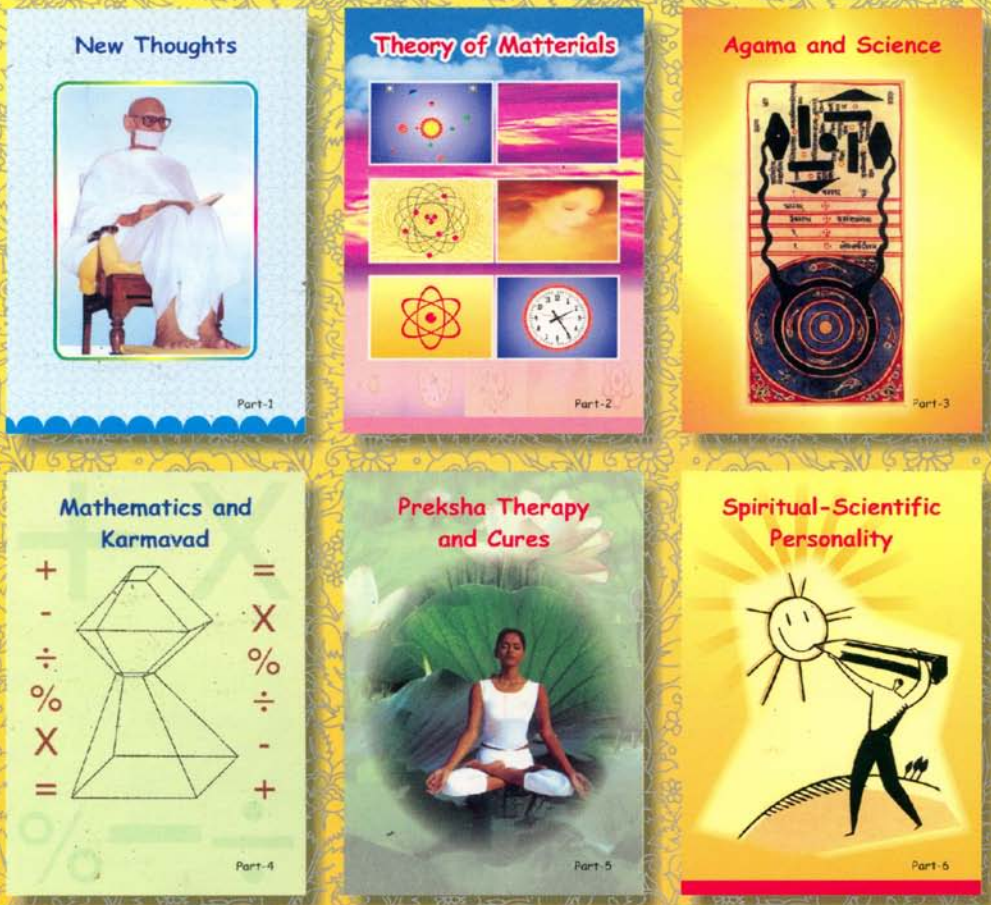
Jain Studies and Science

Context : **Acharya Mahapragya's Literature**



Professor Dr. Mahaveer Raj Gelra

About the Book

Present book is written with a basic conviction that Acharya Mahapragya is a Super Intelligent human whose discourses and writings are based on the knowledge imparted by Lord Mahavira who was a Super Human Intelligence. Acharya Mahapragya is a living encyclopaedia of Jain teachings. In addition, he holds command on Ancient Indian Philosophy, Modern Psychology and contemporary Scientific Principles. He has incessantly inculcated science into his literature to make it comprehensible to even those who examine the religion critically.

He feels that the rapid strides made by science are irretrievable and it is impossible to reverse this trend. The ills and perils of this hectic growth have now become a full blown predicament and science needs to be amalgamated with the religious thoughts to get rid of its evils. Religion yearns for an eternal soul and science for an undying body, so why not have the best of both - let us endeavour to attain a perpetual soul in conscious mind and healthy body!

JAIN STUDIES & SCIENCE

Context : Acharya Mahapragya's Literature

EMERITUS PROFESSOR M.R. GELRA

Edited and Translated

by

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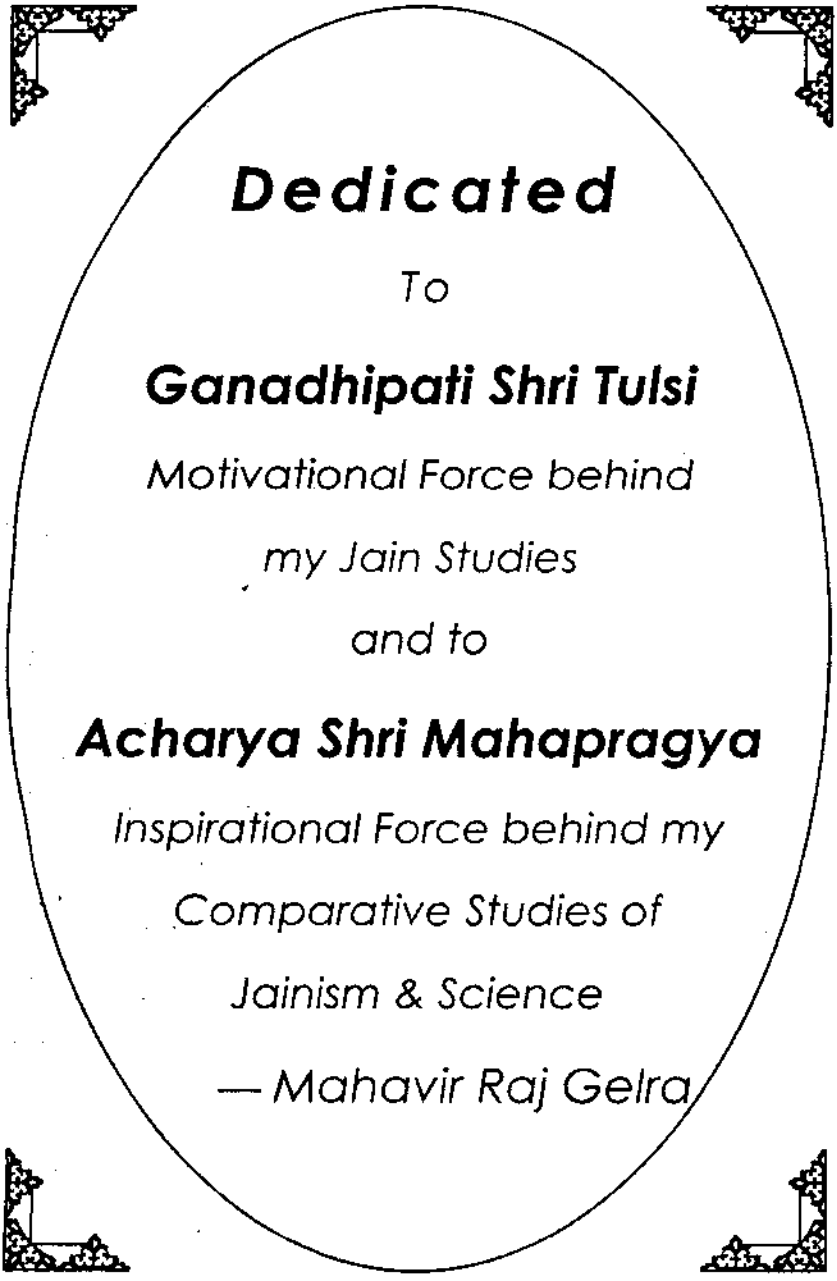

Dedicated

To

Ganadhipati Shri Tulsi

Motivational Force behind

my Jain Studies

and to

Acharya Shri Mahapragya

Inspirational Force behind my

Comparative Studies of

Jainism & Science

— Mahavir Raj Gelra

Jain Studies & Science

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WORDS OF BENEDICTION

Truth means what really exists, Reality is that which 'is'. It is an ontological truth. The spiritual practitioners (sadhakas) possessed of extra-sensory consciousness have discovered this truth and that is why they are known as the investigators of truth. The research into the realm of truth means the discovery of universal laws. Thus, that which is a universal law is truth. So scientists are also like sadhakas, as both are seeking and yearning for truth.

Lord Mahavira has directed - 'Search truth thyself'. This approach (of self-search) is indeed a scientific one. Hence, it is difficult to draw a line of demarcation between the scientific research and research undertaken by sadhakas possessed of super sensory knowledge. Both are equally committed to unearth the truth - the fundamental laws of nature, facts and axioms governing the entire existence.

I have incessantly endeavoured to establish a link between the philosophical and scientific theories. We may consider such resemblances as complementary.

Dr. Mahavir Raj Gelra has concentrated on the comparisons and has given shape to this treatise aptly named as "Jain Vidya Aur Vigyan; Sandharbh - Acharya Mahapragya ka Sahitya." Comparative Study of Jainology & Science in context of the Finding of Acharya Mahapragya. Dr. Gelra is an erudite scholar of Jain Agamas and also keeps himself well abreast of the most recent findings in the field of modern scientific discoveries. He is a recipient of several awards. "Jain Vidya Manishi" is one such award which is indicative of his excellence in Jainological Studies. Ganadhipati Shree Tulsi had graced Dr. Gelra with the dignified title of "Terapanth Pravakta (Spokesperson)". He is also awarded "Kundakundad Jnanapitha Puraskara 2005" for his work "Science in Jainsm" by Kundakundad Jnanapitha (Digamber Jain Udasina Ashrama Trust) Indore.

Dr. Gelra and his family have remained sincere in Anuvrat and have also remained associated with the programmes of the Anuvrat from the very beginning. The Anuvrat Award (2005) is appreciation of his contributions to the enhancement of the moral values. His son, Piyush Jain, has made commendable efforts in English translation of the present book.

The present book on 'Jain Scientific View and Modern Scientific View' is as much important and useful to a student of philosophy as much as it is to a student of science. This sincere effort of Dr. Gelra will open new horizons for those who undertake the task of unveiling the truth.

- Acharya Mahapragya

14th January, 2007 Gangasahar (Raj.)

PROLOGUE

Philosophy and Science - both seek the truth but with a fundamental difference. Philosophy follows a certain definite base whereas science always starts from zero ground. *In their respective quest for truth they cross each* others path very often. Many a times, philosophical musings pave the way for scientific research, while at times; philosophers are compelled to take notice of scientific discoveries. Yet, both have one similarity – they have a long way to go before the ultimate truth and purpose of our existence is revealed. Whether or not both will reach the same destination – time only will tell!

Today's youth has more faith in science than in religion or philosophy. Though philosophy is not attached to any particular person and is associated only with the truth, yet its authenticity sometimes comes under severe scrutiny when it gets associated with any great person.

Once Buddha told his disciples, "Tradition is not the yardstick of truth, neither am I. Truth will be established – not because I am propounding it but will be accepted by your heart only when your mind acknowledges it sensibly." Lord Mahavira also emphasised the same fact - "Search for the truth - thyself."

Like philosophy, science too has but one aim - to rid humanity of its sorrows and sufferings. Till date, the basis of all progress of humanity is through materialistic sources even though developed countries had caused destruction in the guise of the peace.

Acharya Mahapragya is an eminent coordinator of philosophy and science. Using science as the touchstone, he lived the essence of religion in his life. According to him, science is not our foe but is a friend. With more and more scientific revelations, the gap between science and philosophy has been bridged. He states that the truth can be described only by realistic approach i.e. *Anekant* (Non-absolutism). Jain philosophy is completely scientific in its own self and needs no scientific apparatus and research to prove its authenticity. However, some truths which had got buried in the passage of time need to be re-established through science. To that extent the scientific research has helped the philosophy greatly. This is indeed a great work done by science. The contribution of Acharya Mahapragya is that he has presented the philosophy in the language of science - the language of modern era. What is scientifically approved can be universally accepted.

Science progresses from 'macro' to 'micro' whereas spiritualism moves from tangible to abstract. In totality, both are heading towards a single reality - the infinitely latent world of 'massless'. Transcendental knowledge beyond

perception - an important subject of philosophy which had ceased to exist for a long time, has been revitalised by the science. Aura, conversion of body chemicals, change in secretions of hormones through meditation and effect of finer karmic waves etc. have all become the part of scientific realm. Various scientific apparatuses have been our associates in this philosophical travel. The use of scientific methods has eliminated number of misconceptions, myths and problems associated with various religious and philosophical beliefs.

The practice of the comparative study between religion and science has gained momentum during these years. Question arises that is it essential to test the religious axioms on scientific litmus? The answer lies in the fact that young and present generation accepts the authenticity of religion only if it is scientifically proved. Science is discovering new facts through the researches in subjects like religion, philosophy, health, mathematics, geography, astronomy etc. Thus it will be naive on our part to overlook the usefulness of comparative studies! Those who were initially opposing the idea of confluence of science with religion too have started accepting the scientific views. Today science has promoted the relevance of religion and philosophy by experimentally proving the beliefs embedded in them.

There were many subjects in Jain philosophy which hitherto were difficult to express in common language with in-depth clarity, but the same has become easy with modern discoveries of science. There was a time when youth could be convinced by mere faith, but today the context has changed and with them the depth of faith has deepened.

The personality of Acharya Mahapragya is a brilliant combination of scientific temperament and spiritual character. Though he never studied science in any school or laboratory, yet had been able to give clear scientific explanations to number of profound subjects of Jain philosophy. Books written by him are, therefore, readily accepted and respected by number of scholars. He is a scholar and commentator of Indian and Western philosophies along with being a great interpreter of science and spiritualism. According to him —

"A new personality is born when external universe combines with the internal spirit i.e. when physical materialism amalgamates with the spiritual metaphysics. Today India is not only borrowing foreign exchange from the west but also the concepts and thoughts. I want to save India from this humiliating experience. I am benefited by the knowledge of the ancient scriptures, but I don't believe in carrying its burden."

President Dr. Abdul Kalam says, "Acharya Mahapragya has a scientific attitude as he is not adamant on any particular concept." Swami Vivekanand

has felt the dire need for the coordination between spiritual knowledge and science. Vinobha Bhave expressed it differently – "The train of science needs an engine fuelled by spirituality." Acharya Mahapragya has moved a step further. He has proved the usefulness of science in the fields of education, meditation and spiritual knowledge. He has applied the various scientific results in the interpretations of *Preksha Dhyana* (meditation) and has explained in his sermons and literature how meditation cures diseases, changes habits and reveals the secrets of inner being. He believes that high accomplishments would only be achieved by entering into the finer world. The miracles and usefulness of atom are known to the entire world. But the power of consciousness is infinitely stronger. This is true because when 'I' is known, the rest all automatically follows. Therefore, the word *'Pragya'* when gets associated with Acharya Mahapragya, it assumes greater meaning and significance.

In the present book, 'JAIN STUDIES AND SCIENCE: CONTEXT - ACHARYA MAHAPRAGYA'S LITERATURE', Dr. Mahavir Raj Gelra has exhaustively described those subjects of Jain philosophy from scientific view point which are discussed in various Mahapragya literature. Though philosophy and science both are intricate subjects, it's the skill and specialisation of Dr. Gelra to have described these in simple and comprehensible language. Due care has been taken in all the sections of the book as not to touch those subjects which are not based upon scientific principles. This has become possible because of Dr. Gelra's unique combination of minute and profound knowledge of Jain philosophy and science along with his humbleness and scholar's attitude. He is a writer, philosopher, thinker and a spokesperson of three important facets of life - religion, philosophy and science.

This is indeed the result of the blessings of Dr. Gelra's religious Guru Acharya Mahapragya which has enabled him to work on latter's literature. His research papers published in various national and international seminars have earned him great accolades. Being a popular figure in Jain society, he has been invited as a speaker on number of occasions by the Jain saints.

Dr. Gelra completed his M.Sc. in chemistry followed by Ph.D. from Jodhpur University. He retired as Director, College Education, Rajasthan, and later became the founder Vice-Chancellor of Jain Vishva Bharati Institute (Deemed University), Ladnun. Having reached the pinnacle of success in the field of education, he's now actively associated with Acharya Mahapragya's literature.

SADHVI RAJIMATI

VICE-CHANCELLOR'S NOTE

An investigator who sets out in search of truth travels incessantly towards the aim of its revelation. Truth of our existence is all pervasive and omnipresent. It cannot be invented, it can only be explored. What is truth, how is it like, why is it so, with all these questions begins the journey of a truth-seeker and with the answers and solutions, the purpose of the journey gets accomplished. The enlightened person himself becomes the destination. The path undertaken by him looses its significance, as several paths are available to reach the same destination. This journey continues till the time the investigator reaches the pinnacle. **Philosophy and science are two paths of truth-exploration**. The main aim of their journey is to explore the esoteric secrets of life and the universe. The axis for the journey of philosophy is all-encompassing conscience, whereas for science, path of journey is the physical world. Both these branches of knowledge are not against each other, but are complementary to one another. The world of philosophy has explored the essence of life, thereby presenting many truths about cosmology, which are in league with modern science. Science too, if moves towards the exploration of consciousness, can become more effective.

Lord Mahavira has considered the knowledge of both soul and body important for the spiritual experience. This statement is expressed in Dasavealiyam Suttra:

जो जीवे वि न याणाई, अजीवे वि न याणई।
जीवाजीवे अयाणंतो, कहं सो नाहिइ संजमं ? (दसवें 4/12)
jo jeeve vi na yaanai, ajeeve vi na yanai
jeeva ajeeve ayananto, kahani so nahii sanjamam (Dasave,4/12)

Without the Right knowledge of soul and non-soul, including matter, self- control cannot be achieved. This maxim of spirituality, in fact, expresses the scientific phenomenon of Jain studies. Lord Mahavira was a spokesman of spiritualism. He not only attained the state of transcendental consciousness himself, but guided his followers in that direction. Question thus arises, why those aspiring for soul-consciousness, need the understanding of materialistic world? He should be contended with the aspects of soul alone. What is the purpose of knowing other substances? It is because the cognition of Lord Mahavira was multi dimensional. He did not accept just one facet of existence, but kept the entire truth within the realm of his cognisance. In his philosophy, just as soul-consciousness has an identity, so has the matter. **In totality of our existence, the importance of both 'body and soul', 'tangible and intangible' and 'physical and spiritual' is equally prevailing – one cannot outweigh the other.**

The basic principle of Jain Philosophy is:
"जदत्थि णं लोगे तं सव्वं दुपओआरं,
तं जहा – जीवच्चेव अजीवच्चेव" (ठाणं 2/1)

Meaning, "Whatever exists in the universe is in pair, as jiva-ajiva exist as a duo." In this context the views of Acharya Mahapragya are worth mentioning:

"Jain philosophy acknowledges dualism. Accordingly, soul (consciousness) and body (matter) - Jiva and Ajiva - are two basic realities. Rest all are just different manifestations of these two fundamental entities. As the soul and body combine mutually in infinite probabilities to create the universe, Jain philosophy has adopted pluralistic approach, Anekant. In Mahapragya's opinion, no living being is free from the limitations of consciousness. Soul and matter are the two basic building blocks of the entire existence and from this view point, duality is a truth."

This realistic acceptance by Jain philosophy has opened the new doors for the mutual coordination of Jain Study and Modern Science.

The study of Jain Philosophy is not only limited to spiritualism and axioms but also comprises various aspects of life. Jain literatures contain within themselves vast knowledge of spiritualism, religion, conduct, real nature of things, rules for motion and steady-state, theories related to matter, energy, direction, time, meditation, emotions, health, black-holes, existence of souls etc. The validity of these subjects is in consonance with various branches of science like physics, biology, cosmogony, cosmology, psychology, atomic science, health science, social science etc. The comparative analyses of these branches, provides a new and very contemporary direction to both philosophy and science.

Before the onset of 20th century, the critical study of philosophical subjects remained confined to the then prevailing concepts only. Science was either very weak or was not available at all. But ever since science has proved its presence in various disciplines it has become an inevitable part of any philosophical discussions or writings. A few writers have undertaken the mammoth task of unearthing the science contained in the ancient studies. One such prominent writer, whose name outstands in establishing communication between the ancient contents of Jain Studies and modern science is, Acharya Mahapragya. He has given a new outlook to Jain Studies.

Acharya Mahapragya, while presenting his ideas on science, says, "Truth is singular. It is beyond beliefs and experiments. Many believe that science has harmed religion and has withdrawn people from it. Many priests echo the same thoughts. But, reality is otherwise. My definite belief is that science has given credibility to the ancient secrets of religious scriptures which were otherwise unexplainable as their original rationalizations were not available. With the help of scientific researches, philosophical postulates can be elaborated very authentically. The comparative study of the branches of philosophy and science is therefore quite desirable. In such a situation many new dimensions of philosophy can be brought to light."

This wisdom of Acharya Mahapragya has found universal acceptance and has attracted number of contemporary thinkers, writers, literary people, social

workers and scientists in this direction. His endeavours to achieve the confluence of thought and experiment have given a new awakening to our era.

This ideology of the writings of Acharya Mahapragya has inspired Prof. Mahavir Raj Gelra to compile this literature - 'Jain Study and Science: Context: Acharya Mahapragya's literature'. Presenting the background he says, ".... the writing of Acharya Mahapragya has been authoritative in Jain Philosophy, science and psychology. The rich abundance of his writings has all the possibility to take the shape of a complete book for the benefit of the readers. I thus planned to mould the scattered jewels of Mahapragya's literature into an exquisite ornament."

Prof. Mahavir Raj Gelra, a scientist by profession, has dwelled deep into the secrets of philosophy with his scientific background. Because of his distinctive oratory style, he is able to convey his ideas to the audiences in a very organised and authentic manner. As a result, audiences' interest and curiosity are aroused.

Prof. Mahavir Raj Gelra has compiled this literature in the light of Acharya Mahapragya's literature. In a paragraph of Epilogue entitled - "Coordination of Science and spiritualism" he has presented various subjects of Mahapragya's literature before the readers. Prof. Gelra has not only compiled the thoughts of Acharya Mahapragya but has appropriately blended the modern scientific concepts also. Some of its examples are given below which vindicate the depth of his scientific knowledge -

- In the discussions of motion and velocity, the mention of mutual relation between mass and energy as given by Einstein in equation $E = mc^2$, attracts the students of science towards the study of philosophy.
- Agreeing with the interpretation of Mahapragya on the resonance of Karma, the writer puts it as, "the probable reason for connecting the breathing and determination with the Karma is because of their similar physical nature as they all are made up of fine matter. It is important to note that fine matter interacts with the other fine matters easily."
- Mahapragya has maintained all along in his literature that the unique concept of Keval Gyan is a realistic scientific possibility. Dr. Gelra has further strengthened it by applying the fundamentals of mathematics. His use of mathematical entities of zero and infinity is truly path breaking. "In mathematical equations, when one parameter assumes infinite value, the other associated with it automatically becomes zero and vice-versa. A Keval-Gyani has an infinite speed of perception, therefore the time required to travel becomes zero irrespective of the distance involved. Thereby, shrinking all the three dimensions of time – the past, the present and the future – into one entity of moment." Chapters on Direction, Time, and Universe etc., too contain the sparkles of his scientific temperament, which is highly commendable.

The learned author's work is mainly a compilation; he has placed forward his genuine and spontaneous thoughts within the realm of established scientific

theories. His novel interpretations may or may not find acceptance with other thinkers, however his efforts have broadened the horizon. In this context, his discussions on Syadvada are highly thought provoking. Excerpts from the book – "The scientific principle of uncertainty has an immediate alibi in the form of Syadvada. When a micro entity is in motion, two possibilities exist –

- When behaving as a particle, the wave nature is obscured and vice-versa.
- For an observer, it is impossible to correctly predict the behaviour of a micro entity either as a particle or as a wave. This 'uncertainty of science' is the 'unpredictability of Syadvada'. Interestingly, this uncertainty or unpredictability arises not due to the characteristics of the entity but due to the inadequacies of the observer's perception and limitation of his knowledge."

Commenting, Mahapragya says, "Dr. Mahavir Raj Gelra is a great scholar of Jain Agamas while simultaneously keeping himself acquainted with the latest happenings in the world of science. This aspect of author is manifested repeatedly throughout the present work. Dr. Gelra is a born Jain and a trained scientist. His strong association with Terapanth and his unequivocal presentation of Jain fundamentals has earned him the laurel of 'Terapanth Spokesman' by none other than the Rev. Ganadhipati Shree Tulsi. I strongly believe that his present work, namely, 'Jain Study and Science: Context - Acharya Mahapragya's Literature' will prove to be a milestone and beacon to all those who seek the confluence of science and spiritualism. This endeavour of Dr. Gelra is just a good beginning from where he has to travel a long way ahead."

I had the privilege of editing this book, when published in Hindi in 2005. I am immensely pleased to find that its translation in English is ready within a year's time. I specially record thanks to Shri Piyush Jain for this commendable work of translation and the re-edition of the book, which carries various technical terms of Jain Philosophy. I would also like to thank Shri R.L. Parakh, Churu (Rajasthan) for the financial assistance for the publication of this book.

In Acharya Mahapragya's literature, various aspects of Jain Philosophy, like, Sociology, Economics, Health-science, Psychology, Physics etc. have been discussed in great depths. This treatise is created keeping only scientific concepts at the centre. Scholars from various fields can select various other topics available in Mahapragya's literature for their writings, thereby, contributing in the expansion of Jain studies.

I firmly believe that this project undertaken is a right step in the direction of achieving its goals.

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INTRODUCTION

In the later half of the twentieth century a clear shift is visible in the orientation on the writings of Jain philosophy. The concepts of Jain philosophy were once compared at length with other contemporary Indian philosophies i.e. Vedanta, Sankhya, Buddhism etc., now they are compared with the theories and results of modern science. Jain philosophers, in the initial period of writing, used to compare their concept on Non-absolutism with Vedanta's Monism and Sankhya's Dualism. The comparisons were also drawn with the 'concept of permanence' of Vedanta and the concept of 'impermanence' of Buddhism vis-à-vis permanence-cum-transience of Jainism. This custom has primarily ended now. Ever since the advent of Einstein's theory of Relativity and Heisenberg's theory of Uncertainty, Jain philosophy has found trusted friends in them. Clear parallels can now be drawn between Einstein's theory of relativity and the Principle of Anekant (Non-absolutism) of Jain philosophy. The scientific studies on relativity, structure of atom, psychology and modern discoveries of cosmology have provided help to explain and reinforce many facts of Jain studies.

Foremost Writer

In the contemporary writing style on Jain studies, the partial use of science has started. The credit for adopting this changed style of writing goes to Mahapragya. In the present era, he has established himself as the foremost writer of this new genre of scripting. It reflected not only his generous and flexible perception, but also manifested his deep curiosity to arrive at the truth. His slogan as an Anekant Drastra (visionary) is: 'What is truth is mine' and not 'what is mine is the truth'. According to Mahapragya's point of view, the principles of Relativity and Postulates of Anekant are the only effective and modern techniques to understand and unearth the facts of nature and universe.

Mahapragya has created literature by amalgamating science with spiritualism. For this reason, his literature gained recognition and popularity with the passage of time.

Convergence of Science and Spiritualism

1) We are aware that in science, various subjects are categorised on the basis of different physical properties of the matter; the spiritual subjects are categorised on the basis of abstract qualities of the mattereals (dravyas). Mahapragya found that science and spiritualism are two different streams investigating the truth, but they are not against each other. In fact, the two are inseparable.
2) In the scientific world, the forms of substance are divided into two parts: i.e. cosmic (sthula) & microcosmic (sukshma). According to the scientist Heisenberg, the rules of micro matter are different from those

of macro matter and thus, cannot be applied on each other. From Jainism point of view, *Ashtasparshi pudgal* (octons) is figurative while *Chatursparshi pudgal* (quadons) is mass-less and non-figurative. Mahapragya has compared quadons with energy and waves, thereby discussing Jain philosophy in relation to the science. Apart from this, he has invited the science to broaden its scope in order to include description of intangible and elusive massless substances as the part of its research and experiments.

3) The main principles of science as used in Mahapragya literature are:
   - ➢ Evolution
   - ➢ Heredity
   - ➢ Theory of Relativity
   - ➢ Quantum Theory
   - ➢ Physiology and Psychology

4) The studies on genes are comparatively new. The construction code of genes is yet to be cracked. According to Mahapragya, the characteristics of genes are similar to that of a *Shukshma-Sharira* (micro-body) and they have the capability of undergoing voluntary changes. Modern scientific experiments have proved that the genes are affected by the external environment also. Therefore, the quest of spirituality will remain unfulfilled until the study of physical world is integrated with it.

Positive Thinking

Mahapragya has maintained a positive thinking as far as the convergence of spiritualism and science is concerned. Accepting the achievements of science, he said that the subtle features of existence, which were theoretical so far, are now experimentally proven by the science. Therefore, if through it, the abstract truths of Jain philosophy are getting clearer, the progress of philosophy lies in keeping its doors open to welcome science. If this new dimension is not added now, the philosophy will loose its use and meaning completely.

Empirical Facts

Mahapragya observes that Ancient language was once easy for all, but with the passage of time, it has not remained so. Through the methods of science, the ancient secrets can be explained with ease and clarity. In ancient literature, there is more of symbolic language hence clarity is less. Whatever we have understood through the medium of science could not be grasped on the basis of ancient literature alone. Another good feature of science is that it has given us some new apparatuses. One such apparatus is related to Aura. This apparatus can make the finest part of our personality perceivable. Philosophy has always concentrated on intangible and non-figurative. Science too has come closer to

Philosophy to as much extent as it (science) has understood the abstract and empirical facts of the philosophy.

Singularity of Truth

Mahapragya is quite clear in his opinion that truth is singular and is never ambiguous. He says, "Many approaches towards investigation of truth may differ for different religions, but when the explorer reaches the depth, all the beliefs are left behind and 'the truth' finally emerges. Many people have voiced the opinion that science has harmed religion and has also isolated people from it. Many religious priests have also echoed the same thoughts. But their voices are far from reality. My definite belief is that science has truthfully explained the facts contained in various religions and will continue to do so. The abstract secrets described in the religious scriptures would have remained unexplained due to the unavailability of original sources of their ancient texts. They can now be described in the context of scientific researches with great authenticity. The comparative study of the related branches of philosophy and science is therefore desirable. Due to this, many new dimensions of philosophy can be highlighted."

Exploration of Abstract Facts

As a religious leader Mahapragya manifests his foresight when he writes, "I agree that the contribution of science to the religion is unparalleled. Had science not explored the hidden and intangible micro-particles; had it not pronounced the micro level truths, various philosophers would have struggled a lot! The 'third eye' of the philosophers is not yet open. They have forgotten the process of experimentation. Today's scientists are performing newer experiments everyday. Science is incessantly indulged with these experiments. Science has revealed numerous esoteric and cryptic truths at micro level. The present balanced attitude towards religion was not possible 500-1000 years back in the absence of scientific proofs. The intense curiosity for the abstract truths (micro level truths) was not there before. Science is reaching towards the boundary of knowledge beyond senses. Scientist do not meditate, do not indulge in spiritualism, nor do they try to awaken transcendental consciousness, but they invent sophisticated equipments through which the truth beyond senses can be discovered. Today science is capable to observe, decipher and establish the intangible and abstract facts which are obscured from the human senses."

Deep Connection

Expressing a sense of deep bondage between spiritualism and science he says, "I do not agree that spiritualism and science are different. In my opinion they are neither separate nor different. Whether we discover the truth through transcendental awakening of consciousness or through scientific media, the discovery at micro-level is desired in science as well as in spiritualism. The difference could only be that the science treaded the path of materialistic physics,

whereas, for the teachers of spiritualism, soul and consciousness were primary. Neither the physical equipments nor the consciousness are self-sufficient. Through equipments alone no valid discovery can be made and similarly, no spiritualist can advance ahead only on the basis of consciousness. The great teachers of Spiritualism have also realised the importance of the inert and lifeless substances. Without knowing both of them, our balanced behaviour is not possible. Of late, both science and spiritualism have been commercialised, which is not desirable. As both are aspiring for the same truth – our existence and its meaning – their fusion is inevitably essential."

There is a striking similarity between the methods adopted by the science and spirituality. Both are travelling a journey from figurative, macro and tangible towards the obscure, micro and abstract. The medium for a spiritual person is transcendental and superior knowledge whereas, for a scientist the media are microscope and telescope. Spiritualists, long back, had discovered sub-atomic particles by invoking their mystical powers while today the atomic scientists are heading towards consciousness as the driving force. Clarifying this fact Mahapragya writes, "Scientist Einstein was asked during his last moments, 'What would you like to be in your next life?' He answered, 'In this life, I had yearned for material knowledge. My entire approach had been object oriented. In the following birth, I would make an attempt to know myself, my soul and the secrets of my consciousness.' This is what he desired for his next life!"

Preksha

Mahapragya is the pioneer of Preksha Meditation. Rapid advancements in the scientific theories and discoveries have put our entire civilization in a predicament. The pace of technological development is dangerous and at times, suicidal. There is a dire need to regulate its pace as well its direction. We need to seriously ponder over this issue and evaluate its impact on mental peace, tension-free happiness and general health.

Mahapragya, in order to solve this problem, has combined yoga and philosophy to evolve the science of living, popularly known as Preksha Meditation. Highlighting its salient features, he says that the Preksha experiments mainly comprised of the results obtained by the studies on psychology, physiology, sociology, ecology etc. In this meditation, the anatomy of the body is understood. It applies physiology to comprehend the body functioning and it utilises the psychology to understand the mood and temper. Preksha Meditation paves the way to reach the higher consciousness through the application of scientific perspective to the body and the psychology.

Mahapragya believes that science and technology has made it easy for philosophy and spirituality to objectively examine their own methods of self-purification. For example, whether a particular method of meditation helps in

reducing the mental tension or not can now be scientifically verified with the help of measurement of blood-pressure and other vital body parameters. With the help of available scientific instruments, which can collect data objectively by performing experiments, the problems of humanity at large can be solved. If such spirituality with scientific methodology is provided in teaching institutions, various discrepancies of excessively luxurious life like, violence, inequality, deception etc. can be controlled to a large extent.

My Aspirations

From the above discussions it is evident that the writings of Mahapragya on Jain philosophy, science and psychology are authoritative and convincing. His literature is available in abundance and can take the shape of a complete book for the readers. I felt that through a planned schedule, I can express my heartfelt gratitude to my reverend guru by collecting, analysing and extending his life's precious work in the field of uniting science with spiritualism. Though my subject was Chemistry, I had keen interest in the studies of Jain philosophy right from the beginning. With the blessings of my guru I could reap a rich harvest over the extended period of time. When the clouds get the favourable weather conditions, they rain. This became true for me too. Samni Mangalpragya, Director of Mahadev Saraogi Anekant Research Centre suggested that the new and comparative writings on Jain studies and science are the need of the hour and I must take up this challenge. My feelings got the wings of her inspiration and this combination was ready to take-off.

During the year 2004, I visited Jain Vishva Bharati Institute to deliver lectures. The Vice-Chancellor of the Institute, Mrs. Sudhamahi Raghunathan, was present during one of the lectures. She insisted that I should write on the scientific contents of Mahapragya's literature. Sensing my desire for the same, she promptly sent a formal letter to me the same day. My aspiration had now become a reality, and I chose the subject: "Mahapragya's contribution in the Unification of Jain Studies and Science." Samni Mangalpragya discussed my plans with Mahapragya. After his consent, a firm proposal was sent to the Vice-Chancellor. Samni Mangalpragya helped in completing all the formalities, as a result of which the book was written and published in 2005 in Hindi.

The Limitations of My Study

Before beginning the work on the project, I studied several Hindi editions of Mahapragya's literature. I also scanned the comments given by him in the revised and edited Jain Aagamic literature. I kept on collecting all those writings which related the Jain studies to the science. While studying, I realised that he is an extraordinarily talented author. He is not only a scholar of the traditional Indian thoughts, but he also possesses deep knowledge of modern psychology and scientific thoughts. To simplify the interpretations

on the complex subjects of Aagamic and Jain philosophy, science has been effectively applied by him. He has employed uncomplicated and comprehensively easy language in the books meant for masses, but at the same time his excellence in the philosophical language is also manifested in the spiritual writings which are predominantly philosophical in nature. Mahapragya's book 'Sambodhi' drew an interesting remark from his Guru, Ganadhipati Tulsi, "His (Mahapragya's) writings have undergone through the process of great evolution. This can be easily seen by comparing his present and past literature. In 'Sambodhi' the language is easy and interesting without loosing the depth and seriousness of the subject." In this context, Mahapragya writes, "I am not used to writing easy Sanskrit, but being surprisingly blessed by Ganadhipati on my writing easy language, I consider this as a compliment and a life-time achievement."

Published Literature

After studying Mahapragya's published literature, the literature written on him by various scholars was also referred. 'Mahapragya - Personality and Accomplishments' was the first book written on him and was edited by Shri Khaniyalal Phoolphagar in 1980. The second book edited by Shri Phoophagar was published in 2001 titled: 'The Creative world of Acharaya Mahapragya'. In this book, his entire literature was discussed. In 1996, the book titled 'Mahapragya's Philosophy of Life' was written by Munni Dhananjay Kumar. Overwhelmed with the sense of gratitude, the writer has described: "Mahapragya's life in itself is a document of dedication and devotion, it is a masterpiece of knowledge and insight and it is a power house of positive thinking." This book had highlighted the personality of Mahapragya as a thinker, writer and philosopher. In 2002, Dr. Dayanand Bhargava, a scholar writer, wrote a book titled: Mahapragya's Philosophy. In it, along with other subjects the examples from science have been included in the chapter titled: 'Relativity and Anekant'. Looking at Mahapragya's science related literature, this chapter was pioneering, yet an important attempt. The writer presented a new dimension to Mahapragya's innovative philosophies. In 2003, a book titled: 'Finding your spiritual centre' was published - both in Hindi and English languages along with attractive pictorial depiction. This book contained many useful quotations from Mahapragya's literature. National and International acclaim was received by this book. Its complier was Shri Ranjit Dugar. In the beginning of 2004, the book titled 'Anukriti' was published based on Mahapragya's poetic writing - Rishabhyan. Its writer is a poet, Shri Jatanlalji Rampuria. Shri Govindlalji Sarogi forwarded the book to me while I was writing the introduction of this book. Superiority of this book is reflected in its language, style and subject matter. Its cover page is also attractive and enticing. Here, it is worth mentioning that a National seminar has been conducted on Mahapragya's Sanskrit literature, under the

direction of Dr. Hari Shanker Pandey. A research work has also been published. Now, in 2005, I am presenting this book titled: 'Jain Studies and Science: Context - Acharya Mahapragya's Literature' and readers can evaluate the worth of my sincere endeavour.

Though I could not write in the literary style but my attitude of a scientist reflects persistently throughout my book. However, I own all the responsibilities for its shortcomings, if any. I am glad that this writing gave me a privilege to read the elaborate literature of Mahapragya, who is a great thinker of this era. While writing, the new scientific facts have also been incorporated.

Selection of Representative Literature

In the present book, various subjects of representative literature have been selected and divided into six sections. Prior to these sections, a common introductory chapter on Jain Studies and Science has been included.

The sections are titled as follows:

(1) New Thoughts
(2) Theory of Mattereals and Jain Philosophy
(3) Agam and Science
(4) Jain Mathematics and Karmavad
(5) Preksha Meditation and Therapy
(6) Spiritual-Scientific personality

- The first section contains the novel theories which have emerged in his entire literature. It is titled as 'New Thoughts'.
- Mahapragya's first and the most famous book on Jain philosophy titled: "Jain Darshan: Manan and Mimansa, has given the analysis of six 'substances' which are scientifically placed in the second section. This section also contains the scientific aspects of Anekant. It has been aptly titled as 'Theory of Mattereals and Jain Philosophy'
- In the third section, chapters representing Jain Aagamic literature e.g. Acharanga, Sthananga and Bhagwati are discussed, where Mahapragya has related Jain philosophical concepts with science and mathematics. It is titled as 'Agam and Science'.
- In the fourth section, a thought on 'Jain Mathematics and Karmvad' is presented. These discussions help understand the complex issue of a soul's blueprint travelling through the chain of births and re-births.
- In the fifth section, the contemporary and novel literature of universal importance has been placed. It is titled as 'Preksha Meditation and Therapy'. It is related to the science of living, medical sciences and Preksha Meditation.

The sixth section comprises of the views and talks of Mahapragya and Dr. Kalam. Their conversation on spirituality and science is presented therein. Therefore, it's titled as 'Spiritual - Scientific Personality'.

While the pages of this book are read, it would be clearly evident to the reader that such religious gurus, who find solutions for the traditionally complicated problems, are exceptional and their incarnation takes place only once in thousands of years. Mahapragya could untangle various vexed issues due to his unrelenting scientific attitude and flexible approach.

Acknowledgements

Discharging my duty as an author, I extend my heartfelt thanks to all those without whose help the publication of this work would not have been possible. First and foremost, I'm grateful to Reverend Mahapragya, who is a living encyclopaedia of Jain Studies in modern times, to have blessed this book. I am grateful to Hon'ble Sadhvi Rajimati who read the entire manuscript and also wrote its epilogue. Sadhviji is an expert yoga-practitioner in addition to being a scholar in Jain Agam. I'm thankful to Samni Mangalpragya, who, in spite of her busy schedule wrote the Vice-Chancellor's note from her desk. I feel indebted to them for it. In the section 'Preksha Meditation and Therapy', Dr. Arvind Jain, Medical College, Jodhpur has significantly contributed. Dr. Jain has conducted medical experiments on Preksha Meditation at his own level and the findings of these experiments have found a place in this book. Human anatomy in accordance with the medical science could be described with his active support. To give clarity to modern principles of physics, many brainstorming discussions were held with Mr. Piyush Jain, Ahmedabad. Who has translated the Hindi Edition of this book. As a result of this, the readers will find new thoughts in the chapter of matter, universe, gati etc. where many subjects are dealt in tune with modern physics.

It would be dereliction of my responsibilities, if I do not express gratitude to my wife Mrs. Gulab Gelra, who has continuously been supportive during the project and with perfect expertise she undertook the proof reading of the manuscript.

Last but not the least, I would like to thank the present Vice-Chancellor of Jain Vishva Bharati Institute, Samani Mangalpragya and Registrar, Dr. J.P. Bhattacharya. It's my humble duty to thank Shri R.L. Parakh, Churu (Rajasthan) with whose financial assistance, this book in English has been published.

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Prof. Dr. M.R. Gelra
Founder Vice-Chancellor
Jain Vishva Bharati Institute, Ladnun

FROM TRANSLATOR'S DESK

Having born and brought up in a staunch and dedicated Jain family, my spirit is trenched in the Jainism. The eternal truth embedded in the *Arhat-Vandana*, which I used to recite as a young boy had inspired me throughout my life's voyage. My association with the Hindi version brought me nearer to the Jain philosophy. In the book – Jain Vidhya Aur Vigyan – I found a rare *triveni* confluence of three pristine streams –

1. Mahavira – Super Human Intelligence
2. Mahapragya – Super Intelligent Human
3. Mahavir – Erudite Philosopher and Humble Scientist

When I saw my father's (Dr. Mahavir Raj Gelra) predicament of finding a suitable translator who not only has command on English language, but has the clarity of Jain ideology too, I decided to take a holy dip in this *triveni-sangam*. The experience not only turned out to be soul satisfying but has left some indelible marks of their intelligence on my psyche.

