesses much higher degree of reality than the things around him. Christianity and Islam take the same stance when it comes to understanding Divinity. He observes that 'the great point in Christianity is the search of an independent content for spiritual life, which according to the insight of its founder, could be elevated, not by the forces of the world external to the soul of man, but by the revelation of a new world within the soul. Islam fully agrees with this insight and

supplements it by the further insight that illumination of the new world thus revealed is not something foreign to the world of matter but permeates it throuhgh and through.' This book carries the subtle idea of kinship between Islam and the West.

Our main theme here is understanding Man and Man's perception of the Universe and Spirituality. The two developing themes of science and theology are interwoven and can be intricately and beautifully connected. Through the ages mankind has taken ever advancing steps in the world of science, but it is essential that the same importance is placed on our spiritual development.

'Cultivation of Man's evolving spiritual perception is the most important task facing humanity'
(Rudolf Steiner)

Sadia Moeed
London

PREFACE

This book is the result of the inspiration that I received from reading both Stephen Hawking's *"A Brief History of Time"* and Allama Iqbal's "*The Reconstruction of Religious Thought in Islam*"

The aim of this work was to explain the difference between real time and intuited time. Or to put it another way: the difference between the divine and human perception of the passage of time. I was inspired by Iqbal on this topic as he had once declared that he wished to write a thesis on this which he declared had been "spoiled by Einstein". For Iqbal, the idea that Space and Time are intertwined with one another and had lost their identities as individual theories, came as a shock and an anathema.

Iqbal regarded time as a spiritual concept and he was concerned that the idea of a scientific reality imposed upon the divinity of time would steer humanity away from the ultimate spiritual essence of time.

This inevitably leads to a debate of science vs. religion; something which has been hotly contested in dozens of books by thinkers far greater than myself. My aim was therefore not to debate the rightness or wrongness of the Einsteinian view of spacetime but to bring to the table the views of those men, considered rational, who still believe in the law of divinity, men such as Iqbal and Kierkegaard.

At the end of the day there is rarely a happy medium to be struck between science and religion; however these opposing views still have their place. It is not for me to debate or postulate on the superiority of one over the others. What I do hope to achieve is to provide a concise collection of

theosophical views which should still be heard in a world of science.

I am sure that the general reader will find many fascinations in this book.

G. Sabir

ACKNOWLEDGEMENT

I wish to acknowledge my indebtedness and express my gratitude to the great authors, translators and publishers of the books: A Brief History of Time by Stephen Hawking; English translation of Relativity by Albert Einstein, An Outline of Philosohy by Bertrand Russell; Asrar-o Ramoz translated by Mian Abdul Rashid, published by Sh. Ghulam Ali; A Short History of Nearly Everything by Bill Bryson; Bang-i Dara by Iqbal, published by Sheikh Ghulam Ali; Creative Evolution by Henri Bergson (Translator Arthur Mitchell); Cosmos by Carl Sagan; A dictionary of Philosophy, the edition published by Pan Books Ltd., London. (Original published by Macmillan Press); Darwin to Einstein edited by Colin Chant and John Fauvel; Einstein and Religion by Max Jammer; The Emergence of Life by John Butler Burkey; God and the New Physics by Paul Davies; An Introduction to Islamic Cosmological Doctrines by Seyyed Hossein; Prolegomena to Any Future Metaphysics by Immanuel Kant; Iqbal by Mustansir Mir; Iqbal and Post Kantian Voluntarism by Bashir A. Dar; Kulliyat-i Iqbal Urdu, pubished by Iqbal Academy Pakistan; Laws of Nature by Rom Harre; Bergson by Leszek Kolakowski, Master of Time by John Boslough; Knowledge and the Sacred by Seyyed Hossein Nasr; The Penguin Dictionary of Science published by Penguin Books Ltd. U.K. and USA; The Place of God, Man and Universe by Dr. Jamila Khatoon, published by Iqbal Academy Pakistan; Philosophical Problems of Space and Time by Adolf Grunbaum, published by Routledge and Kegan Paul Ltd., London; The River of Time by Igor D. Novikov; The Reconstruction of Religious Thought in Islam by Dr. Muhammad Iqbal; Stephen Hawking's Universe by John Boslough; Secrets of the Self, translated by R. A. Nicholson, last printed by Sh. Muhammad Ashraf, Lahore, Pakistan; Speeches, Writings and Statements of Iqbal compiled and

edited by Latif Ahmad; The Development of Metaphysics in Persia by Dr. Muhammad Iqbal; The Great Beyond by Paul Halpern; The Mind of God by Paul Davies; Time, Space and Things by B.K. Ridley, published by the Press Syndicate of he University of Cambridge, U.K.; Zabur-i Ajam by Iqbal, published by Sh. Ghulam Ali and Sons. Pakistan.

I am also grateful to my granddaughter Sadia who reviewed the first draft for grammatical corrections. Finally I am thankful to my grandson Naveed, who procured and sent to me most of the above mentioned books from London. Without his help it could not have been possible for me even to contemplate starting a subject like this. I feel proud of my grandchildren.

G.S.

CHAPTER I

EVOLUTION OF THE PHYSICAL UNIVERSE

"I believe our future depends on how much will we know this Cosmos in which we float like a mote of dust in the morning sky." (Carl Sagan).

Albert Einstein (1879-1955) said that 'the idea of independent space and time can be explained drastically in this way: 'If matter were to disappear, space and time alone would remain behind (as a kind of stage for physical happening).'

In order to set the context of this treaty on the perceptions of space and time we first of all need to briefly examine the evolution of thought which leads to our current common understanding of the subject. This body of knowledge we will hopefully set side by side with a "divine" perception of space and time and thereby hope to demonstrate that there is a valid school of metaphysical thought which, while not commonly popular is nevertheless still important to hold as a mirror to beliefs which we now find commonplace.

The importance of the universe, the changing of day and night, the stars, the planets and their movement has always been an attraction to human eye. The Greek philosophers could not possibly ignore such a big question mark in the human mind. Credit for initiating the investigation into the structure of universe goes to Aristotle (384-322 B.C.). His book, written in 340 B.C., named *On the Heavens,* was mankind's first tentative step towards attempting to

comprehend the structure of the universe. Prior to this cosmological order was not clear in the minds of the Greeks (who at the time still considered the Earth to be flat). Aristotle postulated that the Earth was a round sphere and stationery at one point. He maintained that the Sun, the Moon, the stars and planets were moving around the Earth, and that eclipses of the Moon occurred when the Earth was in-between the Moon and the Sun. Since the shadow of the Earth on the Moon was always round, it was therefore clear that the Earth was round. Similarly as the sail of a remote ship is always seen much before appearance of its body on the surface of the sea, it could be postulated that the Earth is in fact spherical.

In the second century (A.D.) Ptolemy developed a cosmological model, which showed the Earth at the centre and the Sun, Moon, Mercury, Venus, Saturn, Mars, Jupiter and stars as surrounding the Earth. The model developed by Ptolemy and the Greek concepts of the Universe, such as their notion of Time and Space, came under review in later centuries by Ikhwan al-Safa (The Brethren of Purity) during the 10^{th} and 11^{th}. Centuries (A.D.). This was a group of scholars from Basra whose achievements in mathematics, medicine, astronomy and physics were to serve as a guide to natural philosophy and the sciences for centuries to come. Their deliberations were available to future generations in the shape of their *Rasa'ils* (journals).[1]

The Ikhwan rejected the Aristotelian notion of time as nothing more than a measure of movement. While they did relate time to the motion of heavenly bodies in the physical world, from metaphysical point of view they maintained that

[1] ICD p. 25-26 The names of authors of *Rasa'ils* varried from time to time. At one time some of the names as given by Ibn al-Qifti are "Abu Sulaiman Muhammad ibn Mas'ud al-Basti, Abul Hasan Ali ibn Wahrun al-Sabi, Abu Ahmad al-Nahrjuri, Awfi al-Basri and Zaid ibn al-Rifa'l. Abu Hayaan al-Tawhidi claims that the wazir, Abu Abdallah al-Sad'an, who was killed in 985 A.D., had in his service a group of scholars including Ibn Za'rah (942-1007), Miskawaih al-Razi (died 1029), Abu'l Wafa al-Buzjani. Abul Qasim Alahwazi, Abu Sa'id Bahram, Ibn Shahuyah, Ibn Bakr, Ibn Hajjaj al-sha'ir, Shukh Shi'I (died 1000), and Ibn Abid Alkatib."

'time is a pure form, an abstract notion, simple and intelligible, elaborated in the soul by the faculties of the spirit. It is born there through the meditation upon the regular repetition of the nights and days around the Earth and resembles the generation of numbers by the repetition of One.'[2] They intuited that time was intimately connected with creation. For them space bore no reality independent of this world but was one of the conditions of physical existence.

Thus according to them space did not exist outside the cosmos and the Universe cannot be said to be in space. All that which is in space is by nature dependent upon the Universe. Physically space or place is the boundary of bodies, which was also the view expressed by Aristotle.

Metaphysically space was an abstract, simple and intelligible idea, 'a form abstracted from matter and existing only in consciousness.' To them it is not void and not like the surface of a substance. They agreed with the Aristotelians that a void must be in a place or the so-called space. But place is a quality of bodies and cannot be found except where there are bodies. As such where are no bodies there is no place or no space. In other words there is no empty space– the entirety of space is full with bodies observable as well as unobservable.

As stated earlier Ptolemy's model showed the Earth in the centre with the Sun, planets and stars around the Earth. By contrast in the Ikhwan's cosmology the Sun is placed in the centre of the universe and below it stand Venus, Mercury, Moon, the sphere of air, and the Earth, and above it there are another five spheres. These are the spheres of Mars, Jupiter, Saturn, the fixed stars, and then the *Muhit* (outer sphere).

As both Greek and Arabic philosophies began to spread through the known world, it was still some centuries before humanity's next step in the evolution of cosmology. Nicholas Copernicus (1473-1543) was born at Torun in Poland; a priest, physician, mathematician and astronomer. He

[2] ICD P.63

produced a model of universe more simple and modified than that of Ptolemy. In his model he showed that the Sun was stationary at the centre and that the Earth and planets moved in circular orbits around the Sun. He proved mathematically that the Earth was spherical and in uniform motion around the Sun. He had to face a violent opposition from the Church at his discovery that "the Earth, and hence the mankind, is not at the physical centre of the universe".[3]

However the most celebrated victim of the Church's ignorance was yet to come. At the beginning of seventeenth century Galileo Galilei (1564-1642), the Italian born philosopher, mathematician, astronomer and physicist started observing the sky at night with a telescope for the first time. The result of his observations together with rigorous mathematical application was to shock the world of cosmology. In the words of Hawking, 'The death blow to the Aristotelian/Ptolemaic theory came in 1609. In that year Galileo started observing the night sky with a telescope, which had just been invented. By looking at the planet Jupiter, Galileo found that it was accompanied by several small satellites or Moons that orbited around it. This implied that everything did not have to orbit around the Earth, as Aristotle and Ptolemy had thought.'[4]

Igor D. Novekov writes in his famous book *The River of Time* that 'Galileo developed a new understanding of physics, and formulated the first truly substantiated foundations of the science of time, which were later beautifully developed in the work of Isaac Newton.' Einstein praised the works of Galileo by saying that 'the science relating the theory and experiment was actually born in Galileo's work.'

Johannes Kepler (1571-1630), a contemporary of Galileo, was a German mathematician and astronomer. He modified the theories of Copernicus by formulating his, now famous laws of planetary motion. Maintaining that the planets did not

[3] DOP p. 76
[4] ABH p. 4

move in round circles but in ellipses (Kepler's first law), his second law of planetary motion was that the 'planets sweep out equal areas in equal times.' The third and last law mathematically related the orbital period of any orbiting body with its semi-major axis (the point in an ellipse at the greatest distance from its centre). He described all this in his work *The harmonies of the World*[5]. The aesthetic aspect and harmony in the musical sense as well as the order and beauty of planetary motion as conceived by Kepler makes him unique among mathematicians and astronomers.

Three centuries before Einstein, Rene Descartes (1596-1650) was born in La Haye, France. In the short span of 54 years of his life, he brought about a revolution in philosophical thought and mathematics. His first book *Regulae ad Directionem Ingenil* (Rules for the Direction of the Understanding) composed in 1620s but published after his death in 1701, laid the foundation for this new paradigm as mathematical reasoning. He declared that 'those who are seeking the strict way of truth should not trouble themselves about any object concerning which they cannot have a certainty equal to arithmetical or geometrical demonstration.' Descartes believed that mathematical reasoning was applicable to the whole of science. Such knowledge, for him, is a united system in which 'all the sciences are interconnected and dependent on one another.' His contribution to mathematics was remarkable particularly in the reform of algebraic notation and in the development of co-ordinate geometry. His famous treatise, *Law Monde,* contained a complete theory of the origin and working of the solar system.[6]

Both Descartes and Issac Newton (1642-1727) agreed that there is no empty space. To Newton Nature abhorred empty space. Newton was born one year after the death of Galileo. He was British mathematician and a physicist who postulated

[5] COS p. 78-79
[6] DOP p. 89

the Law of Universal Gravitation and contributed richly to the theory of light. Newton's *Philosophiae Naturalis Principia Mathematica* (1687) provided for the first time a comprehensive system of mechanics that accounted for the motion of bodies on or near the surface of the Earth and also for all the motion throughout the Universe, including that of the Moon around the Earth and the other planets around the Sun. This book as Hawking says 'is probably the most important single work ever published in the physical sciences. Newton not only put forward a theory of how bodies move in space and time, but he also developed the complicated mathematics needed to analyse those motions.' Newton said that his discovery of universal law of gravitation was supporting evidence for belief in a deity (God).[7]

Newton regarded space and time both as 'absolute'. To Newton every event in the universe occurs in empty space – empty not in the sense being a vacuum – but the space which holds in itself all bodies and all processes. In his *Principia* he wrote: 'Absolute space in its own nature, without relation to anything external, always remains similar and immovable'. Time he viewed as: 'Absolute, true, and mathematical time, of itself and from its own nature, flows equably without relation to any thing external, and by another name is called duration; relative, apparent, and common time, is some sensible and external (whether accurate or inadequate) measure of duration by the means of motion, which is commonly used instead of true time; such as an hour, a day, a month, a year.'[8]

It was not until the advent of Albert Einstein that the world would see the next chapter in the evolution of space and time. It is Einstein's theories of General and Special Relativity which form the foundation today of most cosmological science. Bill Bryson says that 'the most challenging and non-intuitive of all the concepts in the General Theory of Relativity is the idea that time is part of

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[7] DOP p. 245
[8] PPS p. 81

space.' It is this concept of time, which we will study exclusively at the end of this book, with special consideration to alternative views of time from the Einsteinian theory.

It was Einstein's dream to describe the four forces of nature (gravitation, electromagnetism, the strong nuclear force and the weak nuclear force) by means of a single deterministic set of equations. His dream was never fulfilled during his life, but he left the idea to the following generation of scientists. The Holy Grail of physics: a unified theory of the four forces of Nature which could be combined together to address every thing with regards to the universe.