Hindi and English languages have a subtle difference in their narration. So, before commencing the task of translation, I had two options – either to do it verbatim or to rewrite it retaining the soul and true meaning of the original text. As the text under translation was neither poetry nor a biography, I adopted the latter approach. The work involved the historical and philosophical tenets of Jainism and their interpretations, so I used simple syntax, at the same time taken the due caution not to divert from the underlying concepts and facts. No sooner I started than I faced another challenge of conveying the true meaning of classical Jain terminology to the English reader. There was constant influx of typical Jain canonical words like, *dwisparshi and chatursparshi pudgals, dravya, Dharmastikaya* etc. All these words and a host of other such words bear very special meanings and have no equivalence in English vocabulary. This led us (me and father) to arrive at a landmark decision to employ new epithets which are comprehended easily by those who are comfortable with the English language.

As we studied deeply the hierarchy of constituent particles culminating into matter, the new glossary developed meticulously. For instance, 'dion' for *dwisparshi*, quadon for *chatursparshi*, mattereal for *dravya* and dynaon for *Dharmastikaya* convey the inherent meaning with clarity. This experiment is path breaking and essential in the present global-village scenario. New generation, particularly one born and brought up outside India will find this newly christened vocabulary more palatable.

We took one more decision to cut upon some mythological portions which were alright in the Hindi version but were lacking suitability in the translated form. As a net result, this endeavour is not truly a translation but a concise translated version of the original.

Author and myself held a firm belief that the tenets of Jainism are scientific and only differ in presentation, vocabulary and interpretation.

Piyush Jain

JAINISM AND SCIENCE – AN OVERVIEW

Jain doctrine as verbally disseminated by Lord Mahavira and promulgated in the form of Fourteen *Purvas* and twelve Agamas is the basis of Jainism. Numerous Saints and Acharyas had compiled these teachings and had contributed to the Jain literature in the form of *Bhashyas* (commentary) and *Tikas* (remarks). These treatises extensively deal with various real and ethereal aspects of life, nature and universe. This spiritual and philosophical thought process had yielded Jain Religion and Jain Culture. Jain studies encompass science, geography, astronomy and mathematics.

Jain religion is spiritually oriented and scholars have found it to be ancient. According to Jainism, the *Shrishti* (Universe or Nature) is cyclic and repetitive. Like a pendulum, time undergoes the cycles of start and end but the cycles themselves are perpetual and incessant. Jain history suggests that in every such cycle of events, there exist *Arhats* and *Tirthankars* – free souls who have transcend all shackles of attachments and disillusionment. Hallmark of every *Arhat* – conqueror of all enemies, is Ahimsa – the concept surpassing non-violence. This concept has been the back-bone of human development and progress for centuries. Equanimity, affability and team-spirit are the natural outcomes of practicing Ahimsa. Lord Mahavira, around two thousand five hundred years back, revitalised the immortal concept of Ahimsa. He propagated the path of Ahimsa with added practices of *Aparigrah* (non-possession or renunciation) and self-control. **Mahavira was called '*Jin*' as he had overcome all the worldly and humanly weaknesses. His disciples were later come to be known as 'Jains'.**

Basic tenets of Jain tradition are –

- In Jainism, the stress lies on singularity and independence of every soul. Soul has quest for ultimate knowledge and freedom. Human pursuit is the only answer. Jain philosophy was further augmented by adopting the concept of *Anekant* – embracing all view points and shedding the adamant attitude.
- Ahimsa, as discussed above, is a pillar of Jains' lives. It has culminated into the passionate and peaceful existence. Jains are staunch vegetarians as they are always sceptical of any kind of aggression.
- Five solemn pledges of non-violence, non-larceny, non-indulgence,

non-possession and truth. As a matter of practice, all followers of Jainism endeavour to fulfil these sacred promises to the best of ones capabilities. Many a times they vow to abstain from eating after sun-set.

- Jain *Samana* and *Samani* have spread the teachings of Jain pioneers and have immensely contributed to the cause of social up-lifting and enlightenment.
- In order to keep politics segregated from religion, Jains do not encourage formation of any political wing. Their sole aim is to achieve the ultimate enlightenment through the process of social service and penance.
- Jains never look down upon any other form of religion nor do they resort to mass-conversion agenda. They believe in the reform of individual soul. They believe in self-discipline and not in defeating other human beings or creatures.

Vast ocean of Jain-knowledge can be better understood by classifying it in three broad categories –

- The Religion
- The Philosophy
- The Science

1. Jain Religion

What is religion? There is no standard definition which is acceptable to all. Several religions surfaced during the history of mankind, but only a few could survive the test of time. Only those religions were accepted and followed which advocated the **moral and ethical purity**. One such religion is Jainism which carried forward so far on the wheels of Ahimsa and non-possession. These two tenets resulted in peaceful social co-existence. It is because of this, the Jainism is spreading its wings fastest and farthest in this vast world. It is a fact that Jains fall behind in the number game as their religion is centred towards the liberation of soul from the clutches of Karma rather than accumulation of followers. Jain gurus and Acharyas concentrate on their self-purification and seldom indulge in efforts to increase the numbers.

The principal goal of a Jain is to achieve Moksha – the pure soul,

uncontaminated by any form of Karma-*pudgals*. The doe's and don'ts by which we define any dharma, are therefore divided into two categories--

- *Anagaar* Dharma (prescribed to indoctrinated)
- *Agaar* Dharma (prescribed to followers)

1.1. *Anagaar* Dharma (Precept of Initiated)

Shraman and *Shramani* – those who have renounced the worldly pleasures and family lives and have pledged to strictly adhere to the five ultimate vows (*Mahavrata*) of **non-violence, non-larceny, non-indulgence, truth and renunciation**. They abide by these guidelines in totality and even if these rules are flouted inadvertently, they undergo reparation and atonement. They pray to the *Arhats* and the enlightened ones in temples.

Jain religion categorically denies the existence of any super-natural power or God as a creator and perpetuator of the universe and life. Nature exists and functions according to a set of rules with no scope for anybody's discretion. It therefore rests the responsibility on the individual oneself to attain liberation. *Sadhu* and *Sadhvi*, observing *Anagaar* Dharma, undergo penance and meditation in order to attain *Mukti* (liberation of soul). The extent of penance they undergo is aptly described by the Chinese traveller Hun Tsang. He writes in his two thousand year old travelogue, "Jain *shramans* are different from other Brahmins and *sadhus* in that they live nude. They uproot their body hairs themselves, their skin lacerate and their heels show cracks as a tree bark." This is an ample historic proof of arduous penances undergone by the *shramans* of Jain sect. It is believed that penance and meditation build the determination, which in turn shrugs off the Karma bondage. This emancipation eventually results in attaining right-vision, right-knowledge and right-conduct.

1.2. *Agaar* Dharma (Conduct of Disciple)

Jain sect comprises of four pillars or *Tirths* namely, *Shraman, Shramani, Shravak and Shravika*. Mainly, the conduct prescribed for latter pair is identical to the one for the former pair, it is **just milder in the extent**. While the five maxims are called *Mahavrata* in *Anagaar*, they are called *Anuvrata* in *Agaar*. In ***Anuvrata***, twelve guidelines are laid down for a Jain disciple seeking to be spiritually oriented. They practice inhibition (of desires) and dissociation (from karma). They abstain from wilful violence and perform bona fide activities in their day to day social and professional spheres. For disciples of Jainism, some violence is inevitable during the course of discharge of worldly duties, but they

restrain any avoidable act of physical or mental assault. This thin line of 'no-violence' and 'inevitable-violence' separates the *Anagaar* with *Agaar*. **Mahapragya has therefore segregated religion from duty**. According to him, "religious conduct is one which leads to self-enlightenment, while the dutiful conduct is one which confines to social obligations. In Jain religion even the minutest act of violence is unpardonable; in a societal set-up such a condition is not applicable."

To effectively inculcate non-violence and non-possession, Acharya *Tulsi* launched *Anuvrata* movement. He emphasised that right-conduct can be achieved through right-thinking. Under this movement, he made his followers to swear – (i) not to accumulate colossal possessions and (ii) not to indulge in any kind of anti-national activity. In addition, he provisioned for several other guidelines which proved helpful in developing a responsible and duty-bound citizen. Today, *Anuvrat* movement is pioneering the human welfare under the able guidance and discipline of Acharya Mahapragya.

2. Jain Philosophy

Unique to Jain philosophy is its concept of *Anekant*. At times some interpreters explain it as the 'real' can exist in infinite ways or modes, but factually, *Anekant* means that the truth can be known through numerous paths like all the radii of a circle confluence at its centre. Truth is one, singular and unique but there can be more than one ways to reach it. Here arises a very piquant situation – what if someone knows a partial fact and unaware of the whole truth? *Anekant*, therefore, adds that a truth involves manifold aspects. An observation of an object at a particular spatial-temporal instant is just one facet of the truth. An example in *Sthanang*-Sutra, where the *jiva* (soul) is defined in several alternative ways, elaborates this:

1) It is singular to each animated being.

2) It could have two types – bonded with karmas or liberated.

3) It has three properties - origination, transformation and perpetuity.

Likewise, there are ten different ways to look at it. Therefore, a non-absolutistic approach is the most prudent. This attitude can mitigate several confrontations among different sects, societies, states and nations.

A famous anecdote in which ten blind men touching different parts of an elephant, come up with different observations, explains *Anekant* in right

perspective. Only a person with vision can tell the truth – a whole elephant. If we understand *Anekant*, we are prepared for two important things:

i. We shall readily accept other's view point as we know that ours' is only a partial truth.

ii. We shall prepare ourselves to know the entire truth (right-knowledge or *Keval-gyan*) through the path of Jain philosophy of right-vision and right-conduct.

Another novel concept of Jain philosophy is non-possession also referred to as non-accumulation of property. Lord Mahavira not only relinquished his royal surroundings but even his clothes. That was an unparalleled example of declaring possessions as sin. Jainism, therefore, stresses on minimizing the possessions if not completely abandoning. **Social equality, which is eluding the present world, will no more remain a dream but will be a reality if the principle of non-possession is adopted by the societies.**

3. Jain Science

We consider Elbert Einstein as the greatest scientist of the modern world. **Ironically, he never carried out any experiment himself.** Lord Mahavira, going by the concepts contained in the Jain literature was a super-scientist of His era. He never visited any physical laboratory, His mind was the only workshop and meditation was the only tool.

Eternal happiness and peace of an individual had been the goal of almost all religions. Jain religion too, has a similar objective, yet it is pole apart from others in a way that it emphasises not only on spiritual discovery but also on scientific exploration of universe in general. Scientist today, are still ill at ease to establish the mass-less behaviour of photons, gravitons and gluons, whereas the mass-less characteristics of micro-*pudgals* are well established in the Jain texts. Detailed mentions of matter, mass-less particles, energy, time, speed and mathematics in various Jain treatises are voluminous and need trifurcation to comprehend better -

- Science & Universe
- Science & Philosophy
- Science & Sociology

Maxims and postulates of Jainism in these three areas bear striking similarity to the concepts of modern science, at the same time they differ prominently and go beyond.

3.1. Science & Universe

Mentions of mass-less *pudgals*, their capacity to break the barrier of speed of light under certain conditions of migration, *Tamas-kaya* (black holes), extent and constitution of universe, cyclic nature of time, recurring reincarnations, etc. in the Jain literature are now understood better with the contribution of science which has established these facts through experiments and cause-effect analyses. Science today, has three imaginary mass-less entities – (i) Photons – to explain light and electromagnetic radiations, (ii) Gravitons – to explain forces of gravitational attraction among material bodies and (iii) Gluons – to explain the behaviour of sub-atomic micro particles. In the Jain theory of *Karma*, details of karmic varganas (we shall call them *Actons*), their attachment to the soul, movement of soul during birth-rebirth and emancipation are all attributed to the weightlessness of the *actons* (*Karma Pudgals*). Obvious vicinity of scientific and spiritual concepts is astonishing.

Jain concepts of motion are also of far reaching consequences. Similar to karmic-atoms (*karmavargana or actons*), conscience-atoms (*manvargana*) and speech-atoms (*bhashavargana*) are considered mass-less in Jain supposition. This helped in explaining the long distances travelled by them in a moment's time. These concepts of motion widely differ from those proposed by science. While as per science, the maximum speed achievable is equal to that of light. Whereas, as per Jains', infinite speed is attained by *sukshma pudgals*.

Jain philosophy has dwelled into the realms of cosmic universe as much as it did into the micro world of massless *pudgals*. Its explanation of finite universe constituted of *Dharmastikaya (dynaons) & Adharmastikaya (statons) Duo* deserves a keen study by scientists today. Readers will find a curious comparison between the Jain and science concepts of universe –

- According to the scientific knowledge available so far, there is nothingness (void) wherever there is no matter or particle. They presume that even between the nucleus and the orbiting electrons there lay emptiness. This implicitly means that the entire universe is actually inter-spread in the nothingness. In other words, the emptiness of *Alok* is inseparable from the existence of the *Lok*.

- According to Jains, the finite boundary of *Lok* (Universe) is well defined by the presence of *Dharmastikaya - Adharmastikaya* and *Alok* is void of this pair. This is elaborated in later chapters.

This overall view establishes that the Jain *Tirthankars* gave concepts which surpassed the Relativity of Einstein and Quantum Mechanics of Plank even two thousand five hundred years ago. The analyses of extent of universe, time, spatial co-ordinates, motion, atoms (*pudgals*), matter, soul, birth-rebirth, energy et all presented in Jain literature qualify for being at the same plane as the science itself.

3.2. Science & Philosophy

Philosophy is an art of esoteric possibilities, whereas science is an act of converting these possibilities into tangible realities. Often, for science, the beginning is some hypothetical philosophy. And surprisingly, when scientists hit a road block, they fall back on philosophy. Therefore the two are inseparable and not diagonally opposite as is thought to be!

Today, science is dwelling in the pastures once thought to be only philosophical. It is intensely engaged in the mission to demystify universe. Renowned physicist Stephen Hawking is now busy scientifically proving that the cosmos's extent is finite, mathematically establishing that the 'time' existed even before the big bang and logically expressing that the God (even if HE exists) had not role to play in the creation or perpetuation of the universe. These actually have remained the axioms of Jainism (and of Buddhism) for centuries. Finding conclusions of science very similar in general and almost identical in a few particular cases, is an important milestone for the Jains.

One such technical and logical similarity between Jain ideology and science is studying different qualitative and quantitative aspects and attributes before drawing any conclusion. Jains' fondly call it *Anekantvada.* It acknowledges that the matter can manifest different *paryayas (guna)* under varying conditions of observation. This led the Jains to adopt the policy of *Syadvada* in their expressions and to shun the absolutistic judgments. Science calls it 'Principle of Uncertainty'. The conceptual similarities, therefore, compel us to keenly study the Jainism vis-à-vis science.

3.3. Science & Sociology

Scientific inventions have brought about the Industrial Revolution. As technology and engineering are growing, the need for the addition of third dimension of environment conservation is becoming dire and urgent. To uphold the moral, ethical, mental and physical values of the civilized society, science has a definite and mandatory social role to play. Here, the Jain ethical values

and the highest regards paid to all forms of life by the Jains will be of immense importance. In fact, only Jain religion acknowledges that Earth, Water, Fire, Air and Vegetation, all have enough in-built intelligence to self-perpetuate and thus are treated as bios. This concept of life-form is unique to Jains and is found neither in religious nor in scientific spheres. Jains believe that all souls are equal and thus one does not have a right to destroy another. This extreme definition of compassion can help preserve the environment. The lessons of shunning violence have universal appeal.

Concluding, the challenges faced by today's world can be resolved to a great extent if science and religion maintain a close rapport. It is necessary to understand that the two are not conflicting but are complementary. A balanced growth can be achieved if to the three pillars of physics, engineering and technology, a fourth pillar of religion is added. This co-operation has even started in several ways. This book is one such attempt to bring the religion closer to the science. Simultaneously, science is also required to give importance to human values and ethics so that it can serve the society at large. Close proximity of religion, society and science will usher a dawn of new culture.

New Thoughts

Part-1

SECTION - 1

NEW THOUGHTS

MAHAPRAGYA'S PRINCIPLE OF COEXISTENCE OF OPPOSITES

Mahapragya has successfully professed the *Anekant* viewpoint of Jainism. He pronounces that the **whole is sum total of two opposites!** This is an amazing statement on the part of Mahapragya, as he explains that opposites do not cancel each other, on the contrary they are complementary and add up to make a whole. A student of science knows thoroughly well that if there is matter, anti-matter is equally abundant. Opposites are actually two faces of the same coin, whose true and clear picture is complete only when both faces coexist together at the same place and the same point of time. For ease of understanding such pairs author prefers to term them as **copposites.**

Definition of Copposities

Mahapragya has stipulated a few postulates in order to expand his 'theory of opposites'–

- Copposites represent two mutually different directions.
- Existence of copposites is a self-proven Axiom. It is the very nature of every object to possess the copposites simultaneously.
- Copposites do not cancel each other but reinforce each other.
- There exists a definite **co-ordination even in obvious conflict.** Conversely, there exists **conflict in apparent cases of harmony.** This is the very basis of co-existent-evolution.

Mahapragya has established the practical utility of above postulates which can be put to good use in resolving our every day conflicts of life. We shall present his thoughts concisely.

Universe

Each aspect of the entire universe is divided into two -

(i) Body and Soul

(ii) Macro and Micro

(iii) Tangible and Intangible

Humans are entrusted with the task of balancing these pairs. If we find too much of materialism, we shall have to invent spiritualism and vice-versa. Strangely, one is useless without the other. Imagine only Adam or only Eve at the beginning of life. One is not good enough, you need two, and that too, opposites! **We can**

thus conclude that the creation, expansion and perpetuation of the entire *Shrusti* are possible due to the active presence of opposing pairs.

Democracy

Opposition is backbone of any democratic setup. Leftists keep rightists under reign. Now-a-days, however, the opposition acts more to pull down the ruling party, rather than strengthening it. A supporting and balancing role of opposition will create a healthy environment for the entire country. The basis of democracy is very much similar to that of Jain spiritualism, which stresses on the simultaneous presence of *Dharmasti-* and *Adharmasti-kaya*. It is also similar to the practical life, where accumulation and renunciation of wealth, both are equally important and necessary. **It is, therefore, of all forms of governance, democracy is considered the most effective and stable way, because it is based on the complementing structure of two opposites.**

Destiny and Decisions

Modern society, by and large, follows two diagonally opposite doctrines– one section believes- 'Decisions and actions make destiny', while the other section believes 'Whatever happens is pre-destined'. Here, Mahapragya urges us to apply the law of opposites. The moment we accept the co-existence of positive-negative pair, the whole conflict collapses. It is a matter of common experience that howsoever hard one works; the results may not be commensurate with the efforts. Contrarily, if one sits idle and waits for destiny to act, void is what results! **Decisions carve destiny and destiny moulds decisions.**

Individual versus Society

It is aptly said that a man is a social animal. At times, the interests and preferences of an individual may conflict with those of the society, yet can the two be separated? Can the droplet survive beyond the ocean? Isn't the ocean made of droplets? But, ships cannot float on droplets and ocean cannot be carried in a container. An individual is as good as the society he lives in and vice-versa. An individual cannot take and sustain his growth in isolation. We have a case of reservations as example.

In India, a section of society grew allegedly at the cost of another. This called for the concept of reservation, as the decision makers were aware of the fact that the whole family of Indians must grow and become strong in order to survive globally. This resulted in conflict and friction. What if we see the whole situation differently from viewpoint of theory of opposites? We find a very simple answer to this vexed issue. If an individual, who receives the benefits of

reservation, is ready to pay back to the society in the form of a simple promise - that his dependents and all the future generations will not further burden the society with perpetual benefits of reservation. This way, both the short-term and the long term interests of an individual and of the society can be met.

Mahapragya says that the co-operation and co-ordination is obvious in all the activities of universe. Creation-destruction, life-death, ephemeral-immortal, light-dark; they all co-exist, yet our minds have created the concept of conflict, which must be transformed to the theory of harmonizing and complementing the opposites.

Science and Spiritualism

Science is objective – always looking for cause and effect relationship. Philosophy is subjective – based on intangible experiences. As a pair, they become a fit case for applying the 'theory of complementing opposites'. Surprisingly, most scientific discoveries have philosophical origins. Similarly, science is giving new dimensions to the spiritual awakening. They need to be mutually reinforced further, rather than one discarding another. Today, science has concluded that if there is matter, there exists anti-matter too. They extrapolated the concept from atom/anti-atom, particle/anti-particle to universe/ anti-universe. How similar it sounds to the concepts of *Dharmastikaya/ Adharmastikaya* and *Lok/Alok* described in Jain literature!

Examples from Rishbhayan

Rishbhayan is one of the many verses penned down by Mahapragya. *Sadhvi* Shrutyasha has searched several instances which sound paradoxical at first, but contain the deep rooted message of coexistence of opposites. A few such mentions are –

- '*Waves* in *calm* water'
- '*Marudeva's death* made her *immortal*'
- 'As I approach *nearer* to the Almighty, HE maintains the same *distance and illusion*'
- 'Sun *removed the darkness*/but, it could *not be seen in extreme brightness*'

All these are imaginations of a poet, yet are very close to the truth. Mahapragya has extended his imagination up to the horizon where the practical reality meets the scientific theory. His logic is very simple, if a straight line can be made to bend, its two ends will eventually meet. According to him, the principle of *Anekant* gives us a tool with which the seemingly opposite ends can be bent to encircle the complete picture which depicts the whole truth.

Examples from Jain Literature

Term '*Pudgal*' is extensively used in the Jain literature to describe the constitution of matter. Today, scientists use similar terminology for quarks and other micro particles. They have assigned various basic properties to these particles like frequency, spin, etc. Identical references are available in Jain literature regarding the basic properties of a '*Pudgal*', which are, *Varna* (colour), *Gandha* (smell), *Ras* (taste) and *Sparsha* (touch). The last quality of *Pudgals*, namely, the *Sparsha* has further classification consisting of four opposite pairs – *Snigdha-Ruksha* (Degrees of smoothness), Light-Heavy (measurement of weight), *Shiet-Ushna* (Degrees of temperature) and *Mrudu-Karkash* (readiness to interact). In any composition of matter, presence of these opposite pairs is essential. Entire Universe is based on the co-existence of opposites.

The law of opposites as propounded by Mahapragya has its roots in the Jain Agams. *Sthanang*, *Nandi* and *Dashvekalik* Sutras have the description of opposite couplets aplenty. Some of them are mentioned forthwith -

1)Mentions of pairing opposites are abundant in the first and second sections of *Sthanang* (*Thagn*) Sutras. Fourteen axioms are stated in the opening paragraph of the first chapter, out of these fifth to fourteenth are of special interest in the context of present discussions. These self sufficient truths are tabulated as follows-

5th - There is one *LOK* (Universe)	6th- There is one *ALOK* (Void)
7th - There is one *Dharmastikaya* (Dynon)	8th- There is one *Adharmastikaya* (Staton)
9th - There is one *Band* (Bondage)	10th- There is one *Moksha* (Emancipation)
11th - There is one *Punya* (Chastity)	12th - There is one *Pap* (Sin)
13th - There is one *Ashrav* (Attraction)	14th - There is one *Samvar* (Repulsion)

Mahapragya comments that these axioms actually form pairs. The universe is fully filled with opposing pairs, or we may say that it is because of opposing pairs that the universe exists.

2)The heading of first paragraph of second chapter of *Sthanang (Thagn)* Sutra is *'Dvipadavtar'* – meaning 'duo'. It says everything under the sun appears in pair. A few such examples are – *Jiva-Ajiva, Trus-Sthavar, Dharma-Adharma, Vedna-Nirjara* etc.

3) Similar pairs are mentioned in *Nandi* Sutra. Seven pairs of '*Shrut*' are described therein.

4) In the *Dashvekalik* Sutra, four key human emotions – Anger, Ego, Affection and Greed are prominently discussed. Sutra states that these emotions co-exist with the contrasting feelings. Anger can be diluted by forgiveness and Ego with humility. Affection too, is a kind of bondage and can be countered by equanimity. Greed can be overcome by the feeling of contentment. Entire gist of these discussions is that the opposites coexist.

Mahapragya says that the Jains do not see things in black and white only. Their vision is not restricted to **true-false** but the third dimension of **relative-truth** is added to it. All thoughts and alternatives are just the diagonals of a circle – all equal and identical.

Examples from Medical Science

Einstein has stated that the music cannot be truthfully described in scientific terms of frequencies and amplitudes only. It has an intrinsic **value,** above and beyond science, entering into the arena of higher consciousness. Human body is just like a symphony. It can be quantified in terms of medical parameters of blood, bones and muscles, yet it has an intangible and impenetrable spirit. A complete picture emerges only **when 'the obvious' meets 'the occult'.** Mahapragya has cited several examples from human anatomy where the two diagonally opposite forces exist and act in a coordinated manner.

1) According to the medical science the body cohabitates two main centres of activities. One is– '*Gyan* Centre' acted upon by Hypothalamus and another is '*Kama* Centre' actuated by the Gonads. Pineal and Pituitary Glands when act on Gonads stimulate the acts of pleasure, while they act on hypothalamus to initiate the journey of super conscious knowledge. Ironically, these both activities are indispensable part of the human anatomy. *Gyan* is essential to **protect the life** while the *Kama* is inevitable to **perpetuate the life.** Both are interrelated and interdependent - reinforcing each other. It is difficult to establish the superiority of one over the other.

2) Our body is abode to billions of cells. Every second, tens of millions of them die and an equal number of them born, thereby maintaining a perfect balance. Body is live only when both activities run simultaneously. An uncontrolled growth of cells results in cancer while the continuous decay of cells invites death.

3) Psychologically too, the human behaviour is a mix of male-female qualities. Aggression and affection both coexist in all humans, albeit in different proportions. From Jain *Karmavad* view point, happiness-sorrow, auspicious-inauspicious, superior-inferior, longevity-fragility all types of conflicting karmas coexist. Their proportions vary from person to person, but their simultaneous presence is an undeniable fact.

Examples from Physics

Scientific investigations of micro world have so far revealed that the basic building blocks of the matter are quarks. Interestingly, these quarks are found in pairs of opposite spins. Even before this discovery, the co-existence of electron and proton, positively and negatively charged particles is a well established scientific fact. When Einstein described the properties of light, a startling fact was discovered that the light has dual nature of behaving as a particle and as a wave. Science could progress this far only after accepting the dualism of light. Properties of light have become central to the entire physics.

Properties of a magnet are very well known to us. Both north and south poles constitute a magnet. Even when broken into pieces, each piece keeps on exhibiting both poles in its magnetic force. Whatever we do, the two poles cannot be separated just as we cannot separate Siamese twins. If by some means, we are able to demagnetise a magnet, both poles disappear together. A magnet with single pole is impossibility.

Another excellent example from the field of physics is that of friction. One might think of an easy motion in the absence of friction, but the matter of fact is that the motion would have been impossible had there being no friction.

Conclusion

Life and universe is nothing but a **delicate balance of opposing forces, conflicting particles, contrasting energies and divergent view points.** No adjective, no verb exists in this entire world, which does not have an antonym. Without the pairing opposite the world will loose its meaning. Light will be rendered redundant in the absence of darkness.

It is in our hands to **convert conflict into complement**. This is the main teaching of Jainism. **Freedom** should be responsibly **controlled**. Mankind must realise that male-female, hot-cold, light-dark, ephemeral-immortal, etc. all are inevitable realities. When they form the basis of our existence, we too, must live in harmony and compromise rather than conflict.

MAHAPRAGYA'S PRINCIPLE OF EQUIVALENCE OF SOULS

Lord Mahavira has taught us that all bios having different perceptive abilities are at par with each other, as all of them possess a unique soul. Bios may differ from each other only to the extent of their senses. Micro-organisms have single sense while the human beings have five senses. In spite of this distinction, they share same cycle of life and death, all have an in-built mechanism of self-perpetuation and all have inherent intelligence in them.

Lord Mahavira gave the above dictate which is all encompassing. Initially, we shall however, restrict our discussions to the equivalence of all human beings irrespective of their caste, creed and religion. Mahapragya has dealt extensively on this subject in *Acharang–Bhashya*. He has stated that the souls are neither created by nor are a part of any Almighty. In fact, souls are infinite and all of them are independent in their existence. A great deal of emphasis is given on the independence and equivalence of the souls.

Universal Friendship

Mahapragya has drawn a very important conclusion out of the principle of equivalence. He says that **the moment we accept all to be equal, we automatically befriend them**. If we feel ourselves to be inferior to somebody, we develop a sense of fear. Contrarily, if we treat ourselves as superior to others, we may tend to over-power them. But, the third great possibility exists – that is, we consider ourselves at par with others. This is the true state of spiritual awakening. **From the principle of equivalence of souls, emerges the concept of universal friendship.** Imagine a situation where we are no more afraid of being physically attacked by others!

Universal friendship also means holding no enmity towards anybody. If we do not breed hostility and antagonism towards one and all, we automatically become friend to all around us. This is essence of universal friendship. From here starts the journey towards the inner self and emanates the golden postulates of ultimate emancipation –

- Thy journey of life is a solitary affair – nobody can accompany.
- Thy pain and ecstasy is thy own – others are not responsible.
- It is thou, who is to be conquered – don't attack others.
- It is thou, who is to be liberated – don't enslave others.
- Thou are the greatest friend of thyself - nobody is thy foe.

These statements from Jain literature emphatically proclaim the independence of all souls. By corollary, all souls are equal. Mahapragya unfolds the hidden truth behind these valuable lines. His interpretation is that if we are responsible entirely for our state of affairs, why cultivate hatred or ill towards others? Mahapragya has undertaken **Ahimsa-*Yatra*** to travel far and wide with a slogan – ***'Mitti Me Savva Bhuvesu'*** – meaning thereby, **'let we all be friends'.** Readers will be further enlightened by the two historical episodes narrated here.

1) *Indra* became very happy with the continued penance of an ascetic. He visited the yogi and offered his *vajra* saying, "Keep this weapon with you so that you can overpower your enemies." Yogi calmly refused stating, "*Indra*, all beings are my friends, no one is my adversary. I do not need your *vajra*."

2) Confucius was deeply absorbed in his philosophical meditation, then the King of China passed by. Having received no salutation from Confucius, the king confronted him, "Who are you?" Confucius replied, "I am the King." "Where is your army then", came another question. Confucius repartee, "Army is needed by those who have enemies, I do not have a single foe" compelled the king to bow to the great philosopher.

We thus see that the universal friendship has two aspects –

Limited Friendship – Desiring other's welfare is most practical form of friendship. But this has its limits. We can benefit others only to the extent of our own physical, mental and monetary capacity. In spite of these confines, it is an important aspect of practical life. A teacher imparts knowledge to his pupils; parents pass on all the skills to their children – these are all various aspects of friendliness. This is important for the healthy social life to evolve from strength to strength.

Limitless Friendship – Desiring nobody's harm is within the capacity of every individual. Therefore, it has no boundaries. But, this is easier said than done. Jains have notion of subsistence of life in Earth, Fire, Flora and Water. In the *Acharang*-Sutra, it is explained that these four elements are just like an unconscious body, which manifests no movement, but has all the feelings. So, not harming the humans and animals is not good enough, we must not commit violence against plants and environment too. In Jain belief, the plants differ only in their capacity to move, otherwise, they manifest all the properties of living beings. What scientists are learning today about the ecological balance and environment protection was very well known to the Jains even two thousand five hundred years back!

Proactive and Reactive Behaviour

Our actions should be neither appeasing nor offending; rather they should be guided by the vision of dutifulness. Mahapragya quotes from *Acharang*-Sutra to his disciples to behave **'beyond ordinary'**. He explains, "Ordinary behaviour of an un-awakened human is always reactionary. **Ordinary person will only react to a situation** – will feel happy if something good happens or will feel angry if provoked. Whereas, when we act proactively, we **undertake an intelligent and independent analysis of the situation**. A moral judgment always precedes our action. Our acts will always transcend the ordinary, if at the centre of our action lays a basic fact of equality of all souls. Famous philosopher Kant said, **"A good act is for the fulfilment of duty and not for kindness, benevolence, generosity or compassion."** This statement summarises the definition of **Dharma**.

Psychological Aspect

Medical experts have discovered that our health is a delicate balance of various chemicals, particularly hormones. This balance is maintained firstly by the puritan diet, and secondly, by chaste thinking or the virtuous state of mind. Here, we shall discuss the second aspect in detail.

Human mind is full of both positive and negative thinking. Scientists have clinically established that the positive thinking results in the production of hormones which give euphoric feeling, whereas, negative thought process secretes harmful chemicals which are responsible for almost all the psychosomatic ailments and ulcers.

All body functions strictly follow close-loop mechanisms. This actually means that the stimuli and feedback both are monitored by the brain activities. As an example, if we feel pain, endorphin chemical is secreted which acts as mild tranquiliser thereby relaxing the feeling of pain. Immediate purpose of this chemical is to relieve the feeling of pain, but it has its side effects on other body parts including digestive system. Similarly, Mahapragya says, "If we feel hatred or jealousy and act to harm others, brain's defence mechanism secretes chemicals which might increase the blood pressure or harm us in some manner." Anger too, is one of the negative feelings which results in red-shot eyes and trembling body. **Mahapragya, therefore, concludes that in the process of not harming others, we inadvertently prevent ourselves from getting harmed.**

Contentment- Key to Universal Friendship

We, so far have studied the wide ranging advantages of practicing the

policies of equivalence of souls and universal friendship. How to achieve it? What are the do's and don'ts of this game? In fact rules are very simple. Negative thoughts and feelings of hatred, violence and harm are strict taboo and must be kept outside the boundaries of playing field. Positive thoughts of fulfilment of duty and growth of the entire society are the bat and ball of the game. You are the captain of the team whose players are your virtues. **Contentment and Restraint** are the two umpires of the game. If you are aware that these two umpires are watching all your actions from straight and square angles, you possibly cannot afford a foul play.

Mahapragya says that a sober, equipoise, content and contained person neither thinks nor acts to harm or kill others. Once we inculcate these virtues and print them as qualifications on our visiting card, we automatically become ambassadors of environment protection and ecological balance. Scientists have presented some very startling facts about the extinction of several animal and plant species. They say that food, water, air all are bound in their respective close-loop cycles, and all constituents like ecology, animals and plants have their equal importance. It is just like a castle of playing cards, each card has equal significance and weight. We must remember that dislodging any one card might result in catastrophic results.

Ecology – A New Dimension of Science

Environmental perils of rapid industrialisation have compelled the modern day scientists to think and act towards conservation of ecology. Their eyes first turned towards the importance of various species of animals. Of late, they have realised that the plants and forests are equally important in maintaining various cycles of environment. Recently conservation-experts have stated that there are more than twenty thousand varieties of flora and fauna which have high medicinal values. There may exist such plants whose extracts can fight cancer or can control the high blood pressure. Our lust for land is resulting in the indiscriminate elimination of these plants. If we do not adopt a rational and balanced view, we may deprive our future generations of valuable assets of environment.

Mahapragya sees the environment in its entirety. According to him the ecology is sum total of all aspects – sun, planets, stars, earth, humans, animals, plants, oceans, etc. – all share a common inseparable bond. Even if a single aspect is affected, the entire environment is handicapped. For instance, when forests are

destroyed, they affect rains, desserts creep in and farm output is reduced. All these, in turn, affect our economy and humans are the ultimate victims.

Conclusion

How then can we understand the importance of environmental conservation? If we realise that all animals and plants have soul equivalent to one of humans, the conservation of environment will become a natural fall-out. All the concerns of scientific fraternity can be effectively addressed by the acceptance of Mahapragya's principle of Equivalence of Souls. Once this principle is embraced, two powerful things will spontaneously happen –

- Ahimsa or Passive Compassion – Not to harm any other souls: human, animal or plant. This is firmly established and widely accepted tenet of Jainism.
- Kindness or Positive Compassion – Proactively help others. Our help can result in benefiting others. This is a popular principle of socialism.

Science and Spiritualism thus seem to find a cosy confluence in the Principle of Equivalence of Souls. Humans tend to achieve their selfish goals at the cost of others, but the inculcation of positive and negative compassion can transform them to live a selfless life. A human's life is worth not by what he gets from the environment but from what he gives back to it. The Principle of Equivalence of Souls has the potential to yield universal friendship which transcends all boundaries of nations and races.

MAHAPRAGYA'S THEORETICAL PROPOSITIONS

Mahapragya is a great philosopher saint of this age. Along with carrying out the research and editing, he has carried forward the tradition of writing commentaries on Jain scriptures. By writing commentaries on *Acharang* and *Bhagwati,* he has provided momentum to the commentary writing which had come to a standstill. In Jain literature, from the point of view of metaphysical knowledge, *Bhagwati* is accorded the greatest importance. In his commentary on *Bhagwati*, the Mahapragya has provided serious discussions on several subjects, like philosophy, ethics, biology, cosmology, parapsychology, etc. In his explanations on *Bhagwati* and other works of Jain literature, while resolving many widely debated issues, he has given us several original propositions. He has incorporated scientific thinking in philosophical research and has commented on discoveries in the field of science. Some of the original propositions given to us by Mahapragya are presented here.

1. Independent identity of Jain philosophy

Western thinkers have stated that Jain philosophy is merely a collection of many other philosophies, that it has no independent identity of its own. Giving this observation a serious consideration, Mahapragya has said that we could not consider this view of the Western scholars entirely baseless; there was indeed some basis to it. The treatises on *nyaya* or logic composed by scholars in the medieval age were, in fact, a collection of Buddhist, *nyayanic* and other philosophies. After reading these treatises, it would be quite natural for anyone to come to the above stated opinion about Jain philosophy. In the eyes of Mahapragya, those treatises are not a representative account of Jain philosophy. Expounding on this point, Mahapragya has stated that–

(i) The first misconception was that the said treatises on logic were representing the Jain religion,

(ii) The second false impression was nourished by the above assumption, that the Jain philosophy was merely a collection of the ideas of other philosophies.

The second illusion can be wiped off if the first one is proved false. **The fundamental and original treatises of Jain philosophy are Agams. These scriptures truly represent Jain philosophy**. A serious scholar of these scriptures will ascertain that Jain philosophy is not merely a collection of others' ideas.

Shadjeev Nikaya, Lok-Alokvad, Panchastikaya, Parmanuvad, Tamaskaya and *Krishnaraji* are the novel ideas which are testimony to an entirely independent identity of the Jain philosophy. While establishing the originality of Jain philosophy, Mahapragya has quoted from Acharya Siddhsen:

> "My Lord, I do not need to provide much evidence to prove
> Your omniscience. *Shadjeev Nikayavad*, expounded by You,
> Is the strongest evidence of Your omniscience."

2. Chronology of Jain Scriptures

Some foreign scholars, particularly Germans, believed that first *Shrutskandha* of *Acharang* scripture is the oldest composition from the point of view of language and style. Mahapragya has considered the Jain literature in its totality without dividing it in the periods of composition. According to him, Agams were composed in written form by various groups of Acharyas all of whom had the same base – the knowledge contained in '*Purvas*'. In fact the '*Purvas*' were the soft copies of Jain philosophy which remained stored in the supreme computer – human brain. The hard copies in the form of Agams were composed almost after a thousand years. Before writing down the vast ocean of Jain knowledge, a large group of Jain Acharyas held several meetings and concluded to distribute various subjects to different groups. This scheme resulted in faster implementation, as the work on different subjects was carried out simultaneously. Since the basic material available with all the groups was same, the '*Purvas*', therefore some repeatability was inevitable. Mahapragya considers *Acharang* to be the first work from the point of view of this plan of action. However, he renders the actual chronology as redundant because the entire picture emerges only when all the constituents of jigsaw puzzle were placed together. With this exposition, confusions and controversies were put to rest which had originated on account of different subjects being taken up in different scriptures. According to this scheme, a particular subject was taken up in detail in one scripture, whereas, treated symbolically in another scripture. Commenting in this context, Mahapragya has enumerated various subjects being dealt with in the *Dwaadshangi* (Twelve organs) of *Samvayang* and *Nandi* scriptures:

(i) In *Acharang*, as the name suggests, life-style, precepts-mannerisms, education-language, etc. of a saint are described in detail. Other subjects find just a mention.

(ii) Subjects of *Lok-alok* (universe-void), animate-inanimate, philosophical topics of Jains and other doctrines are dealt with in varying degrees of depths in different Agams –

a. In *Sutrakritang*, information is in the form of small couplets only covering only the salient features.

b. In *Vyakhyapragyapti*, these subjects are explained in detail. The frequently asked questions are answered descriptively.

c. In *Sthanang*, the subjects are critically examined and all theories contain their respective justifications.

d. In *Samvayang*, there are either definitions or brief discussion on the above mentioned subjects.

Thus we find that fundamentals have been discussed in all the scriptures, though at some places there is only an incidental reference, at another place there is a brief discussion and at yet another place, a detailed treatment is given. Therefore, the knowledge of a subject becomes complete only when they are all taken together. So, to point out inconsistencies between one scripture and another is not a desirable exercise. Mahapragya had already made it clear that to evaluate scriptures from a historical periodic perspective would not be meaningful since they have been composed in a schematised manner. An example below brings home this view point.

3. Concept of *Lok-Alok*

According to Pundit Dalsukh Malvania, *Panchastikaya* and *Shaddravya* were conceived of after *nav tattva* (nine categories in Jainism) or *saat tattva*. Commenting in his book *Jain Darshan ka Adikaal* (The Initial Period of Jain Philosophy), he observes that by the time of *Sutrakritang* no discussion of *Panchastikaya* and *Shaddravya* had found place in the contemplation of *tattva* (real entities). In his view, only classification into living (*jiva*) and non-living (Ajiva) was mainly prevalent. Critically examining the above observation, Mahapragya offered the explanation that Lord Mahavira had envisaged the concept of *Lok* (universe) and *Alok* (void) prior to that of *jiva-ajiva*. Hence it is not possible that *Panchastikaya* and *Shaddravya* were conceived after *nav tattva* or *saat tattva*. The very list in *Sutrakritang*, which for Malvaniyaji is the basis of seven substances or nine (real) entities, mentions 'universe and void' prior to the 'living and non-living'. Therefore, we will have to accept the fact that Lord Mahavira conceptualised *'Lok-Alok'* prior to the categorisation of 'living and non-living'.

Malvaniaji had mainly relied on an interesting question cited in *Bhagwati Sutra* as evidence - whether or not, standing at the boundary of the *Lok* (universe), a deity can wave his hand in the *Alok* (void)? The answer given therein rules out this possibility on the ground that the *pudgal* (matter), regarded as the 'source of motion' in the living and non-living, does not exist in the void outside the universe. According to Malvaniaji had the notion of *Lok-Alok* ('Dharmastikaya - catalyst of motion' and 'Adharmastikaya - catalyst of rest') prevailed, then the answer should not rest on *pudgal*, rather it should be based on the non-existence of Dharmastikaya outside the universe. Undertaking a serious examination of this interpretation, in the preface to *Bhagwati*, Mahapragya has made an important observation-

"Soul and living-being have been discussed in *Acharang* in the context of conduct and not as an independent subject. In *Sutrakritang* too, comments on substances appear incidentally. Its detailed treatment is available only in *Vyakhya-Pragyapti*. In *Vyakhya-Pragyapti*, the explanation of universe has been based on *Panchastikaya*. It has been stated that the space has two constituents: *Lok* (universe) and *Alok* (void). *Dharmastikaya, adharmastikaya, lokakashtikaya, jeevastikaya* and *pudgalistikaya* - these five bear the testimony to universe. Accordingly, **Universe or *Lok* is that part the space where these five entities suffuse, and the rest of the space where they are not found is void or *Alok*."**

It is true that there are no living beings or matter in *Alok*, but this is just one aspect of definition of *Lok-Alok*. It is, therefore, more plausible that in Jain philosophy the use of word '*astikaya*' was prevalent in the earlier literatures while the word *'dravya'* was introduced at a later date. Hence, *panchastikaya* was established along with universe and void, living and non-living and the principle of salvation; it is not justifiable to regard it as belonging to the later period.