Dozens of eminent scientists of the age, rejected forthwith Einstein's theory of Special Relativity after it was announced. Most of them considered it impossible for one person to describe the entire universe in a single mathematical equation. Ultimately experiments proved the authenticity of the two theories of Relativity. If not the whole at least a major part of his theories have been unanimously accepted.

Bertrand Russell stated that Einstein's theory of relativity was perhaps the most critical evolution in the philosophy of space and time; in the sense that it has abolished 'the one cosmic time and the one persistent space,' and substituted space-time in place of both. He wrote that 'this is a change of quite enormous importance, because it alters fundamentally our notion of the structure of the physical world, and has, I think, repercussions in psychology.'[9]

Since the age of the Greek philosophers, countless books and articles have been written about time and space; by scientists and theologists alike. To some modern scientists space has almost lost its existence as a reality following Einstein's theory of relativity; in this new science space and time are no more than two modes of viewing the Universe and they have lost their existence as two separate entities.

In order to understand this better, it is useful to turn to one of Einstein's modern day successors. Stephen Hawking,

[9] AOP p. 86

Lucasian Professor of Mathematics at Cambridge University, says that today's scientists are describing the universe 'in terms of two partial theories– the general theory of relativity and quantum mechanics'. To him these are the great intellectual achievements of the 20th century. 'The general theory of relativity describes the force of gravity and the large-scale structure of the universe, that is, the structure on scales from only a few miles to as large as a million million million (1 with twenty-four zeros after it) miles, the size of the observable universe.' The other one is quantum mechanics which 'deals with phenomena on extremely small scales, such as a millionth of a millionth of an inch.'[10] Hawking states that 'the eventual goal of science is to provide a single theory that describes the whole universe.'

According to Hawking the universe is expanding at the rate of 5 percent to 10 percent, every thousand million years. To him it looks like that the expansion will continue for ever. If we add up the matter of all the stars in the galaxies known so far its total is less than one hundredth of the amount which will be required to slow down the expansion of the universe. However, there is the presence of large amount of dark matter which cannot be seen but we know it exists 'because of the influence of its gravitational attraction on the orbits of the stars in the galaxies. Moreover, most galaxies are found in clusters, and we can similarly infer the presence of yet more dark matter in between the galaxies in these clusters by its effect on motion of the galaxies.' Even taking into account all this dark matter and factoring in the mass of the known galaxies we only observe a total of nearly one tenth of the required amount to halt the expansion.[11]

The poet philosopher Iqbal also felt the same way as expressed by him in the following verses:

Ye ka-i-nat abhi na-tmam hai sha-yad;

[10] ABH p. 11
[11] ABH p. 45-46

Key aaraha hai damadam sada-i Kun Fa-yakoon"[12].

In these verses Iqbal is saying: "The universe seems still in the making; I am constantly hearing God's words '*Be; And it is*"'. The phrase 'Be; And it is' are the words of Qur'an for the creation of the universe, wherein God says that He created the universe just by saying "Be" and the universe came into existence. This also shows that the universe was created instantly. Qur'an states God's decree to create universe in these words: *"To Him is due the primal origin of the heavens and the Earth; When He decreeth a matter, He saith to it:'Be; And it is'"*[13]

The nineteenth and twentieth centuries gave birth to the scientists and philosophers who in fact have set the path for the future generations of mankind to study Nature more in depth and uncover the still hidden secrets, which lie in abundance in our universe.

[12] KIU p. 40 (Iqbal's book Bal-i-Jibreel)
[13] Qur'an 2:117

COMPREHENDING THE COSMOS

Hawking says that 'cosmology is the study of the universe as a whole.' Cosmos is a Greek word, which implies fitness, beauty and orderliness. Cosmology is the philosophy that deals with the Universe as a whole metaphysically as well as scientifically. Space and time are also included in the study of cosmology. In order to grasp the reality of our Universe and to be aware of its purpose we need to think beyond the material existence of things. In that way we may be able to observe the great harmony, perfect order and marvelous beauty of the Universe, which is reflected in every single object around us. What we need is to develop our insight in order to observe this beauty. There should be no doubt that human insight has the capacity to see the real beauty. Einstein states that 'the only incomprehensible thing about the universe is that it is comprehensible'. Cosmologist Carl Sagan believes, 'science has found not only that the universe has a reeling and ecstatic grandeur, not only that it is accessible to human understanding, but also that we are, in a very real and profound sense, a part of that cosmos, born from it, our fate deeply connected with it.'[14] To him the future of mankind 'depends on how much will we know this Cosmos on which we float like a mote of dust in the morning sky.' The Earth is our home and also a part, though tiny, of the universe; and if it is also 'understandable', as stated by Sagan, there is no question why we should not have some knowledge of it. This is not only something which is our necessity but a binding on us to acquire that knowledge. As Hawking puts it 'today we still yearn to know why we are here and where we come from. Humanity's deepest desire for knowledge is justification enough for our continuing

[14] COS p. 12

quest. And our goal is nothing less than a complete description of the universe we live in.'[15]

Sagan puts this quite beautifully when he wrote, "The surface of the Earth is the shore of the cosmic ocean. From it we have learned most of what we know. Recently, we have waded a little out of sea, enough to dampen our toes, or at most, wet our ankles. The water seems inviting. The ocean calls. Some part of our being knows this is from where we came. We long to return."[16]

The study of cosmology in both Eastern and Western philosophy can therefore be attributed to this desire. A fact which is borne out in the writings of some of the most pre-eminent minds on the human condition. Iqbal says that a scientist is also a Sufi as his research is a search of reality. Iqbal's spiritual teacher Rumi (Muhammad Jalaluddin Rumi (1207-1273), a saint, a great Sufi and renowned poet, also said that 'we long to return from where we came'. Both of them are disclosing the result of their deep contemplation during which they intuited the reality, the hidden desire of every being to return to its origin, the ultimate destination of every thing. The words used for 'origin' may be different but they carry exactly the same meaning. Carl Sagan calls it the 'ocean' while the flute of Rumi, which is made of a bamboo stick, names its origin as 'Bamboo Forest'. The flute of Rumi complaints of its being separated from its origin in the following verses:

Bishno az naye choon hikayat mee kunad,
Waz Judai-haa shikayat mee kunad.
Kaz nayastaan ta maraa bibureeda-and,
Az nafeeram mard-o-zan naleeda-and.[17]

In the above verses Rumi is telling us: "Listen to the story of the flute, it is complaining of its separation. The flute is lamenting and crying saying that it has been brought here by being separated from the bamboo forest [its origin], and

[15] ABH p.13
[16] COS p. 20
[17] Mathnavi Maulana Rum, volume one, verses 1-4.

therefore its lamentation is causing every person, men and women, to weep."

Sagan and Rumi are conveying the same message: "We long to return". In fact every being has to return to the origin, the last and final destination of each and everything. According to the Holy Qur'an God likes those who patiently persevere the calamities and say: *"To God we belong and to Him is our return."*[18]

The Cosmos is vast and what man has been able to perceive so far is just a fraction of it. How much remains unseen is beyond the power of human imagination. Yet we are driven to seek more, to return to the origin by way of understanding the Universe.

[18] Qur'an: 2:156

GALAXIES AND UNIVERSAL EXPANSION

Galaxies, composed of gas and dust and stars can contain billions upon billions of stars. Sagan wrote, that every star may be a Sun to someone. According to the NASA website the Hubble Space Telescope estimated that there are 125 billion galaxies and 3.5 trillion dwarf galaxies.[19] Our galaxy, the Milky Way, consists of approximately 200 billion stars. Our solar system is part of the Milky Way, the collection of stars that are members of the galaxy to which the *solar system* belongs. The galaxy is, therefore, often referred to as the Milky Way.[20] It has been said time and again, yet it is vital to note here, the the sheer size and numbers involved in the cosmos, leave it beyond the scope of comprehension for mere mortals. And it is with this in mind that we should understand that what we are looking is actually never truly understandable. This enormity thus begs the question, that by reducing the infinite to mere numbers and equations have we actually grasped its true concept?

We mentioned earlier that there is no empty space in the universe. Prior to 1800 it was the general view of physicists that there existed something which filled the vacuum of space in the Universe. This something was named ether or Aether. According to them this substance was invisible and weightless. During nineteenth century also this belief persisted among the scientists. To this even Newton and Descartes were not exceptions. Ether was considered as the medium by which light and electromagnetism travelled; since both are waves, and being a type of vibration must occur in something. Hence the need for, and lasting devotion to ether.

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[19] http://imagine.gsfc.nasa.gov/docs/ask_astro/answers/021127a.html (20-06-2009)

[20] PDS p. 245

So much so that in 1909 the physicist J.J. Thomson, said that 'the ether is not only a fantastic creation of the speculative philosophers, it is essential to us as the air we breathe'. Astonishing that just after four years in 1913 it was unanimously established that there was nothing like ether or Aether covering the empty space in the universe.[21]

Edwin Hubble (1889-1953), born ten years after Einstein, in a small Missouri town , declared in 1929 that the distant galaxies were moving away from us rapidly. This meant that universe was expanding. In turn this demonstrated, as explained by Stephen Hawking, that at earlier times objects would have been closer together. In fact, it seemed that there was a time, about ten or twenty thousand million years ago, when they were all at exactly the same place and when, therefore, the density of the universe was infinite. This discovery finally brought the question of the beginning of the universe into the realm of science.[22] 'The discovery that the universe was expanding is one of the great intellectual revolutions of the twentieth century,' remarked Hawking.

Regarding the expansion of the universe, Hawking gives the example of a balloon with several spots on its surface; when it is blown up it starts expanding and consequently the distance between any two points also starts increasing. We, therefore, come to the conclusion that the universe is not static as previously thought. All the galaxies are moving away from us as well as from each other, and none of the spots on the balloon could be treated as centre. It has also been observed that the farther galaxies are moving faster than the closer ones.

This has been borne out scientifically 1965 by scientists testing microwave equipment at the Bell Telephonic Laboratory in New Jersey. Arno Penzias and Robert Wilson detected a strange uniform signal coming from all parts of the sky. Further investigations by sending high altitude balloons

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[21] ASH p. 156-7
[22] ABH p. 8

and spacecraft into the orbit of the Earth confirmed not only the existence of background signals but showed that the radiation was astonishingly smooth and regular. In 1970 the astronomer Vera Rubin disclosed with evidence that the universe was changing faster and not in a way as described in the Hubble expansion theory.[23] Initially the astronomical community criticised Rubin's discovery but within two years astronomers started looking seriously into her findings. The background radiation discovered in 1965 now became an evidence of Rubin's practical observation.

Further experiments carried out on background radia- tion revealed surprising results; 'The radiation was shifted slightly toward the red end of the spectrum on one side of the sky, and slightly toward the blue end in the other direction.' It was concluded that the Earth and solar system were moving rapidly toward the blueshifted background radiation. Later on it was discovered that not only the Milky Way but 'the entire local group of about thirty galaxies was moving in the same direction' at a speed of 600 kilometres per second or nearly 2 per cent the speed of light.

In fact we do not know and surely cannot know everything about the universe as it is so vast that its vastness is beyond human imagination. We are unable to know even the number of stars, planets, Moons, Suns and black holes in our own galaxy which is not too far from us and of which our solar system is a part of it. We do not know completely about the environment of our own home, the solar system, where we are actually residing.

[23] MOT p. 18

BLACK HOLES

One of the most mysterious and interesting objects discovered in the universe is the *black hole*. It begs discourse in this work as the mere existence of such an object and the lack of a complete understanding of the phenomena, lends to further questions as to whether an alternative metaphysical view of the universe may hold credibility.

Black holes cannot be seen but still very much exists. The term *black hole* was used for the first time in 1969 by John Wheeler, an American scientist. Hawking, in *A Brief History of Time,* has explained how a black hole might be formed. Here we are not going into the detail but will describe briefly about the process of the life of stars that ends up as a black hole. Hawking says that 'a star is formed when a large amount of gas (mostly hydrogen) starts to collapse in on itself due to its gravitational attraction'. Then the atoms of gas start colliding with each other and when their collision gets up speed the gas starts heating up, which rapidly increases and ultimately made the star shining. Eventually the star burns out all of its hydrogen and nuclear fuels and ultimately the light emitting from the star also stops. The star which was once shining now becomes a black hole There are billions of such stars that we see today but they might have stopped shining long ago. It is only their light that is reaching us after they had burnt out all their fuel and stopped emitting the light hundreds of thousands years ago. Hawking says that 'when a star runs out of its fuel, it starts to cool off and so to contract.' According to him our Sun has got the fuel enough for approximately another five thousand million years, but, says he, 'more massive stars can use up their fuel in as little as one hundred million years, 'much less than the age of the universe.'[24]

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[24] ABH p. 83

The gravitational field around black hole is called 'event horizon'. It is so strong that if an astronaut on a spaceship could cross the boundary of black hole, the 'event horizon', he will be immediately swallowed together with his spaceship at the velocity of the speed of light. The man swallowed by the black hole will never be able to come out. He will not be able to send any signal or a message to the outside world by any means what- tsoever. Hawking says that anyone who falls through the event horizon of a black hole will soon reach the region of infinite density and the end of time.

Hawking says that the number of black holes may be greater than the number of visible stars, which in our own galaxy are about one hundred thousand million. He states to have some evidence that there is one very large black hole at the centre of our galaxy, which has the mass of about a hundred thousand times that of the Sun. 'It is thought that similar and even large black holes, with masses of about a hundred million times the mass of the Sun, occur at the centre of quasars.' Hawking writes that 'the physicist John Wheeler once calculated that if one took all the heavy water in all the oceans of the world, one could build a hydrogen bomb that would compress matter at the centre so much that a black hole would be created. (Of course, there would be no one left to observe it!)'[25]

[25] ABH p. p. 91 & 96

NATURE'S LAWS

No discourse on the cosmos would be complete without a closer look at the laws which bind nature,

Hawking states that 'today scientists describe the universe in terms of two basic partial theories … the general theory of relativity and quantum mechanics'. To him these are the great intellectual achievements of the twentieth century. According to Hawking the 'General theory of relativity describes the force of gravity and the large-scale structure of the universe, that is, the structure on scales from only a few miles to as large as a million million million million (1 with twenty-four zeros after it) miles, the size of the observable universe. Quantum mechanics, on the other hand, deals with phenomena on extremely small scales, such as a millionth of a millionth of an inch.' Hawking and other scientists have been working to find a new theory which will incorporate them both – a so called quantum theory of gravity.[26]

Everything is floating in the space including the smallest particles to the mightiest bodies in the cosmos. We are quoting below verses from the poetry of Iqbal about the movement of things in the universe:

Fareb-i nazar hai sukon-o sibaat;

Tarapta hai har zarra-i ka-inaat.

Means: "nothing is at rest, it is all illusion; Everything even a tiny particle is moving."[27]

According to Einstein 'space appears as an unbounded medium or container in which material objects swim around'.[28] We have described in previous pages about the movement of different planets including that of our Earth.

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[26] ABH p. 11-12

[27] KIU P. 130 (Bal-i Jibril)

[28] AER p.138-139

The main force of gravitation, which maintains the distances in between the stars and planets has also been discussed earlier. The pre-eminent scientists and philosophers of the seventeenth, eighteenth and nineteenth centuries provided highly valuable guidance to the future generations of scientists to make further explorations and make the best use of nature's laws.

Science has uncovered certain forces of nature that are operating in the universe. These forces are four in number: gravity, strong nuclear force, weak nuclear force and electromagnetism. Gravity is the most dominating force despite the fact that the strong nuclear force, which is one of the three sub-atomic forces, is trillions times more powerful than gravitation. However, the arena in which each of these operates are unique. Gravity controls all the objects in entire cosmos from the smallest to the heaviest objects in the universe. The other three rules operate at the sub-atomic level. The strong nuclear force holds the nucleus of an atom together. Electromagnetism keeps electrons in place around the nucleus, making the matter look solid. The weak nuclear force causes radio-active decay in uranium and certain other items.[29]

Evidently the four forces, as described above, must have come into operation when universe came into existence. This was time as determined by theoretical physicists, applying the latest mathematical calculations, as less than a billion trillionth of a second after the Big Bang. The question arises: where were these four forces before the Big Bang? The answer is simple: *inside the singularity*. This gives a clue to the scientists in favour of creating a unified theory, as they say that if the four forces existed together at the time of Big Bang, why can't these be unified today at least in a mathematical theory. The idea stuck in the mind of Einstein and he started working to evolve a formula where all the four forces could be united to answer the questions which are still unsolved. The life of

[29] SHU p.13

Einstein was too short for such a big task, in which the scientists of the present time are still engaged and struggling to unveil the mystery.

Paul Halpern, the award winning physicist, mathematician and author of *The Great Beyond,* says that 'the four forces are like stubborn brothers. Each of them behaves in its own characteristic way. They look like "odd brothers" but they share common parentage'. As stated earlier, there was a time close to the big bang that the four forces resided at one place. 'Somehow, though, in the changing environment that marked the passage of time, each force went its separate way and acquired its own characteristic. As the universe cooled these distinct properties froze into place, like the varied shapes of ice crystals forming on a frigid window. Science has already proven the fraternity of two of the four natural forces. In the 1960s, the physicists Steven Weinberg (of Germany) and Abdus Salam (of Pakistan) developed a unified explanation for the electromagnetic and weak (nuclear force) interaction, known as the electroweak model.' The greatest hindrance in building a unified theory is the reluctance of gravity. John Boslough says that 'gravity residing with its brethren seems to acquire a colossal new extension, and that extension is a universe with higher dimensions.'[30]

Hawking says that 'the eventual goal of the science is to provide a single theory that describes the whole universe.' In his famous book, *A Brief History of Time,* he has discussed the subject in a full chapter specified for 'The Unification of Physics'. At the very outset on the subject he tells that 'it would be very difficult to construct a complete unified theory of everything in the universe all at one go.' Therefore, he suggests to onstruct partial theories to describe 'limited happenings'. Hawking has described in the first chapter of his book, *A Brief History of Time,* about the theory of general relativity, the partial theory of gravity, and the partial theories that govern the weak, the strong, and the electromagnetic

[30] TGB p. 4

forces. He says that 'the last three forces may be combined in the so called grand unified theories, or GUT's, which are not very satisfactory because they do not include gravity and because they contain a number of quantities, like the relative masses of different particles, that cannot be predicted from the theory but have to be chosen to fit observation.'[31] Hawking writes: 'A complete, consistent, unified theory is only the first step: our goal is a complete *understanding* of the events around us, and of our own existence.'

We are not going into further detail to elaborate the views of Hawking and other scientists on this issue as it entails complications – moreover this is not a scientific treatise. Our main purpose is to have some general knowledge of the universe and a little awareness of the efforts of our scientists who have devoted their lives searching nature's secrets for the benefit of mankind. More to the point of this thesis it is to illustrate that the realm of physics has begun to encroach the realm of metaphysics and by doing so has reopened the debate on our perceptions of time and space.

[31] ABH p. 156

PARTICLES

The presence of ether in the universe as conceived by earlier scientists was not just an imaginary idea but there was certainly a basis for its existence. The basis of this idea was similar to the one which is with the modern generation of scientists who maintain that all the space is occupied by matter and there is no empty space. Space, which to our eyes looks empty, is not empty in a real sense but is occupied completely with unseen atoms. The observable objects and all the space in the universe are made up of atoms. The famous physicist, Richard Feynman, said that if you had to reduce the scientific history to one important statement it would be "all things are made of atoms."[32]

The basic working arrangement of atom, is a molecule. The molecule is a Latin word which means 'little mass'. 'A molecule is simply two or more atoms working together in a more or less stable arrangement. … One cubic centimetre of air, the size of a sugar cube, at sea level with zero degree temperature Celsius contains 45 billion billion molecules.' Just imagine how many sugar cube size of molecules could be in the part of space that is observable to us, and how many such sugar cubes should be occupying the whole universe. The atom itself is such a tiny thing that if you add up half a million atoms their volume will be less than the thickness of a human hair.[33]

Elementary particles are even smaller than an atom. It is the smallest piece of matter in the universe. As Einstein tells us, matter can be converted into energy and energy can be converted into matter. Every material thing contains huge amount of energy. An average normal person contains 7 X

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[32] ASH P. 175
[33] ASH p.175-6

10^{18} joules (energy units) of potential energy– enough to explode with the force of thirty very large hydrogen bombs.[34]

Whatever things we observe around us they apparently look as solids. In the room I find the table in front of me as made of solid wood, a piece of paper lying on the table is also solid, there is also a glass of water which is solid and the water in it is also 'solid'. But the reality is quite different. None of these are truly solid. Each and every thing consists of particles. According to Hawking, 'there are about ten million million million million million million million million million million million million million million million (1 with eighty zeroes after it) particles in the region of the universe that we can observe.'[35]

Particle physicists work day and night examining properties of various kind of particles that have so far been discovered. Some of them seeking a unification theory for particles with the forces of Nature.

Scientists have divided particles into two classes: 'particles of physical matter and particles mediating the interactions. … These two sorts of particles served completely dissimilar functions,' says Igore D. Novikov, the Director of the Theoretical Astrophysics Centre in Copenhagen and Professor Astrophysics at Copenhagen University. The question arises whether it is feasible in some way to unite the two types of particles which have quite 'dissimilar functions'? Professor Novikov thinks that if 'modern physics can unite dissimilar things like time and space, or electromagnetism and nuclear forces, the idea of unifying the constituent parts of matter and force carriers does not appear to be too absurd.' According to him the task of the science is now to unify gravitation with all other forces and particles. To him this may possibly be achieved by introducing additional dimensions to space as some of the scientists have suggested. The work so far done in this direction has been proved

[34] ASH p.161
[35] ABH p. 129

encouraging. Scientists have suggested theories with 10, 11 and 20 dimensions as against Einstein's four dimensions of space-time (three dimensions of space and one dimension of time). The favourite theory among the scientists, according to Novikov, 'is the one with ten dimensions.'[36]

We shall be lacking if we do not mention the contribution to this field by a great Danish Physicist Niels Bohr (1885-1962), a name prominent among the revolutionary scientists of the twentieth century. He used the quantum theory of Max Planck (a german scientist) to put forward the theory of the atom. Bohr's model of the atom was proposed by him in 1913. According to his theory 'electrons orbit the nucleus at various distances, much like planets circle the Sun. Unlike the solar system, however, electronic orbits have discrete spacing between them, nothing can lie in between.'[37] He is the only Dane to have won the Nobel Prize for Physics.

[36] TRT p. 185-186
[37] TGB p. 95

CHAPTER II

THE METAPHYSICAL UNIVERSE

"The causality-bound aspect of Nature is not the whole truth. Ultimate Reality is invading our consciousness from some other directions as well, and the purely intellectual method of overcoming Nature is not the only way." (Iqbal)

"The abstract of all the sequences is Time and the abstract of all the co-existences is Space."(Herbert Spencer)

According to Carl Sagan 'the universe has a reeling and ecstatic grandeur.' Stephen W. Hawking says that 'it would be very difficult to explain why the universe should have begun in just this way, except as the act of a God who intended to create beings like us.' The beauty prevailing everywhere in the universe is the source of awakening in the intellect in man. The beauty edifies the belief and passion in the heart of a person. According to Kant, 'the belief in a wise and great author of the world is generated solely by the glorious order, beauty, and providential care everywhere displayed in nature.'[38] 'The book of Nature in material space 'is not less real when read with intelligent apprehension of yet a more glorious vision of reality in the ever free transmission of thought in closer or more intimate communion with the Absolute; that divine spiritual light divested from matter and emancipated from space where the mind soars with freedom, and the spirit of man becomes a part of the Divine.'[39]

Dr.Muhammad Iqbal (1870-1938), the poet philoso- pher, regards that the ultimate Reality is External Beauty, whose

[38] IK I p. 26
[39] EOL p. 159

very nature consists in seeing its own "face" reflected in the universe mirror. In his famous lecture II he had told that 'the universe is a free creative movement'. Following is an extract from one of Iqbal's lectures:

On the analogy of our conscious experience, then, the universe is a free creative movement. But how can we conceive a movement independent of a concrete thing that moves? The answer is that the notion of 'things' is derivative. We can derive 'things' from movement; we cannot derive movement from immobile things. If, for instance, we suppose material atoms, such as the atoms of Democritus, to be the original reality, we must import movement into them from the outside as something alien to this nature. Whereas if we take movement as original, static things may be derived from it. In fact physical science has reduced all things to movement. The essential nature of the atom in modern science is electricity and not something electrified. Apart from this, things are not given in immediate experience as things already possessing definite contours, for immediate experience is a continuity without any distinctions in it. What we call things are events in the continuity of Nature which thought spatializes and thus regards as mutually isolated for purposes of action. The universe which seems to us to be a collection of things is not a solid stuff occupying a void. It is not a thing but an act. The nature of thought, according to Bergson is serial, it cannot deal with movement, except by viewing it as a series of stationary points. It is, therefore, the operation of thought, working with static concept, that gives the appearance of a series of immobilities to what is essentially dynamic in its nature. The co-existence and succession of these immobilities is the source of what we call space and time.[40]

Regarding the movement of universe 'in time' Iqbal says: The world process or the movement of the universe in time, is certainly devoid of the purpose, if by purpose we mean a

[40] RRT p. 41

foreseen end – a far off fixed destination to which the whole creation moves. To endow the world process with purpose in this sense is to rob it of its originality and its creative character. Its ends are terminations of a career; they are ends to come and not necessarily premeditated. A time process cannot be conceived as a line already drawn. It is line in the drawing --- an actualisation of open possibilities. It is purposive only in this sense that it is selective in character, and brings itself to some sort of a present fulfilment by actively preserving and supplementing the past. To my mind nothing is more alien to the Qur'anic outlook than the idea that the universe is the temporal working out of a preconceived plan. … According to the Qur'an the universe is liable to increase (in scientific term the universe is 'expanding'). It is growing universe and not an already completed product which left the hands of its maker ages ago, and is now lying stretched in space as a dead mass of matter to which time does nothing, and consequently is nothing.[41]

Iqbal describes the views of Fakhr al-Din Iraqi (1098-1131) as expressed in his tractate on time and space, *Ghayat al-Imkan fi Dirayat al-Makan,* edited by Rahim Farmanish (Tehan 1959): The Sufi poet Iraqi conceives infinite varieties of time relative to the varying grades of being, intervening between materiality and pure spirituality. Time of gross bodies which arises from the revolution of the heavens is divisible into past, present, and future; and its nature is such that as long as one day does not pass away the succeeding day does not come. Time of immaterial beings is also serial in character, but its passage is such that a whole year in the time of gross bodies is not more than a day in the time of immaterial being. Rising higher and higher in the scale of immaterial beings we reach Divine time – time which is absolutely free from the quality of passage, and consequently

[41] RRT p. 44 – "He adds to Creation as He pleases: for God has power over all things." Qur'an 35.1)

does not admit of divisibility, sequence, and change. It is above eternity; it has neither beginning nor end. The eye of God sees all the visibles, and His ear hears all the audibles in one indivisible act of perception. The priority of God is not the priority of time, on the other hand, the priority of time is due to God's priority. Thus the Divine time is what the Qur'an describes as the 'Mother of Books'[42] in which the whole of history, freed from the net of causal sequence, is gathered up in a single super-eternal 'now'.[43]

And regarding space Iraqi says: 'Divine life is in touch with the whole universe on the analogy of the soul's contact with the body. The soul is neither inside nor outside the body; neither proximate to nor separate from it. Yet its contact with every item of the body is real, and it is impossible to conceive this contact except by positing some kind of space which befits the subtleness of the soul. The existence of space in relation to the life of God, therefore, cannot be denied; only we should carefully define the kind of space which may be predicated of the Absoluteness of God. Now, there are three kind of spaces --- the space of material bodies, the space of immaterial beings, and the space of God.[44] The space of material beings is further divided into three kinds. First, the space of gross bodies of which we predicate roominess. In this space movement takes time, bodies occupy their respective places and resist displacement. Secondly, the space of subtle bodies, e.g. air and sound. In this space two bodies resist each other, and their movement is measurable in terms of time which, however, appears to be different to the time of gross bodies. The air in a tube must be displaced before other air can enter into it; and the time of sound-waves is practically nothing compared to the time of gross bodies. Thirdly, we have the space of light. The light of the Sun instantly reaches the remotest limits of the Earth. Thus in the velocity of light

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[42] Qur'an 3:7, 13:39, 43:4
[43] RRT p. 60-61
[44] Prophet said: *'Do not vilify time, time is God.'*

and sound time is reduced almost to zero. It is, therefore, clear that the space of light is different to the space of air and sound. There is, however, a more effective argument than this. The light of a candle spreads in all directions in a room without displacing the air in the room; and this shows that the space of light is more subtle than the space of air which has no entry into the space of light.[45] In view of the close proximity of these spaces, however, it is not possible to distinguish the one from the other except by purely intellectual analysis and spiritual experience. … The highest point in the scale spatial freedom is reached by the human soul which, in its unique essence, is neither at rest nor in motion. Thus passing through infinite varieties of space we reach the Divine space which is absolutely free from all dimensions and constitutes the meeting point of all infinities.'[46]

At this stage it is interesting to correlate this with what Einstein had to say regarding his hypothesis of infinite spaces: 'there is an infinite number of spaces, which are in motion with respect to each other. The concept of space as something existing objectively and independent of things belongs to pre-scientific thought, but not so the idea of the existence of an infinite number of spaces in motion relatively to each other. This latter idea is logically unavoidable, but is far from having played a considerable role even in scientific thought.'[47]

From this summary of Iraqi's view you will see how a cultured Muslim Sufi intellectually interpreted his spiritual experience of time and space in an age which had no idea of the theories and concepts of modern mathematics and physics. However we can see that Iraqi's conception of 'space' is corroborated by Einstein's theory of 'an infinite number of spaces'. Iqbal belongs to modern Muslim

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[45] Cf. *The mathematical principles of Natural Philsophy, Vol. 1, definition viii, Scholium 1.*

[46] RRT p. 108-109

[47] AER p. 139

thinkers, who much like Iraqi was also ahead of his time. It will not, therefore, be out of place to elucidate some of his ideas in this respect as expressed by him at various places in his poetical and prose works. A few of his scattered reflections are cited below:

- In fact, the theory of a plural space may be taken as a primitive stage in the modern hyperspace movement.