4. The Relationship Between Soul and Karmic *Pudgal*- a Myth or Reality?

In Jain philosophy, the soul is regarded as ethereal and the karmic *pudgal* as corporeal. During the temporal phase, the soul and karma remain bound to each other. These two statements of Jain philosophy raise a spontaneous and genuine question - as to why and how the soul and the matter **are related to each other** despite the fact that the two have extreme difference and perpetual independence? Another relevant question is whether the bondage they share is physical or spiritual?

On this point, giving an original explanation, the Acharya says that from the point of view of *Anekanta*, the animate and the inanimate are not entirely different from each other and so there can be a relationship between them. The problem becomes complicated only when -

- We regard active-karma and inert-soul as entirely different.
- We start treating the soul as entirely pristine and karma as entirely contaminated.

He gives a detailed explanation as:

In the temporal phase, soul is not entirely non-physical and so the relationship between soul and matter can be regarded as physical. In this relationship neither is dominant but both have equal role to play. We learn about it from 'SNEH PRATIBADDH' (affection committed). Soul and karma (finer form of matter), both the basic mattereals possess a common property – capacity of attraction termed as 'affection' in Jain literature. A mutual relationship comes into being through this affection on both sides. The relationship between soul and matter has been expounded as having five forms: bond, touch, immersion/pervasion, *sneh pratibaddh* (affection) and *ghataa* (unification). Drawing upon Jain philosophy for an exposition of this issue, it has been clearly stated that the soul, despite being ethereal, is not entirely separable from matter or body. There exists a spontaneous relationship between the two. They react and interact freely and share a bondage which is not easy to break.

In Jain religion, summarily, the soul is intangible - without any form and the karma is tangible - has a definite form or structure. One of the tenets of Jain philosophy is that soul is enclosed or imprisoned within the karma *pudgals*.

In Western philosophy too, the problem regarding the relationship between the concealed mind (seat of perception and passion) and the exposed body has perplexed the psychologists for a long time. Referring to the assumptions of Descartes, Spinoza and Leibniz, the Acharya has stated in relation to psychology that –

"In psychology too there is curiosity about the relationship between mind and body? Does body influence mind or vice-versa? Exactly the same question was before Jain philosophers, whether the body influences the consciousness or is it other way round? What is the interrelationship between the two? The answer is - both influence each other and the two are inseparable. If we regard

body and consciousness as completely independent entities, we cannot explain the relationship between the two and their mutual influence upon each other. Conclusion thus can be drawn:

(i) From the point of view of *anekanta*, soul and body both possess the quality of affection; therefore, a relationship between the two is possible.

(ii) In this world, the existence of soul is not free from matter; worldly life is not pure, but composite.

(iii) Only if we regard animate and inanimate as entirely different from each other and regard soul as pure, the problem of relationship gets complicated.

(iv) From the spiritual point of view, the difference and relationship between corporeal and ethereal is of great importance. Similarity and disparity between the two form the very basis of the Jain philosophy.

5. Principle of Karma-transformation

In *karmavad* there is a description of ten states/forms/conditions of karmic bondage-the energy that brings about karmic influx. Karma as attached to the soul, can be shed, modified, downgraded or transformed by the conscious efforts. The process of modification of one type of karma into another within its own group with the help of a special energy is called transformation. A pertinent question therefore arises, whether transmutation from the positive karma (*Punya*) to negative karma (*Paap*) and vice-versa is possible or not? With regard to transition it was believed that positive karmas do not change into negative karmas. Positive karmas are of many types and may change into one another and similarly negative karmas into other negative types.

5.1. Transmutation

Giving a new explanation in relation to this belief, Mahapragya has stated that it would be justifiable to say that *purushartha* (soul's prowess) is capable of bringing about a change in the category of karma. Living beings have the capability to change *punya* (advantage) into *paap* (disadvantage) and vice-versa. The principle of transmutation of karma finds acceptance in Jain philosophy. The positive type of karma is modified into the negative type of karma and the converse is also true. The four forms - category, duration, intensity and amount - can undergo transition from one form to another. Changes take the following forms:

i. A loose bond changes into a strong bond.

ii. A strong bond changes into a loose bond.

This is a change in the intensity of the bond. As a result of a negative current, a loose bond of negative type changes into an intense bond, and similarly on account of a positive/wholesome transformational current, an intense negative bond weakens substantially. For instance, a person is experiencing pleasure and at such a moment the influx of negative karma will transform it into an experience of pain.

The process of transformation has a few exceptions too. For example, the four UTTAR types of 'lifespan determining' (*Ayushya*) karma do not transform into one another. Similarly, the two main types of *moh* (deluding) karma - *darshan moh* (perception) and *charitra moh* (conduct) - do not transform into each other. Barring such few exceptions, the transformation of different karma categories is a necessary concept which upholds the importance of human dexterity *(purushartha)*.

6. Personality Transformation Through Close-Loop Mechanism

Similar to the dilemma of relationship between the soul and the karmic body, another perplexing question of interaction between the macro and micro bodies, specifically, the *sthula sharir* and *shukshma karmic sharir* has been very ingeniously answered by Mahapragya. Various methods prescribed in Jain literature for the refinement of the soul like fasting, meditation and prayer, all are conducted at the level of macro-body but their effect is manifested in the form of weakening of karma bonds of micro-body. The good or bad actions of body are fed back as the detachment or accumulation of karma, and they, in turn, ultimately refine or confine our soul. This link forms the true essence of Jainism.

Elaborating the close-loop mechanism between the macro and micro-bodies, Mahapragya cites a stanza from *Acharang Sutra*, which broadly means, "Ascetic should vibrate his karmic-body by the prayer". For a spiritual seeker, the statement is a gold-mine of salvation. This states that the activities at macro body level are fed-back to the *shukshma sharira*. Similar references are found regarding the effect of karmic *sharira* on the well-being and overall state of the *sthula sharira*. This incessant to and fro transaction of activities completes a close-loop which ensures that if good activities and thoughts are pursued, they get reinforced within this close-loop. Thus, a healthy cycle is formed. Contrarily, the bad activities may generate bad vibrations and when fed-back to the karmic body may further result in dire consequences. A vicious circle is thus said to be complete.

Having understood this cycle, Mahapragya suggested two experiments to avoid the formation of vicious circle and to reinforce the healthy cycle –

(i) **Use of Breath** – Concentration of attention towards the natural breathing cycle sends refining vibrations to our inner karmic body. It is an example of how outer body actions **feed back** the reactions to inner body.

(ii) **Use of Determination** – Our resolutions set in a wave of vibrations within our karmic body. These vibrations are fed back to the outer macro body which starts acting accordingly. Our emotions and actions are thus modified. A benign resolution therefore can initiate refinement of karma. It is an example of **close-loop** association of inner and outer units of a body.

Dissociation and Refinement of Karma

Penance and fasting are often associated with the soul-refinement. A prudent view needs to be taken on this account. Mahapragya has clarified a popular belief prevailing with his disciples regarding the 'hardship undergone' and the 'resolve maintained' during the fasting. He says there are two aspects involved in the process of fasting – firstly, our mortal body is deprived of food and secondly, our conscience is privileged by the vibrations of the underlying resolution. While the former is the cause of bodily suffering, latter is responsible for the refinement of karmic body. It would be a grave mistake to link the associated suffering with the dissolution of karma. Jain religion does not preach to inflict pain to the body. It would be paradoxical to seek the ultimate pleasure of salvation through the process of anguish and distress. If the fasting lacks resolution and is observed only because of competition, social pressure or allurement, it will not be able to initiate the vibrations necessary to have effect at micro level. But a resolution which renders the food redundant will surely be strong enough to create an ambiance for karma refinement. **Bottom line for the dissipation of karma, therefore, is the strength of resolution and not the magnitude of suffering.**

One of the steps towards the right resolution is *Kayotsarg*. It puts the body in such a favourable state of mind that the self-suggestions start becoming effective. *Kayotsarg* involves breathing and this exercise connects the mortal body with the karmic body by establishing a bridge between the fine atoms of breathing and finer constituents of consciousness. Our karmic body is constituted of such fine atoms (*sukshma pudgals*) which have quadruple properties

(*chatusparshi-quadons*). These micro atoms can be altered only by the action of atoms which are similar in nature. Variations in our thoughts and emotions affect our breathing which, in turn, affect our body. Reverse is also true – our control on breathing patterns alters our thoughts and emotions. Therefore, penance and breath-meditation must be associated with resolve and dexterity.

7. Sangyanyen-OGH & LOK

By *Sangya* (epistemology) is meant the tendency/inclination or instinct of the soul and the mind. It is the quality which empowers perception and acquisition of knowledge. In Jain scriptures, ten *Sangyanyen* have two broad classifications – *aaveg* (*samvegatmak* - obtained from sense impulses) and psychology (beyond sensory organs). Of the ten kinds of *Sangyanyen*, the first eight are *samvegatmak* (attributed to senses) and the last two are knowledge oriented. First eight have their origin in external and internal excitement/agitation of our senses. Hunger, fear, lust and jealousy – all these emotions are known to be related to one set of senses. Similarly, anger, pride, affinity and greed are linked with the state of mind. But, Mahapragya has especially expounded those tendencies which are beyond human senses and conscious mind namely, *Ogh-Sangya* and *Lok- Sangya*. His descriptions on this subject reveal that while accepting the two broad categories of ancient texts, he has actually established that the ten *sangyanyen* can be best categorised in three ways – sensory *(samvegatmak)*, instinctive (*oghsangya*) and interactive (*loksangya*).

There are two ways of acquiring knowledge: knowledge acquired by means of our sensory organs and that acquired sans them. We perceive touch, taste, smell, form, and sound with the help of our sensory system. Knowledge perceived without the help of our senses is of two types: (i) *ogh* knowledge and (ii) intellectual knowledge.

7.1. Oghsangya

Knowledge gained through our senses is departmental, for example, smell is perceived by the nose, vision by the eye etc. *Ogh* knowledge is comprehensive. It is not perceived either by the senses or the mind. Perception of this type of knowledge is separate from and is independent of our senses or mind. Like every new-born knows where to get its first food from.

Ogh consciousness can be elucidated with the help of another illustration: our process of body growth, respiration, digestion all have an in-built intelligence. It is an independent process of the unfolding of consciousness minus senses.

Scientists of the present times have established beyond doubt that a vast amount of intelligence is stored in our genes. All our life supporting activities are coded within them. Scientists call this intelligence – instinct. Jains call it *ogh*.

Mahapragya cautions that instinct must not be confused with the sixth sense also called **ESP** (Extra-Sensory Perception) in scientific terminology. Many thinkers believe that nature had endowed the sixth sense to us. Our ancestors and several animals and birds are said to possess sixth sense. In humans this power (of the sixth sense) was found in its natural form only during the primordial stage, but as civilization developed, man gave up exercising this faculty. In several animals and birds, the existence of the sixth sense can be seen even now. For instance,

(1) Sensing an impending earthquake or storm, animals and birds take shelter in their holes, nests or other protected places.

(2) Several fish cannot see. But by means of minute electric current they negotiate their way through, avoiding obstacles present in the water.

In the modern age, the sixth sense is also found to exist in the aboriginal people. For instance,

(1) The aboriginals of Australia say that they use smoke as a signalling device only to draw the attention of a particular/the desired person. After that an exchange of ideas between the two of them takes place only at the level of mind.

(2) American aboriginals have a special name for the sixth sense - *shimfo*.

All these examples do point towards the existence of sixth-sense, but the scientists have found that these are activities related to sensory organs only and are not trans-sensory. For example, bats have a hearing mechanism which operates at 40-50 kHz of acoustic frequencies, whereas, human ears can respond only up to 20 kHz. Extra sniffing prowess of dogs too is a well known fact. Similarly, some birds and animals can feel the very low frequency vibrations which precede an earthquake. These activities may look like Extra-Sensory Perception, but in reality these are examples of refined senses only.

7.2. Loksangya

In *Acharangvratti*, Sheelanksuriji has described it as mundane (*laukik*) *belief. It is this ability of humans which separates them from any other form of*

life. It is interactive intelligence - *loksangya*. If our knowledge base is left to our genes and senses only, our conscience will never rise beyond that of an animal; we would kill whenever hungry and sleep whenever tired. It is our soul's ability - *loksangya* - to acquire and ingest the knowledge from others' experience. Humans have the skill to acquire the collectively accumulated information by way of verbal or written communication. Though it involves the usage of our senses (*samveg*), it also involves our intuition (*ogh*) to assimilate only the truth and filter out the trash. Our senses do not undergo the direct experience, but we accept the collective experience of generations together. Therefore, Mahapragya says that this kind of knowledge should not be considered as entirely mundane, but it is interactive – between sensory and intuitive.

Having explained the entire gamut of *Sangyanyen,* Mahapragya has inculcated its psychological implications and repercussions in alleviating the human stress and experiencing a peaceful state of mind. He states that in the present context some psychological facts are also relevant. In psychology, mental processes are regarded as having two forms: *Bhaav* and *Samveg*. *Bhaav* is a simple and primary mental process. *Samveg*, on the other hand, is complex. Fear, anger, love, exhilaration, laugh, jealousy, etc. are called *Samveg*. Their origin lies in a psychological condition/state/circumstance and it affects the physical and mental system.

Samveg brings about external and internal changes. Among the external changes, the three main changes are:

(1) Facial expression

(2) Vocal expression

(3) Bodily posture.

Internal changes are:

(1) Changes in respiration

(2) Changes in heart beat

(3) Changes in blood pressure

(4) Changes in gastro-intestinal or digestive function

(5) Chemical changes in blood

(6) Changes in psycho galvanic responses and brain waves

(7) Changes in the activities of the glands.

In psychology, hypothalamus is regarded as the place of origin of *Samveg*. Hypothalamus is the middle part of the brain. It is this part that regulates and controls *Samveg*. *Bhaav* evokes two kinds of emotions: delight and grief. No external excitement/stimulus is needed to experience *Bhaav*.

Mahapragya evolved a very effective methodology of *Preksha* Meditation using this analysis. With reference to *Ogh* and *Lok* consciousness, Mahapragya has given us a new perspective, from the points of view of science and psychology. This has immensely helping the over-stressed and tension-ridden young generation to shed their grief and experience the inner happiness.

8. Paramanu versus Atom

In *Anuyogdwar* scripture, atoms are said to be of two kinds: subtle/minute (*sukshma*) and conventional (*vyavaharic*). In Jain literatures, *Pudgals* are described with clarity and scientific depth, accordingly –

Parmanu – the tiniest particle is further indivisible. Multiple *parmanu* when combine to form either energy packets or *vyavaharic parmanu,* become practically useful. A *parmanu* is **mass less** and does not obey the laws of gravity or relativity. These *sukshma parmanu* are capable of achieving infinite velocity and can travel space irrespective of time.

Skandh – union of two or more *parmanu*. When a particular *skandh* comprises infinite *parmanu*, it is called *'anant pradeshi skandh'* which is treated as the *vyavaharic parmanu.*

Vyavaharic parmanu – a cluster of infinite *parmanu*. This entity has practical utility and is the basic building block of *pudgal* or matter. *Vyavaharic parmanu* are bound by the laws of physics. While a *parmanu* cannot be further divided by 'any' possible means, a *vyavaharic parmanu* too is indivisible by weapons which may be sharper than the edge of a sword. However, there is a possibility of a v*yavaharic parmanu* being divided into either infinite *parmanu* or multiple *skandh.*

Since *vyavaharic parmanu* has properties which are comparable with 'the atom' as described by the science, Mahapragya has said, "There is a striking similarity between the v*yavaharic parmanu* and the atom. Though it is said that even a weapon sharper than the edge of a sword cannot disintegrate a *Vyavaharic parmanu,* yet it can be divided under special conditions. Even an atom cannot be divided by any weapon but is said to be constituted of protons, electrons and neutrons, which in turn are divisible into quarks etc. *Vyavaharic*

parmanu, as described in Jain scriptures is actually a unique *skandh* comprising infinite *parmanu*. It is quite possible that other *skandh* which have finite, multiple *parmanu* may form intermediate particles like quarks, electrons etc." This aspect opens new possibilities for science to ponder upon.

9. Tenam Kalenam Samayenam (that time and that moment)

In the Jain scripture, *Bhagwati*, while describing any incident or place, time and moment have been mentioned like this: 'at that time and that moment.'

Normally time and moment are regarded as/said to be synonymous. It has always been a matter of curiosity as to why these two different words have been used. It appears that the word 'time' inclines towards an era and 'moment' indicates a definite period of time.

According to a commentator on the scripture, *kaal* (time) indicates the fourth section (fourth *Aara*) of AVASARPINI (the regressive half-cycle) and *samaya* (moment) indicates the period when Lord Mahavira gave a sermon.

Along with time and moment, direction and place too are mentioned:

i. At that time and moment there was a town called Raajgrahi.

ii. At that time and moment there was a town called Tungiya.

A question thus arises, whether the stating of place and time before any description was a matter of some writing convention or a requirement based on a certain principle? Mahapragya has compared it to the notion of space-time in the present-day science. He states that according to Einstein's theory of relativity it is not possible to understand any event independent of space and time. German philosopher Immanuel Kant also has laid a great deal of stress on space and time. Acharya Siddhsen too has considered time and region essential for the proper understanding of meaning/significance of an event.

9.1. Concept of *Kaal* (Time)

In the scientific world, time is a linear concept. It always moves forward like an arrow. In this linear scenario, the line has a **beginning** and it has a finite **length** up to the present moment. The future is empty. The other concept of time is cyclic. According to this concept, time moves forward as well as backward. For instance, rebirth after death is a backward movement of time. The principle of rebirth is based on the principle of cyclic movement of time. In the Jain concept of time, the wheel of time has been accepted in the form of

regressive and progressive half-cycles. According to this principle, time returns and there is also a recurrence of events associated with the past. There is nothing new in this world; there is nothing that has not happened before.

By clarifying the cyclic concept of time, Mahapragya has given us a new dimension which is quite useful. Professor Hawking too is not far from the conception that if time can be treated independent of space, then theoretically and mathematically, time can assume negative values meaning thereby that time returns to the past. In Jain philosophy space and time are treated as fundamentally separate substances, and thus the possibilities of negative time calculations are wide open.

10. Electricity – Animate (live) or inert (lifeless)

This topic has resulted in such a hot discussion that it has itself flared up as *Agnikaya*! To pour cold water on this burning topic and to extinguish, once and for all, the fire created by it, Mahapragya has authentically answered the two pertinent questions –

(i) Can electricity be classified as *Agnikaya* (fire)?

(ii) If yes, is it live or lifeless?

If these questions are answered beyond doubt, any confusion regarding the usage of electrical appliances will be rendered redundant. The salient relevant points of Mahapragya's essay on this subject are presented here.

10.1. What is *Sachitt-Agni and Achitt-Agni?*

What is fire? Scientifically, it is the fourth state of matter beyond solid, liquid and gas – called plasma. In this state, matter is present neither as atom nor as molecule but as electrons and ions. In Jain canon, there is a fine distinction between 'fire as a *jiva' (Agnikaya)* and 'fire as a group of *Pudgals* (matter) without soul'. The essential difference lays in the presence of intelligence (*jiva or soul*) in the former, while its absence in the latter. According to Jains, a *jiva* is one who possesses the necessary intelligence to self-perpetuate oneself. In *Shadjivanikaya* six classifications of jiva are mentioned. Their elaboration in Sthanang-Sutra clarifies that the first five of them namely, *prithvikaya, aupkaya, tejaskaya, vayukaya* and *vanaspatikaya* are stationary in nature and **can exist in both states of *sachitt* (with intelligence) and *achitt* (lifeless).**

So, the million dollar question is - can electricity be classified as

sachitt-Agnikaya or not? Before answering this question, let us answer another question first - what are the characteristics of *Agnikaya* (live fire)? As we all know, fire starts as a spark – its infant state. It gathers its food (*aahar*) from the surroundings and grows. It lives as long as the food-energy is available to it. That is, when the entire inflammmale material is consumed, it dies. This is broadly the life cycle of fire. The above description suggests that it follows a typical pattern of self perpetuation as is done by any other animated form of life. These patterns are visible to us in fire existing in stars, fire in inflammable materials, fire in woods etc. In Jain *Agams* also, it is clearly mentioned that the *sachitt-Agni* exists in *Triyak-lok* only. Fire exists in upper and lower *loks* also, but is *achitt*. What is *achitt-agni* then? It is actually the heat. Modern science has proven that extreme heat can be generated even without fire. Such examples are microwave ovens, exothermic chemical reactions and nuclear fission and fusion. In all these cases, heat is generated even without fire. *Tejas-vargnas* are present but the animated fire is absent. Now let us examine whether the electricity falls under the category of *sachitt-Agni*?

10.2. What is Electricity?

Electricity has the capacity to ignite, Light has the similar capacity, and Friction too can create fire. But this capacity does not mean that the electricity, light and friction are themselves fire. In fact they are not in the state of plasma. Electricity is nothing but the movement of electrons. Like, air flows under pressure gradient, electricity flows under potential. It cannot self sustain itself. It does not grow by itself.

If electricity is treated as agnikaya, then we are creating a *jiva* every time we switch on a bulb and destroying it by switching off. Not only that, our entire thought process is based on transfer of tiny electrical signals, if they are *jivas* then the entire basis of Jain philosophy will collapse. Like many other characteristics of a *pudgal* such as weight, colour, etc., the electrical charge is just one attribute of dions and quadons (*sukshma pudgal*). It is by virtue of this property only that a dion combines to form quadons and octons. They keep on combining in innumerate forms of *skandhs* to create this *pudgalic* world around us. Wind energy makes a flag to flutter; it does not mean life has been infused in the flag.

Man employed his intelligence to utilise *pudgals* to his own use. For us, both knife and pen are made from matter, how to use it as per Jain practices is a different story. Similarly, electricity is a set of *pudgals* (matter), how to deploy it judiciously rests on the prudence of the user.

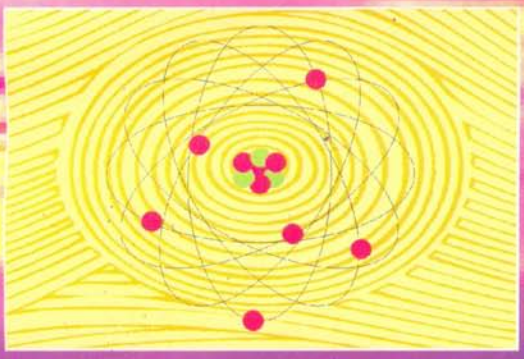
11. Kalpa-Vraksha (*Kalpa*-tree)

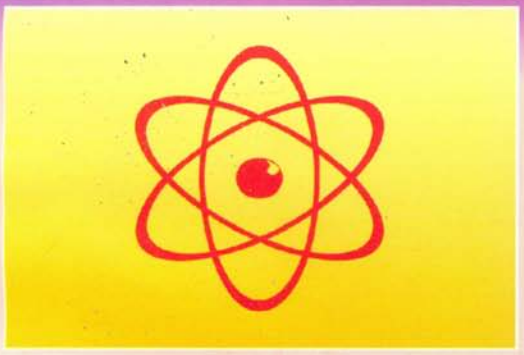
Mahapragya has taken pains to **restrain the followers of Jainism to become dogmatic**. Wherever he finds that any interpretation of events described in our ancient literature is leading to superstitions, he intervenes and explains the real motive behind the traditional belief. One of such dogmatic belief is about the *kalpa-tree*. According to one school of thought, these trees were associated with the divine powers of fulfilling the wishes. It is also believed that these *kalpa*-trees disappeared along with the YOGALIK (male-female pair) tradition.

Mahapragya has opined that this traditional belief is without any basis. In *Samvayang* and *Sthanang* scriptures, there are mentions of ten kinds of special trees existing in the YOGALIK age. Abhayadev Suri, renowned commentator, had regarded these trees as mere means of fulfilling the limited needs of the YOGALIKS. Analyzing this, Mahapragya has stated that the in YOGOLIK era the human needs were very limited and those were easily fulfilled by the products available from these trees. Since all the essentials of life, like eatables, fluids, shelter so on, could be obtained from these trees, they were nick-named as *kalpavraksha* (*kalpa*-tree). These different kinds of trees had different uses, but it would be ridiculous to propose that these trees fulfilled all the desires of the humans. Had this being the case, all *jiva* would have got the emancipation from karma bondage simply by desiring!

In Indian literature, three things are often mentioned as means of fulfilling one's desires -- *kaamdhenu* (a celestial cow), *chintamani* (a mythical gem) and *kalpavraksha* (a divine tree). These symbolise that the desires can be fulfilled by expressing, contemplating or imagining. In reality, all these three are one, and they just symbolise a hypothetical shortcut to circumvent the efforts. This explanation of Mahapragya rules out any divine disposition in a *kalpa*-tree and re-establishes the faith in the karma and dexterity.

Theory of Matterials





Part-2

SECTION - 2

THEORY OF MATTEREALS AND JAIN PHILOSOPHY

THEORY OF MATTEREALS AND JAIN PHILOSOPHY

A treatise, '*Jain Darshan – Manan aur Minmansa*' written by Mahapragya way back in the eighth decade of Twentieth Century has become a landmark in the study of Jainism. Though it was the first book by this great writer on Philosophy, it was instantly accepted by the Jain fraternity as it embodies the confluence of ideas prevailing in different Jain sects. In the prologue of recently published book - 'Mahapragya Ka Rachna Sansar' – he has narrated the events which led to the writing of the book 'Jain Philosophy – Thought & Analysis'. Mahapragya writes, "During Vikram Samvat 2000-2005, I studied umpteen treatises on philosophy. Once, during the Chhapar *Chaturmas* I realised that the time is now ripe to pen down my thoughts". This realisation soon became a reality in the form of a book named, 'Fundamentals of Jain Philosophy' which was later rechristened as '*Jain Darshan – Manan aur Minmansa*'. Hallmark of this book was a basic tenet of Jains – *Anekant* – 'all roads lead to a singular destination of truth like infinite radii of a circle has but one centre'.

The book has extensive correlation with modern science and has attracted bountiful readers with scientific temperament. Though the Jain Philosophy emphasises on 'know-thyself', Mahapragya has equally stressed upon knowing the world and universe around us. According to him, the knowledge of environment and our existence alone can lead us to the path of self enlightenment. Why is it necessary? The book "*Jain Darshan – Manan aur Minmansa*" answers this question adequately. Book deliberates extensively in scientific pastures to bring home the fact that the Knowledge which descends from Lord Mahavira is indeed pure. We shall shortly see so. Select chapters of the book are worth mentioning here.

MATTEREALS – A TRANSFORMED ETERNITY

1. Neither Ultimately Eternal, nor Entirely Destructible -

The concept of matter being a 'transformed eternity' may be newly accepted by the science, but it is one of the fundamentals of Jain Philosophy. Out of the six mattereals (*dravyas*), the highest activity and diversity is seen in *pudgals* (matter). The matter can be created (from energy), destructed (to energy), transformed (converted physically) and transacted (moved in space-time) but the resultant sum of pre and post transformation masses and the mass-equivalent of energy remains unaltered in the *Lok* of which we are a part.

Mass + Mass-equivalent of Energy = Finite Constant

Definition:

Mahapragya writes in *Bhagwati-Bhashya* –

- matter can change physically - Transformed
- matter cannot disappear as non-entity - Eternal

These lead to two very interesting corollaries.

Corollary-1:

If matter has to exist, the extent of Universe (*Lok*) has to be finite. Unlike in *Alok* which has infinite extent as per Jain teachings, matter contents become zero.

Corollary-2:

Jains propound that all activities in Universe are cyclic in nature. So is the time – *ara* or era. The conversion of entire matter into energy brings about the catastrophic end while the reformation of matter from concentrated energy (scientists today may love to call it Big bang) restarts the next cycle. While the time between start to end may be finite, the repetition of cycles remain eternal as matter cannot become a non-entity.

Transformation of matter:

Law of Conservation of Mass was first propounded by a famous scientist Lavoisier in 1789. According to him the net mass of the matter present in the

universe remains unchanged. Matter can change its form but cannot be entirely destructed or newly created. Normally, in our day to day experience, we see matter changing various forms wherein it appears to have been destroyed, but factually it is only **transformation from one form of matter to another**. Lavoisier cited a very interesting example to explain – 'coal burning to ashes'. Apparently coal seems to have been destroyed but actually it has converted into two forms namely, solid ash and gaseous Carbonic acid formed by the combination of atmospheric Oxygen and Carbon present in the coal.

Similarly, we see rusting of Iron. The rust is not a newly created substance; it is just conversion of Iron into its oxy-hydrate by the action of water-vapour and oxygen present in the air on the surface of iron object.

Many a times, matter does not undergo form transformation but changes its **state** keeping all physical attributes intact. One such example is that of a rice or wheat grain. Before being cooked it is said to be *Vanaspati-Kaya*, while after being heated, it transforms to *Agni-kaya*.

As science progressed and the studies were conducted in the fields of Light, Temperature and Magnetism, Law of Conservation of Energy was conceptualised. As more accurate measurements were carried out it was found that a very miniscule amount of pre-reaction mass was missing from the total post-reaction masses. Both these laws failed to explain this tiny loss in mass in various chemical reactions. This limitation was overcome by the greatest scientist of our times - Einstein.

Mutual Transformation of Matter and Energy

As the form, mode or body of matter transforms, several invisible processes happen simultaneously, viz. absorption or release of energy. It was found that such a transaction of energy always takes place when a matter undergoes transformation. Einstein thus gave a historic concept that the matter can be converted to energy and vice-versa. Earlier prevalent concepts of matter and energy as independent entities were shattered by the famous equation of Einstein inter-relating the mass and the energy –

$\mathbf{E = mc^2}$, where

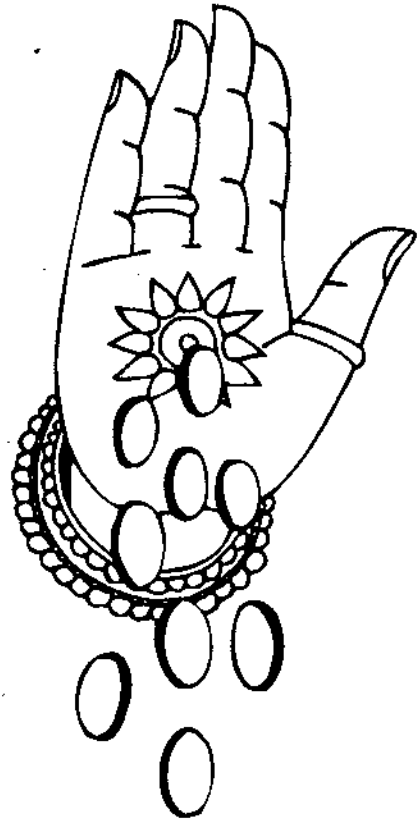
E = Energy

m = Mass

c = Velocity of Light (3×10^8 m/sec)

By virtue of the very high value of speed of light even a micro particle yields very high energy. According to the above equation a pound of coal, if fully converted to energy will generate 2 billion kilowatt of electricity.

This theory of modern day science came as a pleasant surprise to the students of Jainism. According to Jain philosophy, matter possesses infinite energy. When a macro-mass loses its physical attributes it tends to become massless, namely – *Sukshma Pudgal* – a packet of enormous energy. Even today the scientific emphasis is on the nano and pico technology (science of micro particles), which Jains already know as Pudgals (dions, quadons and octons). This correlation of modern thoughts (convertibility between mass and energy) and ancient Jain principles of Transformed Eternity (i.e., the net sum of mass and mass equivalent of energy is constant in the universe) by Mahapragya demonstrates his scientific temperament.



UNIVERSE (*LOK*)

Jains envision the entire universe to be comprised of six entities (we have christened them as **mattereals**)–

1. Dharm-astikaya (Medium of movement)

2. Adharm-astikaya (Medium of rest)

3. Akash-astikaya (space)

4. Pudgal-astikaya (*Sthul*-matter & *Sukshma*-energy)

5. Jiva-astikaya (conscience/intelligence)

6. Kaal (time)

All these six entities (mattereals) co-exist simultaneously to manifest the Universe. Interestingly, science even today cannot add or subtract anything from this all exhaustive list cited above. Jain literatures call the universe as *Lok*. Excluding this finite *Lok* is said to be infinite *Alok*. Jain philosophy has laid a logical foundation to the ever enigmatic questions of creation of universe, its extent, its composition and its time factor. Founding postulates of Jains are–

- There is a **finite and tangible *Lok*** situated in the midst of an **infinite void called *Alok***.
- *Alok* is infinite, yet the relative positioning of *Lok* with respect to *Alok* is well defined as the **directions travel in the *Alok* as well.**
- *Lok* has a **well defined and stable geometrical shape.**
- *Lok* has fixed basic constituents which are **finite and maintain a constant sum.**
- Activities within the *Lok* are so spontaneous that **it is not created by anybody.**
- *Lok* possesses **default intelligence and not the designed** one.
- Periods in *Lok* have starts and ends, but **cycles of periods are eternal** – having neither beginning nor end.
- Matter present in the Universe is dynamic by way of transportation and transformation, which is the very basis of LIFE.

Mahapragya explains that the Jains could find above universal Laws as they do not believe in the authority of GOD as the creator or perpetuator. According to him, modern science also does not support the idea of universe being created and conducted by any supreme-power.

Statements of Einstein and Hawking

"God is left with nothing to do, as the disciplined Nature is governed by its own laws and principles" - how close Einstein is to the Jain view point! Bestseller physicist and well known contemporary scientist Hawking, too, believes that the cosmos is no-beginning no-end phenomenon. A lot of scientific investigations are going on today in the field of astrophysics. Largest of the large and smallest of the small are keenly scrutinised by the modern scientists who are equipped with latest electronic telescopes and fastest computers to analyse the enormous data. While at one end they are eager to know massive black-holes, on the other hand they are enthusiastic to study the minutest particles like quarks and gluons. It would therefore be relevant to undertake a comparative study of Jain Philosophy vis-à-vis Science. To start with, we shall first chronologically arrange the history of cosmic studies.

History of Universal Exploration by Scientists

1. Scientific study is presumed to have started with Copernicus in 1514 when he, for the first time, declared the sun as the centre of our planet system contrary to the then prevailing idea of Earth being at the centre as proposed by the Greek philosopher Aristotle.

   ♦ **This established the first fact -- Orbits of our solar system are sun-centric and not geo-centric.**

2. Unlike our modern times, where a new concept is introduced every year, it took almost 100 years for Galileo to confirm it way back in the year 1609.

3. Around the year 1687, an idea was mooted by Sir Newton about having an infinite static universe. But his own theory of gravitation contradicted it. Owing to the gravitational force, the stars in static universe will fall into one another and the universe would have collapsed.

4. As the Solar system was thoroughly understood and mathematical orbits were established solidly, scientists turned their attention to the outer universe. Arguments kept on waging about whether the

universe had a beginning or is eternal. We shall see later in this chapter, how Jainism solves this dilemma.

5. After another 100 years, in the middle of nineteenth century the idea of eternal universe was discarded by scientific fraternity. It was because of a very simple logic. Had the stars around us were shinning since infinite time, rays from all the stars would have reached us by now and the earth would have received so much of energy that it would have been blown up by now. By the same argument all the other cosmic bodies too would be infinitely heated up.

♦ This established the second fact – the Universe had a beginning.

6. Next milestone in this journey came relatively faster in the year 1929. This only confirmed the fact that the universe had beginning. Edwin Hubble observed that the cosmos is expanding as the galaxies are rocketing away from each other.

♦ This established the third fact – the Universe is expanding.

7. The immediate conclusion was that these galaxies were near to each other sometime in past. In fact, so near to each other that the universe occupied near zero space and possessed near infinite density.

♦ This established the fourth fact – the Universe started with Big Bang.

8. However several important questions still remained unanswered. Having consensus on the beginning, question now nagging the scientists was about the end? How long will the universe expand? Will it collapse after the momentum of big bang is reduced and the forces of gravitation take over?

9. By the turn of twentieth century, the study of universe was fully transferred from philosophers and meta-physicists to the scientists and astronomers.

10. In twenty-first century, this study is now employing complicated electronics, advance mathematics and latest space technology. The concentration is on – 'Cosmic Microwave Background' – the ultra

high frequency radiations emitting from a hot body. Since the universe is presumed to be extremely hot at the time of big-bang, the frequencies emitted then can reveal the correct picture, if detected.

11. **To sum up – the present cosmological picture painted by scientists is as follows:**

- ➢ Age of the universe is around 14 billion years and it is by and large homogeneous.
- ➢ It is full of lightest elements, like hydrogen, helium and lithium.
- ➢ It has abundance of cold dark matter – huge clouds of particles that are detectable by their gravitational effect only. This finding is astonishingly close to Jain philosophy.
- ➢ Within a fraction of a second, the universe inflated at a tremendously accelerated rate simultaneously releasing burst of radiation.
- ➢ Soon after inflation, the regions of high density were acted upon by the cold dark matter to form the galaxies.

12. **What Scientists have failed to explain:**

- ➢ Boundary, shape and size of the universe?
- ➢ What was before Big Bang and what initiated it?
- ➢ As the three space co-ordinates can be drawn by assigning a suitable zero, time-factor too, can be described in terms of elapsed time with respect to some reference. But when we are talking about universe, we need to know the absolute zero co-ordinates of space and an absolute zero moment of start of time. Both are eluding science.
- ➢ If it is expanding, how far will it expand? OR will it collapse after the momentum of far off galaxies diminishes?
- ➢ If all the matter was together at one point of time (Big Bang), and no matter can travel faster than speed of light (as predicted by quantum mechanics and the general theory of relativity), why stars and galaxies are out of our sight?

Answers from Jainism

1. Dharmastikaya (dynaons) & *Adharmastikaya* (statons) Duo :

The description of this duo, comprehensively answers the dilemma of Universe's boundary. According to Jainism, the spatial extent of this pair is finite, has a defined shape and outlines the boundary of universe. We shall discuss more about the shape of *Lok* later in this book. Continuing the discussion about the six (interestingly, these are divided into three pairs) mattereals, the first one is *Dharmastikaya* (dynaons) & *Adharmastikaya* (statons). Both are metaphysical in nature, omni present and static. They cohabitate only as a passive, seamless and continuous media. They are entirely absent in the *Alok*. The other two pairs viz., *Akash-Kaal* and *Jiva-Pudgal* exist only up to the limits earmarked by dynaons-statons. We can understand it with the analogy of a swimmer in water. Water is just a medium. This analogy is crude with the difference that dynaons and statons do not themselves get disturbed due to any material activity.

Scientific fraternity has always wondered as to what exists between the nucleus and the orbiting electrons or between one atom/molecule and the other. At one time the concept of ether was in vogue, but present day scientists deny its existence.

a. Dynaons (*Dharmastikaya*)

Dynaons are omnipresent throughout the universe. They are supposedly cubical particles interleaved in such a manner that they form a continuous, monolithic medium and the *Gati* (dynamism – that is why we have named it 'dynaons') of all the other mattereals is attributed to them. They, in other words, are super highways of energy transportation. Even electromagnetic and light waves traverse in the presence of Dynaons (*Dharmastikaya*). Since they act as a medium, they do not participate or interact nor do they themselves get disturbed. Therefore, the energy travelling through the medium of dynaons remains undiminished until it interacts with other forms of matter.

Mahapragya observed that if we listened to a science teacher explaining the rules of motions, we felt as if a Jain scholar was giving discourse on Dyanons-statons.

However, it must be noted that the science, during the Newton era, believed in presence of **'Ether' as a medium of motion**. But later on, Einstein, on the basis of Michelson-Morley experiment, ruled out its existence. He argued that since the velocity of light remains a constant to all observers

whether dynamic or static, the very presence of ether is dispensable. All arguments of ether being a metaphysical entity were discarded and Einstein's view prevailed. But, believers of Jainism will find it interesting to note that the things have come to the full circle as scientist now need a 'medium' to explain the way gravitational forces act!

b. Statons (*Adharmastikaya*)

An anti-matter to dynaons, these particles co-exist with them and are medium to gravitation (*sthithee*). Their presence actually completes the picture of universe. Scientifically, we all know the matter would collapse under gravity if the gravitational forces are not counter balanced by forces of velocity. Electrons are orbiting to avoid collapsing into the nucleus. Earth is orbiting so that its centrifugal force is equal to the gravitational force of sun. The solar system, in turn is rotating and so is our galaxy, the Milky Way. Even all the other galaxies, which we know of, are spinning presumably to prevent fall under gravity. Jainism states that all forms of matter take **SHAPE** only when the forces of energy are at equilibrium with the forces of gravity. Jainism therefore does not believe in **Designed Intelligence** but proclaims **Default Intelligence**. In the former case, the universe becomes somebody's discretion, whereas in the latter case, it spontaneously exists under certain fundamental rules.

It is amazing that no other religion on this earth has promulgated the presence of all encompassing mattereals as is done by Jainism. And as we have understood so far, how near the Jain philosophy is to the modern science! It even can extend helping solutions to some of the enigmas faced by the scientists regarding the boundaries of universe and the extent of time.

Conclusions of Science (so far):

Scientific evidences point an explosive start by Big-bang and extrapolate a catastrophic end of universe by Big-crunch. Though many questions remain unanswered in between the two. Prominent among them are – what before beginning and what after the end? These questions have compelled scientists to think like philosophers!

According to Einstein the moment of beginning is singular and unique, thus laws of physics come into force only after the big-bang. Dr. Hawkins explains that anything which existed before is destroyed by the big-bang and so there is no need to know whatsoever existed before it. Succinctly, anything before big-bang has no consequence in the present universe.