- Issue of time and space and movement *(Zaman-o-Makan o Harakat)* is among the most important philosophical and scientific questions of our day. Introducing to the West the point of view expounded by the Muslim Sufis and the sages is beneficial.

- Insofar as the metaphysics of time is concerned there is more than one point of contact between Muslim thought and modern western thought.

- The philosophical discussion of this important subject, as it develops, in the history of Muslim thought and modern western thought and experience gives some idea of spiritual kinship between Islam and the West.

- The importance of our concept of space and time has only recently been realised by modern physics.

- The philosophical path that leads to God as an Omni-psyche of the universe lies through the discovery of Living thought as the ultimate principle of space-time.

- The ultimate reality is time – the stuff out of which all things are made – a Becoming, movement, life and time are only synonymous expressions.

Henry Bergson (1859-1941) French philosopher, says that we get to know a thing either by circling around it or by entering into it. He says that "the second approach alone enables me to reach the reality which does not depend on my position and is, in that sense absolute."[48] By entering into a thing, Bergson means, is to use intelligence, the human way of thinking. This has been given to us as instinct to a bee, to direct our conduct.[49] *"And thy Lord revealed the Bee to build its cells in hills, on trees, and in (men's) habitations."*[50] As described earlier al-Ikhwan treat the space as a form metaphysically intuited. To them it is an abstract, simple and intelligible idea, a form abstracted from matter and existing only in consciousness.

According to Immanuel Kant (1724-1804), an eminent philosopher, "absolute necessity is a necessity that is found in thought alone. This belief must therefore have been due to a certain *regulative principle*."[51] This *regulative principle,* he says directs us to look upon all connection in the world as originated from an all-sufficient necessary cause. Elaborating further the idea of "all sufficient necessary cause", Kant says; "We proceed here just as we do in case of space. Space is only a principle of sensibility, but since it is the primary source of shapes, which are only so many limitations of itself, it is taken as something absolutely necessary, existing in its own right, and as an object given *a priori* in itself. In the same way, since the systematic unity of nature cannot be prescribed as a principle for the empirical employment of our reason, except insofar as we presuppose the idea of an *ens realissimum* as the supreme cause, it is quite natural that this latter idea should be represented as an actual object, which, in its character of supreme condition, is also necessary – thus changing a *regulative* into a *constitutive* principle. That such a substitution has been made becomes evident, when we

[48] LZB p..24
[49] LZB p..30
[50] Qur'an 16:68
[51] IK 1 P..514

consider this supreme being, which relatively to the world is absolutely (unconditionally) necessary, as a thing in and by itself."[52]

Immanuel Kant considers space and time both as forms of sensible intuition. To prove this contention, which flies against the commonly held belief that space and time are 'determinations' or relations of things, he comments firstly on space as follows:

1. That space is not an empirical concept, which has been derived from outer experiences. To him the representation of space cannot be empirically obtained from the relations of outer experience. On the contrary, this outer experience is itself possible at all only through that representation.

2 That space is a necessary *a priori,* which underlies all outer intuitions. He says that we can never represent to ourselves in the absence of space, though we can quite well think it as empty of objects. It must therefore be regarded as the condition of the possibility of appearances, and not as determination dependent upon them. It is an *a priori* representation, which necessarily underlies our appearances.

3 That space is pure intuition. He also rules that space is essentially one and that we can represent to ourselves only one space; and if we speak of diverse spaces, we mean thereby only parts of one and the same unique space.

4 Consequently, he says, that the original representation of space is an '*a priori'* intuition , not a concept.

[52] IK 1 p..517-18

Finally after his above analysis Kant concludes; (1) Space is not an empirical concept which has been derived from outer experiences. (2) Space is a necessary *a priori* representation, which underlies all outer intuitions. (3) Space is not discursive or, as we say, general concept of relations of things in general, but a pure intuition. (4) Space is represented as an infinite *given* magnitude. (Immanuel Kant's Critic of Pure Reason)[53]

Commenting on 'time' Kant says that 'we can never know what a thing is in itself'. Although time is not a material object but the rule applies to it as well, as the knowledge obtained through the medium of human senses always has a limit. But there are other sources at the disposal of man to further his knowledge. Time, is indeed, a complex issue. We know only time formulated by the rotation of day and night. This is also clock time, by means of which we manage and plan our day to day business. This time is physical time and is like a straight line drawn on a sheet of paper; it is divisible as well as it has past, present and future in it. As a matter of fact this time is a finite time and belongs to a finite world. However does this not fly at odds with a universe which in its macroscopic and microscopic reveals its limits to be forever beyond the reach of human understanding? In other words how do we justify a finite definition of time, when both time and space, by definition of their immeasurability are infinite?

The realm of the real time is infinity; it has no past, no present and no future. In simple words clock time or serial time is physical time, as such it is a false time, while true time is pure duration and is really real. Kant offers Metaphysical Exposition of the Concept of Time as under:

1. Time is not an empirical concept that has been derived from any experience. … Only on the pre- supposition of time can we represent to ourselves a number of things as

[53] IK 1 page 68-69

existing at one and the same time (simultaneously) or at different time (successively).

2. Time is a necessary representation that underlies all intuitions. We cannot, in respect of appearances in general, remove time itself, though we can quite well think time as void of appearances. Time is, therefore, given *a priori*. In it alone is actuality of appearances possible at all.

3. Time has only one dimension; different times are not simultaneous but successive. These principles cannot be derived from experience. We should only be able to say that common experience teaches us that it is so; not that it must be so.

4. Time is not a discursive, or what is called a general concept, but a pure form of sensible intuition. Different times are but parts of the same and one time; and the representation which can be given only through a single object is intuition.

The infinitude of time signifies nothing more than that every determinate magnitude of time is possible only through limitations of one single time that underlies it. (Immanuel Kant's Critic of Pure Reason) [54]

After his detailed comments on space and time as given above, Kant sums up his contention of time in relation to things or appearances. According to him time is the form of inner sense, i.e. the intuition of ourselves and of our inner state. But to him, "space, as the pure form of all outer intuition, is so far limited; it serves as the *a priori* condition only of outer appearances." Since all representations belong, as determination of mind, to our inner state; and this inner state stands under the formal condition of inner intuition, and

[54] IK 1 p.74-75

as such belongs to time, as according to him time is an *a priori* condition of all appearances. He further elaborates that time is the immediate condition of inner appearances (of our soul), and thereby the mediate condition of outer appearance. He concludes this paragraph: "I can also say, from the principle of inner sense, that all appearances whatsoever, that is, all objects of the senses, are in time, and necessarily stand in time-relation."[55]

Henry Bergson was a contemporary of Einstein. His way of defining the nature of time is poetic. He defines the real time by way of example stating that 'once we place ourselves in the position of a disinterested observer and dismiss the natural habits of mind, we see easily that movement and time are the reality we deal with directly, in the simplicity of unmediated contact.' He goes on to say that 'my experience of time is not self-contained, and intuition reaches other beings in an unshakeable certainty. We can go beyond ourselves and extend our time in both directions: the way down leads towards pure homogeneity or pure repetitiveness, that is, materiality; on the way up we come closer and closer to living eternity.'[56]

Real time is eternal, as unanimously expressed by most of the scientists and philosophers. It has nothing to do with serial time or, so to speak, clock time. Following is a beautiful quotation from *The Mind of God* of Paul Davies:

'Time and Eternity: The Fundamental paradox of Existence'
"Eternity is time
Time, Eternity
To me the two as opposites
Is Man's perversity"
(The Book of Angelus Silesius) [57]

[55] IK 1 p. 77
[56] LZB p..27
[57] TMG p.34

Suheyl Umar, an eminent philosopher, a theolo- gian, a scholar and an authority on Iqbal, writes: 'Time and Space are necessary conditions and modes of awareness pertaining to a specific state of existence. Applied to a different level of being and to a different object of perception Space and time may not retain the conditions that they require in the case of say, the world of senses, the visible world or they could become subject to such a modification in their nature as would require to change their basic definition. Priority, posteriority, movement and the quality of being a container may not be applicable to the other and higher levels of being that lie beyond our immediate world as they only apply to the spatio-temporal world of our experience, the visible world in their present determination. No doubt that the signifying position or status of Time and Space, i.e. Time and Space as points of reference for something in a particular condition of existence or a state is necessarily present in all the levels of manifestation of Reality but their signification would undergo a change in relation to their level of being.

'From a certain point of view the whole gamut of Being could, in principle, be divided into two levels or domains: temporally originated and finite or infinite and Pre-Eternal. The former is the domain of movement-sequence while in the latter "being" is known to breathe in the air of changlessness-spontaneity. As Time and Space continuum is, in fact, the total "environment" of being in a particular level of being, the alteration that appear while rising through the entire gamut of Being have their bearing on the conditions and modalities of Time and Space as a necessity. Characteristic modalities of a specific order of being, that is, the modalities of manifestation pertaining to that order and its existential determination demand a concomitant change not only in the attendant modalities and conditions of Time and Space but may alter the essential constitution of Time and Space to bring it in "harmony" with the order of being to which it 'now' pertains.

'Metaphysically thought, would, therefore, proceed from the triad of premises; priority of Being, multiplicity of the levels of manifestation and relativity of Time and Space. All three constituent elements/components carry such an identity in their dimension of actuality with one another that is absolute while being relative and relative with absoluteness.

'It is as if in the existential and affirmational context of the Infinite and the Eternal, Time and Space do exist as a means to satisfy certain epistemic requirements but they exist with a relationship which they did not possess in the realm of the contingent and finite. In the realm of the Infinite and Eternal Time and Space cannot have an "effective" role because the causes or means of producing effects are eliminated from Time and Space in these realms. This is precisely what we meant by the mention of the change in the nature of Time and Space."[58] Here Suheyl Umar has explained the order in which we must consider the three levels of this subject:

1. The priority of Being – i.e. the importance of God

2. Multiplicity of the levels of manifestation – the many ways in which God has manifested to humans

3. The relativity of time and space.

These three premises have their own absolute identity but are also absolutely related to one another.

Iqbal writes: "One most interesting feature of the history of European thought is the way in which the problem of time has gradually come to occupy a central position in modern metaphysics. A careful study of the deeper currents of Muslim culture shows that the same thing happened, though perhaps for different reasons, in the history of Muslim thought. The result is that insofar as the metaphysics of time is concerned there are more than one points of contact

[58] "Time Eternalised" - An article by Suheyl Umar, p.6

between Muslim thought and modern western thought. I have no doubt that the philosophical discussion of this important subject, as it develops, in the history of Muslim thought and experience will give you some idea of spiritual kinship between Islam and the West and will also furnish the necessary background for the Muslim student of modern philosophy for a fuller grasp of a problem which forms the central crux of modern metaphysics. In philosophy proper, however, Muslim thinkers such a Abu Ali Sina in Persia, Ibn Rushd in Spain and Mulla Mahmud of Junpur in India, did not in the least realise the necessity of the proper understanding of the nature of Time for the purpose of synthetic attitude towards the Universe. These thinkers were enthusiastic followers of Aristotle and their sole object was to defend their master's view of Time against the orthodox theologians who had been led to adopt a more critical attitude towards Greek philosophy. It is really in the domain of theology and religious psychology that the problem of Time assumed its true importance. I am convinced it is thoroughly objective attitude of the scholastic theologians in their discussion of nature of Time which prepared the way for Ibn Maskawaih's view of life as a evolutionary movement and impressed upon the mathematician Al-Beruni the insufficiency of a static view of the Universe. All this formed the intellectual inheritance of the historian Ibn Khaldun (d.1406) whose conception of Time as a perpetually creative movement had the foundation of our modern philosophy of history.'[59]

Iqbal says that the theory of Einstein has brought a new vision of the universe and suggests new ways of looking at the problems common to both religion and philosophy. We will study Iqbal's philosophical view of the universe later on, First let us see how he takes universe from religious point of

[59] Extracts from an unpublished article of Iqbal written around 1927-8. It is saved in archives of Iqbal Academy Pakistan.

view. According to him 'the great point in Christianity is the search of an independent content for spiritual life, which according to the insight of its founder, could be elevated, not by the forces of a world external to the soul of man, but by the revelation of a new world within the soul. Islam fully agrees with this insight and supplements it by the further insight that the illumination of the new world thus revealed is not something foreign to the world of matter but permeates it through and through.' Both these great religions, according to Iqbal, 'demand the affirmation of the spiritual self in man, with the difference only that Islam, recognising the contact of the ideal with the real, says 'yes' to the world of matter and points the way to master it with a view to discover a basis for a realistic regulation of life. Iqbal quotes the following verses of Qur'an in support of his argument:

What, then, according to Qur'an, is the character of the universe which we inhabit? In the first place, it is not the result of a mere creative sport:

> *We have not created the Heavens and the Earth and whatever in between them in sport. We have not created them for a serious end: but the great part of them understand it not* (44: 38-9).

It is reality to be reckoned with:

> *Verily in the creation of the Heavens and the Earth, and in the succession of the night and the day are signs of men of understanding; who standing and sitting and reclining bear God in mind and reflect on the creation of the Heavens and of the Earth, and say:*
> *'Oh, our Lord! Thou hast not created this in vain* (3:190-91).

Again the universe is so constituted that it is capable of extension:

> *He (God) adds to his creation what He wills* (35:1).

It is not a block universe, a finished product, immobile and incapable of change. Deep in its inner being lies, perhaps, the dream of a new birth:

> *Say – go through the Earth and see how God hath brought forth all creation; hereafter will He give it another birth"* (29:20).

In fact, this mysterious swing of universe, this noiseless swim of time which appears to us, human being, as the

movement of day and night, is regarded by the Qur'an as one of the greatest signs of God;

> *God causeth the day and the night to take their turn. Verily in this is teaching for men of insight"* (24-44).

This is why the prophet said: *'Do not vilify time, for time is God.'* And this immensity of time and space carries in it the promise of a complete subjugation by man whose duty is to reflect on the signs of God, and thus discover the means of realising his conquest of Nature as an actual fact.'[60]

To Iqbal the concept of matter received the greatest blow from the hand of Einstein, an eminent physicist, whose discoveries have laid the foundation of a revolution in the entire domain of human thought. Iqbal quotes Bertrand Russell comments that 'the theory of Relativity by merging time into space-time has damaged the traditional notion of substance more than all the arguments of the philosophers. Matter, for common sense, is something which persists in time and moves in space. But for the modern relativity-physics this view is no longer tenable. A piece of matter has become not a persistent thing with varying states, but a system of inter-related events. The old solidity is gone, and with it the characteristics that to the materialist made matter seem more real than fleeting thoughts.'[61]

'With Einstein', says Iqbal, 'Space is real, but relative to the observer. He rejects the Newtonian concept of an absolute space. The object observed is variable, it is relative to the observer, its mass, shape, and size change as the observer's position and speed change. Movement and rest, too, are relative to the observer. There is, therefore, no such thing as a self-subsistent materiality of classical physics. It is, however, necessary here to guard against a misunderstanding. The use of the word 'observer' in this connection has mislead Wildon Carr into the view that the theory of Relativity inevitably leads to Monadistic Idealism (belief in one God). It

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[60] RRT p. 6-9
[61] RRT p. 27-28

is true that according to the theory the shapes, sizes and durations of phenomenon are not absolute. But as Professor Nunn points out, the space-time frame does not depend on observer's mind; it depends on the point of the material universe to which his *body* is attached. In fact, the 'observer' can be easily replaced by a recording apparatus. Personally I believe that the ultimate character of Reality is spiritual; but in order to avoid a widespread misunderstanding it is necessary to point out that Einstein's theory, which, as a scientific theory, deals only with the structure of things, throws no light on the ultimate nature of things which possess that structure. The philosophical value of theory is two fold. First, it destroys, not the objectivity of Nature, but the view of substance as simple location in space --- a view which led to materialism in Classical Physics. 'Substance' for modern Relativity Physics is not a persistent thing with variable states, but a system of inter-related events. In Whitehead's presentation of the theory the notion of 'matter' is entirely replaced by the notion of 'organism'.

Secondly, the theory makes space dependent on matter. The universe, according to Einstein, is not a kind of island in an infinite space; it is finite but boundless; beyond it there is no empty space. In the absence of matter the universe would shrink to a point. Looking, however, at the theory from the standpoint that I have taken, Einstein Relativity presents one great difficulty, i.e. the unreality of time.'[62]

We will take up the question of real and unreal time at the end of this treatise as we regard this as the question of questions in the study of time and space.

The most wonderful contribution of modern science is that it has explored definite laws which govern all the movements and events in the universe. Paul Davies says that 'the laws are possessed of an elegant simplicity and have often commended themselves to scientists on grounds of beauty

[62] RRT p. 30-31 (Also cf Hans Reichenbach., 'The Philosohical significance of the Theory of Relativity',

alone.' In fact the real beauty lies in God, which is manifested in all of His creations There is a well known Sufi's saying, 'God is beautiful and He loves beauty.' The order and beauty is manifested in the cosmos as well as in everything on Earth, in ourselves and around us. God says:

> *We have indeed decorated the lower heaven with beauty (in) the stars.*"[63]; And "*It is He (God) Who created all things and ordered them in due proportion.*[64]

The man is the best and most beautiful creation of God. Qur'an explains the fact in these words:

> *From a sperm drop He hath created him and then mouldeth him in due proportion.*"[65]

The Real is beautifully manifested throughout the cosmos. The cosmos is a book, of which every page that we turn and read leads us beyond the physical world towards the ultimate reality. Dante says that 'in the depth I saw ingathered, bound by love in one single volume, that which is dispersed in leaves through the universe: substances and accidents and their relations, as though fused together in such a way that what I tell is but a single light.' Dante has in fact intuited God in the universe. He has said that God is light, which is very much a reality – "*God is the light of the heavens and the Earth"* – says Qur'an.***[66]***

Scientists are mostly religious, some of them practice conventional religion while others do not. Paul Davies says that among those scientists who are not religious in a conventional sense many confess that there is something behind the surface of reality of daily experience. According to him even staunch atheists have a sense of reverence for nature, a fascination and respect of its depth and beauty and subtlety.

In spite of the fact that Paul Davies is not a conventional religious person his belief in God as the Creator is firm. If we

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[63] Qur'an 37:6
[64] Qu'ran 25:2
[65] Ibid. 80:19
[66] Ibid. 24:35

study the life and the works of Copernicus, Galileo, Kepler, Newton and Boyle we find that their faith in God is, in no way, less than that of a saint or Sufi. Iqbal brackets 'Science' with 'God consciousness'. Paul Davies believes that the universe is not a purposeless accident and says that 'the physical universe is put together with an ingenuity so astonishing that I cannot accept it merely as a brute fact.'. He adds: 'There must, it seems to me, be a deeper level of explanation. Whether one wishes to call that deeper level "God" is a matter of taste and definition. Furthermore, I have come to the point of view that mind – i.e. conscious awareness of the world – is not a meaningless and incidental quirk of nature, but an absolutely fundamental facet of reality.'[67] John Boslough believes that cosmology is most sublime kind of knowledge. According to him, cosmologists have become members of exclusive community that is the perfect priesthood for a secular age. They are not religious leaders but they now reveal secrets of the universe, not in the guise of spiritual epiphany, but in the form of equations.

While describing Johannes Kepler's rich contribution toward cosmology in previous pages we mentioned briefly about his book *The Harmonies of the World,* and also Kepler's aesthetic perception of the universe. An astonishing and unique disclosure is the presence of music which Kepler heard in the air. He believes that the speed of all planets produces symphony of voices and 'The movement of every planet corresponds to certain notes in the Latinate musical scale – 'do, re, mi, fa, sol, la, ti, do.'. He also noticed that 'in the harmony of the spheres, the tones of Earth are fa and mi'… . Kepler describes his feelings after this discovery in the following words:

> With the symphony of voices man can play through the eternity of time … and can taste in small measure the delight of God, the Supreme Artist. … I yield freely to the sacred

[67] TMG p. 16

> frenzy … the die is cast, and I am writing the book – to be read either now or by posterity, it matters not. It can wait a century for a reader, as God Himself has waited 6,000 years for a witness.[68]

The poet-philosopher Iqbal also seems to have felt the existence of music in the universe of 'colour and scent' and described his feelings in a Persian poem as following:

> *Jahan-i rang-o-boo paida tu mee goee key raz-ast en; Yakey khud ra ba-tarash zan key too mizrab-o Sazast en*
> (The world of colour and scent is manifest; you say that it is mystery; Just strike its string with yourself, for you are the pick and it, the instrument.) .[69]

It seems that Iqbal had intuited the music coming out from the movement of planets in the universe since his expressions match strikingly with Johannes Kepler. For example in one of his Urdu poems *'Shama aur Sha-ir'* he says:

> *Kiyun chaman men bae saada misl-i ram-i shabnam hai too;*
> *Lab kusha hoj sarood-i barbat-i alam hai too.*
> (Why are you silent in the garden like dew's retreat;
> Open your lips, you are the music of the world's symphony.)[70]

The universe, as Dr. McTaggart[71] says, is an associa- tion of an individual; but Iqbal adds that the orderliness and adjustment which we find in this association is not eternally achieved and complete in itself. It is the result of instinctive or conscious effort. We are gradually ravelling from chaos to cosmos and are helpers in this achievement. Nor are the

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[68] COS p. 81
[69] ZBA p. 131

[70] BID p..31
[71] John. McTaggard Ellis (1866-1925)

members of the association fixed; new members are ever coming to birth to co-operate in the great task. Thus the universe is not a complete act; it is in the course of formation. There can be no complete truth about the universe, for the universe has not yet been 'whole'. The process of creation is still going on, and man too takes his share in it, inasmuch as he helps to bring order into at least a portion of the chaos.[72]

[72] SOS (Introduction) p.xvii-iii

THE BIG BANG

In 1946, George Gamow, a Russian-born scientist, proposed that the primeval fireball, was an intense concentration of pure energy. It was the source of all the matter that now exists in the universe. The theory predicts that all the galaxies in the universe should be rushing away from each other in high speeds as a result of that initial Big Bang. A dictionary definition of the hot Big Bang is like this: 'The entire physical universe, all the matter and energy and even the four dimensions of time and space, burst forth from a state of infinite or near infinite density, temperature, and pressure.' This 'primeval fireball' later on called as a 'singularity' and the supposed explosion of the 'singularity' was termed as "Big Bang" for the first time by the renowned British astronomer Sir Fred Hoyle during a radio broadcast from BBC in 1950.

The theory of the big bang is the dominant scientific theory for the origin and evolution of the universe. There is no doubt that our universe did really have a beginning. Scientists say that before that moment there was nothing; during and after that moment there was something and it was our universe. Through the big bang theory the scientists have made efforts to explain what happened during and after that moment They say that the universe came into existence around 13.7 billion years ago as a result of explosion of that singularity. That event is termed as the big bang. What is singularity and where does it came from? "Well", they say, "to be honest, we don't know for sure."

After its initial appearance the singularity inflated, which is now called Big Bang. It then expanded and cooled, going from very, very small and very, very hot, to the size and temperature of our present universe. It continues to expand and cool to this day and we are inside of it: incredible

creatures living on a unique planet, circling a beautiful star clustered together with several hundred billion other stars in a galaxy soaring through the cosmos, all of which is inside of an expanding universe that began as an infinitesimal singularity which appeared out of nowhere for reasons unknown. This is the Big Bang theory.[73]

Time and space came into existence after the big bang. Before the big bang there was no time and no space. The question arises that if there was no space then where the singularity was situated. The answer of the scientists is that the space was inside the singularity. As for the 'time' it came into existence with the event of big bang. To scientists, prior to the singularity there was no time, no space, no matter, no energy, nothing at all. If we ask them where and 'in what' did the singularity appear if not in space? The reply usually is: "We don't know. We don't know where it came from. All we really know is that we are inside of it and at one time it didn't exist and neither did we."[74] This argument, played out throughout history between theologians and scientists, has its boundaries constantly stretched. Every time a new limit is found, there is yet another one to be found beyond it. And another, and another and so on ad infinitum. And thus we return to our proposition: in a seemingly boundless universe, where science does not provide us any lasting answers to the boundaries of space and time, should we not consider that a completely valid metaphysical answer for this is the existence of a supreme force which defines the Alpha and the Omega, the Beginning and the End?

As stated earlier, most scientists believe in the existence of God. The Big Bang theory has also in a way added to the belief in the existence of God, although at the very outset this looks like an attempt of the denial of God. Let us take in this way that the universe came into existence through a Big Bang. The Big Bang theory starts from the presence of a singularity

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[73] http://www.big-bang-theory.com/ P.1 af 3
[74] Ibid p.1

containing pure energy in extremely compressed condition. But science has failed to say anything about the cause or power which kept that singularity intact and did not allow it to explode for a certain period. Secondly, every event must be followed by a cause. But the cause behind the explosion of singularity also remains unknown. A majority of the scientists believe in some unknown power behind creation of the singularity and the event of the Big Bang. It is also a fact that a number of them happen to be atheists or non-believers. Even Einstein, who never accepted the reality of a personal God, had to admit 'the necessity of a beginning' and admitted 'the presence of a superior reasoning power.'

The creationist view of the universe and the advent of the Big Bang is not solely the domain of Islamic philosophy. It is important to also observe what some of the more commonly held beliefs are among the Christian community. We are quoting below the contents of a home page *'Did God use the Big Bang to create the universe'*. Recommended resources: Bible Creationism by Henry Moms.

"Some Christians are vehemently opposed to the Big Bang Theory. They view it as an attempt to explain the origin of the universe apart from God. Others ascribe to the Big Bang Theory, with the view that it was God Himself who caused the "Big Bang". God, in His infinite wisdom and power, could have chosen to use a Big Bang method to create the universe, but He did not. The reason that can be absolutely stated is that the Bible argues against such a method. Here are some of the contradictions between the Bible and the Big Bang Theory.

1. In Genesis 1, God created the Earth before the Sun and stars. The Big Bang Theory requires it to be the other way around. In Genesis 1, God creates the Earth, Sun, Moon, stars, plant life, animal life, and mankind in a span of six 24 hour days. The Big Bang Theory requires billions of years. In Genesis 1, God created all matter by His spoken word. The Big Bang theory begins with

matter already in existence and never explains the initial source of cause of matter.

2. In Genesis 1, God breathed life into the body of the perfectly created Adam. The Big Bang Theory requires billions of years, and billions of chance circumstances, to get around the first human; and it never can explain how the first microscopic life form happened to "evolve" from a non-living atom. In the Bible, God is eternal and the matter and the universe are not. There are different versions of the Big Bang Theory, but in most of them the universe and/or matter is eternal. In Genesis 1, the existence of God is assumed in the beginning. The true purpose of the Big Bang Theory is to deny His existence. We can accept certain aspects of the Big Bang Theory – but the theory itself is entirely atheistic."[75]

According to Stephen Hawking most of the Greek philosophers including Aristotle did not like the idea of creation of universe by God. On the other hand they believed that the human race as well as the whole world had existed always and will exist for ever. Until Newton the universe was considered as static by most people. But Newton's theory of gravity negated the idea of the universe being static. Edward Hubble observed in 1929 that instead of the universe being static it is expanding as the galaxies in remote regions are moving rapidly from us. It apparently shows that at one time – say about ten or twenty million years ago, all the galaxies were exactly at the same place. This brought idea to the scientists that the universe had indeed a beginning, and this ultimately resulted in the discovery of the Big Bang theory.[76]

To Iqbal Creation out of nothing gives nothing. Creation of universe has its direct source and fountain- head in Divine

[75] htpp://www.gotquestions.org/big bang-theory.html, p.1 (15-06-2007)

[76] ABH p. 7,8

Ultimate Life. It is the revelation of Divine powers: the actualisation of Divine possibilities. It is a partial expression of the infinite inner possibilities of the Divine Creative Activity. It is the self-affirmation of the Ultimate Ego (God) which gives rise to the other or the non-self. The ultimate ego posits the non-self, its opposite, this world of change and flux, of desire and yearning, of love and beauty, in order to have its own manifestation.[77]

The Supreme Ego is the Unity and the entire diverse and manifold appearance springs forth and emerge out of His Creative Power. He divides His flame into sparks, His ocean into drops, in order to become the object of love, quest and yearning, He weaves texture of the visible existence out of His own Life. He underlies the whole colourful panorama of spatio-temporal wonder -land: the entire rich manifold variety, all the particulars and individualities, the totality of discreteness and the finite many. His effulgence has illuminated thousands lamps in this colourful dome of reality. He is the source of the movement of the Sun, the Moon, the stars, of the whole dazzling fabrication of heaven and Earth. The finite reality with its constituent factors and finite selves is the manifestation of the One.[78]

The following verse of Qur'an provides a neat juxtaposition for proponents of the Big Bang theory. It also proposes a solution to the question of the cause behind the Big Bang.

> *All things we have created with a fixed destiny; Our command was but one, swift as the twinkling of an eye..* (54:50).

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[77] PGU p. 121 (This caption has been written by the author of the book PGU expressing the idea from Bal-i Jibril p.21, Iqbal's book of Urdu poetry.

[78] PGU p. 121 (Trnslation of Mathnavi Maulana Rum volume1p.25).