Conclusions of Jainism:

Among all extensively followed religions like Hinduism, Jews, Christians, Islam, the universe is presumed to be created (by GOD). For the first time in the known history, famous philosopher, Aristotle put forward the notion of no-beginning-no-end. Mahapragya too has written in his earlier literary works that Jainism does not support 'beginning' and 'end' theory. He writes that central to entire 'Jain' theme is:

➢ Everything in the universe is

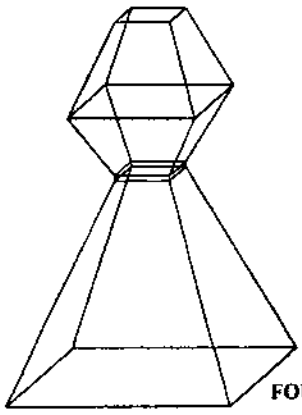
a. dynamic

b. finite

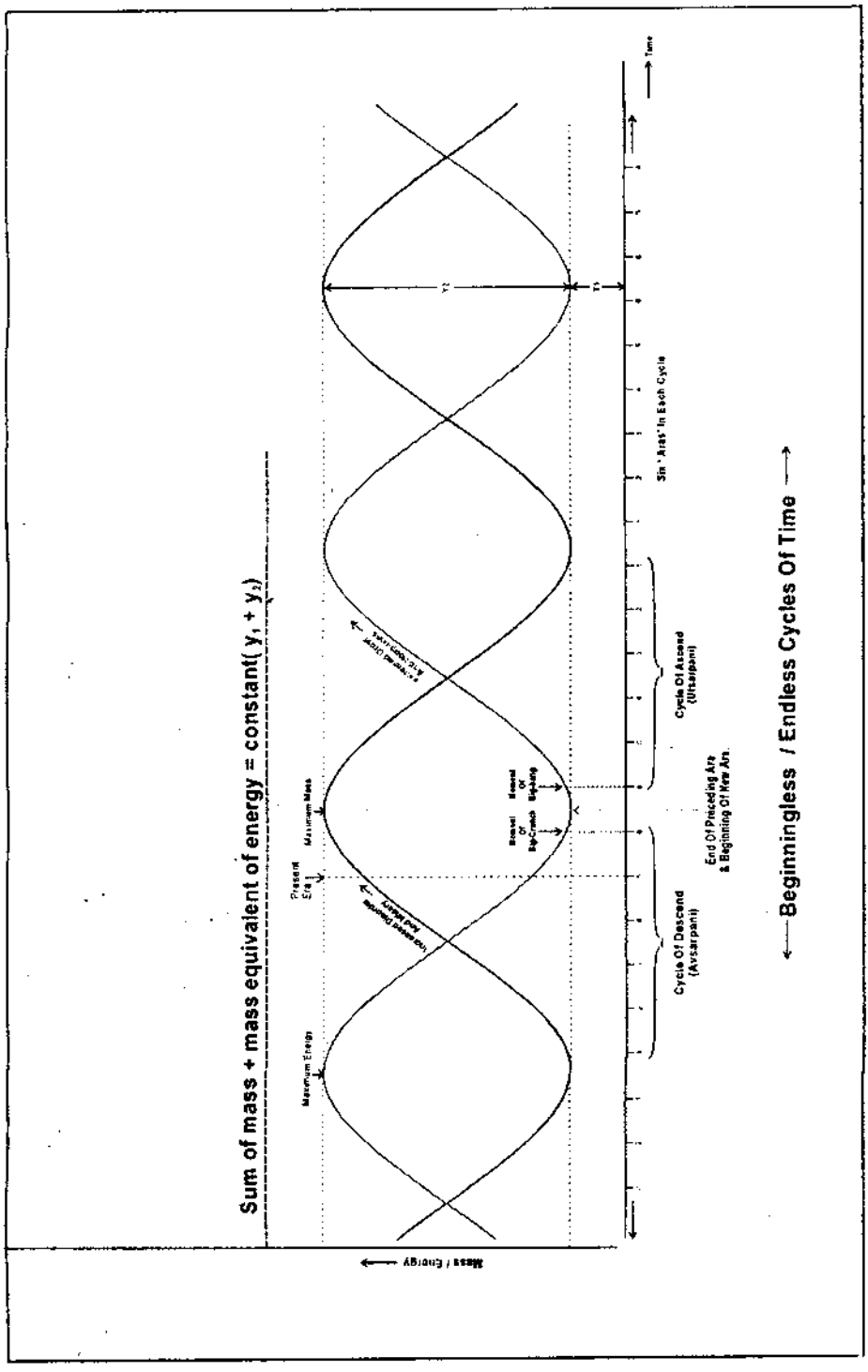
c. cyclic

Accordingly, the universe neither gets completely destroyed nor is created out of nothing. The following time-energy-matter graph clearly depicts the Jain ideology.

As is manifested above, the matter of universe appears to vanish into pure energy at the end of each era (descend). According to the Jain philosophy, it is sixth frame of descending cycle (called *Avasarpani*). It remotely resembles what we know as moment of destruction or big-crunch. From the second frame of ascending cycle (called *Utsarpani*) the creation of matter starts again. This resembles the moment of creation or big-bang. This cycle of ascend and descend is perennial. Jains have designated a period of five *Bharats* and five *Airavats* to each of these cycles. As is clearly depicted, the matter and energy transmute into each other but in totality no destruction or creation takes place. Here, the Jain philosophy explains what science could not – the state of universe before 'the beginning' and after 'the end'.



FOUR SIDED FIGURE OF UNIVERSE



SPACE AND DIRECTIONS

In the previous chapter, we dealt with the first two mattereals namely, *Dharmastikaya* (dynaons) & *Adharmastikaya* (statons). Currently we shall ponder upon the third entity – SPACE. We all are familiar with the four directions East, West, North and South. They are based on the position of Sun with respect to the earth and are thus called Thermal Directions and we perceive them as straight line directions. Similarly, with reference to North Pole, any point on the earth can be described with a longitude and latitude. Interestingly, both these directions are curved. But most of the times we neglect one very important aspect of directions – definition of zero (reference) co-ordinates. Sense of direction, therefore, emerges from the very basic presumption of zero location. Delhi is to our east if we are at London and to our west if we are at Tokyo. So, in broader perspective of Universe, Jain *Aagams* enumerate seven ways to describe directions with reference to the centre of the *Lok* called '*ruchak pradesha*'. *Ruchak pradesha*, an eight point centre, is defined as the zero reference co-ordinates in the Jain description of directions. The Acharang Ninukti further describes seven epithets of each direction – Name (*Naam*), Positioning (*Sthapana*), Contents (*Dravya*), Area (*Kshetra*), Thermal Properties (*Taap*), Intelligence (*Pragyapak*), and Quality (*Bhava*).

1. Ancient Beliefs

An in-depth description is found in various ancient contemporary doctrines regarding space and directions. Two main non-Jain concepts are –

i. Space and directions are two separate and independent entities.

ii. Nyay & Vaishashik literature attribute sound as one the qualities of space and use directions only to define the positioning of the objects.

Jain philosophy rules out both concepts. Distinguishing space from directions, Mahapragya has written that –

"Space is an independent real entity whereas; directions are imaginary appendices of the space. Space is infinitely spread encompassing *lok-alok*. It neither has a beginning nor an end. It is formless and omnipresent. The positioning of an object in the space needs directions. These directions are *Mahadisha, Vidisha, Anudisha, Anyadisha, Urdhvadisha, Aadhodisha* and *Tiryakdisha.*"

Discarding the second opinion Mahapragya comments that sound needs matter to originate and propagate, whereas the space is formless and boundless. Therefore, sound, an octon, can never be an attribute or quality of the space which is formless. Space, which itself is considered afloat, accommodates all the six mattereals in it.

2. Scientific History

The view point of western philosophers with regard to the attributes of space had always been divergent from the Jain philosophy. Plato believed that there was nothing like independent or floating space, but it is associated with the physical objects only.

Einstein's general theory of relativity attached time with the space as a fourth dimension. This had made the entire studies of space and directions all the more interesting and challenging. We shall therefore, endeavour to explain the contents of Jain scripture in the light of modern scientific discoveries.

3. Curved Directions

In *Bhagwati* Sutra, the directions are said to be curved having a shape resembling a *mrudang* (an oval shaped or egg-shaped musical instrument). It states that **the co-ordinates of space may follow straight lines, but directions are curved** as their trajectory is a sum total of seven attributes including the area, quality and contents etc. Scientists today have almost concluded that the excessive gravity results in the curved space-time to accommodate very high density matter in a very small volume of space. Some such examples are –

1. Black-holes manifest extremely high gravitation due to their high matter density. So much so that even the light cannot escape from them.

2. All the stars have a strong gravitational pull that the light rays passing near them get curved.

3. At the moment of big-bang, space-time was curved to such an extent that infinite mass was contained in literally miniscule volume.

According to the physicist Hawking, when we try to visualise four-dimensional object in three-dimensions, or three-dimensional in two, or two-dimensional in one dimension, objects appear to be curved. This has made scientists enthusiastic to find a possibility to device a method in which the hidden curved dimension is revealed which will shrink our distances from

stars and journey towards them will then be possible. In the universe of flat space-time, the nearest star is around 4.2 light-years away. Until this distance is curved up, any possibility to receive information from them is quite remote. Scientists are also working on another possibility of 'warm-holes'. These warm holes are the ones which add another dimension to any spatial arrangement. For instance, if a hole exits between North and South poles, we need not travel the earth's curvature; instead, we travel diagonally, a substantially low distance. It is all about finding such hidden directions which are curved up in the space-time universe.

In this context, the description of directions available in Jain literature is full of immense possibilities and scholars can base their research on this subject. According to Jain philosophy, a 'unit' space can accommodate infinite '*anant pradeshi pudgals (vyavaharic parmanu)*'. This can be understood only with the help of curled up directions which are capable of containing unlimited mass.

4. Agamic Description of Directions

In *Acharang* Sutra, a very interesting episode of re-birth enumerates various directions –

I have come from *Purvadisha* (East)

OR from *Dakshindisha* (South)

OR from *Pashchimdisha* (West)

OR from *Uttardisha* (North)

OR from *Urdhvadisha* (upwards)

OR from *Aadhodisha* (downwards)

OR from *Anyadisha* (Other direction)

OR from *Anudisha* (Perpendicular direction)

Eight directions find mention in this event. While the six directions are well known, significance of other two needs investigation. Before this is dealt with any further, the details excavated by Mahapragya from the ancient Agamas are worth mentioning. All directions including the vertical perpendicular direction originate in the *Triyak-lok*. These directions initialise from the central *ruchak-pradesh* comprised of eight-points arranged in the form of a cube. According to the data available, author has a geometrical basis to presume this cube as all its sides equal to 800 *yojans*. From every corner of this cube, there

is incremental pattern in the multiples of two. This blueprint extends in the entire horizontal plane. This model, as depicted below, seems to be very much analogous to the magnetic field of lines emanating from a magnet. It seems that the contours of this pattern extend in the horizontal plane only. These directions are restricted in upward and downward directions as these areas lie outside the *Triyak-lok*. From the magnetic lines of forces it is clearly manifested that if we join the points of equal intensity or equal *Bhaav* (quality), we obtain a vertical line parallel to the side of the central cube. This, logically, must be *Anudisha* which follows the path of equal strength in the vertical plane.

In *Acharang-Niryukti*, directions are discussed in greater details and we find mention of four *Vidishas*, which are not curved but are assigned a straight line shape. These four *Vidishas* are like line segments without the incremental growth pattern.

Following picture about the description of directions thus emerges –

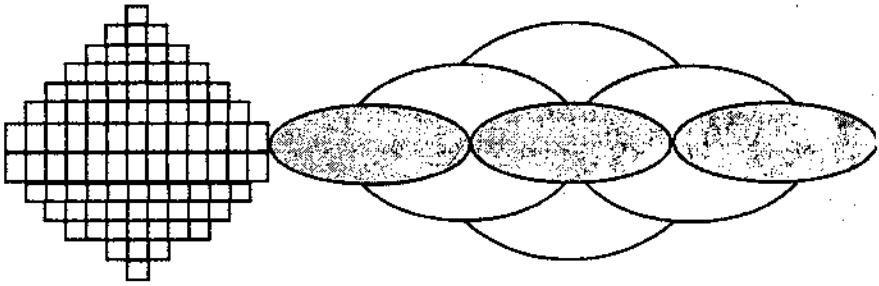
(i) Four *Mahadisha*, namely North, East, South and West originate from the eight-point centre in the horizontal plane. Together, they represent two co-ordinates in the horizontal plane.

(ii) *Anudisha*, the vertical dimension, adds the third co-ordinate to complete the three-dimensional picture of the *Triyak-lok*.

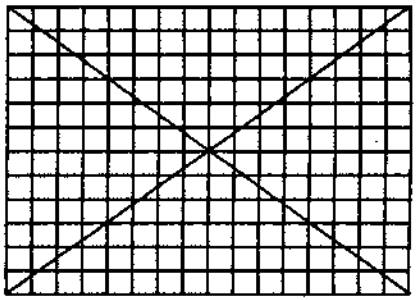
(iii) As the central area is not a singular point, but is an eight-point cube, the four diagonals inside this cube may be considered as four *Vidishas* as described in the Agamas.

So far we have discussed the structure of directions in the *Triyak-lok* only. But, *Bhagwati* sutra states that the directions travel through the universe and run beyond it into the *alok* (void) as well. This raises an enigmatic question as to the utility of directions in the boundless void outside the cosmos? However, in the view of the author, it has been done with a purpose. If we look at the construction of the universe, we find it to be upright with a large base in the bottom. This preferred position can be justified only if the observer is situated outside the *lok* at some particular zero co-ordinate location.

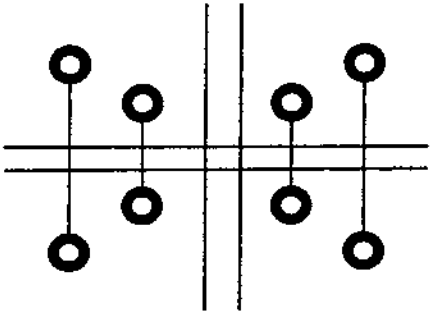
This highly specialised description which was made available thousands of years back establishes that the Jain philosophy developed independently. Though a vivid reader may come across several trivial questions, a thorough, in-depth study is essential for clear solutions. Readers may find additional information on directions in the following chapter titled as '*Kaal*'.



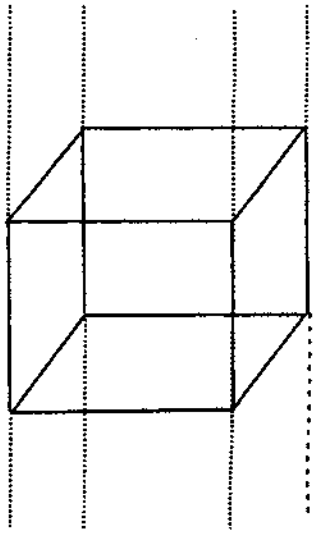
मृदंगाकार दिशाएं



विदिशा



आठ रुचक प्रदेश



घन आकार

KAAL (TIME)

In Jain metaphysical theories of *kaal,* two hypotheses are prevalent –

1. In ***Digamber*** thought, time is considered an independent and separate entity.
   a. Time is atomic.
   b. Time-atom is associated with every co-ordinate of space.
   c. Time is uni-dimensional unlike space which is three-dimensional.

2. In ***Shwetamber*** school of thought, time is just an aspect or epithet of *jiva-ajiva* entities.
   a. 'Time' starts every time a change takes place. Any happening or event, as and when it takes place, does not happen with prior space-time calculations, but an observer needs space-time dimensions to describe it.
   b. Imagine a situation where a stone is lying on a rock. There is no movement and everything is static. For an observer there is nothing to describe. In other words, there is no need of time. But, the moment stone moves, due to any reason, time starts. Now, the observer need the time-moment of movement (present), the time-duration of rest before movement (past) and the time-prediction of movement to remain continued (future). The moment of change thus becomes the reference of time measurement. This reference is 'present', and can be described fully along with past and future.

Mahapragya has harmonised both the concepts. According to him, both the statements are complementary to each other and not contradicting. With the help of *Anekant* view-point, he states that since *time* has duration, quantization, priority and posteriori – *Digamber* view holds, but since *time* acts only upon an entity undergoing change - *Shwetamber* view holds. He further states that both schools of thought agree that the *time* is not spatially extended substance (*astikaaya*).

Outlook of Science

The turning point in the perception of *time* was Einstein's special theory of relativity which later developed into general theory of relativity.

Before -

Time was considered as absolute and completely independent of space. For

example, a train running at 60 km/hr with respect to a stationary observer will appear to be running at 40km/hr to an observer moving at 20km/hr in same direction and at 80km/hr to an observer moving at 20km/hr in opposite direction. Similarly, it was believed that the speed of light (by means of which we observe) will have different measures for observers moving at different speeds in different directions.

After -

Speed of light is considered absolute now, which means speed of light will be measured to be the same ($3x10^8$ metre/second) irrespective of speeds and directions of different observers. This was proved by Michelson-Morley. This singular observation changed the concept of time once and for all – from being absolute to being relative. Science has put a limit to the speed of any object as less than or equal to that of speed of light. According to Einstein's equation of $E=mc^2$ only nearly massless particles can attain speed of light with negligible energy. Even slightest mass in the particle will require enormous energy to move at the speed of light because the value of 'c' is very high ($3x10^8$ metre/second).

According to Einstein, space and time together create a static screen or frame. This means that any event can be described in terms of three space and one time co-ordinate. When such a four co-ordinate description is given, the inherent to it is a zero position with reference to which the co-ordinates are measured. In case of time, since the observer constantly adjusts the zero to the 'Present', two directions of past and future are created. This is similar to having positive and negative x, y and z axes. Omniscience is all about knowing the absolute zero co-ordinates of time and space, the great theoretical physicist Professor Hawking calls it 'Singularity'. Mahapragya states that we have divided time in three parts or periods - past, present and future but time is indivisible or eternal if perceived from absolute zero position. All these three great personalities, while describing the ultimate knowledge (Keval Gyan), agree to the fact that **time can be accessed both ways provided the 'speed of perception' breaks the barrier of speed of light.**

Keval Gyan -

Omniscience is a well accepted Jain doctrine. Omniscient spirit is believed to possess infinite, complete and pure knowledge. The knowledge of *Keval Gyani* transcends all barriers of time, space, matter and energy. His knowledge is spiritual and not sensory. *Arhats* know entire *lok* and *Alok*, i.e. the universe, mattereals (*dravya*) and all their properties.

A perplexing question, therefore, always arises. How is it that an

***Arhat*, a human being, knows the entirety as this involves knowing past, present and future simultaneously?**

Great Jain saint **Mahapragya** has effortlessly resolved this dilemma. According to him, *Arhat* does not access the happenings sequentially as we do. While the speed of light is our limit of perception, HE has the capacity to deploy his perceptive *sukshma-pudgals* (mass-less micro particles like dions and quadons) to captures the entire sequence with infinite speed. **Period of capture reduces to zero so that the time elapsed cannot be quantified and entire happening collapses into a zero-period frame.** This is supported by modern scientific and mathematical advancements also.

We find everything in pairs – *lok & Alok*, positive & negative, matter & anti-matter, so does zero and infinity – they too, form an inseparable pair. Try adding miniscule to infinity we get zero or try subtracting something from zero, we get infinity. The tangible world exists between these two extremes. It is much significant that any unit when tends to become infinite another unit associated with it spontaneously becomes zero.

Mathematically, any arithmetic digit, if divided by zero, the result obtained is infinite. For example, $x/o = \infty$.

Stating same thing in terms of physics, if mass attains infinite density, the space occupied reduces to zero. Similarly,

Time = distance / speed

When speed $\rightarrow \infty$, time$\rightarrow 0$, irrespective of distance involved. Here lies the entire explanation of the phenomenon of omniscience. In Jain philosophy, the distance is synonymous to the knowledge. In case of nirvana, when speed = ∞ and time = 0, applying above formula,

Knowledge = infinite speed x zero time

Interestingly, the resultant outcome of this equation is indefinite and could be either ∞ or 0. While the first result of ∞ stands for an *Arhat*, the second outcome of 0 exemplifies *moksha* or emancipation of the spirit. A simple analogy explains it better – take a circle, and imagine its diameter increasing till it becomes infinite. It remains a circle till its diameter is just short of infinity, after which, at infinity, it is no more a circle, but a straight line with infinite extent – state of *Arhat*. Conversely, reduce the diameter, till it becomes zero. Circle may become a point with infinitesimally small diameter, but when diameter actually becomes zero, strangely, everything disappears – *moksha*.

This also convincingly explains that how *Arhats* possess the entire knowledge of past, present and future.

Mahapragya proclaims that *Keval-Gyanis* with their infinite extent of space and infinite speed, acquire the mechanism to convert the seemingly moving time into a static frame. For HIM therefore, time is only 'present' in which both 'past' and 'future' merge. This fusion of various divisions of time, actually results in the entire collapse of time - what remains is just 'the happening'. This definition of Mahapragya for one of the important terms - infinite knowledge of Jain literature is so marvellous that it reflects his genius.

Lord Mahavira, while propounding the Jain philosophy had experienced this possibility. The soul can achieve infinite speed if void of all attached karmas which limit the speed. Under such a unique and singular condition, time becomes zero. It can be easily understood by way an example-

Example:

1. We all know that the light rays take approximately seven minutes to reach the earth from the sun. This means that what we presently see on earth is actually seven minute old past of the sun.

2. Imagine an observer (*Keval Gyani*) with a capacity to attain infinite speed, by virtue of which HE can be present at both the places (earth and sun) simultaneously.

3. At any given moment, while HE is observing a ray of light 'presently' emanating from the sun, HE is also observing the seven minute hence 'future' of the earth. Similarly, what HE is observing as the light ray 'presently' on the earth was actually the seven minute old 'past' of the sun.

4. Again, imagine HIS infinite speed and HIS presence at the sun's centre. HE is therefore present at all the three places (earth, sun and centre of the sun) simultaneously.

5. At any moment let us presume that the stock of gases is exhausted and fission/fusion stops at the sun's centre. This 'present' of the sun's centre will become the future of sun's surface. So, HE knows the dark 'future' of sun's surface by knowing the 'present' of sun's centre. Extrapolating, by knowing 'present' of sun's surface HE knows the future of earth and past of sun's centre.

6. Similarly, imagine HIS presence in the entire universe at any given single moment of time. Since Present of one is past of something and future of something else, HE is said to know all – the present, the past and the future.

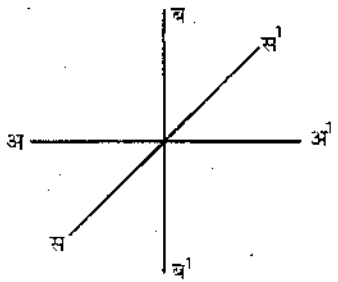
7. **Therefore, the omnipresence (infinite speed of perception) of a *Keval Gyani* is the reason for HIS omniscience (infinite knowledge).**

Unit of Time –

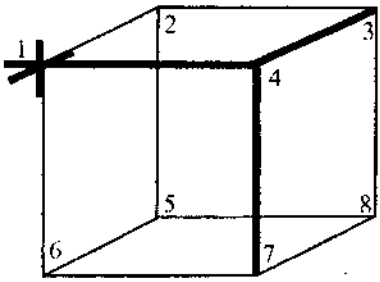
The smallest unit of time as available in Jain literature is *'Ek Samay'*, which is further indivisible. This unit is so small that innumerable *Samay* are said to elapse in a blink. Next practical unit of time is called *Avalika.* What is the significance of *Samay* and *Avalika?*

We have our time measurement in terms of earth's cycle around sun as 24 hours. Smaller units are called minutes and seconds. In modern science, time is now defined in terms of speed of light.

Mathematically models created by science can convert any happening of past in terms of present. Those who believe the relativity of time and space, have only perennial undivided time. Professor Hawking proposes that the real time moves only in forward direction but the imaginary time, which is non-directional, can move in backward direction. Mathematically, in imaginary time, any point of time in forward direction may be reversed in backward direction. Theoretically, any event of past can be known in present. Hence, the modern science supports the classic concept of Jains' infinite knowledge.



तीन आयाम (Three dimension)



घन (Cube)

MATTER (PUDGAL)

According to Mahapragya, word *'Pudgal'*, as found in Jain literature is loosely equivalent to the scientific term 'matter'. It has two parts *pud* and *gala*. The first part *pud* means 'to combine' and second part *gala* means 'to dissociate'. So the etymological meaning of *pudgala* is that mattereal which undergoes modifications by combination and dissociation. The definition is significant because these processes of combination and dissociation do not occur in the other five mattereals.

Succinctly, *Pudgal* means tangible entity having four qualities of touch, taste, hue (colour) and odour. These qualities provide shape to a *Pudgal*. *Pudgal* can be divided to achieve a *param-anu* which is further indivisible. *Pudgal* in its largest form is called *Achita Mahaskandh* – an omnipresent inanimate entity. However, such *Mahaskandh* manifests itself in the rare of the rarest circumstances and that too for a few moments. As this event is singular to the Jains, it needs elaboration.

1. Inanimate *Mahaskandh*

Inanimate *Mahaskandh* is a form of Pudgal which spreads throughout the universe. This has been described in the process of *kevali-samudghat*, a phenomenon exclusively credited to the Jains. *Keval-samudghat* happens only to those liberating souls who are left with little life span and the period required for emancipation of karmic matter is relatively more. In such singularly abnormal cases following sequence of events takes place –

1. The soul expands in the entire universe in such a way that each *pradesh* (smallest unit) of soul penetrates in the each *pradesh* of Universal space.

2. Simultaneously, the existing karmic *pudgals* also inflate and get dissociated from the soul permanently.

3. Unlike other religions where it is said that the liberated soul amalgamates with God, Jains believe that the soul squeezes back to his normal size and re-enters the body leaving behind the network karmic *pudgals* in the universe as a snake sheds its slough. This left behind network of karmic *pudgals* is called inanimate *Mahaskandh*.

4. The next moment, the liberated soul migrates to the designated abode of *Siddha*.

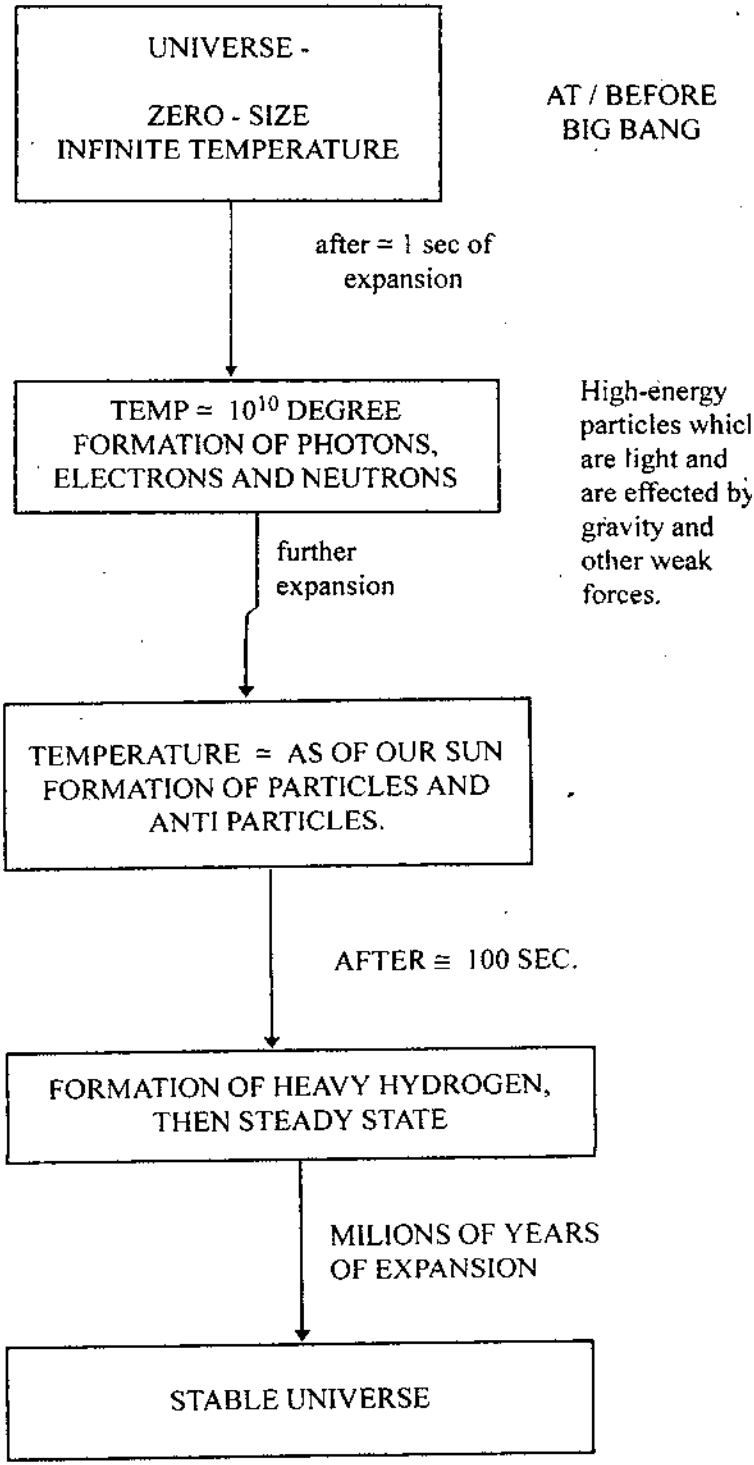
It is the ingenuity of Jainism that it assigns equal capabilities of expansion to both the vigorous soul as well as the inanimate matter. It also accepts the existence of infinite number of individual liberated souls instead of all souls integrating with ONE *Paramatma*. The physical process of *Kevali-Samundghat*, as described by Mahapragya is narrated in the chapter of 'motion' in this book. Thus from the above description it is apparent that the *Mahaskandh* formation is a 'happening' during the *Kevali-Samundghat*. In scientific terms, it may be called 'the singularity'.

1.1. Singularity

The theory of Big-Bang is prevalent in the scientific world to explain the formation of universe. In it, scientific term – singularity - has striking similarity with the process of Kevali-Samundghat. Amazing conditions of zero volume, infinite temperature and density are believed to exist prior to the universe formation. In the initial moments of Big Bang, the temperature is said to be lowered to 10^{10} °C within a fraction of a second, and in next few seconds the particles and antiparticles formed to give shape to the universe. According to Einstein, Big-Bang and Big Crunch, both are singularities where no laws of physical sciences are applicable. He has called this phenomenon as a **singularity** of space-time.

There seems to be a similarity between the process of *Kevali-Samudghat* and the conditions of creation of universe in that both the events are so rapid that a few laws of physical sciences are not applicable to them. Therefore, it appears to be correct to accept the events of *Kevali-Samudghat* as singularity in which a soul expands in the entire universe in the smallest possible time. The Big Bang theory also propounds that in a few seconds a mammoth universe takes form from near zero volume. However, Einstein and Jains differ in their respective theories of singularities. While Einstein proclaimed that no laws of physics are applicable during these unique moments, Jains believe that all the laws remain intact and effective except that the speed barrier of light is broken. Jain literature mentions that the singularity takes place due to infinite speed (modern science rules out any object acquiring speeds greater than the speed of light which is 3×10^8 m/sec.) with which the soul travels resulting in zero time spent in covering vast universal distances. This reasoning is entirely based on laws of physics and mathematics where the inverse relation of zero and infinite is well recognised.

Having got acquainted with the enormous form of pudgal, we shall now discuss the character of *pudgals* in their finest form of *param-anu*.



2. Atomic Theory

Mahapragya has put the atomic theory in historical perspective. Indian Philosopher Kannad and Western Philosopher Democritus have been widely considered as the pioneers of particle theory. Democritus represented the era of 460-374BC. The evolution of Kannad's '*Vaishashik* Sutra' is considered to be around 1st century AD. Whereas, the period of Lord Mahavira is 599-527BC. Mahavira's Atomic theory precedes those of Kannad's and Democritus', but the historians of the philosophy have ignored this fact. The reason is neither the bias nor the discrimination; it is perhaps the unavailability of Jain literature and lack of its serious study. Both Jain philosophy and *Vaishashik* philosophy agree to the fact that the *param-anu* is indivisible. But they disagree about the adjectival attributes of the *param-anu.* In Jain philosophy, all *param-anu* are identical as far as their physical form is concerned. But their classification is possible on the basis of various attributes (touch, taste, hue and odour) they possess. Since the extent of these attributes may vary from one unit to infinite units, Jains believe that there are infinite such permutations and combinations possible. It must be observed that the Atomic theory is just a part of whole theory of *pudgals*.

2.1. Sparsh (Touches) of Pudgal

Classification of Pudgals, as available in Jain scriptures, is very intricate. **The first and foremost classification is in terms of the complexity of the composition**. Accordingly, the available classification is –

i. *Param-anu* or **Dion** – As stated earlier, it is the smallest part of a *pudgal* which is further indivisible. These dions can possess two *touches* (*sparsh*) out of the basic four; positive-negative (*Snigdh-Ruksha*) and hot-cold (*Ushna-Sheit*). Author has carefully christened them as 'dion' by their virtue of having **two** *touches*. Though these dions could be of infinite varieties depending upon the qualities they possess, however, they can be sub-categorised in four broad types depending on which two touches they inherit out of the four available –

- Type1 – combination of positive & hot
- Type2 – combination of positive & cold
- Type3 – combination of negative & hot
- Type4 – combination of negative & cold

It must be noted here that there is a restriction on having both the *touches* of same pair. Another important observation is that all the four broad categories mentioned above have three other attributes, namely, taste, hue and odour. Infinite varieties of dions stem out of the fact that the quantity of the attributes in them may range from one unit to infinite units.

ii. *Bahu-Pradeshi Skandh* or **Quadons** – These *pudgals* are one step higher in the hierarchy. Two or more dions combine to form 'multi-touch clusters' typically named as *Bahu-Pradeshi Skandh* in the Jain literatures. These clusters, now, can possess all the four touches thus are christened as quadons. These quadons, since are made up of multiple dions, have all the four touches, namely, positive-negative and hot-cold. Quadons could comprise a minimum of two up to a maximum of infinite dions. When there are infinite dions joining together, it is known as '*Anant-Pradeshi Skandh*'. These quadons with infinite dions again come together to constitute an entity which is the first step of migration from micro towards macro world.

iii. *Anant-Anant-Pradeshi Skandh* or **Octons** – From this state onwards, the state of *pudgal* is such that it possesses eight touches – four primary ones, positive-negative and hot-cold, and four secondary touches namely, light-heavy and soft-hard. Out of the four secondary touches, the former two are responsible for the constitution of **mass of the octons**. It, thus, turns out that the **Jains do not consider mass as the primary property of a *pudgal***, but it manifests only after the formation of octons from the relatively massless quadons and dions.

2.2. Mass of Pudgals

This brings us to the **second method of classification applicable to the *pudgals* based on mass–**

i. ***Sukshma* (Micro)** – As far as dions and quadons are concerned, they do not have light-heavy attributes, thus are mass-less. They are so subtle that they do not obey certain principles of physics. One important example is that they are capable of attaining infinite speeds far beyond the physical limit of speed of light.

After treating mass as essential quality of matter, even science is convinced that certain facts can be explained only if massless particles are treated as

realities. Scientists are already discussing some such particles like photons, gravitons and gluons. Once the scientists are able to work out the entire set of physical laws applicable to such mass-less particles, it will revolutionise the way we understand physics. Hopefully, many enigmatic questions will be answered then.

ii. ***Badar* (Macro)** – When the *pudgals* achieve their third state of octons, they start manifesting mass. From this stage onwards, they come in the realm of human perceptions and predictions. Octons are, therefore, referred to as *Vyavaharic parmanu* also. In this state, they become comparable to the atoms as known to the modern science.

2.3. Pudgals and Qualities of Matter

The third classification of *pudgals* is on the basis of the quality they impart to other *pudgals* to which they are attached. It is a very interesting Jain doctrine that the qualities of matter like Big-Small, Micro-Macro, Light-Heavy, Long-Short, Integrated-Fragmented, Radiant-Dark, Hot-Cold etc are nothing but the types of *pudgals* only. Besides, these *pudgals* may vary in shape also. To consider all substances and all properties as *pudgals*, indicates the deep insight of Jain philosophical knowledge.

2.4. Pudgals and Association with Soul

A **fourth classification is based on the various groups of octons which remain attached to the *jiva* (soul).** In Jain Philosophy, there're eight sets of quadons and octons which are related to the bio –

i. Set of Octons forming mortal body (*Audarika Vargana*)

ii. Set of Octons forming transformational body (*Vaikriya Vargana*)

iii. Set of Octons forming projectile body (*Aharaka Vargana*)

iv. Set of Octons & Quadons forming respiration (*Swasoswas Vargana*)

v. Set of Quadons forming thought (*Vachna Vargana*)

vi. Set of Quadons forming Mind (*Mana Vargana*)

vii. Set of Quadons forming Radiance (*Taijasa Vargana*)

viii. Set of Quadons forming Karmic body (*Karmic Vargana*)

In Jain philosophy the relation of *jiva* i.e. soul and substance has been elaborately discussed. Whereas, in *Vaishashik* philosophy, indivisible *paramanu* is classified in four types only, viz.

- Earthy
- Aquatic
- Irradiating
- Aerial

This difference in classifications has given rise to Atomic Theory which is unique to the Jain school of thought.

3. Qualities of Pudgals and Sensory Perception

As is commonly known, the acquisition of information by the humans is sharply departmentalised. All the five sensory organs perform only specified tasks which are seldom interchangeable. Eyes have limits of distance and can respond to frequencies in the visible spectrum only. Ears are tuned to react to the audible frequencies between 20 to 20,000 Hertz only. They are deaf to all the under-tones and over-tones. Similarly our somatic sensation consists of the various sensory receptors that trigger the experiences of touch like, pressure, temperature, pain (including itch and tickle), and the sensations of muscle movement and joint position including posture, movement, and facial expression (collectively called proprioception). Tongue too responds to only five basic tastes - bitter, salty, sour, sweet, and savoury. Through nose we perceive odours by the sense of olfaction. Odours are also called smells, which can refer to both pleasant and unpleasant odours like, fragrance, scent or aroma, stench and stink.

Sensing of light and sound is based on vibrations at different frequencies, whereas taste and smell are chemical processes. The touch is a very complex feeling of our skin which is the largest organ of our body. All these look very specialised processes but strangely has one basic process in common.

Scientists today have found a startling fact. All the sensory organs are nothing but **transducers which convert the stimulii into electrical impulses**. These electrical signals travel up to the brain through an intricate mechanism of neurons and nerves where they are deciphered by the mind. This opens up interesting possibilities. In one experiment, doctors sent simulated electrical impulses directly to the brain through elctrodes fitted on the skull. The subject felt pain and ecstacy as the signals were manipulated.

3.1. Entire body an Integrated Sensory Organ (*Karan*)

Ancient Jain Acharyas have mentioned a unique phenomenon – *Sabhinnastrotolabdhi* – where the bio's entire body can be deployed as an integrated sensory organ. A bio, having attained such a maverick capability can see and taste from skin. The division of five senses within our organs collapses and it is said that the body as a whole becomes '***Karan***'. Can such a possibility exist? Can it be explained scientifically?

For sake of understanding this phenomenon, let us analyse the process of listening. The sound waves are received by the entire body including our ears. Ears have a specialised membrane which acts as a transducer and converts sound frequencies into electrical signal and send them to the brain. Similar action takes place in the entire body as the neurons and nerves are present in the entire body. The only difference is that the signal-to-noise ratio (intensity) of impulses is high within the ears, so brain captures those signals faster and better. For a deaf, if such a high intensity signal is absent, mind can be trained to filter the weak signals received from the skin and bones and can still listen to the sound.

Extending the argument, we can say that the light and odour encounter our entire body and not just eyes or nose. The signals are generated in the entire body but have high concentration in the eyes and nose respectively. However, if high intensity signals from the specified organs are absent, mind itself can amplify the weak signals available from the entire body. In a recent widely reported incident, a woman was able to recognise various colours simply by touching even when her eyes were blind-folded.

So, if the entire body can be trained to act as an antenna and the mind can be taught to amplify the signals captured by that antenna, *Sabhinnastrotolabdhi* can be attained.

4. Pudgal and Time-state

We know that the basic properties of pudgals are association and dissociation. But how fast or slow it happens or why it happens is a mystery. The fastest it can associate or dissociate is within a minimum period of one moment and in the slowest mode it can consume a maximum of infinite time. According to this Agamic statement, Mahapragya believes that the speech-pudgals of Lord Mahavira can be safely available because the sound waves are material and can remain in the unchanged form for an infinite time. Scientists are also busy looking for those apparatus with which those words assimilated in the space through which ancient music and sounds can be captured and recreated.

ATMA-TATVA (THE CONCEPT OF SOUL)

All Indian philosophies have one common concept – the belief in existence of pristine soul. They have cited several direct and indirect proofs to establish this. Though it is said to be beyond sensory perception, its discussions are so deep and wide ranging that the concept of soul has taken a form of a doctrine. So is true for Jain philosophy, which starts with the existence of a bonded soul and ends up with its emancipation. Thus the concept of existence of soul is central to the Jain thoughts. 'I *am* and I am separate from the body' – is the axiom acknowledged by the Jains. This concept has, in turn, given rise to three interdependent doctrines of *Karmavad, Lokvad* and *Kriyavad.*

After the years of indulgence with the Jain and other Indian philosophies, Mahapragya states, "Do not doubt the existence of soul, as it is amorphous and is beyond the perception of even the most refined human sensory organ." In this context, Mahapragya has quoted the observations of Sir Oliver Laws, who was the member of the Council for Investigation of Soul and Supernatural, "It is not prudent to be over dependent on the physics and entirely ignore the metaphysics. Soul and conscience are not the qualities of a body rather they have their own manifestations. Even when entrapped or housed in a body, soul remains an independent entity. It survives even when the body perishes. It has therefore become imperative to find the rules governing the co-existence of a perennial soul and a transitory body."

Science has been able to establish direct cause and effect relationship involving various micro particles like electrons and various other invisible rays like gamma etc. Scientists are now looking for an evidence for the existence of soul by getting it photographed. But, Mahapragya cautions them in advance regarding the futility of this exercise because soul is so pure and subtle that it is formless and is not material. **Soul is not *pudgalic.*** However, he encourages the efforts of the scientists to obtain any direct or indirect confirmation of Karmic body which too is very subtle (like quadons) but is material in nature and remains associated with the soul.

Soul – An Eternal Enigma

A question is being perpetually asked by the rationalists and others, "That even if the presence of soul is accepted, **how and when** a formless soul moulded in a defined boundaries of a body?" As far as the first part of this question is concerned, as to **how** soul takes the shape of body, Mahapragya states that there exists an affinity between the quadons of Karma body and the soul. In

Agams, this property is named as '*a-guru-laghu*' or affinity. Both soul and the Karma-*pudgals* exhibit this virtue. Once this pair is formed, their affinities are neutralised and any further interaction is prevented. Thus, a soul once pair with a body is not free to associate with any other body. Even the water can be freed from its intermolecular forces to become formless. In fact, there exists no matter in this universe which cannot be freed from its intermolecular forces provided we can apply the requisite temperature and pressure. Soul, when entrapped in the body is like condensed water which takes shape according to the shape of the container. When the righteous efforts liberate the soul from the clutches of Karma, then only the true and genuine formlessness is manifested.

The second part of the question, as to when it got captured by or bonded with the Karma, is answered that its beginning is beginning-less. Since all fathers are sons of somebody, it is impossible to find who came first, father or son?

Philosophers are incessantly endeavouring to demonstrate the presence of soul. Since any direct evidence is ruled out - soul being beyond the realm of physics – indirect logical conclusions can be drawn at best.

1. Soul and Mind

a. **Scientific View** – In west, most scientists do not accept the presence of soul over and above that of mind. For them, the mind and conscience are just synonyms. Pavlov too supports that the memory is nothing but the activities of millions of cells of cerebrum. He says that the memory is just like a negative photographic film. As a negative can produce the positive photograph as and when processed and as many times processed, similarly the brain can recall the memories of past through the requisite excitation. Pavlov, thus, considers the entire process as truly physical and denies any existence of soul.