CHAPTER III

TIME

"What then is time? If no one asks me I know what it is. If I wish to explain it to him who asks me, I do not know." (St. Augustine)

"The realm of time is infinity; it has no past, no present and no future". (Immanuel Kant)

"A deeper analysis into our conscious experience shows that beneath the appearance of serial duration lies is true duration." (Iqbal)

Iqbal as a contemporary of Einstein, wrote, 'What is the character and general structure of the Universe in which we live? Is there a permanent element in the constitution of the Universe? How are we related to it? What place do we occupy in it, and what is the kind of conduct that befits the place we occupy? These questions are common to religion, philosophy, and highest poetry.' The views of Iqbal about the existence of Time, which is a delicate and most important topic, will be taken up later. Let us first have a short glance on the ideas of a few of other great thinkers in this regard.

The importance of time has always been there in the mind of Man from the very beginning. Even Greeks and after them Muslim philosophers belonging to pre-scientific period tried to understand the reality of time. The Ikhwan, as described in the first chapter, rejected the Aristotelian notion of time as being nothing but a measure of movement. They considered that time is related to the motion of heavenly bodies in the physical world. But at the same time they maintained that

from metaphysical point of view time is a pure form, an abstract notion, simple and intelligible, elaborated in the soul by the faculties of the spirit. To them it is an abstract simple and intelligible idea, a form abstracted from matter and existing only in consciousness.

We described Newton's views earlier in the first chapter: he regarded Time as absolute. Igore D. Novikov says that 'in Newton physics time is a flow of duration which involves all processes without exception. It is the 'river of time', whose flow is not influenced by any thing.' Novikov quotes Newton as saying:

> Absolute, true and mathematical time, of itself, and from its own nature, flows equably without regard to any thing external, and by name is called duration.
> (Newton *Mathematical Principles of Natural Philosophy).*[79]

We have also described Immanuel Kant's detailed view about time in chapter II. He believes that the space and time are both forms of sensible intuition. Let us briefly quote here the metaphysical exposition of his concept of Time. He maintains:

1. Time is not an empirical concept derived by any experience.

2. Time is a necessary representation that underlies all intuitions.

3. Time has only one dimension; different are not simultaneous but successive.

4. Time is not discursive, or what is called a general concept, but a pure sensible intuition. Different times are but part of the same and one time; and the representation which can be given only through a single object is intuition.

[79] TRT p. 29-30

5. The infinitude of time signifies nothing more than every determinate magnitude of time is possible only through limitation of one single time that underlies it.

Kant concludes, "I can also say from the principle of inner sense, that all appearances whatsoever, that is, all objects of the senses, are in time, and necessarily stand in time-relation."[80]

Novikov remarks that Time is a uniform 'river' without beginning or end, without 'source' or 'sink', and all events are 'carried' by the river's flow. Time has no other property except the only property which is 'of always being of the same duration. To him the 'absolute time' is identical throughout the universe."[81]

Henry Bergson writes that Plato expresses in his magnificent language when he says that God, unable to make the world eternal, gave it Time, "a moving image of eternity." Bergson offers a practical example of the real Time: "If I want to mix glass of sugar and water, I must, willy-nilly, wait until the sugar melts. This little fact is big with meaning. For here the time I have to wait is not that mathematical time which would apply equally well to the entire history of the material world, even if that history were spread out instantaneously in space. It coincides with my impatience, that is to say, with a certain portion of my own duration, which I cannot protract or contract as I like." He continues, "It is no longer something *thought,* it is something *lived.* It is no longer a relation, it is an absolute." According to him the duration is immanent to the whole of the universe and he says that 'the universe *endures*. The more we study the nature of Time, the more we shall comprehend that duration means invention, the creations of forms, the continual elaboration of the absolutely new.'[82]

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[80] IK I p. 77
[81] TRT p. 31
[82] CE p. 10-11

John Wheeler, a patriarch of modern theoretical physics, as described by Igor D. Novikov, visited him on the 5th. June 1992. They had very useful exchange of views particularly on problems of black hole physics. Before Wheeler left, he asked him: 'John, you pioneered several revolutionary developments in physics and in addition you are famous for your pithy, terse definitions of the most profound concepts of modern physics. Could you try to formulate what time is? I need for a physics popularising book, to be translated into English.' He says that 'John took a very long time to mull it over; I suspected that he had fallen asleep (we had just finished a very good dinner). Actually he was deep in thought.' When he opened his eyes he said very seriously that he would think about it and write to him. After a little more than a month Igor received a letter from him together with a copy of his book *Frontiers of Times* with his hand-written dedication: 'To Igor – May you be timeless! John. 25.IX.92.' In the letter he wrote: 'You asked for a phrase. There are graffiti on the wall of the men's room in Austin, Texas, and among them is this, "Time is nature's way to keep everything from happening all at once".[83]

John Butler Burke says that we can avoid much futile discussion by recognising the difference between various concepts of time. He defines them as: (1) Absolute time, implying a definite *Now* common throughout the universe; (2) Physical time, which is relative but partly subjective; (3) Psychological time, purely subjective. Elaborating further he writes:

> (1) Absolute time, though implying a definite *Now* common throughout the Universe, can no more be determined physically than absolute space. The reality of either cannot be denied and need not be asserted, for in physical measurement they do not enter into experimental considerations. From the metaphysical standpoint the idea of absolute time is of importance.

[83] TRT p. 198-199

It is not necessarily inconsistent with idealism, for even if time be subjective it may be common to all minds, and, like truth itself, be a universal reality.

(2) Physical time, however, depends upon simul- taneity and the measurement of equal intervals, both of which are affected by the motion of bodies relatively to each other. Time as a measurable quantity cannot be reckoned without space. The two must be considered together as in the 'space-time continuum' of the physicist. But in so doing it still remains 'subjective'. (This corresponds to Bergson's 'spatialised' time).

(3) Psychological time is purely subjective. This psychological time is what Locke called duration. It may be slowed down in moments of distraction, so that an hour may appear as a few minutes, or to the Budhist as eternity; while the evidence of persons saved from drowning and similar cases shows that a few moments may appear as a lifetime.[84]

Hugo Ross, an astrophysicist, says that "by definition time is that dimension in which cause and effect phenomena take place. … If time's beginning is concurrent with the beginning of the universe, as the space-time theorem says, then the cause of the universe must be some entity operating in a time dimension completely independent of and pre-existent to the time dimension of the cosmos. This conclusion is powerfully important to our understanding of who God is and who or what God isn't. It tells us that the creator is transcendent, operating beyond the dimensional limits of the universe. It tells us that God is not the universe itself, nor is God contained within the universe." Rudolf Steiner (1861-1925) said that "cultivation of man's evolving spiritual perception was the most important task facing humanity."[85]

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[84] EOL p. 292-3
[85] DOP p. 15

Henry Bergson, the French philosopher presents the idea somewhat similar to that of Hugo Ross in a different and more explicit manner. In chapter III of his well known book *Creative Evolution* he says "that intuition and intellect represent two opposite directions of the work of consciousness: intuition goes in the very direction of life, intellect goes in the inverse direction, and this finds itself naturally in accordance with the movement of matter. A complete and perfect humanity would be that in which these two forms of conscious activity should attain their full development."

Iqbal places real Time much higher than that described by other philosophers. These philosophers have admitted the existence of real time and everyone in his own way has also provided solid arguments supported by valid reasons of their claim. But the way of Iqbal is quite different in the expression through his powerful poetry. Iqbal is very clear in the difference between temporal time real Time. He expressed his view of temporal time in the following verses:

Khirad huye hay zamaan-o makaan ki zunnari;
Na hai zamaan na makaan La Ilaha Illallah.. [86]
(Human mind is worshipping time and space as idols;
In the Divine Order (such) time and space are non-existent.)

The above cited verses are actually a sharp reaction of Iqbal to Einstein's declaration in which he says that there is no absolute or real time but there exists only time which is part of space and has one dimension out of four of the space-time. Einstein's second remark was that space and time should be no more a subject for the poets and philosopher. The findings of Einstein created anxiety and disturbed the minds of philosophers such as Iqbal. We find that Iqbal is very much mindful to the existence of serial time and physical

[86] Zarb-i Kalim, (Kulliyat-i Iqbal, p.527, 7th. edition, published by Iqbal Academy Pakistan – 2006.

space. He admits that these are also real in the physical universe. He says that serial time is 'the time of which we predicate long and short' and also that the serial Time is divided into past, present and future. It is useful in our daily life in dealing with the external order of things. Iqbal agrees that it is hardly distinguishable from space, but adds that 'beneath the appearance of serial duration there is true duration.' And to him true duration is change without succession. This is what Iqbal sometimes calls real Time or pure time. We quote below extracts from Iqbal's extensive deliberation on the subject:

"Pure Time, then, as revealed by a deeper analysis of our conscious experience, is not a string of separate, reversible instants: it is an organic whole in which the past is not left behind, but is moving along with, and operating in, the present. And the future is given to it not as lying before, yet to be traversed; it is given only in the sense that it is present in its nature as an open possibility. It is Time regarded as an organic whole that the Qur'an describes as *Taqdir* or the destiny – a word which has been so much misunderstood both in and outside the world of Islam. Destiny is time regarded as prior to the disclosure of its possibilities. It is time freed from causal sequence. … In one word, it is Time as felt and not as thought and calculated."[87]

Einstein's scientific contribution to mankind cannot be ignored, but at the same time his denial of absolute or real time is a heavy blow to the believers as it caused the human brain to find refuge in the seen world and tried to liberate itself from the unseen, that includes Reality and things closely related to the Real (God). Iqbal, a philosopher of the East and Bergson a philosopher of the West were contemporaries of Einstein. Both of them, as so many others, since then, have refused to accept the idea of Einstein that there is nothing like absolute time. There is no doubt in the greatness of this person being one of the greatest scientists the world

[87] RRT p. 39-40

has known. He brought about a revolution in the world of science. His theory of relativity opened the doors of new fields in cosmology. It was Einstein who paved the way of man to be able to travel far away regions into the skies and explore nature's hidden secrets; it was Einstein who proved theoretically that energy and mass were equivalent, which meant that energy could be converted into mass and mass be converted into energy; it was Einstein who managed to change the way of investigation for cosmologists in respect of movement of bodies in cosmos and measuring the time and distances to and in between these inhabitants of skies. But at the same time he failed to grasp the existence of real or absolute time. His total denial to absolute time demonstrated his lack of faith in the existence of God. A little before his death he had told that his body should not be buried but it should be burnt and the ashes should let be flown in the air. As a result of his aggressive attitude towards organised religion some people believe that Einstein was atheist. But this is an extreme view of the facts.

In fact religion also is a feeling or an instinct, which is built in the nature of Man, and Einstein was not an exception. This feeling when develops becomes faith and then turned into belief in the existence of God. All inventions of science have been the result of some sort of revelation from 'unknown' as indicated by most of the top scientists of the world. Their experiences are on record. As for Einstein he himself wrote in reply to a question of J. Murphy:

'Speaking of the spirit that informs modern scientific investigations, I am of the opinion that all the finer speculations in the realm of science spring from a deep religious feeling and that without such feeling they would not be fruitful. I also believe that, this kind of religiousness, which makes itself felt today in scientific investigations, is the only creative religious activity of our time.'[88]

[88] EAR p. 68-69

From the above cited caption of Einstein we find that Einstein though believed in religion, but his concept of religion is evident from his last sentence, in which he has limited the scope of religion to scientific investigations, stressing that this 'is the only creative religious activity of our time.' In 1936 Einstein clarified his concept of religion in a letter written in reply to the question of Phyllis Wright, a student in the Sunday school of the Riverside Church in New York. Phyllis asked whether scientists pray, and if so, what they pray for? Einstein wrote to him a detailed reply, from which we quote the last few lines which say:

'…Everyone who is seriously engaged in the pursuit of science becomes convinced that the laws of nature manifest the existence of a spirit vastly superior to that of men, and one in the face of which we with our modest powers must feel humble. The pursuit of science leads therefore to a religious feeling of a special kind, which differs essentially from religiosity of more naive people.
With friendly greetings, yours Albert Einstein.'[89]

As a matter of fact Einstein's mind remained completely occupied in exploring nature's laws. He was mostly involved in the affairs of the world of matter and could never use his power of contemplation to look behind the visible screen of the seen world which is displaying wordily drama all of which is relative to the finite time and is itself finite. Whatever exists behind the screen is real and infinite, to which unfortunately some of the great minds like Einstein did not have visionary access. The knowledge of the unseen is only possible by looking at the depths of our own soul, and this is the mystical way that some of the great scientists and philosophers of the world have very successfully adopted. This is another source of knowledge, besides reason and sense perception, which is called 'inner perception' that reveals 'non-temporal and non-spatial planes of being' Here I would like to quote Bergson again, who says that 'we must strive to see in order to see, and no longer to see in order to act. Then the **Absolute** is revealed very near to us, and in

[89] EAR p. 93

a certain measure, in us. It is of psychological and not of mathematical nor logical essence. It lives with us.'[90]

Bertrand Russell, as quoted by Iqbal in his *Reconstruction of Religious thought in Islam*, said that 'the theory of relativity by merging time into space has damaged the traditional notion of substance more than all the arguments of the philosophers. … The old solidity is gone, and with it the characteristics that to the materialist made matter seem more than fleeting thoughts'. Iqbal says that Einstein's Relativity presents one great difficulty, i.e. the unreality of time. 'A theory which takes Time to be a kind of fourth dimension of space must, it seems, regard the future as something already given, as indubitably fixed as the past. Time as a free creative movement has no meaning for the theory. It does not pass. Events do not happen, we simply meet them. It must not, however, be forgotten that the theory neglects certain characteristics of time as experienced by us; and it is not possible to say that the nature of time is exhausted by the characteristics which the theory does note in the interests of a systematic account of those aspects of Nature which can be mathematically treated. Nor it is possible for us laymen to understand what the real nature of Einstein's time is. It is obvious that Einstein's time is not Bergson's pure duration. Nor can we regard it as serial time. Serial time is the essence of causality as defined by Kant. The cause and effect are mutually so related that the former is chronologically prior to the later, so that if the former is not, the latter cannot be. If mathematical time is serial time, then on the basis of the theory it is possible, by a careful choice of the velocities of the observer and the system in which a given set of events is happening, to make the effect precede its cause. It seems to me that time regarded as a fourth dimension of space-time really ceases to be time. A modern Russian writer, Ouspensky, in his book called *Tertium Organum,* conceives the

[90] CE p. 315

fourth dimension to be movement of a three-dimensional figure in a direction not contained in itself.[91]

To Bergson Reality is a continuous flow, a perpetual Becoming and external objects which appear to us as so many 'immobilities' are nothing more than the lines of interest which our intellect traces out across this flow. They are, so to speak, constellations which determine the direction of our movement and thus assist us in steering across the over-flowing ocean of life. Movement, then, is original and what appears as 'fixity' or rest in the shape of external things is only movement retarded. This is as seen by a mathematically inclined intellect, which sees surface of things only, it has no vision of real change from which they are derived. The method of physical science, working with spatial categories does not and cannot carry us very far in our knowledge of Reality. Therefore, to catch a glimpse of ultimate nature of Reality a new method is necessary and that method is intuition, which according to Bergson is only a profound kind of thought, revealing to us the nature of life. This method discloses to us that the element of time, which physical science ignores in its study of external things, constitutes the very essence of living things; and this is another name for life. Thus the ultimate reality is time the stuff out of which all things are made – a Becoming, movement, life and time are only synonymous expressions. But this time which Bergson calls 'Pure Duration' must be carefully distinguished from the false notion which our mathematical intellect forms of it. Our intellect regards time as an infinite straight line portion of which we have traversed and a portion has yet to be traversed. This is only rendering time to a space of one dimension with moments as its constitutive points. This spatialised time is false and unreal time. Real time or 'Pure Duration' does not admit of any statically conceived today's and yesterday's. It is as actual ever present "now" which does not leave the past behind it, but carries it along in its bosom

[91] RRT p-31-32

and creates the future out of itself. Thus Reality, as conceived by Bergson is a continuous forward creative movement with opposites implicit in its nature and becoming more and more explicit as it evolves itself.[92]

As described earlier in chapter II Bergson defining real time says: 'Ones we place ourselves in the position of a disinterested observer and dismiss the natural habits of mind, we see easily that the movement and time are the reality we deal with directly, in the simplicity of unmediated contact. … We can go beyond ourselves and extend our time in both directions: the way down leads towards our homogeneity or pure repetitiveness, that is, materially; on the way up we come closer and closer to living eternity.'[93]

All the way from Aristotle down to Newton's time most philosophers and a large number of scientists conceived time as absolute and real. They had well differentiated between the real time and unreal or clock time. But during the nineteenth and twentieth centuries, with all the achievements of man due to development of science, a part of the intellectuals became materialistic. To this Einstein's general theory of relativity worked like a hammer on hot iron. He declared time and space as one to which he named "space-time" having four dimensions consisting of three dimensions of space and one dimension of time. Obviously time related with the universe can only be finite and therefore unreal, as this began with the emergence of the universe and is going to end up at the future singularity, the ultimate destination of the universe as regarded by scientists.

Adolf Grunbaum, in his *Philosophical Problems of Space and Time* has quoted St. Augustine, from *Confession, Book Eleven,* reprinted as translated and edited by Albert C. Outler, in Volume VII of the Library of Christian Classics, Westminster

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[92] This is extract from a paragraph of unfinished article handwritten by Iqbal and saved in Archives of Iqbal Academy Pakistan.

[93] LZB p. 27

Press and SCM Press, Philadelphia and London, 1955. We reproduce its Chapter XIV as following:

'17. There was no time, therefore, when thou hadst not made anything, because thou hadst made time itself. And there are no times that are co-eternal with thee because thou dost abide for ever; But if times should abide, they would not be times.
For what is time? Who can easily and briefly explain it? Who can even comprehend it in thought or put the answer into words? Yet is it not true that in conversation we refer to nothing more familiarly or knowingly than time? And surely we understand it when we speak of it; we understand it also when we hear another speak of it. What then is time? If no one asks me I know what it is. If I wish to explain it to him who asks me, I do not know. Yet I say with confidence that I know that if nothing passed away, there would be no past time; and if nothing were still coming, there would be no future time; and if there were nothing at all, there would be no present time.
But, then, how is it that there are the two times, past and future, when even the past is now no longer and the future is now not yet? But if the present were always present and did not pass into past time, it obviously would not be time but eternity.'

Like all other concepts Iqbal has made time and space as one of the major themes of his poetry. It is his poetry that goes directly to the heart of matter and emphasise the fact that reality is there. In the following verses he is saying that the problem of not understanding the nature of true time originates from our ignorance of the very basis of everlasting life. We quote below four verses from his famous Persian book Asrar-i-Khudi (Secrets of the Self):

Tu as asl-i zaman aagah naee,
Az Hayat-i Javidan aagah naee.
Ta kuja dar ros-o shab bashi aseer?
Ramz-i waqt az li-ma-Allah yaad gir[94].

[94] AOR p. 170

(Knowing not the origin of Time,
Thou are ignorant of the everlasting life,
How long will you be a thrall of night and day?
Learn the mystery of Time from the words "I have a time with God.")[95]

We have been studying the two kinds of time, the clock time or mathematical time and an absolute time or real time as viewed by different philosophers and scientists. Stephen W. Hawking has also commented on the issue of time. To him there is nothing like an absolute time, but at the same time he says that there are three sorts of time, to which he terms as 1) Thermodynamic arrow of time, 2) Cosmological arrow of time, and 3) psychological arrow of time. His idea of the three arrows of time follows a lengthy scientific discussion to which he has devoted a full chapter in his book *A Brief History of Time*. Out of the three arrows of time Hawking's Psychological arrow of time comes quite near to the absolute time, as he comments: "Our subjective sense of the direction of time, the psychological arrow of time, is therefore determined within our brain by the thermodynamic arrow of time."[96] Hawking has also talked on the idea of imaginary time but purely in scientific language. Inviting our reader's imagination we just quote him on his "imaginary" time, wherein he says: 'When one tried to unify gravity with quantum mechanics, one had to introduce the idea of "imaginary" time. Imaginary time is indistinguishable from directions of space.' It means that Einstein's one dimension of time out of four in Space-time is different from Hawking's imaginary time.

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[95] SOS p. 136-7 – The translator, R.A. Nicholson, writes in the footnote that the prophet Muhammad said, "I have a time with God of each sort that neither angel nor prophet is my peer." Meaning (if we interpret his words according to the sense of this passage) that he felt himself to be timeless.

[96] ABH p. 147

B.K. Ridley also refuses the existence of absolute time and believes only in Earthly time or clock time. But he is also compelled to think otherwise by concluding his argument in these words: "But then again perhaps time is imaginary, as religious mystics often claim. The idea of imaginary time might solve the problem of the beginning of time and the end of time. At any rate, there is time of thinking which believes it has a chance of doing so."[97]

From the foregoing study we may assume that whosoever tries to deny real time must, by dint of their own arguments and reflections on the infinite, embrace this counterpoint argument and accept that there is an absolute time which is reflected in the metaphysical and the divine. Iqbal, however, is very clear in his concept of the difference between real or absolute time and false or unreal time. He calls clock time as unreal and the absolute time as real time, since the former belongs to the objective world and the later relates to subjective realm. Iqbal takes life as well as time quite seriously. Iqbal had a meeting with Bergson at France in which the problem of time also came under discussion besides other philosophical issues. Iqbal expressed his concern on the declaration of Einstein that there did not exist any absolute time. Bergson was in full agreement with the point of view of Iqbal on the existence of absolute time, which he called as 'pure duration'. Iqbal and Bergson had no two views on this issue, since both of them had faith in the existence of a personal God and they had a clear perception of real or absolute time.

Iqbal relates the issue of time with human self. He says that 'on the analogy of our inner experience, then, the conscious existence means life in time. A keener insight into the nature of conscious experience, however reveals that the self in its inner life moves from centre outwards. It has, so to speak, two sides which may be described appreciative and efficient.' Elaborating both the sides of human self Iqbal tells

[97] TST p. 68

us that the efficient self is the subject of 'associationist psychology' and this is the practical self of our daily life 'in its dealing with external order of things which determine our passing states of consciousness and stamp on these states their own spatial feature of mutual isolation. The self here lives outside itself as it were, and, while retaining its unity as a totality, discloses itself as nothing more than a series of specific and consequently numerable states.' He concludes on the life and time of efficient self saying that 'the time in which the efficient self lives is, therefore, the time of which we predicate long and short. It is hardly distinguishable from space.' This is the time, which according to Einstein is the fourth dimension of space-time continuum. We can conceive it, says Iqbal, 'only as a straight line composed of spatial points which are external to one another like so many stages in a journey.' He, therefore, rules that such a time is not true time, because 'Existence in spatialised time is spurious existence.' And, then, he explains his viewpoint in this way: 'A deeper analysis of conscious experience reveals to us what I have called the appreciative side of the self. With our absorption in the external order of things, necessitated by our present situation, it is extremely difficult to catch a glimpse of the appreciative self.' The reason, according to him, is that 'in our constant pursuit after external things we weave a kind of veil round the appreciative self which thus becomes completely alien to us.' He concludes: 'It is only in the moments of profound meditation, when the efficient self is in abeyance, that we sink into our deeper self and reach the inner centre of experience. In the life-process of this deeper ego the states of consciousness melt into each other.' The unity of the appreciative self with efficient self is, as Iqbal puts it, 'like the unity of the germ in which the experiences of its individual ancestors exist, not as a plurality, but as a unity in which every experience permeates the whole.' At the end Iqbal says that 'it appears that the time of appreciative self is a single 'now' which the efficient self, in its traffic with the world of space, pulverises into a series of 'nows' like pearl

beads in a thread. Here is, then, pure duration unadulterated by space.'[98] Iqbal sings:

Kisi ney dosh dekha hai na farda;
Faqat Imroz hai tera zamana.[99]
(No one has seen yesterday or tomorrow,
It is only today which is your duration.)

Mustansir Mir, an imminent Iqbal scholar, now residing in Ohio, USA, says that the distinction between serial time and pure time also helps us to understand the important concept of *Taqdir* or destiny; which are commonly misunderstood as fixed and determinate future (called *Kismet*). To Iqbal 'destiny is time regarded as prior to the disclosure of its possibility. It is time freed from the net of causal sequence – the diagrammatic character which the logical understanding imposes upon it.' Iqbal adds: 'In one word, it is time as felt and not as thought and calculated.' Therefore, says Iqbal, 'the appreciative self 'is more or less corrective of the efficient self, inasmuch as it synthesises the 'heres' and 'nows' – the small changes of space and time, indispensable to the efficient self – into the coherent wholeness of personality. Pure time, then, as revealed by a deeper analysis of our conscious experience, is not a string of a separate, reversible instant; it is an organic whole in which the past is not left behind, but is moving along with and operating in, the present. And the future is given to it not as lying before, yet to be traversed; it is given only in the sense that it is present in its nature as an open possibility. It is time regarded as an organic whole.'[100]

Seyyed Hossein Nasr in 'the Gifford Lectures' said that there are two modes of time, one objective and the other subjective. 'Objective time is cyclic by nature, one cycle moving within another with a quaternary structure which manifests itself on various levels ranging from the four parts

[98] RRT p. 38-39
[99] KIU p. 90 (Bal-i Jibril)
[100] IMM p. 102

of the day (morning, midday, evening and night). … As for subjective time it is always related to the consciousness of past, present and future which flow into one another, each possessing its own positive as well negative aspects. The past is a reflection of the origin, the memory of paradise lost and the reminder of faithfulness to tradition and what has been already given by God. But it is also related to imperfection to that man has left behind in his spiritual journey, the world that man leaves for the sake of God. The future is related to the ideal which is to be attained, the paradise that is to be gained. But it is also a sign of loss of childhood and innocence and elongation and separation from the Origin which means also tradition. As for the present which is man's most precious gift it is the point where time and eternity meet; it symbolises hope and joy. It is the moment of faith and the door toward non-temporal. Contemplation is entry into the eternal present which is now.' He concludes that both objective and subjective time have a relative reality. … 'As far as spiritual experience is concerned, the present moment as the gateway to the eternal is so significant that practically all the traditions of the world speak with nearly the same tongue concerning the present moment, the instant (*nu alzemale),*the present now (*gegenwurtig nu),* and the eternal now (*ewigen nu)* of Meister Eckhart in which God makes the world, the *waqt or aan* of Sufism whose "son" the Sufi considered himself to be (according to the well-known saying "the Sufi is the son of the moment – *al Sufi Ibn al Waqt.*"[101]

The Russian-German mathematician Hermann Minkowski, who happened to be a teacher of Einstein, said in 1908 during an interview in Cologne: "Henceforth space by itself and time by itself are doomed to fade away into mere shadows, and only a kind of union of the two will preserve an independent identity."[102] These remarks of Minkowski bear great importance and need to be taken seriously.

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[101] NAS p. 224-5
[102] TGB p. 73.

As stated above Minskowski said that 'henceforth space by itself and time by itself are doomed to fade away into mere shadows'. Iqbal also said the same but in different words. To him Time and Space are non-existent in the Divine Order even as relationship, modalities or dimensions of Being. Divine Order is timeless and spaceless or non-spatio-temporal. Time and Space are the categories that do not pertain to God. The verse of Iqbal *"Na hai zaman na mkan la-Ilaha Illallah"* as quoted by us earlier in this chapter, now hopefully would be more clear to the reader; the verse of Iqbal means that in the Divine Order time (as part of space) is non-existent. Real time to Iqbal is more fundamental than space; it is related to space as soul is to a body; it is the matrix of the heavens and the Earth

We have studied the physical as well as metaphysical aspects of Space and Time, which is now called space-time by our scientists. Time has lost its separate existence in the minds of our scientists; but the fact remains that the importance of 'real time' is far greater than the importance of the time attached to space-time. For scientists time has no existence separate from Space; it is just a fourth dimension of Space. In other words the name of a fourth dimension of Space is 'Time'. Pure or true time being the real, as also called pure duration, has always remained beyond the scope of study by most of the modern scientists. What barred them from stepping in this arduous field, we feel, is the metaphysical aspect of the issue to which they are reluctant to recognise. Life, as Iqbal says, 'with its intense feeling of spontaneity constitutes a centre of indetermination, and thus falls outside the domain of necessity. Hence science cannot comprehend life. The biologist who seeks a mechanical explanation of life is let to do so because he confines his study to the lower forms of life whose behaviour discloses resemblances to mechanical action. If he studies life as manifested in himself, i.e. his own mind freely choosing, rejecting, reflecting, surveying the past and the present, and

dynamically imagining the future, he is sure to be convinced of the inadequacy of his mechanical concepts.'[103]

Earlier in this chapter we have quoted a few verses of Iqbal on the issue of time, followed by a translation from Professor Reynold A. Nicholson. Professor Nicholson was a teacher of Iqbal and he was the first person who introduced Iqbal in the West as a unique poet-philosopher of that time. He translated Iqbal's *Asrar-i Khudi* from Persian to English during Iqbal's life time. With the following additional verses of this great poet-philosopher on the issue of time we end this chapter with the translation by his learned teacher R.A. Nicholson.