Philosophical View – Mahapragya has exhaustively commented on this scientific view-point. According to him, science is still unclear about the functioning of even brain so nothing can be expected regarding the conscience. Brain might be a mere vehicle of past impressions or a device to retain memory, but the presence of conscience cannot be ruled out of our lives. It is this force which makes the brain to think logically and to project the future. Unlike a photographic plate, brain's functioning is not limited by the boundaries of a frame. Based on the past memories and the inherent data available with the brain, it takes far reaching decisions.

c. **Conclusion** - Jain philosophy does not endorse the scientific statement that the physical brain itself is the soul. It is affirmative that the amorphous soul is separate and beyond the physical mind.

2. Soul and Senses

a. **Scientific View** – It is a standard practice in scientific fraternity to study the cause and effect relationship. They apply same theory for the investigation of presence of soul. A Russian scientist, Pavlov, surgically removed the brain tissues of a dog converting it to a comatose. Dog lost all its senses and could not recognise even its master or the favourite food. Pavlov concluded that the conscience is lost in the absence of physical brain.

b. **Philosophical View** – Mahapragya has pointed the fallacy of above argument. The main flaw in above argument was that in spite of brain's absence, the dog lived. It is enough to know that the conscience does not emanate from the brain. Brain is just one of many tools a body utilises to fulfil the assigned tasks. Various forms of life exist in this universe, like the plants etc., which possess the soul but do not have brain in its true sense. Their feelings of joy, pain, fear etc. are by virtue of the conscience and soul present in them.

c. **Conclusion** - Like mind and conscience, senses too are not the exact equivalent of the soul.

3. Soul and *Ahar-pragyapti*

It has now being established that our senses are the centres of energy. Our five senses have the largest concentration of magnetism exhibited by the body. If this magnetism can be evenly distributed throughout the body, we may achieve the transcendental knowledge, as in such an eventuality each body part will become conducive to all kinds of stimulations. Similarly, the mental activities are dependent on chemicals and electrical pulses. These chemicals are formed by our dietary intake. The quality of our meals decides our personality and mental status. This cycle of meals and mind is minutely understood in the spiritual realm of Jainism. Jainism has painstakingly tried to bring about this fact that though what we obviously see is the physical form having mind, intelligence, sense etc., but the soul should not be identified with them.

a. **Scientific View** – Scientists are incessantly trying to create life forms

in the laboratory. For this they are conducting various experiments to find those conditions in which it is possible to create a life-form.

- In one of the experiments, conducted by renowned scientist Lois Pasture, it was found that micro organisms do multiply in the presence of air and the availability of any food product.
- In another experiment, Miller simulated all the favourable environmental conditions like temperature, air, sun light and humidity and kept the proteins in this controlled environment as suggested by Dr. Yare. After continuous observation for seven days, he failed to achieve any live proteins.
- Scientists have also studied the food cycle of plants. They have found that the plants intake food from the soil. Though this food does not have life, by the action of chlorophyll this food is converted in live cells. How life is infused in a life-less matter is still unexplained at their end.

b. **Philosophical View** – Mahapragya does not acknowledge the findings of such experiments until the physical processes adopted by the scientists actually yield in a life-form purely through physical means. Jains disagree with the science view point of life-forms constituted of multiple live cells. In Jain's view, the soul is not a collection of countless cells. The process of acquiring a body by a soul is called birth. This event takes place only under very special circumstances and one such is *Ahar-Paryapti*. That is why the soul does not occupy just any readily available mature body, but it finds abode in a nascent body only. In Jain literature this typical term of *Ahar-Paryapti* means the first food which helps the soul in acquiring a body form.

4. Life in Plants

Jains have classified life-forms in two categories – itinerant and motionless. While the presence of life in moving being is obvious, it is present in those beings too which are apparently stationary. Such life-forms are of five types as described in Jain literature –

- *Prithvikaya* (Earthly)
- *Apkaya* (Waterly)
- *Tejaskaya* (Firely)
- *Vayukaya* (Airly)
- *Vanaspatikaya* (floral)

Of these five forms, the nearest to humans and animals are plants. All of them undergo the process of ageing; they have feelings and are vulnerable to diseases. The only difference is in their mobility. All these similarities are well accepted and proven by science. Here, both the Jain concept and science agree to a very large extent. They both postulate the consciousness in all living beings and plants except that their quanta of consciousness differ. Extrapolating on this concept, Jagdish Chandra Basu conducted some experiments on metals and grains. He started with the presumption that they too have consciousness but in a very low magnitude. He could establish that the metal atoms undergo fatigue when under pressure and it can be relieved by proper excitation. He found that the grain particles which are presumed to be life-less or dead, in fact, experience the euphoria and despair; they also have feelings of jubilation and misery. Finally, he proclaimed that the entire matter in this world have at least some degree of consciousness. Unfortunately, his research disappeared in oblivion due to his untimely death.

4.1. Other Experiments of Jagdish Chandra Basu

Though Indian philosophies have always been of the view that the plants possess consciousness, for scientific fraternity, the challenge was accepted by none other than an Indian scientist Jagdish Chandra Basu. He proved that the chloroplast present in the Protoplasm of plants gets excited when exposed to melody. Professor Vogel went a step ahead and recorded these internal vibrations on a graph. He also arrived at the same conclusion that the plants too have sensitivity. Floral beings are aware of changes in seasons, they too feel hunger and thirst, and they have their own share of joy and sorrow. Another such experiment conducted on tomatoes, revealed that these plants send electrical impulses when bitten by an insect. These impulses are similar to the ones produced in animal reflex nerves. All such experiments have proved beyond doubt that the floral form of life has the consciousness and thus have a soul.

5. Theory of Evolution, Genetics and Cloning

A few decades ago this world was impressed by an elegance and simplicity of Darwin's theory of evolution. This revolutionised the human thought process and around fifteen decades down the lane, the genetic engineering, cloning and birth of a new life in a laboratory are not fictions but hard realities.

5.1. Evolution

The main message of Darwin's theory promulgated in 1856 was that

only through the natural selection, organisms can develop to be more complex and efficient species. And we may say that it is the 'power' (strength and intelligence) controlling the process of natural selection. Darwin's theory was a potentially fatal blow to the 'Creationalism'.

Jainism also decries the theory of 'God created the universe'. Universe, as we have seen from Jain view point, is a total sum of six mattereals each governed by its own laws. Even in personal view of the author, an all-powerful and super intelligent God cannot create models which are all perishable and failures. All planets and stars are nothing but balls of fire, all animals and humans experience pain, suffering and death. So much of diseases, pollution, hatred, hunger and sadism cannot be a creation of a compassionate, powerful and intelligent God. Theoretically, any one who has all the knowledge to his credit will create a perfect model in one go – a model which is ever healthy and ever happy.

So, to some extent the theory of evolution is in consonance with the Jainism, particularly, the concept of karmic body accompanying a soul from one birth to another sounds like the postulate of Darwin's theory which states the gene flow from one generation to the next. Mahapragya has critically examined the evolutionary theory vis-à-vis Jain principles. According to him, the Darwin's theory is based on four main postulates –

1. Gene flow
2. Gene drift and adaptation
3. Maximum offspring
4. Survival of the fittest

Mahapragya partially agrees with these observations and considers them as incomplete as they are entirely based on the external and physical aspects. Quoting from the Jain principles, Mahapragya states that the species can evolve within their own class, but the transmutation is not possible. A cat may evolve to become a lion, a lizard too can become a crocodile down the generations, but the gene drift and survival of fittest cannot result in species evolving from one group to entirely different another group.

5.2. Heredity

Darwin's theory opened the floodgates for genetic engineering, which has today become an obsession with the scientists and medicos. Genetic

engineers have achieved several landmark successes since then. **Heredity** is the transfer of characteristics from parents to offsprings, either through their genes or through the social institution called inheritance. But this transfer is never perfect and the ecological environment also affects some traits of the next generation. Several cross breeds of plants and animals develop accidentally in the nature. These accidents actually turned into boon for genetic enthusiasts. They studied it carefully and devised a mechanism by which they could alter the seeds to obtain newer and better varieties of plants. In case of animals like dogs and cats, the process of artificial insemination allowed them to concentrate good quality chromosomes and then attain the fertilisation. What nature does as a slow process, the human brain and technologically advanced devices are doing at a very fast pace. Mahapragya accepts this as a reality but insists that the some traits may be improvised but never expect a human child to born out of lions or vice-versa.

5.3. Cloning

The third and final step so far is that of cloning. This is an amazing concept and is the hardest blow to the concept of soul (*atma-tatva*). Through this process, the genetic engineers are trying to demonstrate that the birth of a new life form is nothing but a chemical process. A set of chemicals when groomed in a controlled environment, can give rise to a new life. Scientists call it donor-clone instead of parents-offspring. A clone is an identical copy created intentionally. Human cloning is the creation of a genetically identical copy of an existing, or previously existing human, by growing **cloned** tissue from that individual. The term is generally used to refer to *artificial* human cloning; human clones in the form of identical twins are commonplace, their cloning occurs during the natural process of reproduction.

World has seen cloned mice, sheep, horse etc. so far. Of these, the most popular case was that of cloned sheep, Dolly. She reportedly lived a short life span of around six-seven years as she aged faster due to genetic abnormality. In her case, scientists prepared the genetic material in a laboratory using eggs from a donor sheep and then initiated the process of cell multiplication by electrical implulses. In the next step, the egg was implanted in the donor womb and the process of birth took place in the due course.

An important fact to be noticed here is that since the clone is produced from single donor, its hereditary variance as compared to the donor is little, yet

it is an independent individual having its own personality, adaptability, and mental capability.

♦ Advantages

The process of cloning has a by product in the form of farming human body organs in a laboratory. Renewing the body's organs would potentially increase the life expectancy of a human by 50 years. Cloning of extinct and endangered species is another possibility. Even a live Dianaussour can be a distant reality.

♦ Disadvantages

Human cloning is amongst the most controversial forms of this practice. There have been numerous demands for all progress in the human cloning field to be halted. One of the most ethically questionable problems with human cloning is farming of organs from clones. For example, many believe it to be unethical to use a human clone to save the life of another. In this scenario, the cloned human would be euthanized so that the vital organs could be harvested.

Various religious, social and political leaders are opposing this practice on serious ethical grounds. A group of medical scientists is also objecting on the grounds that the cloned individual may be biologically damaged, due to the inherent unreliability of its origin: researchers currently are unable to safely and reliably clone even non-human primates.

Conclusion

This brings us back to the fundamental meaning of soul (*atma-tatva*). Our entire discussion was bifurcated in two parts – **acquisition of body and presence of intelligent consciousness**. The process of birth may vary from plant to plant, fish to fish and animal to animal (including mammals), but every life form has one thing in common – the fundamental intelligence to self-sustain and perpetuate. This intelligence, as per the Jain belief, is soul.

SCIENTIFIC ASPECTS OF ANEKANTA

Truth is what we all aspire for. Truth is one of the five basic tenets of Jainism. Erudite Jain Acharyas of yesteryears, interestingly, found themselves in a serious predicament when it came to practice truth. They realised that there are infinite ways to describe even the simplest of the object or incidence. All 'descriptions' could be partial truths but not the whole.

Situation 1: Let us consider a coin. What is its whole truth? It has infinite radii, infinite points on its circumference, countless atoms, and so on. While we are seeing the head, the tail cannot be described and vice-versa. Even it is not pure in its material composition. **So, the Jain Acharyas cautioned their disciples that whatever is being described is only a partial truth pertaining to a relevant situation.**

Situation 2: Let us try to describe the height of a person. He may be taller or shorter than another. It necessarily means that the description of height cannot be completed until it is measured with respect to some standard reference. Again, in their zeal to follow the path of pure truth, Jain Acharyas found to their amazement that the truth not only changes but it turns topsy-turvy when the reference itself is changed. They, therefore, postulated that **the truth contained in all statements is subject to the space-time reference chosen.**

During the course of time, several theories emanated to explain the truth being either partial or relative. Some theories which find mention in ancient Jain literature are - *Syadwada, Naywad, Anuyogadwara, tribhangi, chaturbhangi, saptabhangi, nikshep*, etc. Finally, a consolidated theory was propounded and adopted by the Jains which is today popularly known and practiced as ***Anekanta.*** As we shall see later in the discussions, ***Anekanta*** turns out to be a principle which is also the basis of modern scientific **theory of Relativity**.

Postulates of *Anekanta*

1. Whole truth exists but can neither be perceived nor be expressed wholly.
2. As our perception, thought and expression are sequential in time and space, we can grasp and express only partial truths.
3. All descriptions of an object or situation are subject to the chosen reference. It is like a person in England says India is in east while another one in Tokyo says India is not in east but in west. **This fact gave rise to a piquant situation of 'either-or', popularly known as *Syadwada* in Jain parlance.**

4. Sequential time and space are due to our limited speed of perception. *Kewali*, on the other hand has infinite speed of spiritual perception resulting in the capture of the whole truth of the entire existence in zero time.

A very important and powerful corollary of *Anekanta* principle is that it leaves vast space for various view points to be true. **While one may be partially true, others too have equal, if not more, chance of being true.** It is like two persons standing on different radii of same circle and travelling towards centre. Both are treading the entirely different paths but arrive at the same destination. This all encompassing thought is the need of the hour in the present world scenario where one religion is up against another and one nation against the other.

Though *Anekanta* contained a universal principle, its popularity remained in oblivion. It was only after Einstein, the international community awarded the due credence to the Jains' line of thought. In one such international recognition, a German Professor Hermann Jacoby has written that the principle of *Anekanta* has opened the floodgates of understanding the 'truth'.

Contribution of Siddhasen Divakar

The comprehensive study to understand the 'truth of existence' has taken place only on the Indian soil. Three main thought streams were developed – Vedanta presumed substance indestructible, Buddhism treated substance as unstable and Jainism believed in eternal universe in which the substance can exist in infinite forms and shapes in the existence. As stated earlier, this concept was termed as *Anekanta*. According to the *Digambar* belief, the first reference to the *Syadvad* and *Sapthbhagi* is available in the '*Pravachan-Sar*' and '*Panchastikaya*', written by Acharya Kundkund in the first century. Repeat references are available in the '*Atma-Mimansa*' of Acharya SamantBhdra. A very comprehensive description of *Syadvad* is available in '*Nyayavtar*' written by Acharya Siddhasen Divakar.

Historically, the subject of *Anekanta* had remained a bit controversial. People would argue that if everything said is a partial truth then what is the guarantee of *Anekanta* being true? The answer is not simple, but not impossible too. To understand the essence of *Anekanta*, we need to elaborate this subject on three different planes–

1. Theoretical
2. Philosophical
3. Logical or Scientific

1. Theoretical Aspect

In Jain Agama '*Bhagwati* Sutra', substance can be described by combining its two aspects –

1. Physical/quantitative/constitutional part

2. Mode/*Paryaay* (quality) part

Acharya Siddhasen has written that both the parts play vital role in the description of truth. Elaborating further, Acharya Umaswati has written in the *Tatwarth* Sutra that the eternity of substance co-exists along with the cycles of creation and destruction. This tri-state – eternity, creation and destruction is the basis of *Anekanta*. This can be better understood with the help of a practical situation –

We have seen Gold being used in making ornaments. It can be given any desired shape. Making of an ornament involves three stages – destruction of old form, creation of new form, perpetuity of gold as a substance.

A very interesting conversation between Lord Mahavira and his disciple Gautam is self illustrating –

Gautam: Bhagwan! Is *Atma* (soul) ephemeral or immortal?

Mahavira: It is both. As a mattereal, it is immortal, eternal and perpetual, whereas, in view of its birth and rebirth, it is changing its form and is mortal.

In a similar conversation with Skandha Parivrajak, Lord Mahavira has described the *Lok* as finite as well as infinite. With reference to matter and extent, *Lok* is finite, but on time and activity scales it is infinite.

2. Philosophical Aspect

Mahapragya has explained the origin of *Anekanta* doctrine as contained in the Jain Agama. According to him, our knowledge is based on our senses and intelligence. The limitation of our perception results in the fragmented truth. Only transcendental knowledge can be whole. His comments are of great importance –

(i) Sensory perception is neither wholly true nor wholly false, it is relative to space-time.

Example – In a moving train, our eyes actually see platform moving,

while a person on the platform perceive train to be moving. The senses of our eyes and our organs are space-time relative and not absolute.

(ii) Intellectual knowledge is neither wholly true nor wholly false, it is relative.

Example - A person facing a hot furnace may feel duration of ten minutes to be long enough as two hours, while one watching an interesting stage play may feel the entire episode to be over in a wink. It is a relative mental and emotional perception.

Since both the sources (senses and mind) of human information are relative and not absolute, the truth of our statements and expressions is exhibited only to the extent of given reference of space and time. Mahapragya declares that **the absolute truth exists but cannot be expressed due to limitations of our senses, intelligence, speech and language.**

Jains, therefore, have extensively used a '*Chaturbhangi*' of Configuration (*Vastu-Bheda*), Position (*Ashray-Bheda*), Duration (*Kaal-Bheda*), and Mode (*Avastha-Bheda*) in their literature. Classifying with respect to the above four parameters, four probabilities may arise for any Substance or Situation –

a. Eternal or ephemeral

b. Ordinary or specific

c. True or false

d. Definable or indistinguishable

For its probabilistic approach, above four postulates came to be known as ***Syadwad***. At first reading, above four options sound quite confusing. Shankaracharya had commented to the extent that because of conflicting statements, the entire theory of *Syadwad* loses its authenticity. However, Dr. Radhakrishanan accepted that the wisdom of Jainism has most often been misconstrued by those who do not refer the original Jain literature but resort to the translated languages which often fail to comprehend the true spirit of the Jainism. He stressed that in order to make concepts of Jainism popular, an authentic English translation of ancient Jain literature is essential.

An example at this stage will make the readers comprehend the essence of *Syadwad*. Let us consider a room illuminated by the sun during the day, dimly lit during the evening and dark during the night. What is the truth behind 'illuminated', 'dimly lit', and 'dark'? What is absolute light or absolute darkness?

What do we call illumination – absence of darkness? Or, is absence of light darkness? Even the brightness of sun is different at its own surface and at the surface of earth! There are stars which are million times brighter than our sun! So, how do we define brightness? There are three possible conditions –

- **Brightness:** presence of light (*Aasti-bhava*) and absence of darkness (*Naasti-bhava*).
- **Darkness:** less of light (*Naasti-bhava*) and more of darkness (*Aasti-bhava*).
- **Quantum:** In all situations, quanta of light and darkness are indeterminate (A-*vaktavya*).

In view of the modern advancements in scientific concepts, a striking resemblance can be established between laws of physics and theory of Anekanta.

3. Scientific Aspect

Scientists, during their journey into the micro world, hit upon the unique properties of 'light'. Soon it was established that the **light represent a boundary condition** between the micro and the macro world (similar to a quadon being a link between massless dions and massive octons). Subsequently, Einstein proposed his theory of relativity which is entirely based on the physics of light. Paradoxically, Einstein declared in his **theory of relativity** that the speed of light is independent and **not relative** to the speed of observer. However, space and time will be observed differently by the observers moving at different speeds. This means that two observers, positioned differently will describe the same event differently. Both may be true to the extent of their individual observations, at the same time, they are false relative to each other. Now, readers can realise how close the theory of relativity is to the principle of *Syadwad*?

3.1. Light a Unique Substance

(For reasons of ease in understanding, author has treated all waves travelling at a speed of $3x10^8$ m/s as light)

- Light has the fastest speed known to us so far. No matter can travel faster than light.

As a particle approaches speed of light, three things happen –

- Its volume shrinks to zero.
- It's mass become infinity.
- Time is rendered void.

In other words only massless particles (!) can travel at the speed of light. This condition is defined by the following equation of Einstein –

$$m = \frac{M}{\sqrt{1 - \frac{v^2}{c^2}}}$$

- No law of physics remains valid at the speeds greater than that of light – mass, volume, time all will assume negative or imaginary values in such a case.
- Light comprises of massless 'packets (quanta)' of energy called photons. Some scientists also call them as 'massless particles' because, light is observed to travel like a wave, and also interact like a particle. This duality is called principle of uncertainty in scientific terminology.

Light is therefore a boundary between existence and nothingness. Light is the substance which carries and transact the whole information. But, light itself is uncertain in its behaviour! This observation of absolute nature of speed of light gave birth to the two great theories which are of immense importance to science as well as *anekant* aspect of philosophy –

i. special theory of relativity which was later extended to the general theory,

ii. principle of uncertainty.

3.2. Relativity

It all started with the Michelson-Morley experiment to determine the absolute speed of the Earth in the space. The experiment could not achieve what it actually envisaged but accidently concluded that the **speed of light is independent of the speed of the observer**. This means that two persons that follow the same light ray at different speeds will measure the same relative speed for the ray. In our day to day experience, if two vehicles are travelling at 60Kmph and 40Kmph respectively, they will measure their relative speeds as either 100Kmph or 20Kmph depending on wehther they are travelling parallel or opposite to each other. But, surprisingly the same is not true if they both measure the speed of light. They will obtain the same result!

Einstein postulated his special theory of relativity around this spectacular experimental finding. He proposed and proved that it could be

possible only if the length contracts or the time expands in the moving frame as compared to the stationary frame of reference. This is represented by two mathematical equations -

$$t = \frac{T}{\sqrt{1 - \frac{v^2}{c^2}}}$$

Here, t = time measured in moving frame of reference, or coordinated time

T= time measured in stationary frame of reference, or proper time

v = relative velocity of two frames of reference

c = velocity of light

Above equation represents **time –dialation** in moving frame.

Similarly, the **length contraction** can be represented as

$$x = X\sqrt{1 - \frac{v^2}{c^2}}$$

In both the equations, the same happening is observed but the measurements of time and length are not absolute. In fact the observations will be drastically different if the relative velocity approaches the speed of light. It is 'space-time' which is invariant for both the observers. **So relativity teaches us that don't take up to the fight if your results are not in sync with those of others – your frame of reference may be different!**

3.3. Principle of Uncertainty

The uncertainty principle is one of the milestones of quantum mechanics and was propounded by Werner Heisenberg in 1927. In quantum physics, the **Heisenberg uncertainty principle** or the *Heisenberg indeterminacy principle* states that when measuring conjugate quantities, increasing the accuracy of the measurement of one quantity increases the uncertainty of the simultaneous measurement of the other quantity. The most familiar of these pairs is the position and momentum.

Mathematically, if Δx is the uncertainty of the position measurements and Δp is the standard deviation of the momentum measurements, then

$$\Delta x \Delta p \geq \frac{\hbar}{2}$$

where, h is the reduced Planck's constant (Planck's constant divided by 2ρ).

Connected with the theory of relativity, a similar relation exists in space-time descriptions also:

$$\Delta E \Delta t \geq \frac{\hbar}{2}$$

As excited states have a short lifetime their energy uncertainty is substantial. This relation helps to explain the 'chaotic' behavior of the space-time, wherein very small time steps result in huge energy variations.

A fundamental consequence of the Heisenberg Uncertainty Principle is that no physical phenomena can be described as a 'classic point particle' or as a 'wave' but rather the **microphysical** situation is at best described in terms of **wave-particle duality**. The uncertainty principle, as initially considered by Heisenberg, is concerned with cases in which neither the wave nor the point particle descriptions are fully and exclusively appropriate. Such cases exist only in the *sukshma* matter and we can compare it with *syadwad*.

We recognise syadwad by its three distinct features of expression –

i. Aasti (to be/is)

ii. Nasti (not to be/is not)

iii. Avaktavya (Uncertain/probabilistic)

If we describe wave particle duality in terms of above postulates, three possibilities arise –

i. When a microphysical matter exhibits particle behaviour, wave properties are absent or obscured.

ii. Conversely, when it **'is'** wave, it **'is not'** particle. This duality is inherent and not induced. In fact, an EPR (Einstein, Podolsky, and Rosen) experiment in 1935, established that the uncertainty does not arise only while making measurements, but exists intrinsically. In Jain *Agamic* literature, referring to the indivisible *paramanu*

(dion) it is written that dions vibrate as well as remain stationary. Implying, they do not always behave in the same manner..

iii. **Avaktavya**, it is the third most important aspect of *syadwad*. This term envisages two different meanings for micro- and macro-physical entities. In case of former, it is unpredictability, uncertainty or probability, whereas, in case of latter, it is the partial descriptivism.

In context of macrophysical entities it is multi-faceted manifestation. For instance, an entity can be called 'table' if the shape is to be mentioned. It may be referred to as 'wood' if the material used is talked about. It may be called a part of tree, so and so forth. Each noun used denounces others.

In context of microphysical entities it is unpredictability of the entity under consideration. Here, the uncertainty creeps in due to the limited ability of an observer. For an *Arhat*, who is *keval-gyani*, word *Avaktavya* is meaningless as HIS observation is total and not inhibited. In scientific terms, motion-position, wave-particle, and energy-time can be measured with a certain proportion of inaccuracy only. In terms of mathematics, it is proportionality and in terms of statistics, it is probability.

Conclusion

The Jain principles of *Anekant* and *Syadwad* find semblance in the scientific theories of relativity and uncertainty. Acceptance of truth having multiple facets, partial perception of truth due to limitations of the observer, incomplete description of truth due to limitations of expression, and recognizing the equal possibility of different view points to be true sum up the attitude of a Jain *Anekantwadi*. This spontaneously drives a Jain away from extremism, radicalism, and fanaticism. An *Anekantwadi* approach is the need of the hour, as the world scenario is abound in discord, friction and conflict.

Agama and Science

Part-3

SECTION - 3

AGAM & SCIENCE

JAINISM & LAWS OF MOTION

Change is the only eternal truth known to us. Everything around us is in motion. Time, earth, sun, stars, galaxies on one hand and light, electrons, micro-organisms on the other, all are in a state of perennial motion. Interestingly, all motions, though seem to be entirely random, follow definite laws. These laws were discovered initially by Newton and later on refined by Einstein in the Special and General theory of Relativity. These laws brought forward the importance of Gravitational Force on the acceleration or deceleration of a moving body.

Jain *Agamic* literature, fascinatingly, contain several references to the properties of motion, calculations of speed and effects of Gravitation. Mahapragya has cited a very captivating illustration from the *Bhagwati* Sutra. This particular instance involves two arch rivals – 'Indra of descendant *lok* – Chamar' and 'Indra of ascendant *lok* – Shakra'.

An Anecdote

Chamar, the Indra of *Adhow-lok*, was always jealous of the affluence and riches of Shakra, the Indra of *Urdhva-lok*. Once, in his frustration, Chamar put in a lot of efforts and travelled all the way from *Adhow-lok* to *Urdhva-lok*. There he started abusing and ridiculing Shakra, who in turn, got angry and launched his powerful weapon, *Vajra*, to kill Chamar. No sooner Shakra threw his *Vajra* than he realised that Chamar did not possess enough capabilities and strength to reach to the *Urdhva-lok* on his own and must had sought the help of some virtuous deity. This sudden realisation made Shakra to run after the *Vajra* and retrieve it before it could cause any harm. A scenario was thus created in which the Chamar was running ahead for his life, followed by the *Vajra* acting as a guided missile and in succession was Shakra, desperate to catch hold of the *Vajra*. For Chamar to return to his abode in *Adhow-lok*, he had to pass through Triyak-Lok in between. As the story goes, Chamar realised that he could not escape the attack of *Vajra* and so instead of running towards *Adhow-lok* he turned to Lord Mahavira and fell on his feet seeking refuge. Lord Mahavira was sitting in a meditative posture in the *Triyak-Lok*. The story says that the Shakra was able to reach the *Vajra* and withdraw it just in the nick of time.

At first sight this story may elude to glorify Lord Mahavira, but, in fact, it reveals several interesting properties of motion and gravitation in the widespread universe said to be divided into three chambers – upper, middle and lower. This anecdote reveals an important scientific fact that the matter

and *jiva* cannot freely travel from one field of gravitation to another, to do so additional energy is required, as in the case of a space shuttle which needs a minimum speed of 11Km/sec to be able to escape earth's gravitation. There is an interesting mention in the Jain literatures that deities acquire special energy from an '*Uppat* Mountain' before being able to enter middle *lok* from their abode in upper *lok*.

Mahapragya has pointed out this episode to be of special interest as **it unravels a scientific mystery**. A comparative study of *Agamic* and scientific theories of motion is presented here.

Agamic Beliefs

Let us enumerate salient features of the drama in which three characters namely, Shakra - *Vajra* – Chamar had played lead roles –

♦ **Velocity Of Shakra & *Vajra***

As they both belonged to the upper (*Urdhva*) *lok*, their velocity initially was fast and accelerated. In middle (*Triyak*) *lok*, their velocity encountered resistance and was slow, while in the lower (*Adhow*) *lok* it was extremely retarded. Therefore, for Shakra in upper *Lok*—

Urdhva Gati > Triyak Gati > Adhow Gati

♦ **Velocity Of Chamar**

As he belonged to the lower (*Adhow*) *lok*, his velocity was slow and retarded in the beginning of the incidence. Later when he entered the middle (*Triyak*) *lok*, his velocity gained momentum, while in the lower (*Urdhva*) *lok*, from where he actually came, it was fast and accelerated. Therefore, for Chamar in lower *Lok*—

Adhow Gati > Triyak Gati > Urdhva Gati

Agam view suggests that the different forms of matter experience the gravitational field differently. Quantitative analysis, as available in Agams is tabulated here -

LOK / *GATI*	SHAKRA	VAJRA	CHAMAR
Upper (*Urdhva*)	24	12	8
Middle (*Triyak*)	18	10	16
Lower (*Adhow*)	12	8	24

Unit used for the comparison of velocities is 'GAVYUT'. It is distance covered in *Yojans* in the given time. Now it is easier to answer - why *Vajra* failed to attack Chamar before being recaptured by its owner, Shakra?

1. Chamar started off slow in the upper-*lok* while running for his life. After some time *Vajra* followed with accelerated speed and was, in turn, chased by the Shakra. But Chamar had advantage of time, as he was the first one to start.

2. As the three entered middle-*lok*, the main area of action, Chamar's speed got accelerated to almost double, while the other two lost their momentum by around 30 percent.

3. While Chamar took refuge to Lord Mahavira, *Vajra* travelled at the rate of 10 *gavyuts* and Shakra at 18 *gavyuts*, thus the latter was in a position to reach to the *Vajra* and to retrieve it before it could cause any damage.

According to Jain Cosmology, the universe is constituted of three geometrically distinct portions. These three parts, as discussed above, are upper, middle and lower. This terminology is intriguing, as it assumes a definite upright orientation of the universe. **This upright model is with respect to the geometry and the relative superiority of composition of the three areas.** This model has been discussed in all its three dimensions in the beginning of this section. Some relevant salient features are synopsised here -

1. Universe is constituted of three distinct parts which are not only dissimilar in geometrical shapes but are also uniquely different in their compositions.

2. Due to its high mass density and pyramidal shape, *Adhow lok* is said to be the base of the universe. Middle part is like an open ended cylinder. Upper section has a shape '*Mrudang*' which looks like two pyramids arranged back to back.

3. Seven earthly bodies are predominant in the lower *lok*, which contribute to its high matter density. The upper *lok* is largely having mass-less *Vakriya-Pudgals*. Middle *lok* has matter density in between.

Following conclusions may therefore be drawn –

(i) All the three *lokas* differ in constituting densities.

(ii) Their respective **gravitational forces exhibit different properties** due to the differing shapes, sizes and densities.

(iii) **Speed of travel for different matters is different** in all the three media.

(iv) Entire universe is **not homogeneous**.

Scientific Beliefs

(Author has used the term 'belief' along with 'scientific' for a special reason. As we shall see, science has made certain presumptions in the study of gravitational forces which are yet to be practically substantiated)

i. Density

A light ray, when travels into another medium, changes its velocity – that is, both its direction as well as speed is altered. It's often cited examples are – a straight rod looks bent when partially dipped into water, or a beam of white light splits into seven colours when made to travel through a prism. According to the modern physics, the speed reduces if density increases and vice-versa.

A similar observation is found in the case of Shakra and Chamar. But, Jain Agams have taken this physics a step further. According to this interesting tale, the effect of changing medium is subjective to the properties of the matter travelling through it. The change in speed is there, but it depends on the properties of matter. While travelling from low density of upper *lok* to the medium density of *Triyak lok*, two things happen simultaneously – (i) Shakra encounters deceleration while Chamar experiences acceleration.

ii. Gravitation

Why is it so? Why one kind of matter is accelerated and another retarded? If we ponder deeply, a possible answer is found in the scientific astronomical observations. Since the concept of gravitational attraction was propounded by Newton, scientists now have evolved that the force of gravitation could be both – attractive as well as repulsive.

In our story, the changes in speed patterns of Shakra, *Vajra* and Chamar manifest that gravitation is acting favourably in one case and adversely in another case. Jain literature, therefore, indicates that like two opposite electric charges (positive and negative) and two opposite magnetic forces (north and south poles), gravitational force too, has two aspects – attractive and repulsive.

Postulates of speed as formulated in the Jain Agams were far ahead of their times and are still contemporary. Mahapragya's efforts in opening such descriptions for scientific debates are really laudable.

ATOMIC MOTION

Dwelling further into the descriptions of speed and motion available in Jain literature, Mahapragya has cited two very interesting mentions of fastest and slowest speeds of atomic motion –

i. Matter or atom when travels at the slowest speed can move from one space co-ordinate to another adjacent to it in one 'time'. (Readers must recall that one 'time' is the smallest unit of time described in Jain literature).

ii. Contrarily, if it travels fastest, atom can travel from one end to another end of the universe in one 'time'. Two ends of the *lok* are 14 *Rajju* apart which is equivalent to infinite *yojanas*.

There are several instances in the Jain literature which can be explained only if the fastest speed possible is understood in further depth. According to the science, the fastest speed is that of a light ray which is finite and is equal to 3×10^8 m/sec. With this finite speed it is not possible to travel the entire universe in one 'time'. So, it is fascinating to explore what Jain thinkers wanted to propose by allowing near infinite speeds under peculiar circumstances? Mahapragya has dug deep into the ancient treatises and has explained it in a very logical manner. He states two kinds of possible motion –

1. ***Sprashad Gati* (Frictional Motion)**: Motion conducted by macro (*sthul*) particles. As the name suggests, particle under motion remains in physical touch with the surroundings. During the motion, it affects and gets affected by the environs. This is an ordinary motion relative to space and time. Here, the speed is ratio of distance travelled in the space and time consumed during the process. In this movement, the time is measured as *samay*, the smallest unit of time.

2. ***Asprashad Gati* (Non-frictional Motion)**: An extra-ordinary motion which is possible in micro matter (*Sukshma*) only. Travelling matter remains isolated from the surroundings such that it neither disturbs nor gets disturbed. This motion transcends space-time. Under this motion, the speed is assumed to be infinite which means that any distance can be covered in 'zero' time. In this movement, the time reduces to a moment.

$$\text{Speed} = \frac{\text{Space (Distance)}}{\text{Time}}, \text{ OR, } \text{Time} = \frac{\text{Distance}}{\text{Speed}}, \text{ So if Speed} = \infty,$$

then, Time = 0

Such equations are not only mathematically true, but are said to follow under three exceptional circumstances –

1) Movement of soul during Re-birth (Re-incarnation): Soon after relinquishing the *Sthul Sharira,* that is, after death, the soul traverses to the destination of new birth place. Movement between the death and re-birth is called *Antaral Gati* or Period-motion. The description of this kind of motion is very interesting from science view point. It is said that the time elapsed during this motion is *Ek Samay*; i.e. moment-time in one direction irrespective of the distance travelled in that direction. Depending on the single or multiple directions covered during this event, *Asprashad Gati* could be of two types –

i. Wrizu Gati (Motion in a straight line – unidirectional)

ii. Vakra Gati (Motion in a plane – bi or tri directional)

Soul undertakes *Wrizu Gati* when the place of re-birth is in the same direction that of the place of death, meaning thereby, the axis in the space remains the same.

When the direction in space changes perpendicularly, it is referred to as *Vakra Gati*. In this motion up to a maximum of four units of time may elapse. This happens as a result of typical geometry of *lok*. The *trusnadi* is located vertically in the centre. In order to reach a place beyond it, the soul turns at right angle to exit this *trusnadi*. The geometry of entire universe is such that the soul can arrive at the destined re-birth place in a maximum of three mutually perpendicular turns.

Again, as mentioned earlier, the magnitude of distance covered is irrelevant. Since time elapsed is always one moment only, this motion, therefore, transcends the space-time frame.

(Author while translating this section, has struck a very interesting real-life practical application of this fact. If the modern cities are planned with only parallel and perpendicular roads, any person can reach anywhere with a maximum of three turns. This opens a possibility of an efficient public transportation system to be devised dispending with individual vehicles. The resultant comfort and safety of the citizens and the environmental benefits can be easily contemplated).

2) Movement of a Liberated Soul: When a soul (*jiva*) breaks free from the bondages of karma, it is said to be liberated from the cycles of births and re-births. At this moment, there are two possibilities, one is that of journey towards

Shiddha-Shila and another is *Kevali-Samudghath* (a very special exception happening to those souls who goes on to become *Tirthankara* after Nirvana). In the former case, the liberated soul is said to find a permanent abode at *Shiddha-Shila*, situated at the top most boundary of *lok*.

This movement from *Trusnadi* to *Shiddha-Shila* is independent of distance and space. One *samay* or a moment-time is all that is required to cover this mammoth distance. This unique happening is the second case of singularity transcending the space-time barrier. The third example, described below, is actually a special case of movement of liberated soul.

3) Movement of soul during Ultimate Attainment (*Kevali-Samudghath*): Emancipation of soul is a unique phenomenon described in Jain literature in which the soul inflates (*vyapta*) to fill the entire *lok-akash* (universal space). During inflation, soul spreads in four time-moments to fully encompass the *lok* –

i. First Time-moment: One dimension from bottom to top is linearly covered during this period. That is, the soul opens up downwards and upwards. The shape assumed by the soul resembles a stick.

ii. Second Time-moment: In this period, the soul spreads in left and right planes to form a shape resembling the two shutters of a door thus covering the second dimension.

iii. Third Time-moment: This period is for expansion in the third dimension. This is achieved by the spinning around the vertical axis. The shape is now almost like a cylinder standing upright.

iv. Fourth Time-moment: As we have studied elsewhere, the shape of *lok* is made up of pyramid type structures, there are several areas still left to be filled. All these left out pockets of space are filled in this last leg.

The description of movement of soul during the liberation is not space-time bound. The velocity attained is infinite to cover the entire dimension in one moment. German scholars have studied the Jain Agams very deeply and according to them the word *Samay* had been used in two-fold manner. One describes the smallest 'unit of time' while the second stands for a unique 'moment of time'. In case of the soul attaining Nirvana, *Ek Samay* describes the exceptional moment. This concept of time is discussed in the chapter tilted '*Kaal*'.

Scientific View

Modern physics has so far been able to demonstrate that only light has a motion which is beyond the laws of relativity. In the last chapter, we have stated that theoretically, only massless particles can achieve the speed of light. Physicists have conceptualised various such particles like gluon, graviton, photon etc. Devises like electronic microscopes, cathode-ray picture tubes have firmly established the presence of electrons. Similarly, nuclear reactors and study of stars have conclusively proved the presence of other atomic particles like neutrons and protons. However, mathematical derivation of massless particles has yet to become a physical and experimental reality. Though, in some sporadic experiments, scientists reported to have observed lasers moving faster than the light. A brief description of an interesting experiment is as follows –

Experiment: Physicists conducted an experiment in New Jersey, Princeton. In this, the laser beam was passed through the caesium vapour. They observed that the laser beams were emerging out even before entering the chamber. In common sense it means that the beams were travelling faster than the light. Though this experiment needs validation through the repetitive consistency, a hope exists in the scientific world to break the barrier of speed of light.

Conclusion

Motion in *Sukshma* and *Sthula* worlds are different. Soul or any micro entity travels at infinite speed thus rendering the time involved as a redundant entity. Time actually reduces to a 'moment'. In one moment of time, the micro entity can cover either a smallest distance from one space co-ordinate to the neighbouring one or can travel from one end to another end of the *lok* covering a distance of 14 *rajju*. Such examples are classified as exceptional and unique happenings which may be scientifically described as singularities. *Asprashad Gati*, as described in Jain Agams, if studied scientifically, can open up valuable lead to the scientists. Quark and other sub-atomic particles behave in a manner which is close to the characteristics of *Sukshma Dravya* mentioned extensively in the Jain literature. Science, hopefully, will unravel these secrets of *Sukshma Dravya* in the near future.

CHALLENGES TO SCIENCE

The book has so far dealt with the aspects of Jain canon which have been truthfully tested on the anvil of science. Particularly, the intangible world of Sukshma (micro-) has found a strong alibi in the form of modern physics. Yet, science has not been able to surmount various frontiers which were conquered by the ancient Jain ascetics. Jain knowledge throws several such challenges to modern science. The incidences mentioned in Jain scriptures sound like any science-fiction, but then, there is a very thin line between the fact and fiction. May be the descriptions look like fantasies, yet coming from an authentic source, we have but one option to take a serious note of it.

1. Bhavitatma And its Extraordinary Powers

Bhavitatma is a typical Jain epithet which is employed for a 'super human bio' equipped with super natural powers including the capabilities of space travel and transformation of body shape into any desired form. They are often competent enough to acquire Avadhigyan by virtue of which they can know past, present and future. Bhavitatma, as the word suggests, is a soul whose resolve achieves great heights by practicing restraint, equanimity and penance. As a bio breaks the barriers of Knowledge Obscuring Karma, it reaches to the higher echelons of understanding. At this stage of awakening, bio may adopt to diverse directions –

i. *Samvratatma* – A bio that uses the knowledge for freedom from all passions and desires. It is a world-weary, dispassionate state of enlightenment.

ii. *Bhavitatma* – A bio that uses the acquired knowledge to gain worldly benefits. In such a state, it exhibits its might and power in various ways.

iii. At present, these techniques have been lost in the oblivion of time, but their description in Bhagwatisutra is worth mentioning for the readers.

1.1. Bhavitatma and Morphology

In Jain belief, celestial deities have a bodily structure termed as Vaikriya, i.e. flexible and fluid body. Their bodies are like clouds which can be given any shape as per the desire of the soul possessing it. While celestial souls have this ability by virtue of their status as a deity, the worldly human souls can acquire

this talent by practicing the occult science of penance and mental training. Such human soul, Bhavitatma, can utilize the Sukshma pudgals (micro matter and particles) to construct various body forms.

In practicing this morphology, a Bhavitatma can –

i. Clone thousands of look alike objects,

ii. Over power another bio and direct it to act according to his wishes and commands, like in the cases of hypnotization,

iii. Create the jugglery of morphing multiple shapes of deception. Utilizing the infinite micro particles which are readily available in the universe, the magic of morphing either a male or a female shape, or that of any object like, sword, shield, flag etc.

This is an interesting world of *Shukshma pudgals*. Mention of seven possible ways through which the soul of a bio can expand suddenly (Samudghat) is available in Jain mythology. These are – Vedna, Kashaya, Marnantik, Vaikriya, Tejas, Aharak and Kevali. Out of these seven modes of soul's expansion, Vaikriya Samudghat is attributed to the process of morphing and cloning. Its methodology can be understood in four steps –

Step I – Soul has innumberable Pradesh. To accomplish the formation of desired shape, bio exercises Vaikriya expansion, in which some Pradesh of soul are deployed outside the body. Since remaining Pradesh of soul keeps on residing with the parent body, bio can still function normally with its Audarik Sharir - human body.