Eeno-Aan paidast az raftar-i waqt,
Zindagi sirrest az asrar-i waq.
Asl-i waqt az gardish-i khurshid neest,
Waqt Javed-ast-o khur javed neest.
Waqt ra misl-i makaan gustarda-i,
Imtiaz-i dosh-o farda karda-i.
Aye cho bu ram karda az bustan-i khesh,
Saakhti az dast-i khud zindan-i khesh.
Waqt-i ma ku awwal-o akhir nadeed,
Az khyaban-i zamir-i ma dameed.
(Phenomena arise from the march of Time,
Life is one of Time's mysteries.
The cause of Time is not the revolution of the Sun,
Time is everlasting but the Sun does not last for ever
Thou hast extended Time, like Space,
And distinguished Yesterday from Tomorrow.
Thou hast fled like a scent, from thine own garden,
Thou hast made thy prison with thine own hand.
Our Time which has neither beginning nor end,
Blossoms from the flower-bed of our mind.)[104]

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[103] RRT p. 40-41
[104] AOR p. 170 and SOS p. 137-8

CHAPTER IV

THE PLACE OF MAN IN THE UNIVERSE AND THE DIVINITY OF THE SOUL

> "I cannot believe that our existence in this universe is a mere quirk of fate, an accident of history, an incidental blip in the great cosmic drama. … I do, however, believe that we human beings are built into the scheme of things in a very basic way." (Paul Davies)

> "Man in whom egohood has reached its relative perfection, occupies a genuine place in the heart of Divine creative energy, and thus possesses much higher degree of reality than things around him. Of all the creation of God he alone is capable of consciously participating in the creative life of his Maker." (Iqbal)

Mike Poole in his essay 'God and the Big Bang and other Arguments about Science and Faith', states:

> On current scientific thinking that the chemicals we are made of were cooked up in giant nuclear furnaces - stars – bigger than our sun. Because gravity is a weak force, these stars took thousands of millions of years to form and to make these elements. Then the stars exploded scattering the atoms into space. Objects near the edge of universe are still moving away at nearly the speed of light today, so if that has been happening since the Big Bang, it's easy to see why the universe is now so enormous. Some of the scattered atoms eventually became human flesh and bones. Our bodies are the ashes of long-dead stars. So it seems that if the universe was not ancient and vast, the atoms of our bodies would not have been made.

It has been assumed in the modern age that present structure of man, 'mental as well as physiological, is the last word in the biological evolution, and that death, regarded as a biological event has no constructive meaning'. It means that

the death is the end of everything for a person. This is the result of modern Man's materialistic attitude toward life. No doubt that science has given him partial control over the forces of Nature, but it has robbed him of faith in his own future. Iqbal says that 'the modern world stands in need of biological renewal. And religion, which in its higher manifestation is neither dogma, nor priesthood, nor ritual, can alone ethically prepare the modern man for the burden of the great responsibility which the advancement of modern science necessarily involves, and restore to him that attitude of faith which makes him capable of winning a personality here and retaining it **hereafter.'** To Iqbal the world of today needs a Rumi to create an attitude of hope (instead of despair), and to kindle the fire of enthusiasm for life. We quote here Rumi's inimitable Persian verses on the theme of 'biological future of Man' translated in English by Thadani. I am sure that no one can read the following passages without a thrill and joy. At the end of his verses on biological journey of man Rumi tells us his destiny in the most beautiful and striking poetic language:

And then my goal,
Beyond the clouds, beyond the sky,
In realms, where none may change or die
In angel form, and then away
Beyond the bounds of night and day,
And Life and Death, unseen and seen,
Where all that is hath ever been,
As One and Whole.

(Rumi: Thadani's translation)[105]

Henri Bergson, in the last two sentences of Chapter III of his book *Creative Evolution*, writes: 'All the living hold together, and all yield to the same tremendous push. The animal takes its stand on the plant, man bestrides animality, and the whole of humanity, in space and time, is one immense army

[105] Nanikram Vasanmal Thadani, *The Garden of the East p.63-64,* retold in English from Rumi's Mathnawi volume III p. 3901-06, 3912-14.

galloping beside and before and behind each of us in an overwhelming charge able to beat down every resistance and clear the most formidable obstacles, perhaps even death.'

Huxley writes on *Man's place in the universe:* 'The question of questions for mankind – the problem which underlies all others, and is more deeply interesting than any other – is the ascertainment of the place which Man occupies in the nature and of his relations to the universe of things. Whence our race has come; what are the limits of our power over nature, and of nature's power over us; to what goal are we tending, are the problems which present themselves anew and with unlimited interest to every man borne into the world.'[106]

Seyyed Hossein Nasr writes that in the study of the relation between Man and the world al-Biruni accepts the analogy of microcosm and macrocosm, which is closely allied to the concept of the chain of being, without developing these topics in any detail. "And how should a Man wonders at this," he asks, "it being undeniable that God has the power to combine the whole world in one individual (that is, to create a microcosm)." The body of Man as the physical part of the microcosm is composed of diverse and contradictory elements of the cosmos held together in a unity. (Quote from *Chronology of Ancient Nations,* P.2). He posses five senses which bring him knowledge of the physical world. But he exceeds other animals not by acuteness of his senses but by the possession of Intellect by virtue of which he is God's vicegerent on earth. It is because Man is the vicegerent of the Creator that things in this world are ordered on His behalf, and he is given power over them. (*Kitab al-Jamahir,* P.4). What is expected from him is that he should understand that his life on earth is a journey from the company of creatures to that of the Creator. With such an understanding he would realise his noble nature and the purpose for which he was created.[107]

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106 DTE p. 60

107 ICD p. 149-50

God said to Muhammad, "Soon will We show them our signs in the farthest Regions, and in their own souls, until it becomes manifest to them that this is the truth. Is it not enough that Thy Lord doth encompass all things?"[108]

Iqbal believes in biological unity not only in Man to Man but he says that we, the entire human race, are biologically related to every other thing in the universe. He says poetically,

Kamal-i wahdat ayaan hay aisa key nok-i nashtar
sey too jo cherey,
Yaqeen hay mujh ko grey rag-i gul sey qatra insaan
key lahoo ka."

(The unity in the universe is so perfect that if you dissect a rose leaf with the tip of a surgical knife you will observe the drop of human blood trickling out of it.)[109]

I quote hereunder a beautiful passage from *Post Kantian Voluntarism* by B.A. Dar.[110] (p. 39-40):

> In a passage at the end of the *Critic of Pure Reason,* Kant says, 'Two things fill the mind with ever new and increasing admiration and awe, the oftener and the most steadily we reflect on them; *the starry heavens above and the moral law within* … I see them before me and connect them directly with the consciousness of my existence. The former begins from the place I occupy in the outer world; it enlarges the connections in which I stand in that world to an unbounded range with worlds upon worlds and systems upon systems, with limitless time of their periodic motion, its beginning and continuance. The second begins from my invisible self, my personality. It sets me in a world which has true infinity, but is discoverable only by the understanding … In the former case, the view of these galaxies of world annihilates my importance as a part of my animal creation, which after it has been for a short time provided with vital power, it knows not how, must again give back the matter of which it was formed to the planet it inhabits, and that a mere speck in the universe. But when I consider

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[108] Qur'an 41:53
[109] Bang-i Dara (Academy) p. 147
[110] IPV p. 39-40

> again, my worth as an intelligent being is raised to infinity through my personality. For then the moral law reveals to me a life independent of my animal nature and all the world of the senses, so far at least as follows from the fact that my being is designed to follow this law, which is not limited by the condition and limits of this life but reaches to infinity.[111]

Iqbal says that Man, in whom egohood has reached its relative perfection, occupies a genuine place in the heart of Divine creative energy, and thus possesses much higher degree of reality than things around him. Of all the creations of God he alone is capable of consciously participating in the creative life of his Maker. Endowed with the power to imagine a better world, and to mould *what is* into *what ought to be*, the ego in him aspires, in the interest of an increasingly unique and comprehensive individuality, to exploit all the various environments on which he may be called upon to operate during the course of an endless career.[112]

As regards man's perfection in his egohood, Iqbal's beautiful verses quoted below tell us what is egohood and how the real ego or the Self can be developed in a person. The translation in English language followed by each of these Persian verse was done by Iqbal's teacher Professor R.A. Nicholson of Cambridge University in U.K.:

Nuqta-i noor-i key nam-i-oo khudist; Zeri khak-i ma sharar-i zindagist.
Az muhabbat mi shawad painda-tar; Zinda-tar sozinda-tar tabinda-tar
Az muhabbat Ishta-al-i johar-ash; Irtiqa-i mumkinat-i muzmirash.
Fitrat-i-oo Atish andozad zi Ishq; Alam afrozi biamozad zi Ishq.

> The luminous point whose name is the Self; Is the life-spark beneath our dust.

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[111] A.D. Lindsay, KANT, p.198-99

[112] RRT p. 58 (The phrase 'endless career' means that such a complete person makes himslef immortal. For him the death does not mean a total extinction.

By Love it is made more lasting; More living, more
burning, more glowing.
From Love proceeds the radiance of its being; And
(also) the development of its unknown possibilities.
Its nature gathers fire from Love; Love instructs it to
illumine the world. [113]

According to Iqbal, the whole reality in its ultimate essence is spirit. Hence life cannot be attributed to a combination of atomic or the non-living elements. … Man does not flourish out of matter that ultimately is reducible to inert particles or even to electric charges. He is a spiritual reality in his ultimate essence. … In the world of creation, God manifests Divine Effulgence and Divine Glory in and through Man and creates the universe in order to create man. Thus man is not a mere accident or episode in the gigantic evolutionary process. He is not a mere speck in huge and mighty cosmic reality. … The universe is meant to serve as a soil for the fruition of man. Man is the very theme of the whole drama of creation. He is the real story or the main book for which the universe is a mere preface. He is the richest fruit of the tree of existence and the crowning glory of Divine Creation.[114] Iqbal says that Man is the custodian of all the Nature's hidden secrets. In the following two verses of his book Bang-i Dara he elaborates this lofty theme in the shortest possible manner:

Teri fitrat ameen hai mumkinat-i zindagani ki,
Jehan key johar-i muzmir ka goya imtihan too hay.

Your nature is custodian of all life's possibilities,
So to say you are the touch stone for world's hidden jewels!.[115]

Qur'an defines the vast domain of Man in the universe in following verse:

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113 AOR p. 58 (Iqbal's Asrar-o Ramoze) & SOS p. 28 (Professor Nicholson's Secrets of the Self).
114 PGU p. 161-2
115 BID p. 269

"Do you not see that God has subjected to your (use) all things in the heavens and on earth, and has made His bounties flow to you in exceeding measure, (both) seen and unseen." (31:20)

Paul Davies says that Man has already 'cracked part of the cosmic code'. According to him we are children of the universe – animated stardust, but we can reflect on the nature of universe and are able to see the rules in which it runs. He says: "I cannot believe that our existence in this universe is a mere quirk of fate, an accident of history, an incidental blip in the great cosmic drama. Our involvement is too intimate. --- Through conscious beings the universe has generated self-awareness. This can be no trivial detail, no minor by-product of mindless, purposeless forces. We are truly meant to be here."[116] In the same book's page 16 he comments on Man's importance in these beautiful words: 'That is not to say that we are the purpose for which the universe exists. Far from it, I do, however, believe that we human beings are built into the scheme of things in a very basic way.'

Einstein says that 'a human being is a part of the whole, called the Universe, a part limited in time and space. He experiences himself, his thoughts and feelings as something separate from the rest – a kind of optical illusion of his consciousness. This delusion is a kind of prison for us, restricting us to our personal desires and to affection for a few persons nearest to us. Our task must be to free ourselves from the prison by widening our circles of compassion to embrace all living creatures and the whole of nature in beauty. Nobody is able to achieve this completely, but the striving for such achievement is in itself a part of the liberation and a foundation for inner security.'[117]

The ruminations of Einstein and Iqbal above, and throughout this discourse lead us to a possible, if unpopular theory regarding the place of Man in the universe. Man's potential is unbound. He can move mountains and conquer

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[116] TMG p. 232

[117] The New York Post dated 28th. November 1972, p.12.

not only the forces of Nature but can also attain the highest sublimity, ever dreamt of. He can unfurl the banner of human greatness and constantly push the boundaries of his own perception. It is the very fact that humankind can do this – that we can redefine our own perceptual boundaries – which makes this unique creation uniquely aware of a metaphysical universe.

Thus the place of Man in the tapestry of creation may be more than a result of haphazard happenstance and instead lend us to think that a possible explanation for human awareness may in fact be as a result of a direct communion with the divine. That in fact it could be possible that there is a concordance in the two deductions of this thesis:

1. There is a divine perception of time
2. Man is a divine creation

Therefore we conclude on this final point: the metaphysical, some might say divine, perception of time which can be perceived by a creation such as Man is in fact a consequence of Man being a divine creation.

ABBREVIATIONS AND BIBLIOGRAPHY

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AER Albert Einstein Relativity (By Albert Einstein), English translation first published By Methuen & Co. Ltd., London. (Reprint 1962).

AOP An Outline of Philosophy, by Berrand Russel, first published in Great Britain by George Allen and Unwin in 1927 (Reprint 1989).

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ASH A Short History of Nearly Every Thing, by Bill Bryson, Black Swan edition, Published by Transworld Publishers, London WS SSA, 2004.

BID Bang-i Dara by Dr.Iqbal, published by Sheikh Ghulam Ali & Sons, Lahore, 37th. edition 1980.

CE Creative Evolution by Henri Bergson, translated by Arthur Mitchell, published by Macmillan and Co, Ltd., London, 1922.

COS COSMOS, by Carl Sagan. First published in Great Britain in 1981 by Macdonald and Co. (publishers) Ltd., London and Sydney. (Reprinted 1991).

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DTE Darwin to Einstein, Edited by Colin Chant and John Fauvel, published by longman Inc., New york in 1980.

EAR Einstein and Religion by Max Jammer, published by Princeton University Press, New Jersey (1999).
EOL The Emergence of Life by John Butler Burkey, published by Oxford University Press London (1931).
GNP God and the New Physics by Paul Davies, first published by the Penguin Group, Reprinted by Penguin Books in 1990.
ICD An Introduction to Islamic Cosmological Doctrines by Seyyed Hossein, pubished by State University of New York Press, Albany in 1993.
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IMM IQBAL by Mustansir Mir, 1st. edition published by Iqbal Academy Pakistan, Lahore in 2006..
IPV Iqbal and Post Kantian Voluntarism by Bashir A. Dar, published by Bazm-i-Iqbal, Lahore (Pakistan) – 1965.
KIU Kuliyat-i Iqbal Urdu, published by Iqbal Academy, Lahore , eighth edition 2007.LON Laws of Nature by Rom Harre, published by Gerald Duckworth & Co. Ltd., 48 Hoxton Square, London NI 6PB (1993).
LZB BERGSON by Leszek Kolakowski, published by Oxford University Press (1985).
MOT Master of Time by John Boslough, published in Great Britain by J.M.Dent in 1992.
NAS Knowledge and the Sacred, The Gifford Lec-tures, 1981 by Seyyed Hossein Nasr, Published by Suhail Academy Lahore, Pakistan.
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TRT The River of Time by Igor D. Novikov, published by the Press Syndicate of the University of Cambridge, U.K. in 1998 (Reprinted 2004).
RRT The Reconstruction of Religious Thought in Islam by Dr. Muhammad Iqbal, first published in 1934 by Oxford University Press, reprinted and published by Iqbal Academy Pakistan in 1989.
SHU Stephen Hawking's Universe by John Boslough, published by William Collins Sons and Co. Ltd., Glasgow, U.K. (1983).
SOS Secrets of Self, Translation of Iqbal's Asrar-i Khudi by Professor R.A. Nicholson, First published by Macmillan, London, repinted by Sh..Muhammad Ashraf, Lahore, 1983.
SWS Speeches Writings and Statements of Iqbal, compiled and edited by Latif Ahmad Sherwani and published by Iqbal Academy Pakistan, fourth edition 1995.
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TGB The Great Beyond by Paul Halpern, published by John Wiley and Sons Inc., Hoboken, New Jersey (2004).
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