Step II – Excreted Pradesh of soul now form a temporary shape, typically known as 'Dand'. This shape helps to execute the third step.

Step III – 'Dand' now refines the available *Shukshma pudgals* available all around. This process of refinement segregates the useful pudgals, typically named as Ratnas (jewels), from the lot.

Step IV – The useful dions and quadons now available in concentrated form are moulded in the desired shape by the second bout of Vaikriya activity.

Mahapragya, as habitual to bring in scientific aspects, has compared this phenomenon with the properties of Laser beams by which several shapes can projected. A very recent experiment has revealed that any object can be made invisible by use of microwave radiations. We know that any object is visible due to light falling on it and reflecting up to the eyes. In this reported experiment,

a shield of microwave radiation (which is beyond vision) is created around an object such that the light was prevented to fall upon it. The light now slips around this shield rendering the object invisible. We, therefore, derive that the refined *Shukshma pudgals* can be deployed both ways – (i) to create visibly deceptive shapes and (ii) to shield object to render it invisible.

Though the Jains stress that a bio with such an enhanced knowledge is prudent enough not to use its capabilities as jugglery, however, sporadic references are available in the literature to suggest that a few Bhavitatma used this rare knowledge of morphology. In Sthanang-Sutra such super human bios are termed as 'Riddhiman'. In Suyogado, descriptions are available regarding bios capable of reading the thoughts of others. They are referred to as 'Shrut-Bhavitatma'. In Bhagwati-Sutra, various descriptions of 'Riddhi' (extraordinary capabilities) acquired by Bhavitatma are mentioned, however, such accomplished souls are invariably considered dispassionate and they seldom use their superior powers.

1.2. Bhavitatma and Space Travel

As the acquisition of knowledge becomes intense, a soul is adorned with the capability to utilise the *Shukshma pudgals* (micro particles) as per its desires. Its ability to refine the surrounding *Shukshma pudgals* and to deploy them as per its will results in an amazing capacity to undertake space travels by Bhavitatma. Those hermits, who practice right penance, are categorised as Vidyacharan and Janghacharan. Though both are competent to undertake space travel, their relative proficiencies are varied. For deities of heaven, such a capability is universal.

Vidyacharan Sadhu – Bhagwati-Sutra throws light on how such sages attain this capability? It is mentioned that the incessant recitation of holy sutras and alternate fasting for long periods of time, annul their 'knowledge obscuring karmas' and resultantly they are blessed with the art of space travel. The alternate fasting involves abstaining from food for two continuous days and then meals intake for a day. The speed of a Vidyacharan Sadhu is equivalent to the speed with which the heavenly deities travel the peripheral distance of around three lakh sixteen thousand yojans within a jiffy. The single leap at this speed carries a Vidyacharan to Manushotar Mountain. Second leap lands directly at Nandishwar Island. During the return journey, Manushotar Mountain is used as a stop over. Similarly, for the round trip to Meru Mountain, Nandanvan is used as a mid-way stepping stone.

Janghacharan Sadhu – Sages of this stature are seven times faster than

the Vidyacharan. Their alternate fasting involves abstaining from food for three continuous days and then meals intake for a day. This cycle is repeated for sufficiently long durations till the desired results are achieved by the bio. In a single run, a Janghacharan can reach the fourteenth Ruchak Pradesh and has to rest at Manushotar Mountain only during the return. He possesses additional startling capabilities – can sport even the edge of a sword without being pierced by it, can travel along the light beams of sun, can run four feet above the ground etc. These are all examples of micro particles being deployed to achieve something which is otherwise impossible. These difficult experiments are worth comparing with the modern age space travel, as this comparative study can open new vistas for the scientists.

1.3. Spacecraft and Space Voyage

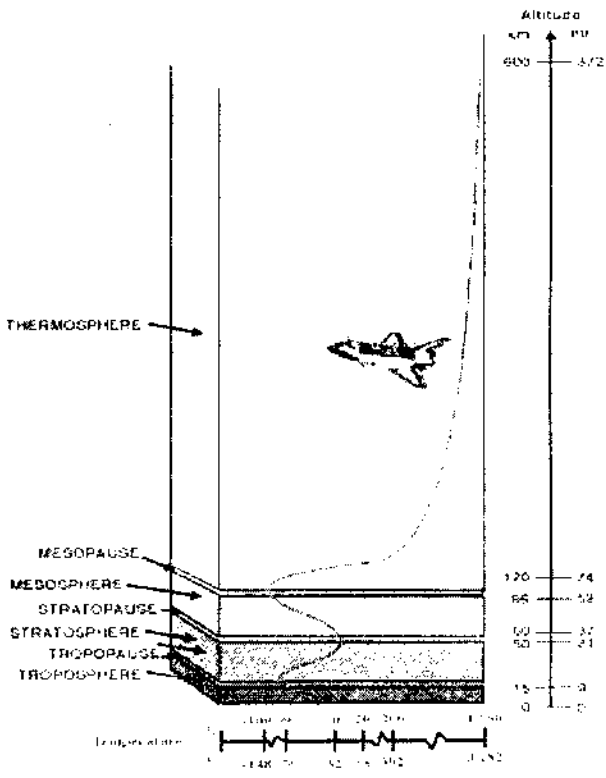
Humans and other living beings cannot survive beyond the earth's atmosphere. The space travels undertaken are with the help of specially designed spacecrafts where suitable pressure, temperature and oxygen levels are maintained. From the view point of biological survival, the space can be divided as –

The troposphere starts at the Earth's surface and extends 8 to 14.5 kilometers high (5 to 9 miles). This part of the atmosphere is the densest. Higher in this layer, the temperature drops from about 47 to -52 degrees Celsius. Almost all weather changes take place in this region only.

The **tropopause** separates the troposphere from the next layer. The tropopause and the troposphere are known as the *lower atmosphere*. Humans can barely survive up to 8-9 Km above sea level, beyond which the low temperature, low pressure and low oxygen make it impossible to sustain.

The stratosphere starts just above the troposphere and extends to 50 kilometers (31 miles) high. Compared to the troposphere, this part of the atmosphere is dry and less dense. The temperature in this region increases gradually to -3 degrees Celsius, due to the absorption of ultraviolet radiation. The ozone layer, which absorbs and scatters the solar ultraviolet radiation, is in this layer. Ninety-nine percent of "air" is located in the troposphere and stratosphere. The **stratopause** separates the stratosphere from the next layer.

The mesosphere starts just above the stratosphere and extends to 85 kilometers (53 miles) high. In this region, the temperatures again fall as low as -93 degrees Celsius as altitude increases. The chemicals are in an excited state, as they absorb energy from the Sun. The **mesopause** separates the mesophere from the thermosphere.



The thermosphere starts just above the mesosphere and extends to 600 kilometers (372 miles) high. As the altitude increases, the temperatures go up due to the Sun's energy. Temperatures in this region can go as high as 1,727 degrees Celsius. The pressure is as low as 10^{-7} mm to 10^{-4} mm. Negligible gravitation is hallmark of this region.

Beyond the Atmosphere, the **exosphere** starts at the top to the thermosphere and continues until it merges with interplanetary gases, or space. In this region of the atmosphere, Hydrogen and Helium are the prime components and are only present at extremely low densities.

Space travel thus is possible only if the lower atmosphere type conditions of air can be artificially created inside a spacecraft. It is thus intriguing as to how be it possible for an accomplished saint to undertake space travels on his own?

An interesting explanation is found in the comments on Bhagwati-Sutra by Mahapragya. As we derive clearly from the above discussions on atmosphere, all the properties of pressure, temperature and the presence of oxygen are attributed to the 'air', termed as Vayukaya in Jain parlance. It is quite possible that the sages could segregate the useful shukshma pudgals (micro particles) from the 'air' and form a protective shield around them.

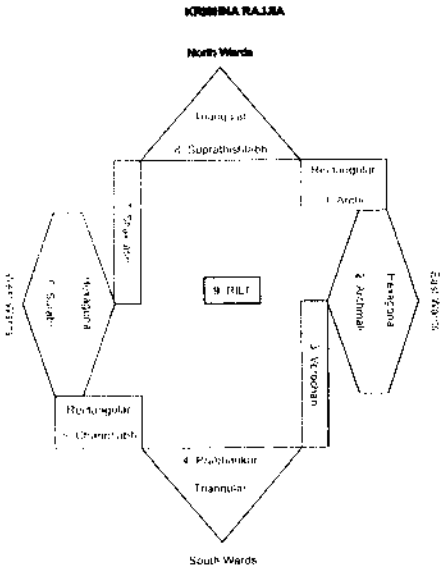
2. Krishnarajji, Tamaskaya and Black Hole

Another aspect of Jainology is its deep understanding of universe and its outlay. The descriptions of Krishnarajji and Tamaskaya find striking resemblances with the celestial objects called Black holes by the modern physicists.

We have gazed the stars of our galaxy and amazed by their twinkling. They appear small and stationary due to the astronomical distances. In fact, they are mammoth in size, even many times bigger than our sun, and revolve at a tremendous speed. This revolution baffled the astronomers as mathematically they must be balanced around a centre with an extremely powerful gravitational pull. For, several years, such a centre eluded its presence from the eyes of most penetrating telescopes till the scientists at Max Plank Institute, Germany discovered highly dense concentration of dark cosmic dust. Such areas were totally dark and were named Black Holes by the American scientist John Wheeler in 1969. Lot of interesting findings are pouring in since last 30-40 years of incessant efforts by the astrophysicists across the globe, but the enigma is far from being resolved. Two names, Tamaskaya and Krishna-rajji, found in Jain canonical texts designate such celestial bodies whose characteristics have resemblances with the concept of Black-hole. It makes for a good comparative study.

2.1. Krishna-rajji

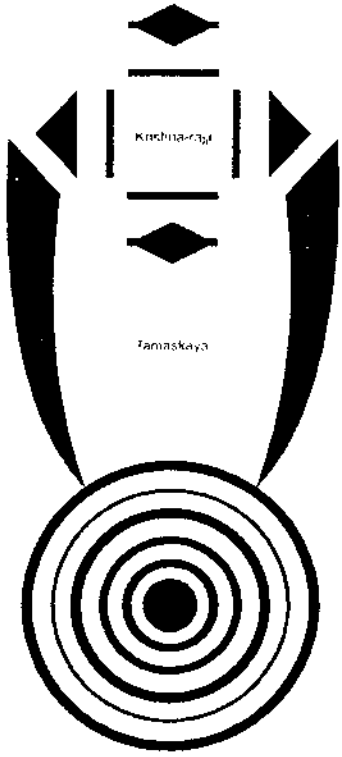
According to the Jain Agam, Bhagwati-Sutra, a group of rocks situated at the far end of the universe have two triangular, two hexagonal and four rectangular shapes arranged in geometry as shown below. These rocks are stark black and their dark shadow spreads over the entire square space in which they are situated. This arrangement looks like a boxing rink and they form such an intricate network of passages and maze of cavities that it is difficult to come out of this labyrinth. Krishna-rajji manifests tremendous force of attraction, which is instrumental in the formation of Tamaskaya.



2.2. Tamaskaya

Its description as available in Thanam Agam is as follows --

"Arunavar Island is separated by innumerable intervening islands from the Jambu Island. At the outermost periphery is situated Arunavar ocean. Travelling 42 thousand Yojans in this ocean towards the edge, there raises a layer of *apkaya pudgals* (fine particles predominantly containing water) which expands after rising around 1721 yojans. These layers rising from all around the outer edge look like lotus leaves and extends up to the region of Krishna-rajji. Encompassing four pantheons (*devlok*) including Saudharma, Tamaskaya reaches up to the Rishta limit of the fifth *devlok*. Fine matter forming the Tamaskaya is abounding in dark characteristics. No other matter in *lok* is darker than the Tamaskaya. Its darkness stuns even the deities of heaven and they abstain from these regions of Tamaskaya fearing the entrapment. It is like an imprisonment for them. Jains believe that the stars are vehicles of heavenly deities and Tamaskaya is so dark that its eddy currents can engulf even biggest stars. This brings us to a very interesting possibility of comparing these Jain cosmic entities of Krishna-rajji and Tamaskaya with the modern concept of black holes.



2.3. Black Holes and Their Creation

By definition, a Black-hole is a dead star whose gravitation is so intense that even the light photons cannot escape from it. Absence of light makes them 'black' and the way they gulp down other stars in their vicinity identifies them as 'holes'. Just a few years back, we knew our universe to be consisted of galaxies having stars, planets and moons as their family members. Of late, the presence of innumerable Black-holes has been confirmed beyond doubt.

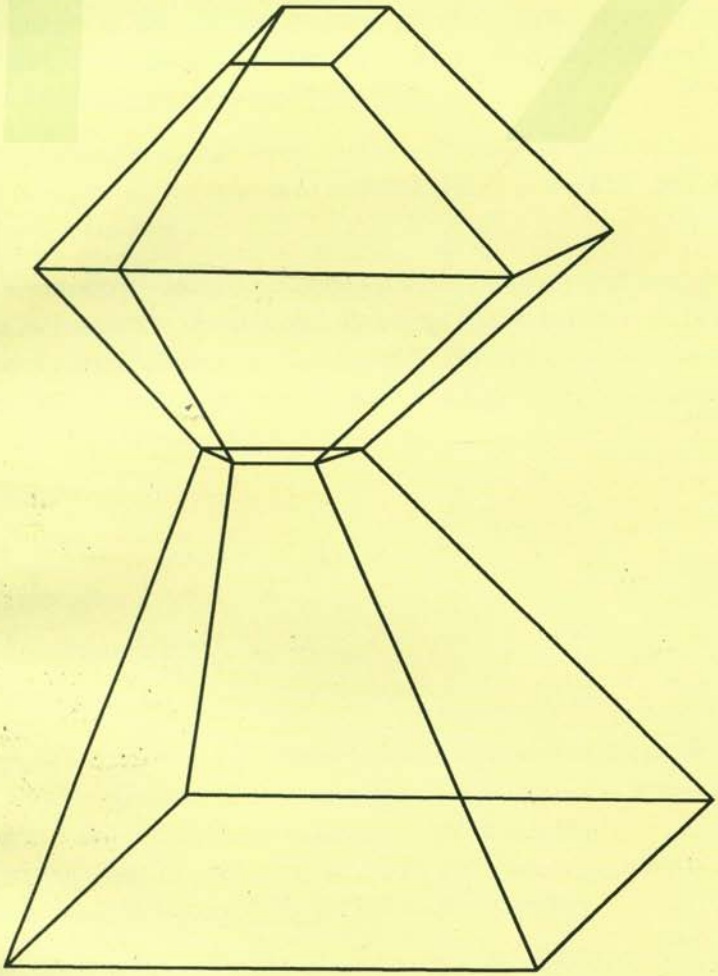
It would be easier to understand a Black-hole, if the process of its creation is known. A star is born when the hydrogen atoms accumulate and starts off the process of nuclear fusion. As a result, the gravitational force remains in equilibrium with the heat generated. As the fuel of the star nears exhaustion, it cools off and the equilibrium of gravitation and heat is broken. With reduced heat, the gravitation takes over and the gases formed by the constant burning of nuclear fuel collapse inwards. Volume of star starts shrinking and more and more gases try to accommodate in the reduced space. This leads to increased density and therefore enhanced gravitation, which, in turn, attracts more mass within progressively reducing volume. A cumulative process or chain reaction thus sets up, at the end of which the gravitation becomes so intense that the entire remaining gases collapse towards the dense centre with tremendous lightening, called Super Nova. The star is now dead and becomes its own crematorium. This ball of dense mass is called Black-hole. Its gravitational pull becomes so strong that even the massless photons cannot travel out of it and thus it becomes invisible. Astrophysicists could detect these Black-holes only by indirect evidences.

Mahapraya has elaborately commented on the Tamaskaya and black holes in his writings on Bhagwati-Sutra. His endeavour for the blending of ancient knowledge with modern science is highly commendable.

SECTION - 4

JAIN MATHEMATICS AND KARMAVAD

Mathematics and Karmavad



Part-4

JAIN ARITHMETIC

The beginning of the studies of mathematics in India is regarded a thousand years before Christian era. This was the period when the Jain knowledge prophesied by the Lord Parshwanath was flourishing. Jain arithmetic finds its parallels in Vedic mathematics. During Vedic period, the sacrificial altars were constructed in various safe geometrical shapes to confine the sacred fire. The shapes of the pits used to be in geometrical segments, e.g., triangle, quadrilateral, oval, spherical, circular etc. This is indicative of rich wealth of geometric knowledge prevailing then.

Jain mathematics has been extensively used in the explanations and discussions on the six categories of matter existing in the *Lok*. Jain Arithmetic has two basic branches

(i) Geometry Jains developed the basic geometry and used it to explain the shape and extent of the universe, its centre (*ruchak-pradesh*), heaven, hell, etc. Besides curved directions, *Krishna-rajji* (black-hole equivalents) etc. are also described using geometry. In *Sthanang* and *Uttaradhayyan Sutra*, five basic shapes (*sansthan*) are described

a. Sphere

b. Circle

c. Triangle

d. Quadrilateral

e. Rectangle

In Jain writings, the reference to triangular, rectangular and hexagonal 'earths' are described in the descriptions of Krishna-rajji. These shapes are described in detail in the relevant chapters of this book. However, it is necessary to mention here that the geometry of Vedic and Jain origins are quite similar and seem to have their genesis in the Indian mathematics.

(ii) Arithmetic In the chapters of time, speed, karma etc., basic mathematical quantities of numerate, innumerate and infinity find wide spread mention. With the help of quantitative analysis, Jains have calculated the distances, time, speed, life-span of animates, etc.

Units of measurement

In the studies of six basic mattereals of the universe in the Jain literature,

classifications into the minimal, medium and maximal have been done while applying the mathematics of the numerate, the innumerate and the infinite. First of all, we shall understand the finest parts of the six substances from the following table, before going in for detailed mathematical discussion, as they form the basis of development of mathematics -

Jain laureates have presented the quantitative analysis of six forms of substances (*dravya*) using certain basic indivisible units as tabulated below -

S.No.	Substance	Unit
1.	Pudgal (Particle/Matter)	*Parmanu* (Atom)
2.	*Kaal* (Time)	*Samay*
3.	Dharma, *Adharma*, *Aakash*, Jiva	Pradesh

1. Parmanu

It is the smallest unit used to describe the matter or substance. In this entire universe (*Lok*), *pudgals* are classified in only two types -

- Microphysical or massless (*Sukshma*)
- Macro or massive (*Sthula*)

These two pudgals manifest distinct physical properties as below -

Micro (*Sukshma*)	Macro (*Sthula*)
Massless	With Mass
Motion Unhindered by the presence of matter	Motion obstructed by the presence of other macro particles
Speed beyond that of light is achievable	Speed limited to that of light

Describing the properties of **waves and particles**, famous scientist, Heisenberg had stated that these two did not follow same set of physical laws. This commonality between the science and Jain Agamas is amazing as the two are separated more than two thousand years on the time scale.

Micro and macro *pudgals* are convertible into each other but once converted, their properties change to such an extent that the physical laws applicable to micro state are no longer valid in the macro state and vice-versa. Jains, therefore, insist that the micro *pudgals* (also known as *Nishchay Parmanu*)

constituents an **intangible world perceptible only by the intelligence**, and simultaneously, macro *pudgals* (also known as *Vyavhar Parmanu*) constitute a **tangible world observable by our sensory organs (*Indriya*)**. In micro form, *pudgals* remain weight less and travel unrestricted in the space. In this state, the pudgal is understood to be in the form of pure energy. Light, temperature, gravity, magnetism, electrostatic bonds etc., are manifestations of micro world. As described in ***Anuyog Dwara***, infinite micro pudgals integrate to form a macro pudgal. This basic entity is called *Vyavhar Parmanu*. Therefore, the Jain literature gives us following classification of basic building blocks of the universe–

1. *Sukshma* or *Nishchay* (Deterministic) *Parmanu*
2. *Sthula* or *Vyavhar* (Behavioural) *Parmanu*

Vyavhar Parmanu is a specially coined definition in the sutras of ***Anuyog Dwara.*** This is because the human behaviour (*Vyavhar*) is entirely dependent on the macro-*pudgals* as the latter alone comes within the realms of our sensory perception. As discussed earlier, macro *pudgals* cannot travel unrestricted. In other words, they keep on interacting with other particles during motion. This property of interaction makes the macro *pudgals* tangible and perceptible by our sensory organs. We have no measurements available for micro or *sukshma parmanu* as they are rendered ethereal or intangible. On the other hand, Jain literature has full set of units to describe the ascending order of complexity of *Sthula* or *Vyavhar Parmanu* –

∞ Nishchay Parmanu = 1 Vyavhar Parmanu
(Both Nishya and Vyavhar Parmanu are beyond the realm of sensory perception)
8 Vyavhar Parmanu = 1 TrusParmanu
(From *Trus* Parmanu onwards, Sthula substances are within the domain of sensory perception)
8^2 Vyavhar Parmanu = 1 RathParmanu
8^3 Vyavhar Parmanu = 1 Balagra
8^4 Vyavhar Parmanu = 1 Liksha
8^5 Vyavhar Parmanu = 1 Uka
8^6 Vyavhar Parmanu = 1 Yav
8^7 Vyavhar Parmanu = 1 Angul
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24 Angul = 1 Hath
4 Hath = 1 Dhanushya
2000 Dhanushya = 1 Guvyut
4 Guvyut = 1 Yojan

1.1. Significance of Numeral Eight (8)

In above table there is striking importance of numeral eight. We can notice the use of multiples of eight up to the measurement of Angul, after which the units assume different multiples. This must have been done with a definite purpose. If we bifurcate the dimensions, we have a clear demarcation –

1. Measurements before Angul

2. Measurements after Angul

If we put all the pieces of mathematical jigsaw puzzle together, a clear picture emerges. In the Jain canonical texts, geographical extent and relative positions of heavenly bodies (cosmology) are described in the units of Angul and beyond. This indicates that the unit Angul is utilized for linear, single dimensional measurements. Whereas, all the units smaller than Angul are indicative of Volume of the particle as a whole. This is inferred from the fact that the Jain mathematics considers 2 as the smallest number. Numeral 8 is derived from 2^3. Therefore, increment in the multiples of 8 suggests that the units are indicative of increasing volume. Writing in equation form

$2^3 = 2 \times 2 \times 2 = 8$

This is clearly a three dimensional measurement. The only possible explanation to this demarcation in units could be that at infinitesimal and minute levels, individual linear dimension has no significance as the particles retain their spherical shapes which can be better described in volume terms rather than length.

1.2. Electron, Proton and Quark

Physicists of the current generation find themselves back at the square one as far as identification of tiniest particle is concerned. Scientists are still puzzled by the behavioural observation of infinitesimally small particles. Initially, an atom was considered as the smallest building block. But, soon electrons, protons and neutrons were discovered. Later on quarks were experimentally detected during the transitional phases but they were not found to exist independently. Recently, a new particle comprising five quarks has been identified by the scientists, which they believe existed since the time of big-bang. However, the tiniest particle is so enigmatic that its discovery still looks elusive.

Jain Literature can provide a helping hand to the modern scientists in this subject. Mahapragya writes that the Sukshma (Nishchay) Pudgal, as

described in the Jain Agams, is indivisible, indestructible, and imperishable basic constituent of the substance. This leads to **very important conclusion** –

If a particle breaks to disappear as energy (Sukshma Pudgal), it can be treated as the smallest particle (Sthula Pudgal) of the universe. Scientists have so far been able to find small particles which disintegrate further into smaller particles but have not been able to isolate such a particle which when broken disappears entirely in the form of energy. The day we can find such a particle, we can surely claim to have found the basic building block of this universe. Since all our efforts to break particles down the smallest one have not yielded results so far, we must now attempt an alternative method. **If we can concentrate the energy to a miniscule space it will integrate to result in a particle which will be the smallest particle.**

2. Kaal (Time)

We have, so far, endeavoured to know the smallest particle of substance. In Jain belief, Time is an independent entity. What is the smallest unit of time? All the activities of Pudgals are space-time related. Accordingly, the time factor in the micro (sukshma) world is 'samay'. Infinite such 'samay' constitute one 'avalika'. Avalika is the smallest unit of time in the macro (sthula) world.

We have seen earlier that –

∞ Nishchay Parmanu = 1 Vyavhar Parmanu

Similarly,

∞ samay = 1 avlika

The factor of infinity (∞) in both these equations suggests that there exists a quantum jump from micro to macro level.

As in the case of smallest particle, scientists are still searching an activity or phenomenon which is accomplished in the smallest period of time. They have found visible light, x-rays and gamma rays in which the wavelengths are as low as a millionth of a centimeter. This means the wave activities are taking place at the Nano- and Pico-second (one-millionth of micro second) scale. In a science magazine, 'Nature', some Austrian scientists have claimed to observe fastest ever happening in which the event is said to happen in one-hundredth of an 'ato-second'. The 'ato-second' is so small a unit that to bring it at par with a second will take 30 million years. Scientists employed the motion of electrons to measure this event. Researchers excited the electrons with the help of far ultra-violet light beam. According to the Professor Farank Cruise of Vine

Technique University, some electrons were accelerated to such an extent that they detached from the parent atom permanently. These electrons were topographically photographed by Fucycle Laser. These photographs revealed the activities taking place in the time frame of one-hundredth of an 'ato-second'. This research has paved the way to manufacture highly accurate clocks. At present the accurate clocks are working at microwave frequencies, with the advent of ato-second phenomenon future clocks of extremely high accuracy and stability will work on optical frequencies obtained from lasers.

Again, the ancient Jain literature seems to be quite in consonance with the modern science. As mentioned earlier the Jains have stipulated one 'samay' as the time taken by the activities of massless sukshma pudgal. We have christened this unit as 'Timon'.

We shall now ponder upon the units of space. Up till now we have discovered that the particles and time-scales of micro and macro levels are different and the two can become mutually equivalent only by using the factor infinity. Can the space too, be described in micro and macro units? Jain Agams have explained the *parmanu-samay-akash* as interrelated entities and one can be defined with the help of another.

3. Aakash – Parmanu

After having known the units of the substance and time, parmanu and samay respectively, it is necessary to know the units of space. Is there any equivalence in the minima and maxima of pudgal, time and space respectively?

It is interesting to study the Jain canonical literature where the examples are given concerning the units of space.

i. It has been mentioned that a **theoretical** unit '*aakash-pradesh*' is the space occupied by one *parmanu* (dion). It must be observed here that the dion is the smallest massless derivative of the pudgal.

ii. A second mention of 'aakash-pradesh' which seems to be more **practical** is the space occupied by infinite *parmanus* bundled as a *shukshma* pudgal (quadon).

These two statements sound paradoxical and are being keenly examined by Mahapragya as follows:

"The two mentions of '*aakash-pradesh*' actually differentiate the micro and the macro worlds. As the dion (*parmanu*) acquires practical utility only

after infinite of them consolidate to form a quadon, the space occupied by a *parmanu* is of limited use when we discuss the shukshma or the micro world only. The real space co-ordinates are constructed only by the unit-space occupied by the packet of infinite *parmanus* forming a quadon (*skandh*)."

4. Aakash–Kaal

'A dion (paramanu), if moves with slowest speed, travels from one space unit (*Akash* Pradesh) to the adjacent one only. On the other hand, if it travels at its fastest speed, it gets transferred from one end of the universe to the other (a distance of 14 *Rajju* or innumerate *Yojana*).' **This statement of Jain Agams actually constitutes the Theory of Relativity. The space-time (*Aakash–Kaal*) lincarity is affected by the speed of the object.** Einstein proved from his mathematical calculations that an astronaut who travels to a distant star at a speed of 70% of the speed of light, he will not only experience the slow passage of time, but will also experience the distance being lowered by virtue of his high speed.

We have dions (*paramanu*) and octons (*Sthula* Pudgal) as far as particles are concerned; we have *samay* (unit of finer time) and Avlika (unit of real time) but, no description is available as micro space point and macro space point. In an indirect mention, however, in the Acharanga Niryukti the difference in space units and *paramanu-kaal* is highlighted. It says that if the space points contained in a finger-width of space are exhausted by taking out one space point in each consecutive instants, it will take innumerate ascending and descending periods of time to evacuate that region. This comparison of region with time manifests the nature of space. Hence the finger width measure of space can be called as macro space and the space point can be called as part of the micro-space.

With Jain standpoint it is proper to recognize that the separate units are requisite for micro and macro domains. These units cannot be interchangeably applied. An innumerate number of dions form a practically mentionable and usable entity in the macro domain. In conclusion, we derive following postulates for matter, time and space

i. Almost infinite dions combine to form an atom. This implies that a finite combination of dions can form quadons (*skandh*) but even then they are not useful in practical or macro world. It is the distinctiveness of Jain philosophy which states that only a collection infinite dions is of practical utility. This collection, named as octon

makes the basic building block of the macro domain. The analogy between the octons of Jain philosophy and the quanta of modern science is quite remarkable. Modern science has developed its quantum mechanics on the basic principle that the energy is transacted in the forms of packets called quanta.

ii. Like matter, practical unit of *kaal* is Avalika which is said to be constituted by the elapse of innumerate *samay* (the smallest unit of time in micro domain). Here again, any finite accumulation of *samay* cannot result in *Avalika*. These findings caution us that any evaluation of event is possible only after ascertaining the domain of the event — micro or macro. Until then, the results could be erroneous. A massive factor of innumerate (near infinity) is responsible for this stark difference.

iii. Similar explanations are forwarded for the defining the space units. Matter and soul travel in definite pathways in the space. Seven such pathways are mentioned in the Bhagwati Sutra

Track	Shape
Straight Line (*Rizu-Ayat*)	
Right Angle (*Ektovakra*)	
Double Right Angle (*Dvitovakra*)	
Single Split (*Ektokhaha*)	
Double Split (*Dvitakhaha*)	
Circular (*Chakrawala*)	
Semi-circular (*Ardhachakrawala*)	

Entire universe (*lok*), including the irregular discontinuities at the boundaries can be traversed by the combination of these tracks. This, however, must be kept in mind that the space changes its characteristics with the speed of travel. We can only employ space co-ordinates to assign the direction and trajectory of motion of matter particles (like dions, quadons and octons) and souls.

Highlight of these discussions about the ancient Jain literature is that the six fundamental entities (mattereals) are to be described separately in the micro and macro domains.

TYPES OF MATHEMATICS

In the Sthananga-sutra, ten types of Mathematics are described in the chapter dealing with numerate terms. Mahapragya has presented a detailed note on this mathematical learning, which is complete in itself. This ancient mathematical style will be interesting for the readers.

1. Parikarma (Operators) -

In the Indian system, there are eight basic mathematical operations - (i) addition, (ii) subtraction, (iii) multiplication, (iv) division, (v) square, (vi) square-root, (vii) Cube, (viii) Cube-root. But, out of these operations, the majority of them were not employed effectively in the canonical texts.

According to Brahmagupta, there are twenty possible mathematical operations: (i) addition, (ii) subtraction, (iii) multiplication, (iv) division, (v) square, (vi) square-root, (vii) cube, (viii) cube-root, (ix-xiii) five rules for simplifying fractions, (xiv) the rule of three expressions, (xv) complex rule of three expressions, (xvi) rule of five expressions, (xvii) rule of seven expressions, (xviii) rule of nine expressions, (xix) rule of eleven expressions, (xx) rule of commutation.

From the ancient times, the Hindu mathematicians recognized that all the operations of mathematics are based on the two fundamental operations - addition and subtraction. The operations of doubling and halving were regarded important by the Egyptians, Greeks and Arabians, who were ignorant of the decimal system.

2. Calculations –

According to Brahmadatta, there are eight types of treatment in which the above mathematical operators can be used to perform calculations:

(1) Mixed (*Mishrak*) - four basic operations viz. addition, subtraction, multiplication and division.

(2) Series (*shredhi*) – progressions

(3) Area (*Kshetra*) – geometry of closed figures

(4) Volume (*Khata*) – dealing with excavation and volumes involved therein

(5) Sets (*Chati*) - treatment of sets

(6) Permutation-Combination (*Krackchic*) – statistical analysis

(7) Mensuration (*rasi*) – measurement by grain heaps

(8) Inverse (*chhaya*) – fractions

3. History -

Ancient mathematics had been popularly known as "*Pati-Ganita*". Various scholars have tried to find out the historical background of this peculiar word. According to them, this word is actually constituted of two words: (i) *Pati* - slate (board) and (ii) *Ganita* -mathematics. Hence it means that mathematics in which slate is needed to perform calculations. Due to the want of paper up to the end of the nineteenth century, slate was in use. Even now its ample use is found in villages. Scholars regard that this word has been originated from local dialect of northern India which was the offshoot of Sanskrit language. When the Sanskrit texts were translated into the Arabic, they called it 'Ilma-Hisaba-Al-takhta'. Takhta in Arabic language means a slate. They sometimes used another word – 'Hisaba-Al-guvara', as the slate was often replaced by the sand-floors.

The original Sanskrit words used to describe a 'slate for writing' were - *palaka* and *patta*; not *pati*. The word *pati* finds mention in Sanskrit literature from circa 5th century. Therefore, in the opinion of the author, the word *pati-ganita* should actually be referring to 'tabular' form of maths when the decimal counting began in the form of one, two, three, and four ..... Some of the latter mathematicians have actually used the word "*pati-ganita*" for mathematics of integers. This was meant to regard algebra as separate from the numerals.

The following are some mentionable texts of pati-ganit:

1.Vakshali Manuscript (c. 300 A.D.)

2.Slate mathematics of Shri Dhar and Trisatika (c. 750 A.D.)

3.Ganita Sar-Sangraha (c. 850 A.D.)

4.Ganita Tilaka (1039 A.D.)

5.Lilavati (1150 A.D.)

6.Ganita Kaumudi (1356 A.D.) and

7.Pati-sar written by Munisvara (c. 1658 A.D.)

Besides, Bhaskara-II had mentioned that Lalla had authored a separate text on *pati-ganita*.

These treatises comprise the above mentioned twenty operators and

eight forms of calculations. Examples have also been given along with the aphorism for explaining the application thereof.

4. Example -

An example of treatment of series is presented here. It is like a ladder hence, it is called 'progression' in mathematics. Say a person gives four rupees to another. Every next day he adds five rupees to the previous day's amount, continuing up to fifteen days, then what is the total amount so given?

Whatever he gives on the first day is called the 'initial-amount'; incremental amount is called the 'common difference'. The number of days for which the amount is given is called the 'period'. The total sum is called the '*samvardhana*'. Whatever is given on the last day is called the 'last-amount'. Whatever is given in the middle of the period is called the 'middle-amount'.

4.1. Method -

The period is 15. Subtracting 1, we get 15-1 = 14. Multiplying it with common difference, gives 14x5 = 70. Adding the initial term, it gives 70 + 4 = 74. This is the 'last-amount. Then half of 74 + 4 is half of 78 is 39 which is the middle term.

The sum total is 39 x 15 (number of terms) = 585.

Similarly, the sum of the natural number from one to nine, or sum of more numbers, sum of the sums, sum of the square and cube are the topics of this mathematics.

5. Other Operators -

5.1. Rajju: This is called mensuration. Through this, the depth of a lake (tank), height of a tree, etc. are measured. Its geometrical organs are the side, height, hypotenuse, diameter, circular area and circumference etc. This basically involves measurements using rope.

5.2. Rashi (Volume): This is called treatment of volume using heaps of grains.

5.3. Kala-Savarna (Fraction): The number which is not an integer, and is in part, is called Kala-Savarna, when it is made similar. This is called operation of making denominators equal, or the

process of making denominators similar. (Vice, history of Hindu Mathematics. p. 179). The upper part is called 'numerator' and the lower part is called 'denominator'.

For example, 1/2 and 1/3. Its meaning as Kala Savarna will be 3/6; 2/6 respectively.

5.4. Yavat-tavat: As the name suggests, it means the multiplication series can be extended up to as far as possible. It is also used in summation of series.

5.5. Varga (Square): The word varga means 'pankti' or row, or assembly (Samudaya). But in mathematics, its meaning is 'vargaghat' and 'vargakshetra' or its area. The predecessor preceptors have given its general definition as a square region (Samacaturastra). The product of two numbers is also square. The word Kriti is also used for varga implication, but rarely. This is also called 'Samadurasighata' Various scholars have described its various processes.

5.6. Ghana (Cube): This has been used to indicate solid cube and product of three equal numbers in geometrical and mathematical implications. The opinion of Aryabhatta is the product of three equal numbers and a solid with twelve equal angles (as well as sides) is also a cube. The word Vrnda has also been used at some places with the meaning as ghana (cube). This is also called 'Samatrirasaghata'. There is also difference in the processes of calculating the cube. According to statement of Sridhara, Mahavira and Bhaskara, the cube is the product of three equal numbers.

5.7. Varga-varga (Square-Square): Multiplication of square by square. This is also called 'samacaturghata' (raised to power four). First the original number is multiplied by the same number. Then the product is multiplied by the same product. Whatever number results, is called varga-varga phala (square of square). For example $4 \times 4 = 16$, $16 \times 16 = 256$.

5.8. Krakach: In Kala mathematics, it is called 'treatment of Saw Mathematics (*krakaca-vyavahara*). This is a kind of *patiganita*. This gives the knowledge of sawing of wood and toiling of stones.

For example, a wood piece is 20 fingers thick as the base and 16 fingers thick at the top. It is 100 fingers in length. If it is sawed at four places, what will be its sawed up measure in hands? The thickness of the base and the top are added, 20 + 10 = 36. This is divided by 2, giving 36/2 = 18. This is multiplied by length, resulting in 100 x 18 = 1800. Then this is multiplied by the number of sawing processes, giving 1800 x 4 = 7200. This is divided by 576, getting 7200 ÷ 576 = 12.5. This sawing is measured in terms of 'hands'.

The commentator of the Sthananga has not given all types of examples falling under various operations. It was perhaps left for super intelligent practitioners of mathematics.

The commentator has quoted a verse while describing *'Pandanika Shabd'* in the beginning of the exposition of the Sutrakratang 2-1. In it ten types of mathematics have been mentioned. Out of these nine types are similar to those in the Sthananga. Only one type has been mentioned differently - the word *'kalpa'* of the Sthananga is not there, instead the word *'Pudgala'* finds mention which is not available in the Sthananga.

NUMERATE, INNUMERATE AND INFINITE

Shirsaprahelika (The Top riddle)

Mahapragya, while giving a discourse on the arithmetic of the Vedic Era, mentioned about the specialty of the *Sirsaprahelika*, the maximum number, described in the Jain canonical texts. *Yajurveda*, 17/2 mentions up to *Mahasankha* in which 20 digits are included. An intermediate number of ten *kharabas* is also prominent, which is obtained by raising 10 to the power of 12 i.e. 10^{12}. In that mathematical text, the counting progress as *ikai* (unit), *das* (ten), *shata* (hundred), *sahasra* (thousand),...., *kharaba*, *das kharabas*,..... *shankha*, *das shankha*, *mahashankha*. Whereas, in the Jain ancient literature, the biggest number, called *Shirsaprahelika*, comprises 54 digits followed by 140 zeros. The maximum number, therefore, contains 194 digits. However, in another text, the *Shirsaprahelika* is recognized as a number having 250 digits. By any means, the biggest number as quoted in the Vedic era, is very small in comparison. The modern sophisticated mathematics also acknowledges the importance of large numbers such as *Shirsaprahelika* and has regarded it as an important discovery. We shall therefore, discuss the interesting part of Jain Arithmetic regarding the maximum and the minimum numbers.

In the Jain Texts, there is description of the numerate, the innumerate and the infinite in defining the time periods. The ultimate finest unit of time has been called as '*Samaya*' (instant). The period from an instant (*Samaya*) up to the *Shirsaprahelika* is calculable, thus all numbers in between are called **numerate**. It is interesting to find that among the numbers smaller than the *Shirsaprahelika*, an intermediate number, Eighty Four Lacs, has been given special importance.

In deriving the biggest number, first the counting up to a number of eighty-four lacs was done. This number was named '*Purvanga*'. After this, eighty-four lacs have been multiplied by eighty four lacs, i.e. eighty-four lacs have been squared. The number thus obtained was named '*Purva*'. When the number '*Purva*', is multiplied by eighty-four lacs again, the result was called '*Trutitanga*'. In this sequence, there are twenty eight such places. Progressing in this manner, the ultimate number, '*Sirsaprahelika*' can be denoted as follows:

$(8400000)^{28}$ or $(84 \times 10^5)^{28}$

Although the time-period up to the '*Sirsaprahelika*' is sufficient for all practical purposes, the calculable and numerate periods beyond this limit are

described using simile (upama), such as - *pallayopama*, the *sagaropama*, the *avasarpini*, the *utsarpini*. They are employed in mentioning the longevity of bios in various life-forms. The simile measure of time has been further described later in this chapter. The periods of time, beyond measures have been treated in terms of the 'innumerate' and the 'infinite'. It is interesting to note that the numerical building blocks beyond eighty-four lacs have been obtained by **multiplying the preceding number with 84 lacs**, for example,

84 lacs years = 1 purvanga

84 lacs purvanga = 1 purva

84 lacs purva = 1 trutitanga

.....

.....

84 lacs chulika = 1 shirsaprahelikanga

84 lacs shirsaprahelikanga = 1 shirsaprahelika

The decimal system has been used in the arithmetic of the Vedic and the Jain Schools. Both are similar to a large extent, except for the fact that **in Jain arithmetics the numbers beyond 84 lacs are derived by repeated multiplication of the number 8400000 (eighty-four lacs). That is, the further increment is not in units but en block by eighty-four lacs.**

In this reference, the description of the number of hellish bios in the Sthananga-sutra is observable. Mahapragya had enough audacity to deliberate on this hitherto untouched topic. However, there are two lines of thoughts which have slight difference in their respective treatments.

1. Shvetambara tradition

Here, three technical terms have been mentioned, which need detailed discussions –

- ❖ Kati
- ❖ Avakatavya
- ❖ Akati

1.1 The meaning of the word *Kati* is – how many? Here the numbers starting from two and increasing up to the largest numerate are all indicative of 'how many'.

1.2 The meaning of *Akati* is innumerate (finite, but uncountable) and infinite.

1.3 The meaning of *Avaktavya* (inexpressible) is the digit 'one'. On the basis of the *Uttaradhyayana* and the *Anuyogadvara* aphorisms, it has been mentioned that the number 'one' has not been regarded as the calculation number. **In the Jain canonical texts, the minimal calculation number has been recognised as 'two'**. Its exposition is necessary, and that has been given in the following pages.

2. Digambara Tradition

In the Digambara tradition, the word '*Kadi*' occurs in place of the word *Kati*. Its meaning has been expressed as that of *'Kruti'*. The mathematical exposition of the word *Kruti* is different from that in the *Shvetambara* tradition. *Digambars*, therefore, use another term '*Nokruti*' in their classification of numbers. Their three terms are –

- ❖ *Nokruti*
- ❖ *Kruti*
- ❖ *Avakatavya*

A number which fulfils following three criteria is termed as *Kruti*

(i) Which increases after being squared,

(ii) When the difference of its square and the number itself is greater than the number,

(iii) When above difference is squared and preceding number is subtracted again, result must greater than the original number. This incremental pattern must continue as many times as this process is repeated.

The difference among these three terms can be understood with the help of examples –

2.1. Nokruti

Let us take an example of number 'one'.

(i) There is no increase when it is squared-

$(1)^2 = 1 \times 1 = 1$

(ii) When, out of this square the number itself is subtracted, it results in null

$1 - 1 = 0$

(iii) There is no increase if the difference so obtained is squared again-

$0^2 = 0 \times 0 = 0$

0-1 = not possible

Hence the number 'one' does not fall under the criteria of *Kruti* and thus, has been called nokruti.

2.2. Avaktavya

Let us now take an example of number 'two'.

(i) An increase is seen on squaring the number two, hence it cannot be called *nokruti:*

$(2)^2 = 2 \times 2 = 4$

(ii) On subtracting from this, the number itself, the original number is obtained:

4-2 – 2

(iii) When this resulting number is again squared and the square root is subtracted, there is no increase in number:

$(2)^2 = 4$, and

4- 2 = 2

From these equations it is found that the number 'two' is neither *Kruti* nor *nokruti*, hence it is called *Avaktavya* (inexpressible).

2.3. Kruti

Let us take an example of number 'three'.

(i) There is increase on squaring the number 'three' onwards:

$(3)^2 = 9$

(ii) On subtracting the original number from this number, result is incremental:

9 - 3 = 6

(iii) On repeating, in this sequence, the increment cumulates:

$(6)^2 = 36$

36-6 = 30

From the above description it is known that

- The number 'one' is *nokruti.*
- The number 'two' is *Avaktavya.*
- The numbers 'three' and the onwards numbers are *Kruti.*

Mahapragya concedes that this difference, though vital, still establishes that in Jain arithmetic the increment in number is obtained by **the mathematical operation of squaring** and that the counting does not start from the digit 'one'. In both the traditions, the Shvetamber and the Digamber, '*Samkhyati iti samkhya*' - that which could be divided, is a number. From this point of view, the minimum number starts with 'two'.

Now, let us dwell on the basic question, why the powers of eighty-four lacs were employed in counting of large numbers? Here could be three probable reasons for this –

(i) In Jain theory, there are eighty-four lacs possible originations or classes (*yoyni*) of bios (living beings). The bios transmigrate again and again within these classes during the cycles of births and rebirths, till it does not become free from the bondage of Karma. Perhaps this limit had rendered the counting beyond this number as redundant.

(ii) In view of the digits, the number 84 has the specialty that on multiplying it again and again, the resulting numbers are such that the sum of their individual digits is always nine (9). As such the number 9 is regarded as divine and holy. For example, if we square the number 84, we get;

1) 84x84 = 7056;

The sum of the digits of the above number is (7+0+5+6) = 18; (1+8) = 9

Similarly,

2) 84x84x84 = 592704;

The sum of the digits of the above number is (5+9+2+7+0+4)=27; (2+7)=9

Similarly,

3) 84x84x84x84 = 49787136; (4+9+7+8+7+1+3+6)=45; (4+5) =9

This pattern continues up to the '*shirshprahalika*' and beyond. This is just indicative possibility; no such explanation is available in Jain Agam literature.

(iii) In view of the author, the most probable reason could be that the mathematics in that era was more practical than theoretical. For very practical reason of reducing the numerical terms between the figure of 84lacs till the *shirshprahelika* and extending up to innumerate, the mathematicians of that ancient period decided to

increment in the powers rather than addition and multiplication. Let us look at the following table –

Numerical terms between 1&100 = hundred

Numerical terms between 101&1000 = nine hundred

Numerical terms between 1001&10000 = nine thousand

.....

Numerical terms between 8400000 & *shirshprahelika* = *?????*

The entire purpose thus becomes clear. It was the ingenuity of those scholars who circumvented the cumbersome problem of unmanageably large number of terms at the higher end of the counting. So, simple unity increment or multiples were replaced with the powers which reduced the number of numerical terms between 8400000 & *shirshprahelika* to only 28! How practical!

We have discussed the special features of Jain Arithmetic with regard to the biggest numerate number, the importance of the number 84 Lacs and the probable reasons for squaring the 84 Lacs in expanding the numerates. These discussions establish the independent development of Jain Mathematics. There is one more aspect of Jain Arithmetic about 'zero' which is equally interesting **- whatever exists may be near to or tending to zero but cannot be 'pure zero'**. Entities and realities can be infinitesimally small but cannot be pure zero. This concept is **another example of their practical approach** towards mathematics. It is a matter of serious contemplation as to why 'zero' finds no place in the Jain Agam Literature?

Tending to Zero but not Zero

The mathematician, Euclid assigned no dimension to the finest point of the space. Although, any dimension (length, breadth and height) is obtained by joining these dimensionless points in the space. Similarly, the scientist, Newton, used to treat the finest particles of matter, the atoms, as having zero dimensions. But Einstein, while making use of the Gaussian geometry, has compared the finest point of space with other micro particles. Similarly, in Jain literature, the finest forms of the six realities (mattereals) have been compared and a definite relationship is being established. For instance, mutual equivalence has been established among the finest part of matter, *paramanu* - the dion, the finest part of *akash*, Pradesh, and the finest part of time, *samaya*. Hence the finest part of elementary *tattvas* of nature cannot be reduced to zero. They all may be defined to be infinitesimally small – tending to zero – but cannot be zero.

Let us try to know the fact seriously as to why there is no place given to the digit 'zero' in the Jain canonical literature?

As per Jain philosophy, once an entity (*Tattva*) is reduced to 'zero', it can not reappear into existence. In other words, no mattereal which exists in this *lok* can reduce to zero either in quantity or in quality. Hence 'zero' cannot have existence in the realm of *Dravyas* or in relation to *Dravyas*. No basic *Dravya* (mattereal) can vanish or can be destroyed. Jain philosophy, while dealing with only eternal matter or phenomenon, has disregarded the use of digit 'zero' in counting or in mathematical operation. For instance, a black *parmanu* (dion) on association with other *parmanus* may increase or decrease the nature of black colour but it will never completely loose the original property of colour i.e. colour property will not reduce to 'zero'.

We have seen earlier, number one has been excluded from the counting. Rather, it is treated as the nearest to zero or tending to zero – very near to zero but not zero. Similarly, Jains rule out the existence of a 'superior infinitely infinite' known as *Asadbhav* in Jain terminology. Both presumptions of non-existence of absolute zero and absolute infinity establish that the entire mathematics lies between these two extremes.

The evolutionary or deductive methodology of modern mathematics necessarily need to have 'zero' quantity (digit), because of its subsequent applications – to segregate existent and non-existent, real or imaginary quantity etc. This was not the case in olden age. As such the necessity to use 'zero' did not exist in that era's philosophy. Instead of zero, Jain philosophy considered the term 'tending to zero' as more appropriate. Such an example is found in relation to the measurement of heat by the modern scientists –

There are two units prevalent for the measurement of temperature –

(i) Centigrade scale - °C (Degree Celsius)

(ii) Absolute scale - °K (Degree Kelvin)

When we say that water freezes at 0°C, it does not mean that the heat energy has reduced to zero. Below 0°C, negative temperatures are used such as -50°C – temperature of Antarctica. This, however does not mean negative energy. Therefore, scientists developed another scale of 0°K which means absolute zero energy at 0°K. In this absolute scale of heat, the ice temperature of 0°C is referred as 273°K above absolute zero. Accordingly, -50°C becomes 223°K. There is no negative value in this scale. Liquid gases exhibit temperatures below 273°K. In the experiments of superconductivity, the scientists were successful

to achieve temperatures as low as 3-4 °K. But then, how to explain 0°K? Entity ceases to exist at that instant. 0°K is thus treated as absolute zero and there is a clear conception in the field of science that this temperature (heat) is only notional and not real. At absolute zero, no properties have any relevance in physics.

Another example from the world of science is the properties of a photon –

(i) Photon is treated as a bundle of energy with zero-mass (massless) at rest.

(ii) Photons travel at the speed of light and acquire mass which cannot be measured due to its motion.

Once again, the scientists say that the absolute zero mass is only notional and even at rest it only tends to become zero. These two examples establish a close analogy between science and Jainism.

Many scholars have regarded zero to designate the absence, as this does not come under the provisions mathematics, hence its description is not given here.

Number System

Quantitatively, numbers are classified in three main categories depending on their countability - numerate, innumerate and infinite. These are further divided in three sub-categories Minimum, Medium and Maximum. Amongst these nine categories, only eight were adopted by the mathematicians and the last sub-category of maximal infinity is discarded on similar grounds upon which the zero was discarded. Their further subclasses are twenty, which are as follows –

There are three classes of the numerates

(1) Minimum (minimal)

(2) Medium, intermediate, middle or intervening

(3) Maximum (maximal)

There are nine types of the innumerate -

(1) Minimal lowest innumerate,

(2) medium lowest innumerate,

(3) maximal lowest innumerate,

(4) minimal average innumerate,

(5) medium average innumerate,

(6) maximal average innumerate,

(7) minimal highest innumerate,

(8) medium highest innumerate, and

(9) maximal highest innumerate.

There are eight types of the infinite –

(1) minimal lowest infinite,

(2) medium lowest infinite,

(3) maximal lowest infinite,

(4) minimal average infinite,

(5) medium average infinite,

(6) maximal average infinite,

(7) minimal highest infinite, and

(8) medium highest infinite

The ninth possibility of 'maximal highest infinite' has been treated as absolute infinity and thus discarded as non-existent. This is termed as '*Asadbhav*'. This presumption was premeditated as the absolute zero was considered non-existent. By simple analogy, absolute infinity is not possible; any thing can only **tends to** become absolutely infinite.

Infinitum and Innumerate

Various similes were employed in the process of building the counting patterns running into innumerate and further to infinite. A description of four concentric cylinders (cups) namely, Anavasthith, Shalaka, Pratishalaka and Mahashalaka is very interesting. An imaginary process of emptying the seed contents of these cups into the volumes of Jambu Island, Lavan Ocean, Dhatkikhand and so on; results in the seventeen categories of innumerate and infinites as enlisted above. The process of selecting lowest, highest and median is very similar to that employed in the modern statistics, where the smallest and largest samples of data are excluded from the series of numbers used for calculating the median or average.

The word infinite in the Jain canonical literature has been extensively used. The meaning of this word assumes slight variations with the changed context. Mahapragya defines that which does not come to an end is called infinite. This definition fits in all the references where this word is employed.

Numerate is subject to calculations and counting. Innumerate is not subject

to calculations but it is used for comparison, hence it too, is not endless. Various references where 'infinite' is used are related to the characteristics of six fundamental mattereals, like –

- Jiva (bios) consists of infinite *pradeshas*
- Infinite dions (*paramanu*) combine to form quadons (*skandhs*)
- Group of infinite quadons makes an octon (behavioural *paramanu*)
- Infinite *Samay* (instant) elapses in an *Avalika*
- Space is comprises of infinite Pradesh.

Besides the eight classifications of 'infinity', words like 'uni-infinity' and 'universal infinity' do appear in the Jain texts. These are used with respect to space and time both. In space, 'uni-infinity' is used for one-dimensional lengths and 'universal infinity' is used for spatial extensions. Similarly, in time, 'uni-infinity' is used for either the past or the future and 'universal infinity' defines the entire time frame.

We find a specialty in Jain mathematics that the numerate and the innumerate have been placed together. In the Bhagavati-Sutra, a table has been given which formulates the units of time –

Samaya	Smallest unit
Innumerate samaya	one avalika
Numerate avalika	one respiration
One breath — respiration	one prana
Seven pranas	one stoka
....	.....
Forty eight minutes	one muhurta etc.

An outstanding fact revealed by this table is that a numerate *avalika* embrace infinite *samay*. That is, **even infinite could be a part of the finite**.

The number scale, as used in Jain texts, starting from numerate and ending at infinitum comprises all the constituents of modern mathematics, highlights of which are –

- **Use of arithmetical progression to build the number scale up to 84 lacs.**
- **Use of geometrical progression to continue counting beyond 84 lacs.**
- **Use of statistical quantities like maxima, minima, median and average.**
- **Rejection of absolute zero and absolute infinity.**

KARMVAD

According to Mahapragya, The principle of Karma, called **karmavad, is the backbone of entire Jain philosophy**. Its understanding prompts a human to practice spiritualism. One's Karmas are the blue-print of one's past deeds on which the edifice of present can be constructed and the future course can be charted.

Mahapragya feels a dire need of confluence between the Karma philosophy and the human psychology. A correlation between the two can open the flood-gates of exploration of new capabilities and strengths a human mind can possess. He has tried to associate the theory of karma with not only psychology but with yoga and genetics too.

Karma and Dexterity

Due to lack of proper explanations and half-truths prevailing about the theory of Karma, a vast majority has **presumed it to be an inevitable destiny**. They have marginalized the role of decisions and dexterity and have heavily banked on the doctrine of fate. For them, everything is predestined. A few others have termed the worldly happenings to be the game plan of Supreme God leaving little space for human endeavour. Mahapragya has tried to dispel these delusions. Karmas are not all that powerful: **they can be reined in and altered by the right conduct and efforts.** Their effect can be preponed, enhanced, worsened or transformed.

Mahapragya states that **Karmavad is a powerful tool to root out the wide spread immorality**. It is neither an escapist theory nor it calls for resignation; it's actual, deep and practical meaning is to employ our efforts to modify our present and future for the better.

1. Philosophy of Karma

In all philosophies based on the reincarnation, theory of karma is well established and widely accepted. But, if an unbiased analysis is performed, **its full-blown development is seen only in the Jain philosophy**. Here, the anatomy, the association with bios, the dissociation through atonement, the transformation through efforts, and the ultimate emancipation are described in great lengths. To explain the diversity of nature, some religions rely upon destiny, some on God, some on probability and so on, but Jains follow the adage of Bhagwan Mahavira as mentioned in the Bhagwati-Sutra that the **life's diversity is the direct result of bios' karma.**

1.1. Definition of Karma

Different philosophies have their own definition of what karma is? However two broad definitions emerge –

1. Mimansak sect, Gita, Yoga & Vedant, they all associate various daily conduct and activities to the Karma. For them it is an abstract term.

2. In Jain Siddhant Dipika, the definition is

आत्मा : स्वदभ्यवृत्त्या कृष्टास्तत्प्रायोग्य पुद्गला : कर्म (4/1)

This means that the karmas are micro physical bodies (quadon pudgals) which are formed by the righteous and/or unrighteous activities of the bios. Author has coined a new word **'Karmasomes'** to distinguish between the physical and abstract forms. In Greek, soma means body, therefore the newly christened word, 'Karmasomes' is meant to represent the karmic body. Its justification will be further obvious as we read about chromosomes in the section dealing with genetics. 'Karmasomes' are formed by quadons (chatu-sparshi pudgals) which are massless and they exhibit affinity towards the soul. This affinity binds the 'Karmasomes' with the soul. Soul and karma thus form a single entity for all practical purposes and they stay together during all cycles of births and re-births. The aim of a spiritually bent person is to unshackle the pure soul out of the attachment of karma. Mahapragya has quoted from the ancient literatures that the karma pudgals (quadons) are so fine that they cannot be detected by any direct means. But indirect evidences obtained by the science for the electrons and photons make us hopeful that one day a direct cause-and-effect relationship could be established between the actions of bios and the formation of karmic micro bodies. Thus in Jain philosophy, **Karma is not an abstract; it is a real, physical entity.**

1.2. Psychology

Medical practitioners have only recently being able to answer an age old enigma - the human behaviour is acquired by birth or can be moulded by oneself? Initially, Aristotle and Plato, and later on John Lock and David Hume argued that the psychology is built up on experiences. While biologists Jean Jacks, Russo and Kent believed that the human psychology as written in the genes is unalterable. Freud stated that the human personality and behaviour is a total sum of parents, dreams, laughter and sexual activities. Franc Boise gave the similar statement, "Fate and surroundings are responsible factors."

Modern psychology, with the aid of genetic engineering, has reached a conclusion that the diversity in human behaviour is result of heredity and environment both. A group of genes forming chromosomes determine the inherited properties. These chromosomes are the vehicles through which the hereditary qualities migrate from older to the newer generation at the time of fertilization. But, had it been the only factor, all new-borne would be the carbon copies of their respective parents! That being not the case, environment plays an important role too. However, the uniqueness of each individual and most of the times the vast difference in the natures of next and erstwhile generations compel us to seek explanations beyond psychology and genetics.

Mahapragya has deeply studied the Karmic theory and the modern psychology. He states that the **Karmic theory can well explain the exceptionality of each and every individual**. Life might look like starting from the fertilization, but the soul is pre-existent. The chromosomes are responsible for inherited merit or demerits, but the Karma are responsible for the overall personality and behaviour. While the former are too rigid to be changed or modified physically, the karma can be wilfully altered to enable us to evolve.

1.3. Genetics

Far reaching advances have been made in the field of genetic engineering. Gene is a part of chromosome (a mega-molecule made up of DNAs) and is made of chemical proteins. The word **'chromosome'** is made up of two Greek words – chromo (colour) and soma (body). Biologists have established, beyond doubt, that the coded information is carried from generation to generation by the genes. This statement sounds very similar to the karmas carrying information from one birth to the next. In the natural process, these genes undergo a slow change depending upon the climate, environment, nourishment, health, etc. But, biologists are very near to alter the genes chemically to obtain desirable characteristics and attributes of an organism. In some cases, they have been successful to eliminate, in-embryo, certain genes which were carrying the codes of different diseases. With this knowledge, the Darwin's theory of evolution has come full circle; modification of genes to suit and survive in a given environment has now been substantiated. Jain readers must recall here that the mention of various life-forms of Lord Mahavira before his birth as Siddhartha has several parallels with the theory of evolution. In his preceding births – before assuming the human form – Mahavira lived several births in various animal forms, including the one of elephant, lion etc. All these descriptions convey but one fact – how humans have acquired best characteristics to evolve as a superior life form.

2. Types of Karma

Eight types of karmas are enumerated in the Jain scriptures. Depending upon the effects, some of them act as inhibitors, like Gyanavarniya (Knowledge-obscuring), others act as catalysts, like Mohaniya (Emotive), while the third category of Ayushya Karma is decisive. With respect to the modern psychology and genetics, two karmas, namely, Gyanavarniya and Mohaniya, are of special interest.

2.1. Gyanavarniya Karma & Genes

As the name suggests, Gyanavarniya Karmasomes are inhibiters of knowledge. Most invertebrates do not have mind, whereas the capabilities of mind vastly vary amongst the vertebrates. In humans, we bifurcate the mind as –

- ♦ Audayic or Conditioned mind
- ♦ Kshyopashmic or Super mind

Conscious or conditioned mind is the one which we have inherited from generations and is representative of animal behaviour. This conduct is mostly guided by our past Karmas as if the program is already coded into the genes. Another higher level mind is Super mind which is representative of a pure being. It acquires knowledge by way of detaching the Gyanavarniya Karma. It results in human awakening.

2.2. Mohaniya Karma & Psychology

Emotive Karmas are responsible for our psychological behaviour. According to the Jain belief, the human passions of fear, anger, joy, sorrow, love, hate etc. are guided by these deluding set of Karmasomes. Whereas, the biologists hold various hormones responsible for them. Neutralisation of these karmas results in piousness and detachment. Mahapragya has deliberated on this issue at length. He writes, "Everyone knows what is good and what is bad, yet it is not always possible to conduct accordingly. On the contrary, it is the bad tendency who wins over the noble one. People often blame circumstances for any unworthy behaviour but the root cause is the activation of Emotive Karmas. This must be understood. Sthulibhadra stayed at Kosha's house in an explicitly passionate environment for four months of chaturmas without even an iota of temptation. This was his capacity to win over the deluding karmas of *Moh*."

Onslaught of Emotive Karma results in varied impulses of anger, conceit,

obsession, voracity etc. All these emotions vary in their intensities and can be categorised into four stages -

- ♦ severe
- ♦ intense
- ♦ mild
- ♦ serene

Practice of equanimity under all circumstances is the key to conquer these emotions. When the intensities of these impulses become thin, we can take first step towards the liberation. So much so from Jain stand-point. From psychological angle also, these emotive impulses are associated with many a diseases. These emotions actually trap us in a vicious circle – more we succumb to temptations, more is our bondage and our sufferings augment.

3. Karma - Mechanism

According to Jain philosophy, when a soul or bio executes a tendency, it simultaneously attracts and repels the fine Karmic substances (karmasomes, as defined earlier in this text). It is the righteousness of the tendency that decides whether the detachment outclasses the attachment or not? These properties of attraction and repulsion are due to the four-some properties of a karma quadon. As elaborated in the discussions of pudgals, karma-pudgals are said to possess four properties of Snigdha, Ruksha, Ushna and Sheit. First two properties of karma-quadon exhibit the philic- or the phobic- tendencies towards the soul. This affinity between soul and karma could be one of the three types

- ♦ Electric – as in positive and negative charges
- ♦ Magnetic – as in north and south poles
- ♦ Gravitational – as in cosmic bodies. Here it is necessary to mention that the gravitational force is not essentially attractive but could be repulsive as well. Various studies involving the concept of gravitons have revealed this fact.

3.1. Attraction-Repulsion

Here it must be understood that the affinity of soul and karma does not necessarily means that the two amalgamate with each other. They unite to form a pair while retaining all their individual characteristics. It is as if the negatively charged electrons orbit around a positively charged nucleus. There is one more similarity, the bondage between soul and karma could be weak or strong. In

Jain Agams, the dynamics of Karma attraction-repulsion has been described when a soul, in its process of liberation is elated to the thirteenth state (Gunsthan). As the soul is in its penultimate state of ecstasy, it cannot accumulate any more karmasomes (karmic pudgals), because it has to be fully free form karmas at the moment of salvation. In this state, the physical activities of the body attract the karmasomes, but the bond is so weak that it is broken instantly. Karmas decay as fast as they cumulate, so that the net result remains naught.

3.2. New Reasoning

In the Acharanga aphorism, it has been said -

- Those who attract Karma: bind them.
- Those who bind Karma: attract them.
- Those who do not attract Karma: do not bind them.
- Those who do not bind Karma: do not attract them.

This universe is completely filled with fine matter. According to science, there is no region of the space which may be empty. The gravitons and the photons are available at the most distant corners of the Universe. The network of the micro matter is extremely mysterious. Today, the science is engaged in the effort of knowing, both the micro and macro through the medium of mathematics. Every event of the past can stays for a long time in space by being changed into a micro-system. Hence the attempts to know the past are continuing. In this space, such micro-systems are available in abundance and are readily available top those who are capable to utilize them. According to Jain canon, there is no possibility of any new event which may not have occurred in the past. It seems that in Jain literature the information available about the behaviour of the micro is consistent with the results of modern science. This is the extra-ordinary contribution of Jain philosophy that voluminous literature has been written on Karma theory.

4. Karma Transition

Alsdorf, the German Scholar, who has worked extensively on Jain scriptures had once commented that the Jain saints had written maximum volumes on Karmavad and Drishtivad. While Drishtivad, said to be the twelfth Agam, had lost in the oblivion of time, Karmavad's detailed studies are available.

Stating from its definition and arriving at its mechanism, we are now left to deal with the **Karma management**. Like in any journey, it is better to travel

with lighter baggage, in the soul's journey towards freedom, lesser the karma we carry, better it is. A bio's life starts with default karmosomes attached or bonded with its soul. In addition, each soul has a prime characteristic of intelligence. Life is this spectacular contest between the wit of the soul and the power of the karma. Jainism paves a path for the wit and will to win over the control and command of karma.

4.1. Transformation

People often argue that desire, hunger, anger, et all are written in our genes and bios have little control over them. But, once exposed to the unique teachings of Bhagwan Mahavira, this illusion totally vanishes. According to him, Karmas can be transformed and so can be their effect. And, in this, the human dexterity plays a vital role. Now, even scientists know how to genetically modify a chromosome and also how to transform one chemical element into another. For centuries, the scientific fraternity believed that iron, copper, gold, mercury etc. are basic elements of nature. Later on, while studying the micro construction of elements, they discovered that one element can be transformed into another. We find a specific example of turning mercury into gold by bombarding the former with high energy protons. As a first transition, the proton enters the mercury atom to increase the atomic mass from 200 to 201. This is unstable state, and the excited mercury atom releases an alpha particle having an atomic mass of 4. The resultant atom has an atomic mass of 197, which is identical to that of gold. The new atom thus obtained, has all the characteristics of the genuine gold atom. In the similar way, **the dynamism and the dexterity can rewrite the destiny of karma**. Human endeavour can transform the effect of providence and can write one's own fate.

4.2. Impulse Management

Three possible ways are there to control the impulses – suppress, endure or attenuate. Karmavad does not advocate suppression. Stifling ones' desires is always counterproductive. They (desires) bounce back with vengeance. To suffer or enjoy the fate is another way to neutralise the accumulated Karma. **The third noble path is to attenuate the rising of karmic desires, to practice equanimity and to understand the duality of soul and body.**

Modern day biologists are also successful in altering the effects of diseases and tendencies coded in one's DNA. Nano technology has further heightened the hopes of all our physical and emotional disorders to be treated at 'cell' level instead of at organ level. In this case also, the science is touching the frontiers

of finer world which have already been prescribed by the Jain spiritualism. Mahapragya says that there are two types of tendencies in humans -

1. Internal tendency

2. External tendency

When there is an increase in desire, the person becomes externally tended. When the craving for pleasure is mellowed, he gets closed to the inner self. In the Karmic language, when the indulgence is intense, the person becomes outwardly bound, and when the indifference towards worldly objects augments, the person begins to withdraw into his inner circle. The desires, then, are watered down and the restlessness becomes milder. In the above description Mahapragya has opened the gateway for the comparative study of the Karma science and psychology.

Biologists attribute our emotional impulses to the hormonal secretions. Thyroid, pineal, gonads and adrenal, these glands regulate our physical and mental states. Their study may be useful in diagnosing various ailments, but according to the Karmic theory, the root cause is not the chemical imbalance, it is the karma.

KARMAVAD - MATHEMATICAL ANALYSIS

Mahapragya preaches that both, psychology and mathematics are necessary for understanding Karma doctrine. He writes that apart from psychology, Karma doctrine is embedded with complexities of mathematics as well. In the last chapter we read about psychology, and now we shall discuss about mathematics. Karma is a fine substance. Fine substance is wavy and in the mathematics of a wave, there is application of advanced mathematical equations, which are difficult to study by an ordinary reader. From this point of view, we shall only introduce the subject sans its details.

In the field of Jain mathematics the work of Professor L.C. Jain, Jabalpur is worthy of mention and appreciation. About the mathematical study of the Karma doctrine, he has written that –

(i) It is necessary to have the knowledge of the applied symbolism in it before the study of any mathematical system. For an essential and brief study of this system as well as for memorizing them, the commentaries of the Gommatasara, Tiloya-pannatti and Dhavala contain some symbolic material, which was not available in earlier texts. But this material appears on a large scale in the Karnataka commentary of Kesava Varni in the form of digital symbolism and geometrical symbolism. Similarly, in the commentary of the Labdhisara and Ksapanasara, application of symbolism, possibly by Madhava chandra Traividya and Nemichandra, the disciples of Jnanabhusana (16th century), was exceptionally adopted, and seems to manifest the core of religion through the mathematics of Karma.

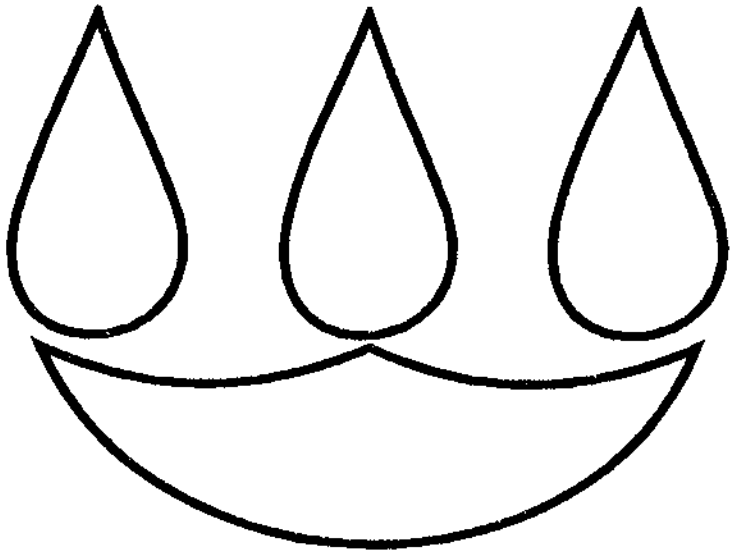
(ii) After the knowledge of symbols, there is description of the indivisible-unit. The concept of fundamental indivisible-unit is essential in quantitative description of the qualities of mattereals and karmasomes. In the study of karma theory, there should be knowledge of the degrees of *Snighda and Ruksha Sparsh*, because they alone are the causes of attraction and repulsion.

When the quadons (sukshma pudgals) become karma on being bound with the soul, they are attracted. Conversely, upon activation they are repelled and get detached from the soul. In Jain literature, eight types of karma have been described. They are **the knowledge-obscuring, the vision-obscuring, pathogenic, deluding, incapacitating, lifespan determining, inheritance determining and class determining**. Here, as the names suggest, first two

karmas are inhibiting, next three are inductive and the remaining three are deterministic. Of these, the deluding and inheriting karmas are of special interest from mathematical point of view.

While the composition of karmic bodies may be a subject of chemistry as it involves the micro particle forces of attraction and repulsion, their behaviour, actions and attributions are more a subject of mathematics. Karmic bodies are in fact take shape of database similar to those stored in a computer's hard disk. These databases then can be subjected to algebra, matrices, topology etc. These mathematical analyses can help in decoding the entire matrix and will enable us to simulate the models by the group analysis of the databases.

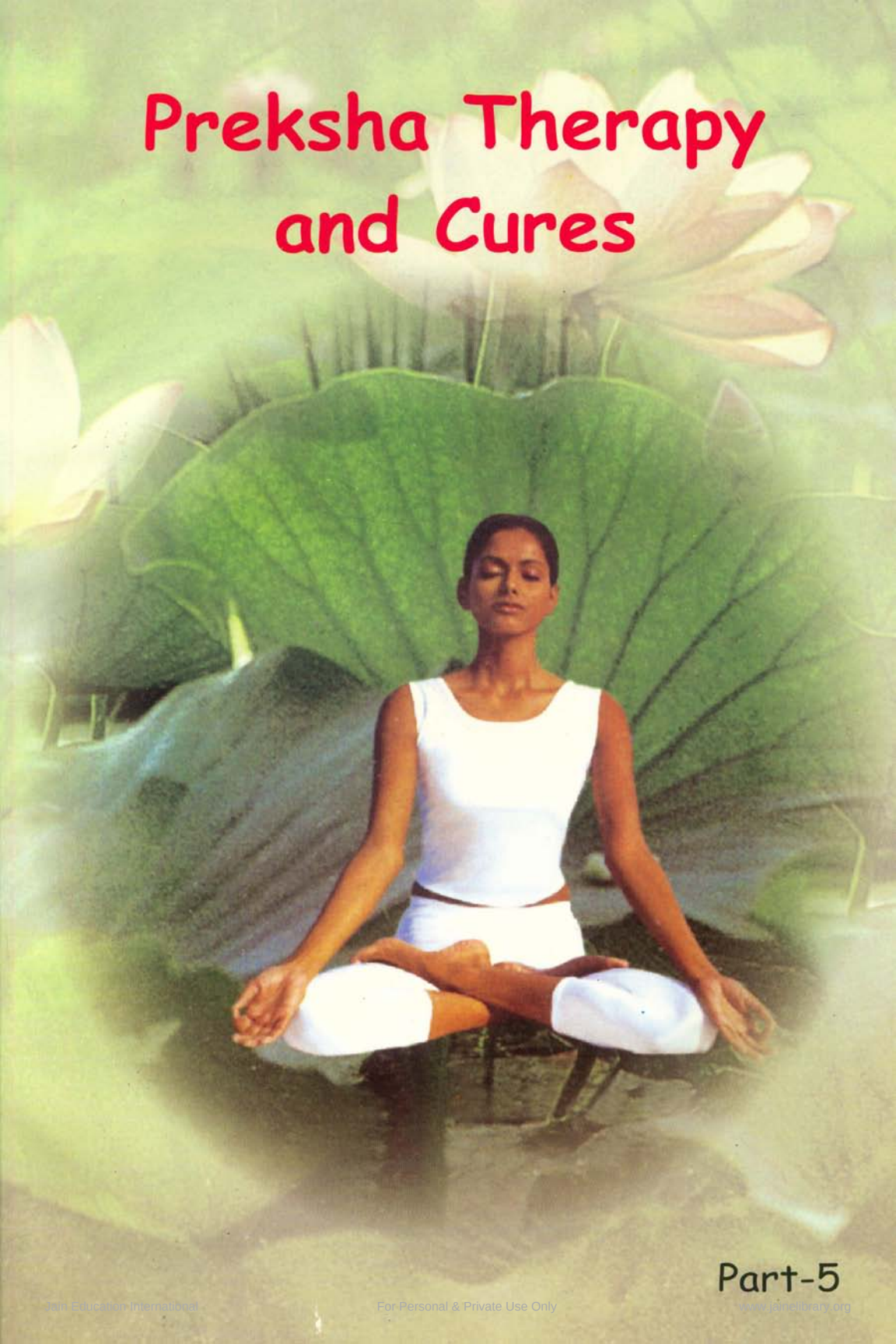
Through the mathematical study of karma, the perdictions and probabilities could be known about the (events) of the past and future. Just as diseases are traced through genes, similarly there is a great possibility that the mathematical study of karma will be useful.



SECTION - 5

PREKSHA MEDITATION, THERAPY AND CURES

Preksha Therapy and Cures



Part-5

PREKSHA MEDITATION, THERAPY AND CURES

Mahapragya has two important contributions in the field of mental training –

1. Preksha Meditation
2. Life Sciences

Both these practices are not only rooted in philosophical and spiritual treatises but also encompass sciences – medical and psychological. Preksha form of meditation has inherent therapeutic values while the studies of 'life sciences' enhances the moral values. Both together form a holistic approach towards life. Preksha meditation is aimed at tension alleviation, health augmentation, moral reinforcement and personality development. Before devising the Preksha meditation, Mahapragya deeply studied all the streams related to the science. He reveals that philosophy and biology are in fact complementary to each other – former suggests that the body is driven and directed by the amorphous consciousness, while the latter gives insight into the micro chemical body mechanism. As both spiritualism and science are investigating the ultimate, they inevitably meet somewhere. To know the energy centres and the nervous system of the body is equally important as to know the consciousness. Mahapragya's comparative studies of science and spiritualism have brought the two fields near to each other and have benefited the mankind with the best of the both. We shall elaborate the experiments on psychological aspects, medicinal therapy and Preksha in this section of the book. The salient points of discussions will be –

i. Preksha

ii. Psychology

iii. Energy Centres – Glands and Nervous System

iv. Application of Preksha in disease control and management

PREKSHA

1. The Basic Concept of Preksha

1.1. It's **Aim** – Let truth be uncovered by self

1.2. It's **Meaning** – Pra + Eksha – to observe keenly and deeply.

1.3. It's **Method** – Let your soul peruse yourself. It is like using bow and arrow. In Preksha, body is bow and mind is arrow. Our concentration of energies is like stretching the string of the bow to its fullest extent with Arjun's eye on the sole aim – the soul.

1.4. It's **Target** - Let your conscious vision become so concentrated that it can travel down from body to breath, karmas and ultimately to soul. You become so aware and awakened that you can feel the finer, inner vibrations of the self and can reveal your true identity.

1.5. It's **Definition** – Mahapragya has laid equal importance to body as well as soul. According to him, until the body is polished, soul cannot be disciplined. With this vision, he called Preksha meditation as a concerted and combined effort to train all the seven aspects simultaneously – breath, body, conscience, mind, emotions, karma and soul.

1.6. It's **Experiments** – Mahapragya has enumerated an eight stage theoretical background of practising Preksha –

- *Kayotsarg* – Relaxation and initiation
- *Antaryatra* – Beginning of inner journey
- *Swashpreksha* – Concentration on breathing
- *Sharirpreksha* – Concentration on body
- *Leshyadhyan* – Awareness of colour halos
- *Bhawna* – Determination and resolve
- *Chaitanyapreksha* – Soul searching

Preksha meditation starts from the cosmic body and slowly travels inwards. Medical science has established that the body is governed by electro-chemical vibrations. As an ocean encompass enormous waves, our body too, is an ocean of emotional and spontaneous waves. *Sharirpreksha* involves awareness towards these internal waves which emanate from our conscious and unconscious minds and control our activities. Body actions result from a combination of wide ranging chemical processes which need to be examined by the Preksha practitioner. The projection of our concentration yields spectacular results of reinforcing positive attitude and dilution of detrimental thoughts.

2. The Three Dimensions of Preksha

(i) Yoga

(ii) Meditation

(iii) Therapy

Yoga and meditation have a long standing historical association. Both are processes of spiritual therapy, healing and cure. Human behaviour can be substantially modified by their practice. As on today, majority human ailments are neither physical nor mental, but are psychosomatic. These diseases of emotional origin can be cured by the practice of Preksha meditation. Mahapragya's confidence on the therapeutic values of Preksha emanate from the experimental facts of controlling anger, ego, lust and other emotions by it. Preksha awakens the mind, modifies the hormonal secretions and strengthens the virtuous emotions all of which jointly mitigate the psychosomatic disorders. To corroborate, Mahapragya organized several camps to propagate the technique of Preksha. Experiments on thousands of participants had substantiated that the confluence of medical science and spiritual practices can yield significant results.

2.1. Scientific Research

Though the feedback from those who practice yoga and meditation has been encouraging, yet the clinical results play an equally important role in establishing their efficacy. Doctors have found that the meditation reduces the demand of oxygen and amount of lactate in the blood thereby reducing the burden on heart by around 25 percent. In numerous medical research papers it was reported that the various meditative and yogic techniques enhance the alpha waves in the EEG, depicting the mental peace and tranquillity.

Enthused by these studies, Mahapragya adopted Preksha meditation for therapeutic applications. It was a new beginning and encouraging results were achieved in containing the diseases like, cardiovascular, hypertension, high blood-pressure, depression, stomach ailments etc. It is like a panacea in combating sexual disorders. Though there is no cure for dreaded disease like cancer, the suffering can be reduced substantially.

3. Sound Therapy

Sound plays an important role in the therapeutic applications of Preksha. The tranquilizing effect of mother's lullaby is very well known to all of us. A

soothing rhythm can induce calmness. A few years ago, a novel concept of 'fu-mu' was developed by the world renowned entertainment electronics company, Philips. In this, functional music was developed in such a manner that when the potential customers visited their show-rooms, they were more inclined to buy the products being displayed there due to the soothing sound. Mahapragya experienced that the incantation can augment our energy resources. Various hormonal activities can be energized by the application of hum and reverberations.

Empirically, Mahapragya has found that the echoing of the '*lunnn...*' is effective in cardiovascular ailments while the sound '*hunnn...*' in the cases of liver malfunctioning. To make the chanting of these words effective, one has to synchronize the sound pulsations with the rhythm of respiration. This coordination along with the emotional resolve helps arouse the consciousness.

3.1. Incantation of '*Ar – hu – m*'

If a proper rhythm is imparted, says Mahapragya that every hum can become a mantra. *Arhum* is one such hymn. In Preksha, its nine reverberations during the beginning of the meditation process help the practitioner to isolate himself from the environment. As this mantra contains three tones, it gradually acts, firstly on the thyroid glands (electricity centre), then on the frontal lobe (peace-centre) and finally entire nervous system (energy-centre).

Wide ranging experiments and the feedback received thereof is so convincing that the effects of sound-preksha have the capacity to take you to the new horizon of experience.

4. Colour Therapy

The logical next step after the study of effects of low frequency sound, Mahapragya turned towards the high frequency colour to further investigate the finer emotions of a bio, so that the personality can be studied and modified to our advantage. Whatever a bio exhibits outwardly is linked with its inner status. This relationship is manifested in the **coloured aura (*leshya*)** surrounding a bio. Halo surrounding a person divulges its true inner state – both emotional as well as biological. It is the blue-print of one's health – both temperamental as well as corporal. This radiance consists of several colours – white, red, yellow, grey, blue and black. Each colour is

associated with characteristics which could be either noble or impure. Halo is like a camouflaged signature of a person's mental and physical state and its hues change as the latter changes.

Entire body always remain surrounded by the aura, but its maximum concentration is found at the back-head of a person. Its study has become possible by the advent of thermal cameras. These thermal photographs divulge valuable information about the aural radiance and thereby about the personality. Renowned Aura specialist Leo Velloz has decoded properties of various colours

Deep Red - hard working likes power, realistic and good stamina

Red - excitement, energetic, competitive, winnder, strong will power, sexual and entrepreneur

Orange - productive, creative, adventurous, entrepreneur and loves life/

Orange-Yellow - analytical, intellectual, meticulous, logical, structured and scientific

Yellow - playful, sunny, easy-going, creative, intellectual, entertaining, curious and active

Green - social, natural, contented, harmonious, communicative and quick minded

Deep Green - quick minded, goal-oriented, social, material, communicative and organiser

Blue - caring, sensitive, loving, helpful, loyal, peaceful, helpful and nurturing

Indigo - clarity, calm, deep values, loving, loyal, introvert and artistic

Violet - intutive, artistic, sensual, theorist, futuristic, visionary, charismatic and innovative

Lavender - imaginative, mystical, fantasy, soft, fragile, sensitive and dreamer

White - pure, imaginative, quiet and spiritual

4.1. Atom and Aura

An American lady Dr. J. C. Trust captured the aura of several persons

using high frequency cameras. Analysing the results of these photographs, she writes in her book, 'Atom and Aura' that the outer beauty of a person has little to do with the virtuosity. She states, "I have seen several mischievous characteristics in the aura of externally handsome and beautiful people. Conversely, there were several ugly looking personalities who possessed pristine, spotless and uncontaminated aura." She laments that today people have become more aware of their aesthetics but do not inculcate gracious thinking.

4.2. A Real Episode

Aura specialist Sh. Sunder Rajan has authentically analysed the aura of Mahapragya. He said. **"Your aura is one of those rare personalities who are great. All the colours involved are sacred, brilliant and luminous. Your halo is abundant in yellow, blue and green colours which are indicative of acumen, intelligence and superlative vision. And the most remarkably noticeable property is that it contains no impure and distorted colour."**

Mahapragya too has written extensively on this esoteric subject of aura. He says, "A person may be in front of us but his temperament remains veiled. What we see is a corporeal body, whereas the disposition of a person is difficult to comprehend. Is it possible to know one's characteristics without association? The answer lies in deciphering one's aura. This art deserves better exposure so that the hidden secretes of a complex mind can be effectively revealed."

4.3. Temperament and Aura

From the experiments of Preksha, it was established that the connection between the mental disposition is two way – the aura surrounding a bio is manifestation of its mental and physical condition, at the same time, the deliberate concentration on colours (*leshya*) affect the psyche of a bio. Empirically, it is found that red colour drifts us towards anger while the blue instils drowsiness. In fact, colours or *leshya* have wide ranging effects on our behaviour and consequently on our success or failure.

A proper understanding of **Principle of Leshya** is essential to guide us towards a successful life. Mahapragya says that the nodal point of soul and body is that part of our brain which is called 'limbic system' where our emotions generate. If in this section of brain, we meditate on the radiant colours, cleansing action on our emotions automatically starts. This process is named, *leshya*-meditation. *Leshya* is a typical Jain classical word which has been extensively

dealt with in the Agams where the *dravya-leshya* and *bhav-leshya* are separately described. It essentially means *sukshma pudgals* (quadons and octons) which contain the information of colour.

Leshya is a fact of our lives. It is a mirror which images our mental and physical health. Once this is studied, clue to our refinement and improvisation can be obtained. Owing to this fact, people are employing the aura to diagnose certain diseases as well as to alleviate psychosomatic symptoms for a better way of life.

4.4. Aura and Ailments

Mahapragya stresses the fact that the aura contains an encrypted message of our inner being. A wave front of corona forms an inseparable web around us. This pattern of radiance is dynamic as our thoughts are and it reflects everything including bonafide and malafide intentions. As is matter of common knowledge, all diseases have their seeds in the micro-organisms of the body. The presence of such harmful activities at micro level are manifested in our aura and if detected in time, curative process may be initiated well in advance before they incubate to spread as an ailment.

An ingenious method is developed by Mahapragya as a part of his Preksha technique. This is *Swash-preksha*. This is found to be of help in containing various psychosomatic disorders. Respiratory process of inhalation and exhalation can be synchronised with the meditation of selected colours thereby cleaning the aura and emotions with it.

5. Scientific Viewpoint

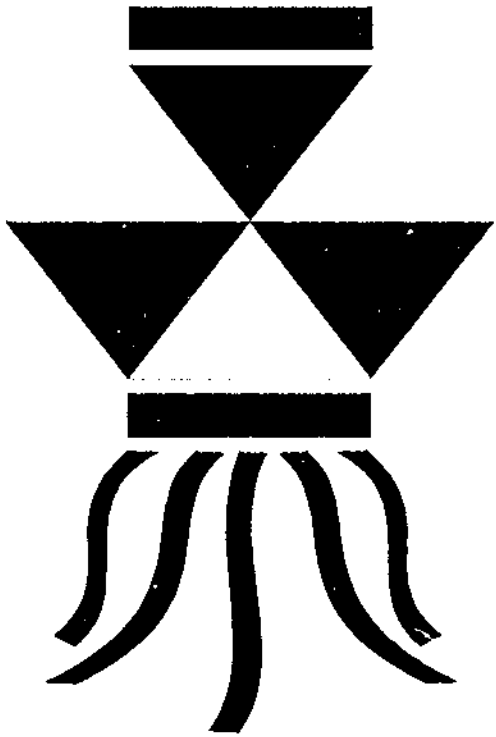
In scientific realm, this subject has not been treated seriously so far and the research, if any, is only in its infancy. However, some correlating evidences are slowly emerging. Scientists have successfully photographed the thermal pictures of humans, animals and plants. All have an aura accompanying them. Its actual meaning with respect to the temperament and health is yet to be established, but some generalisations are now available. In the spectrum of visible light, the colour red is found of contain maximum energy and blue the least. Similar results are claimed by colour therapists who suggest that the red and orange colours are associated with anger and violence while the blue with gentleness.

When more and more practical results will follow from the efforts like

those of Mahapragya and others, perhaps scientists too will come forward to substantiate the findings of aura and related therapeutic advantages.

6. Conclusion

Leshya-meditation and invocation of various sounds are innovations which can be credited to Mahapragya. His experiments have yielded repetitive results to establish a clear link between various energy centres (hormonal glands and brain) of the body and the different hues of the light and the rhythms of the music. Various hospitals across the world have accepted the efficacy of soothing music and bright and colourful environment in faster recovery of the patients. Preksha form of meditation thus employs a holistic approach towards the mental, emotional, psychological and physical health.



PSYCHOLOGY

Study of human body is divided in two branches – Medical Science and Psychology. While the former presumes all diseases have bacterial, viral or chemical origin, the latter adds another dimension of conscious and sub-conscious mind affecting the body functioning. Psychologists have established that a depressed state of mind can lead to many physical ailments.

Jain study of human psychology is a trio-logy of Spirit, Karma and Nau-Karma. Mahapragya has quoted several similarities between modern psychology and Jain studies. Some such comparisons are stated here.

1. Human Psyche

Humans have around fourteen autonomic activities programmed in to his physiology. Hunger, thirst, sexual desire, breathing etc. are some physiological activities which take place automatically. Similarly, love, hate, anger, affection, fear, etc. are some spontaneous psychological responses of mind. Medically, these activities and reflexes are the result of basic gene (DNA) programming. From Jain Philosophical view point, we may say we are bonded to our Karmas. Yet both, modern psychologists and ancient Jain philosophers agree that this **programming can be modified and evil can be got rid of**.

Human weakness, interestingly, is coupled with willpower. We have the capacity to change and grow, without which our evolution would not have been possible. For example, hunger – a basic need triggered by *Vedniya* Karma – can be over-powered and one can observe fast for days and even months. If determined, a person enjoying all physical comforts can adapt to austerity. According to author, the path of self-improvement can be treaded with Karma transformation.

To be enable to bring about Karma transformation we need to understand the fundamentals of human behaviour, habits, desires and above all human ego. We shall briefly discuss these parameters in the following paragraphs.

1.1. Habits

Medical fraternity believes that the human habits are manifestations of hormonal and chemical activities within the brain. Mahapragya too has found through his experiments of Preksha-Meditation that various behavioural abnormalities can be attributed to the pituitary and thyroid glands. He suggests that the secretions from these glands can be controlled by concentrating on the

vision-centre lying between the eye-brows. This kind of meditation, particularly by younger generation, dilutes anger, ego and indiscipline. Mahapragya stresses on targeting young so that they can be moulded before their habits die hard.

1.2. Chitta & Mann

Freud and Jung are pioneers of modern psychological studies and its principles. Their studies revealed that the entire thought process is divided into two parts – conscious and subconscious. They have compared it with an iceberg or an island, where only a miniscule is visible and rest is submerged and hidden. Freud explained various human behaviours on the basis of 'depth psychology' which dealt mainly with the subconscious mind. Both these experts, however, treated conscious and subconscious minds as the two faces of same coin. Jain philosophy, however, clearly distinguishes between conscious and subconscious minds.

Conscious mind is termed as '*Dravya Mann*' or simply '*Mann*', and subconscious mind is called '*Bhava Mann*' or '*Chitta*'. The Mann is described as shrewd, mischievous but weak, while the *Chitta* is innocent, primitive but powerful. Mann derives its energy from external circumstances and environment. It facilitates the mind to react to the external stimuli. *Chitta* draws its energy from the karmas of the spirit (*atma*). The vibrations of the *Chitta* compel the mind to act in a manner which is pre-written and pre-defined in our karmas. Basically, the *Chitta* is conduit between the spirit and the *Mann*. It is through proper meditation that the *Chitta* can hold the *Mann* in discipline and mitigate its apparent turbulence (*Chanchalta*).

2. Emotions

Ego is a part of complex emotional aspect of human psychology, when turns negative, it results in self-righteous, selfish and aggressive behaviour. Emotions, if left untamed are like a bull out on rampage. Emotions are not entirely abstract; they cannot be disciplined by acquired intelligence, but only by balancing the activities of 'sympathetic and parasympathetic nervous systems' through the practice of meditation. Medical science has provided a deep insight into the functioning of our brain and nervous system. According to their experiments, right hemisphere controls the left side of the body and vice versa. Each hemisphere has four structurally different parts, of which, frontal lobes are associated with personality and emotions. Mahapragya, from his experience of meditation on self and hundreds of volunteers has established that concentrating on the emotional areas of our frontal lobes helps conquer anger,

rage and ego. His experiments have further revealed that during meditation, if our concentration is fully targeted on the hypothalamus, vibrations of higher conscience can be felt. We must recall that hypothalamus is central steering part of the entire endocrine system comprising of hormone secreting glands. Psychological, anatomical and spiritual aspects of different human emotions like fear, anger, desire etc. are elaborated in the following discussions.

2.1. Fear

Perception of danger, real or imaginary, is fear.

Medically, fear induces the secretion of adrenaline and noradrenalin hormones from adrenal glands. The message for such a reaction originates from hypothalamus. This readies the body to highest alertness by altering the blood flow and releasing the stored energy from liver. The body is thus prepared to combat any emergency.

Jains have long back realized that the **humans' greatest source of fear is physical suffering** - either by way of starvation or by an act of violence. Jain teachings thus concentrate on alleviating these fears. They have an elaborate methodology of fasting which helps overcome the apprehension of starvation. Similarly they insist on the theory of non-violence to win over the insecurity of assault. Jain literature is full of such events where Lord Mahavira remained unscathed even when assaulted by snakes, elephants, lions and humans.

2.2. Anger and Violence are Results of Primordial Brain

Jain *Sthanang* Sutra contains discussions on anger. Mahapragya has described the intricacies of anger on psychological grounds. Referring to *Sthanang* Sutra, he states that the anger is mainly provoked by following ways –

1. Proactive: Self inflicted. Anger can be triggered by one's state of mind itself. This results in frustration and dissatisfaction.

2. Reactive: Induced by the external and environmental factors. This type of anger results in aggression.

3. Di-active: When both proactive and reactive factors are responsible for anger. This often culminates in violent behaviour.

4. Passive: When none of the above factor is present, yet the karmic reasons give rise to anger. This may result in misery and depression.

Mahapragya analyses that this classification underlines a fact that **anger**

is not the steady state of mind, rather it is an excited state triggered under certain circumstances. This classical philosophy is substantiated by the modern psychology.

Medical Experiments in this field have revealed interesting facts. According to the pioneering experiments of Dr. Delgado the state of mind can be altered from tranquil to agitated and vice versa by stimulating the designated and pre defined points and areas of the human brain. In one of his experiments, he was successful in initiating a quarrel among the peaceful group of monkeys by sending mild electrical impulses to their minds through the electrodes fitted on their heads. In a similar experiment the converse was proved. Here, a hungry cat was made to coexist peacefully with a mouse as her senses of appetite were inhibited by the electrical signals. With the help of such experiments on bulls, other animals and humans, scientists have developed complete topography of the human mind. Psychologists have used this information to develop a method where no external electrical stimulation is required, instead the person is taught to enhance his own determination using the method of auto-suggestion.

2.3. Sexual Desires

Humans desire love, affection, attention and respect from others. Amongst all these desires, the human sexual desire is the most enigmatic. While all the rest of desires are socially accepted and treated legitimate, sexual desire is yet to be classified as good or bad. While all religions emphasize on curbing and treat it as taboo, advocates of full freedom are also aplenty. Conflicting hard line views have painted a blurred picture so far. With advancements in medical sciences we have now being better able to understand the role of internal glands and hormonal secretions behind the sexual drive. At the same time, incessant experiments by Mahapragya with Preksha Meditation have revealed effective ways to tackle the hormonal imbalance.

2.3.1. Physiological Explanation of Sexual Desires

Pineal glands secrete two important hormones – serotonin and melatonin. Serotonin in conjunction with dopamine and noradrelenin is responsible for appetite, lust, memory and learning, temperature regulation, mood, behaviour, cardiovascular function, endocrine regulation and depression. There is no other physiological chemical known which controls so many human emotions and body functions. On the other hand, Melatonin is known to suppress lust and its deficiency may lead to seasonal affective disorders (SAD). Noble Prize winner Julius Axelrod has performed many conclusive experiments to reveal the role

of melatonin in regulating sleep-wake cycles (circadian rhythms). Normally, production of melatonin is inhibited by day-light and permitted by darkness. In essence, our biological clock along with various environmental triggers available to the brain create cyclic pattern of lust and desire. **Physiologically, sexual desire is just similar to appetite and breath programmed in our DNA.** This understanding has resulted in manufacture of serotonin based drugs containing serotonin reuptake inhibitors which controls and mitigates negative emotions including depression. We shall soon find out in following discussions that control of hormones and neurotransmitters through spiritual means is not just a fiction but is a physiological fact.

2.3.2. Psychological Explanation of Sexual Desires

Sigmund Freud, first time ever took the craving for reproduction to the psychological level. He associated the sexual drive to the creativity and advocated open satiety of lust. He argued that sexual pleasure is an ever lasting basic need and all humans tend to satisfy it by whatever means. Another psychologist, Adler arrived at diagonally opposite conclusion and proclaimed that the desire to reproduce is not as much for pleasure as it is for consolidation of social strength. A third view came from Hume, who contradicted both Adler and Freud. According to him, the basic driving force of a human is neither desire to reproduce nor accumulation of energy, but it is desire to develop one's own personality. While Freudian view point tends to make a human being hostage of desires, the Adler's view has a danger of creating a highly competitive society having strength as the only benchmark of human personality. Hume's view is very close to spiritual way of thinking.

2.3.3. Spiritual Explanation of Sexual Desires

According to Jainism, it is rising of *Mohniya* Karma and the micro activities of Emotion-Centre. Mahapragya has unified the scientific concept with traditional one. He states that our Command-Centre (*Agya-chakra* also called as third-eye) is same as hypothalamus and by concentrating on this centre, secretions of pineal and pituitary glands can be inhibited to act upon the gonads thereby annulling the sex desire. Recently, Bio-electrostatic research Centre, University of Southampton, UK has established through scientific research and documented accounts of personal experiences that there are striking similarities between religious mystical experiences and the effects of *serotonergic* drugs like LSD. This opens avenues of research into the meditation practices and the wealth of knowledge on consciousness and the way we perceive the world.

3. Refinement of Psyche

Having discussed various physiological, psychological and spiritual aspects of human emotions like, anger, fear, desire etc., we conclude that our destructive and negative thoughts and emotions need to be reigned in. **Immediate methods** proposed by Mahapragya are – strengthening of will-power and sex education. **Ultimate method**, according to him is the evolution of refined brain.

3.1. Willpower – Experiments with Emotion

Yoga practitioners have known the importance of will power for ages. They have established that humans can reap rich health benefits by directing their emotions and energy on various body *chakras*. Modern psychologists refer this technique as **auto-suggestion**. They have developed an autogenic treatment system. In this method the patient is induced to believe that he/she is free of the ailment.

3.2. Sex-Education and Self Discipline

Giving health its due importance, it is established that food and sex must be refined and restrained. Indiscriminate abuse of both leads to several diseases, some of which could be life threatening. Mahapragya insists that a proper sex education can help prevention, but self-discipline and restraint must be taught along with it. This will further reinforce the prevention and protection.

4. Evolution of Intellect and Proposed Structure of Refined Brain

According to the triune brain theory developed by Dr. Paul MacLean, Chief of Brain Evolution and Behaviour at the National Institutes of Health, humans have three brains, not just one. Throughout its evolution, the human brain has acquired three components that progressively appeared and became superimposed, just like in an archaeological site: the oldest, located underneath and to the back; the next one, resting on an intermediate position and the most recent, situated on top and to the front. They are, respectively:

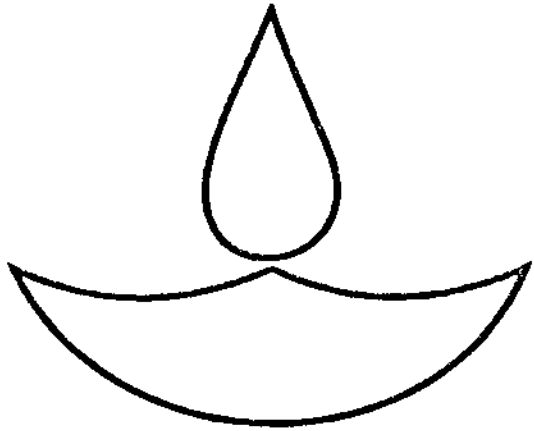
1 - The **archipallium** or primitive (reptilian) brain, comprising the structures of the brain stem - medulla, pons, cerebellum, mesencephalon, the oldest basal nuclei - the globus pallidus and the olfactory bulbs. It corresponds to the reptile brain, also called "R-complex", by the famous neuroscientist Paul MacLean.

2 - The **paleopallium** or intermediate (old mammalian) brain, comprising

the structures of the limbic system. It corresponds to the brain of the inferior mammals. It affects moods, emotions and bodily functions. It is also referred to as emotional centre and conscious system.

3 - The **neopallium**, also known as the superior or rational (new mammalian) brain, comprises almost the whole (about 80 percent) of the hemispheres made up of a more recent type of cortex, called neocortex. It corresponds to the brain of the superior mammals, including the primates and, ultimately, the human species. It affects our creativity and our ability to learn.

In the process of evolution, some of these reptilian functions were lost or minimized. Mahapragya surmises that **if the reflex responses of our age-old animal brain to the various stimuli like odours, approach, attack, fight and mating can be diverted to the limbic or neo-cortex brain, all violence, hatred and aggression will end.** Survival of fittest will no longer remain true. A new species of mankind will evolve. We have seen that during the evolution of millions of years human anatomy has undergone several phases of change adapting to the environment. This process is still continuing. For example, Dentists today say that our wisdom teeth may disappear 200 years down the lane as they serve no useful purpose in chewing. Similarly, religious leaders like **Mahapragya rightly point out that by practicing spirituality, the reptilian brain will become redundant** and in due course of time our neo-cortex brain will get rid of it. Let us all work together in this direction so that a violence and war free society no longer remains a mere dream.



ENERGY CENTRES OF BODY

(I) GENERAL DESCRIPTION

1. Body – Source of Enormous Energy

Mahapragya is a spiritual leader with difference. He accepts the Jain classical view of immortal spirit but acknowledges the fact that the human body too is a source of infinite energy. He explains this in simple terms - spirit cannot be functional in absence of the body, whereas the body cannot perform without the force of spirit. The bond between the two is very strong. Body alone paves the way for spiritual liberation. So, **let us understand the body from metaphysical and medical points of view.**

1.1. Corporeal and Ethereal Bodies -

At the outset, it is important to define what constitutes a body – the externally visible skin, organs, bones etc. forming the macro-body or the intangible intelligence, karmic body and soul forming the micro body? Spiritually, the soul is different and separate from the body, but the body functions are complete only when macro (physical and chemical) and micro (karmic and *tejas*) bodies work in tandem!

People sometimes argue it is the tangible body and nothing else. They cite some ridiculous examples like, weight of the body remains unchanged soon after death implying no micro-body (karmic, *tejas*) can possibly leave the body. But it is not the physical attributes like weight and power which are important, they are just corporal masks of the ethereal body. What is important is the real guide, driver and director – our micro self – *tejas* and karmic bodies.

1.2. Thermal Body (*Tejas Sharir*)

Mahapragya stresses that the presence of the external body is obvious to all, but it is of vital importance that we know our invisible, micro-bodies residing inside ourselves. These micro bodies are indeed sources of enormous energy. One of these is called *tejas* (thermal) while the other one is called *karman* (karmic). *Tejas-Sarir* (thermal-body) supplies the necessary energy resources while the karmic body has encrypted intelligence.

Tejas or thermal body is said to regulate our entire metabolism and blood circulation. Person with mild or weak *tejas-sharir* exhibits placid body functions. On the other hand, an active thermal body is indicative of energetic personality. Contemporary medical experts have come face to face with this reality.

1.2.1. Effects of Sun-light

For Jains, traditionally, the body cycles are linked to the sun. But, medical practitioners, too, have established a strong link between bio-clock and the sun. Famous physician Dr. Steevak has established that the sun light supplements our diet. We cannot survive solely on the food in the absence of the sun-light.

In an **experiment**, Michael and his team conducted some experiments on rats to establish link between food and the importance of sun-light. In first set of experiment, eighteen rats were given low nutrition diet devoid of calcium and phosphorous. In addition, they were kept in dark room. In a few days, they all became weak and fell ill. Then, without changing their diet, they were exposed to sun. The rats quickly recovered within a couple of days and regained their strength. In the second set of experiment, the rats were again confined to dark rooms, were fed the same low nutrition diet, but the food was exposed to sun for a few hours before being consumed by the rats. The rats exhibited no signs of weakness and remained healthy. The obvious conclusion was - sun **not only strengthened the digestion** in the first experiment, **but supplemented the diet** as in second experiment.

1.2.2. Atapna

Jains have been conducting such experiments for centuries. They call it ***atapna***. Jain ascetics used to expose themselves to the sun light for hours and refrained from food for days together. This act is called ***atapna.*** During this practice, they experienced little hunger as their food needs were fulfilled by the light of sun. Though it was act of penance, its efficacy in preventing the hunger was very well known to the Jain monks. In this kind of practice, they discovered the hidden strengths of their inner bodies, particularly the *tejas*.

1.2.3. Food Intake after Sunset

A widely popular Jain practice is to avoid any food after sunset. People attribute several reasons behind it including the inability to cook during night as there was no electricity in ancient times. Some reason that it was to avoid insects etc. But, Mahapragya says that the true reason is far more important and scientific - the digestion of food is accelerated in the presence of sunlight. Our *tejas-sharir* gets its energy from sun. After sunset, it becomes inactive resulting in diminished digestion and consequent ailments. So the tradition of avoiding food after sunset is not mythical but scientific.

1.3. Ageing

Exterior body is just like a machine or an engine. In fact, it is like a

factory. As any other machine, body also needs energy, undergoes wear and tear and ultimately ages to die. We have seen the importance of good and proper fuel, i.e., food for our body. Now we shall analyse the process of its wear and tear, i.e., ageing.

1.3.1. Body is a Machine

Have you ever heard the mechanical sounds produced within yourself by various activities of your internal organs? Mahapragya invites you to such an ecstatic experience through *sharir-preksha*. When the mental attention attains concentration, our mind blocks the external sounds coming to it. In this stage, one can become aware of the flow of vital consciousness within oneself. A communication is established with the inner self. Scientists too have tried to simulate the meditation like conditions by constructing a sound-proof cabin. Even in spite of the foolproof technology, the sound reaching to their minds continued. It became a puzzle, how the sound can enter a meticulously constructed sound-proof cabin. Ultimately, it emerged that they were listening to the vibrations of their own internal organs like heart etc. The reverberations were caused by the activities of blood flow, nervous and digestive systems.

So, body is like a machine – a very powerful and reliable machine. Scientists, who have constructed the world's tallest buildings, submarines and spacecrafts, are still unable to simulate the body and its organs. With all its amazing activities, the body essentially undergoes the process of ageing.

1.3.2. Process of Ageing

What is age of a human? Is it the number of years one has lived at the time of asking this question? Or is it the number of years one will live before the eventual death? It is in the later sense we shall be treating age. After statistical analysis of growth and decay of an average human body, Dr. Carlson stated that the mathematical model forecasts an age of 150 years for humans. However, going by the stress and polluted environment, we are still far below the magical number of hundred years. In order to reach the peak age of 150 years (no proof of such a human exists so far), Mahapragya says that it is as much important to thoroughly know our ephemeral body as to know the eternal soul.

Normally, first twenty years are of growth, during which the body gains size, weight and strength. Beyond this age, the body decay begins. The first victims are – sight, hearing and digestion. In fact, the flexibility of eye lenses start reducing from ten years onwards. Though this decay is trivial, the real effects of ageing manifest after the age of forty years. After this age, the eye

muscles become so rigid that the near-sightedness starts reducing. Reduced night vision and cataract inevitably follow after sixty years of age. Other body capacities like the taste also suffer beyond fifty years. Smell is the next victim; attacked at around sixty. Digestive juices almost reduce to half by that age due to reduced production of pepsin and tripsin.

Can this decay be slowed down, stopped or reversed? A million-million dollar question! Most of the scientific activities in the fields of micro and nano biology are concentrated in this direction.

1.3.2.1. Slowing Down the Ageing process

To live a disciplined, healthy and stress-free life are the only methods known to slow down the decay of body. As in case of any engine, the fuel, exhaust and lubrication are important for its long and trouble-free operation. Abusing the body with stress, smoking, improper diet, alcohol etc. is the sure way to accelerate the body towards death.

1.3.2.2. Stopping The Ageing process

Scientists have observed the process of hibernation in many species of microbes, insects, frogs and snakes. They found that in extreme winters with sub-zero temperatures, all the body activities come to a standstill. They begin to thaw as temperature increases and the life fills with activities again. A similar logic is applied for humans. In some experiments, the persons in near death situations were persuaded to undergo the similar process of freezing. Their entire blood was replaced with saline liquid and the entire body frozen in liquid nitrogen. Medical experts are hoping to infuse life back to such protected bodies some time in future when the reversal process will be perfected by them. No such resurrection is attempted so far, as the medicos are still not sure of the technique to permeate the life back. All they state that the frozen body is not dead and can be preserved for centuries. They hope, by that time the science will be so advanced that it would be in a position to re-infuse the blood and life back to the frozen body.

1.3.2.3. Reversal of Ageing Process

With the advent of cloning, another possibility has arisen in the recent years. That is to cultivate the different body parts of a human being in the laboratories and replace them in place of the decayed ones. It is just like replacing a discharged battery of a car with the new one, or like replacing a worn out tyre. Very encouraging laboratory tests will make this fiction a reality in very near future.

Going by the various efforts of improving the health, curing of the diseases and the transplantation of affected organs, we are bound to comment that the God has not created the nature, but the nature is incessantly working towards the goal of creating an ever healthy and ever happy human who can be called God.

2. Development of Personality

During the growth of body, along with the physical changes, development of personality goes on simultaneously. While most of the physical parameters remain within the average specified limits, it is the personality which makes a huge difference between the individuals.

Within our body two systems are always at work – endocrine and nervous. Both play vital role in the outcome of personality. Both the systems work in consonance and affect various personality tenets. For example – our thyroid glands – the deficiency in thyroxin makes a person irritable and lazy while the excess of it makes the personality aggressive and over-active. For a refined personality, it needs to be understood and controlled.

The activities of hormones are actually controlled by nervous system through a feedback mechanism (we shall deal with it in detail in later chapters). By the nature of different activities, the nervous system is divided into three streams –

- Ida (Sympathetic nervous system)
- Pingla (Para-sympathetic nervous system)
- Sushumna (Central nervous system)

A child is hyperactive – it is attributed to the sympathetic nervous system. A person is always fearsome, suffers from inferiority complex – it is result of overactive Para-sympathetic nervous system.

What are the reasons of such a vast diversity in personality traits? Why some are daredevils and others timid, some are extroverts and others introverts, some peace-loving while others are aggressive and violent? The reasons lie deep within our brain and genes.

2.1. Brain-cells

After deeply probing the link between our personality, health and behaviour, Mahapragya concludes that the key lies in the brain-cells of every living being. Brain is the controller of all our body activities. Medical scientists

have found that seeing, hearing, feeling etc. all happen in the brain; eyes, ears and skin are mere transducers and signal transmitters. Our memories and experiences are stored here. It is the most powerful and intricately designed organ of the body containing billions of cells. We shall describe its various parts and functioning later in the following chapters.

2.2. Memory-cells

In addition to the functional intelligence, brain is a warehouse of memory cells. Modern brain specialists say that we utilize a mere 4-5 percent of our brain capacity on an average. A genius may deploy around additional 2-3 percent. Huge 92-96 percent of the available capacity lies redundant. It is called Silent area or Dark area. Commenting on this finding, Mahapragya inquests, "In all probabilities, the so called silent area might contain the memory cells of the previous births. It opens a potential field for further investigations."

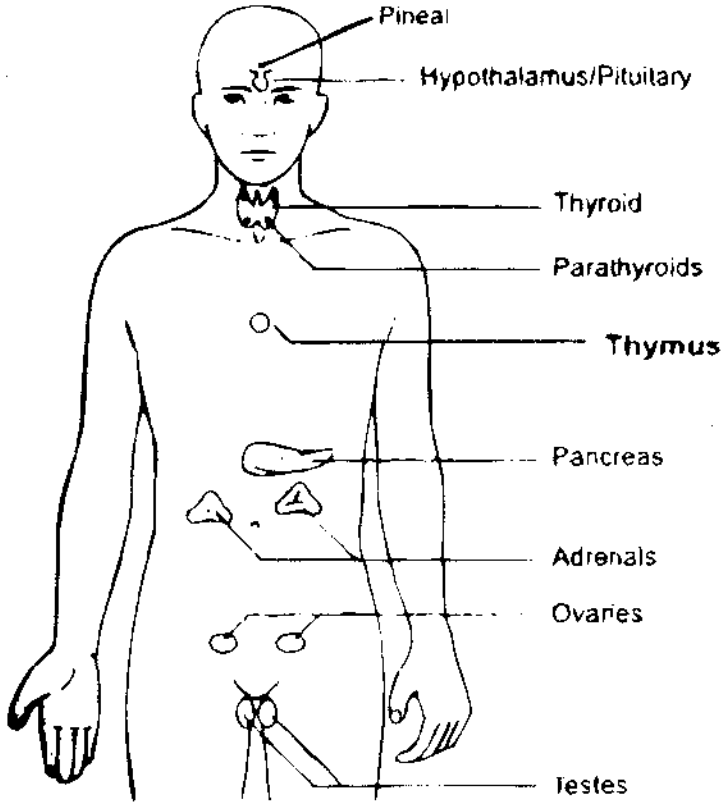
2.3. Genes

Apropos to the relational discussions on age, body and mind, Mahapragya states that the childhood is the first chapter of life. A child brings in a lot of good and bad traits with his birth. He is tied in the chain of heredity. His chromosomes contain genes which are pre-programmed to determine his gender and psychological predisposition. Besides, from Jain view point, he is already loaded with the karmas of his previous births. His slate is not entirely empty and clean. Several sketches are already drawn. These hazy sketches of childhood take a clear shape in the presence of several environmental and societal factors. In spite of the pre-programming and pre-conditioning, parents, teachers, friends, society and surroundings play an undeniably strong role in the personality development of a child. This fact leaves a tremendous scope for the cultured and spiritual upbringing of a child. Hormone production of the body plays a very vital role in this, as we shall shortly see.

(II) GLANDS

Mahapragya has given significance to the effects of Preksha Meditation on the secretions of various glands of the human body. In our earlier discussions, we have already emphasized as to how various emotional aspects are governed by our hormones. We shall now elaborate how the nervous system and endocrine system together control the activities of all the organs and systems of the human body.

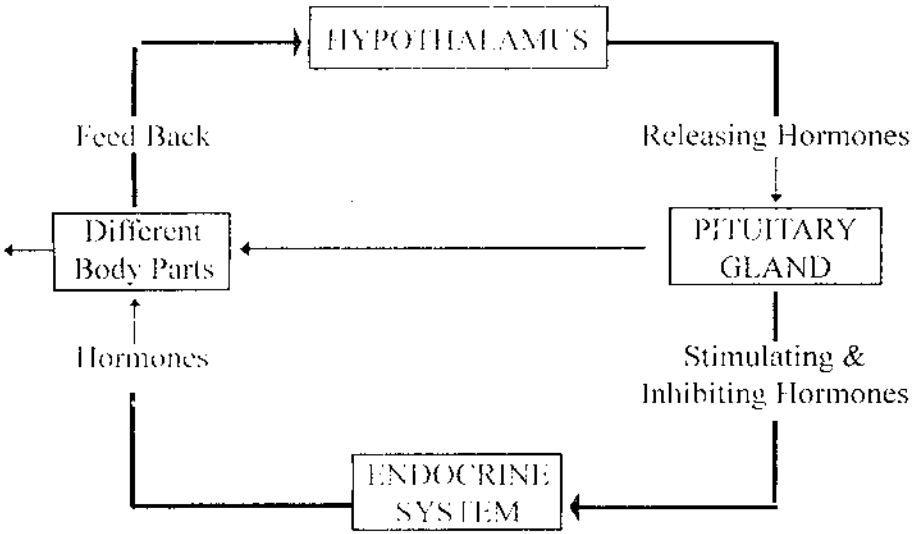
ENERGY CENTRES OF THE BODY-GLANDS



The endocrine glands are the organs in which hormones are produced and released into the blood. Hormones act as organic-chemical messengers which exert a powerful influence on the body. However, we have no direct and conscious control over them. These chemicals play a vital part in growth and development besides controlling a wide range of daily activities. There are eight principal endocrine glands-

1. Hypothalamus and Pituitary
2. Pineal
3. Thyroid
4. Parathyroid
5. Pancreas
6. Adrenal
7. Thymus
8. Gonads (testes or ovaries)

Functional Mechanism- Above mentioned glands are interrelated to each other and form a close loop control. Hypothalamus, in close association with pituitary, controls the entire endocrine system. When hormones from pituitary reach the target organ, the receptors of target organ responds to it and thus the targeted gland either stimulates or inhibits the secretions of its own hormones. The feedback from the target gland is received back by both the pituitary and hypothalamus. The chain continues till the right amount of hormones is available in the blood stream.



The Pituitary Gland

It is also known as hypophysis or Master Gland. This gland is situated at the base of the skull in a bony hollow. Structurally no larger than a bean, it is suspended from the hypothalamus, to which it is connected by a short stem. Its shape looks divided into two lobes, the anterior and the posterior.

Hormones secreted by front part (anterior lobe) of this gland are -

i. Somatotrophin - It stimulates growth and also controls another hormone prolactin which stimulates lactation.

ii. Thyrotrophic (TSH) - Thyroid Stimulating Hormones. As the name suggests, it affects thyroid.

iii. Gonadotrophin - Follicel Stimulating Hormones (FSH) and Luteinizing Hormones (LH) regulate the function of sex organs.

iv. Adrenocorticotrophin (ACTH) – It controls the production of adrenalin, noradrenalin and steroids in the adrenal gland.

Hormones secreted by rear part (posterior lobe) of this gland are

v. Vasopressin Also called as Antidiuretic hormone (ADH), controls the salt and water excretion from kidneys.

vi. Oxytocin – It stimulates uterus to contract during birth and is also involved in secretion of milk.

These wide ranging chemicals of pituitary, makes it the most important of all. It not only controls the physical growth but regulates will power, memory and hearing capacities. An activated state of pituitary is essential for the overall personality development.

The Pineal Gland

The Pineal Gland is about the size of a pea, and is in the centre of the brain in a tiny cave behind and above the pituitary gland which lies a little behind the root of the nose. It is located directly behind the eyes, attached to the third ventricle.

The true function of this mysterious gland has long been contemplated by philosophers and spiritual adepts. Greek philosopher Descartes called it the Seat of the Soul. This gland is activated by Light, and it controls the various biorhythms of the body. It works in harmony with the hypothalamus gland which directs the body's thirst, hunger, sexual desire and the biological clock that determines our aging process. It is presumed to secrete melanotropin hormone.

The Thyroid Gland

It is situated at the base of the neck, front of trachea (wind pipe). Its structure looks like the alphabet 'H' (like a necktie) such that its two lobes are joined together by a bridge of tissues. It produces two main hormones:

♦ Thyroxin (T4 – tetraiodothyronin)

♦ Tri-iodothyronin (T3)

Both of these are essential for normal growth of nerve tissues. However, their main function is to control rate of basal metabolism, that is, how the body uses its energy and the consumption of oxygen.

These hormones are produced with the help of iodine. Body gets iodine

through food from where it is absorbed by blood and reaches to thyroid. Thyroid stores its hormones in globular sacs called follicals. Around these follicles are parafollicular cells which produce another hormone, calcitonin. This hormone plays important role in calcium absorption by diverting excess calcium to the bones.

Hyper and Hypo thyroidisms, both conditions invite several diseases. An overactive thyroid gland results in thyrotoxicosis whose symptoms are protrusion of eyeballs, nervousness, irritability, sweating and loss of weight. Conversely, if thyroid is under active, it results in Myxoedema. Its main symptoms are tiredness, swollenness, sensitivity to cold and constipation.

An important point to note is that thyroid activities are affected in conditions of fear and anger.

The Parathyroid Gland

There are four parathyroid glands which are normally about the size and shape of a grain of rice situated on the posterior surface of thyroid glands. They produce a chemical, parathormone. This hormone raises the level of calcium in blood. The sole purpose of the parathyroid glands is to regulate the **calcium** level in our bodies within a very narrow range so that the nervous and muscular systems can function properly. Although they are neighbours and both part of the endocrine system, the thyroid and parathyroid glands are otherwise unrelated. The single major disease of parathyroid glands is over activity of one or more of the parathyroids which make too much parathyroid hormone causing a potentially serious calcium imbalance. This is called hyperparathyroidism.

The Pancreas

As an abdominal gland, it lies behind the stomach, with its head pointed toward the small intestine, and its tail pointed to the right. The pancreas produces chemicals that are crucial to proper digestion and blood sugar regulation. It is a mixed gland having both exocrine and endocrine functions.

Important hormones secreted by the pancreas include:

- Insulin
- Glucagon

These maintain the appropriate levels of sugar throughout our body. The parts of the pancreas responsible for the production of hormones are the Islets of Langerhans, which are small clusters of cells separated from the exocrine

functions. When unprocessed sugar needs to be converted into the kind of energy our cells use, it travels to the liver. There, glucagon breaks down the glycogen variety of sugar and releases its components into our blood. Then, insulin appears at the site of cells to help them easily absorb the sugar.

On dual duty, the pancreas also creates digestive juices as a member of the exocrine system. These fluids break down those nutrients which the stomach's acids could not effectively metabolise. Since the pancreas is so close to the small intestine, there are many ducts streaming from its head to carry the enzymes to the duodenum, the beginning of the intestine. The juices start out alkaline in the pancreas, but when they meet substances bathed in stomach acid in the duodenum, they become acidic. These enzymes include amylase, which digests fat, trypsin for protein, and lipase which works on carbohydrates. The resulting nutrients are distributed further down the small intestine. It is because of these dual activities, both the exocrine and endocrine systems lay claim to this organ. Our body's endocrine system regulates hormones and other substances through its direct access to the bloodstream, cells, and organs. The exocrine system works via ducts to digest food in the intestinal tract.

Malfunctions of the pancreas include diabetes, pancreatic cancer, pancreatitis, and cystic fibrosis. Any interference with our insulin or enzyme levels wreaks havoc on our wellbeing, whether it is due to genes or diet. To ensure a healthy pancreas, it is essential to maintain good nutrition.

The Adrenal Glands

The adrenal glands are orange-coloured endocrine glands which are located on the top of both kidneys. The adrenal glands are triangular shaped and measure about one-half inch in height and 3 inches in length. Each gland consists of a **medulla** (the centre of the gland) which is surrounded by the **cortex**.

The adrenal cortex produces hormones necessary for fluid and electrolyte (salt) balance in the body. Three important cortex hormones are:

- ♦ Cortisone (Glucocorticoids)
- ♦ Aldosterone (Mineralocorticoids)
- ♦ Androgens and Oestrogens (Testosterone and Progesterone)

The glucocorticoids control metabolism of fats, proteins and carbohydrates. The mineralocorticoids regulate balance of fluids and mineral ions like potassium and sodium. Adrenal sex hormones secrete in very small quantities and only complement the other sex hormones produced by testes or ovaries.

The medulla is responsible for producing adrenaline and noradrenaline hormones. The medulla is actually a part of autonomic nervous system and it prepares the body to utmost alertness in the events of danger and stress. This is achieved by altering the blood flow and releasing the energy from liver.

The Thymus

The thymus is a bi-lobed, greyish organ located in the thoracic cavity just below the neck. Curiously, when the thymus is removed from adult mammals, few effects are seen. However, when the thymus is removed at birth, dramatic effects are witnessed. The thymus develops from the childhood till adulthood. Though the activities and chemicals of this organ are still an enigma, its proper functioning is essential for our immune system.

The Testes & Ovaries

These glands secrete male and female sex hormones.

The testes are two egg shaped male glands suspended in a bag of skin, the scrotum, behind the penis. Their two main activities are-

- To produce spermatozoa essential for reproduction.
- To produce testosterone responsible for enhancing the male characteristics like - hair-growth, body-contours and thick voice.

The ovaries are egg producing organs having an oval shape. Each of them consists of at least 200,000 follicles which are microscopic capsules housing egg cells. Besides being abode to ovum, ovaries produce female hormones oestrogens and progesterone. These hormones develop female specific characteristics as well as regulate the menstrual cycles.

Energy Centres

Based on his studies of traditional Jain literature, ancient Hindu mysticism and also based on his experiments with Preksha meditation, Mahapragya has postulated several energy centre of the body. These are called chakras (wheels of energy) in tantra terminology, core-points in ayurveda and conscience-centres in Preksha meditation. A few are mentioned here for the spiritually enlightened readers.

1. Shanti Kendra – Front cerebral part relates to hypothalamus.
2. Jyoti Kendra – Centre of forehead. Also called the Third Eye. Field of pineal.

3. Darshan Kendra – Slightly below the Jyoti Kendra, it is situated at the centre of eyebrows. Relates to Pituitary gland.

4. Vishudha Kendra – Situated in throat area. Relates to thyroid and parathyroid glands.

5. Anand Kendra – Below lungs and behind heart, it relates to thymus.

6. Shakti Kendra – It is the area of influence of gonads.

7. Tejas Kendra – Area of Kundalini Relates to adrenal gland and kidney.

8. Swasthya Kendra – Pancreas being responsible for metabolism of food, controls the entire body health.

9. Bhrahma Kendra – The frontal tongue is defined as Bhrahma Kendra.

10. Pran Kendra – Nasal tip forms this Kendra. It is of great importance during mediattion.

11. Apramad Kendra – Ears form this Kendra which is responsible for alertness.

12. Chakshuksh Kendra – Situated above eyes, it is source of life force.

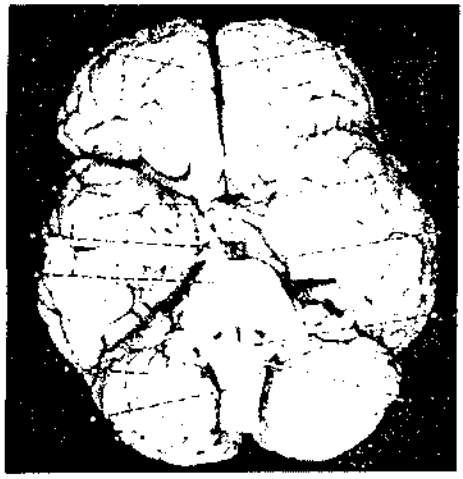
13. Gyan Kendra – Relates to the invisible soul and is beyond all senses and organs.

Comparison with Medical Science

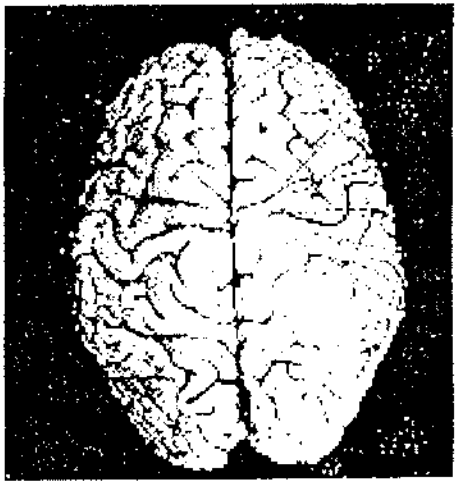
Parallels have often been drawn, by supporters of the existence of chakras, between the positions and functions of the chakras, and of the various organs of the endocrine system. A clear correlation is visible in the above list. However, advocates of modern medicine often disregard this theory on the ground that the hormone production and secretion cannot be achieved by concentrating on a particular chakra because it is controlled by the chemical signals sent by the brain based on a self sustained feedback mechanism.

Mahapragya, however, differs with this medical explanation. According to him, these centres of energy keep on working spontaneously by the inbuilt intelligence of the body, but their functions can be enhanced and refined very effectively by the process of Preksha meditation. Mahapragya states that it is not always that the brain is in command. If we concentrate on a particular

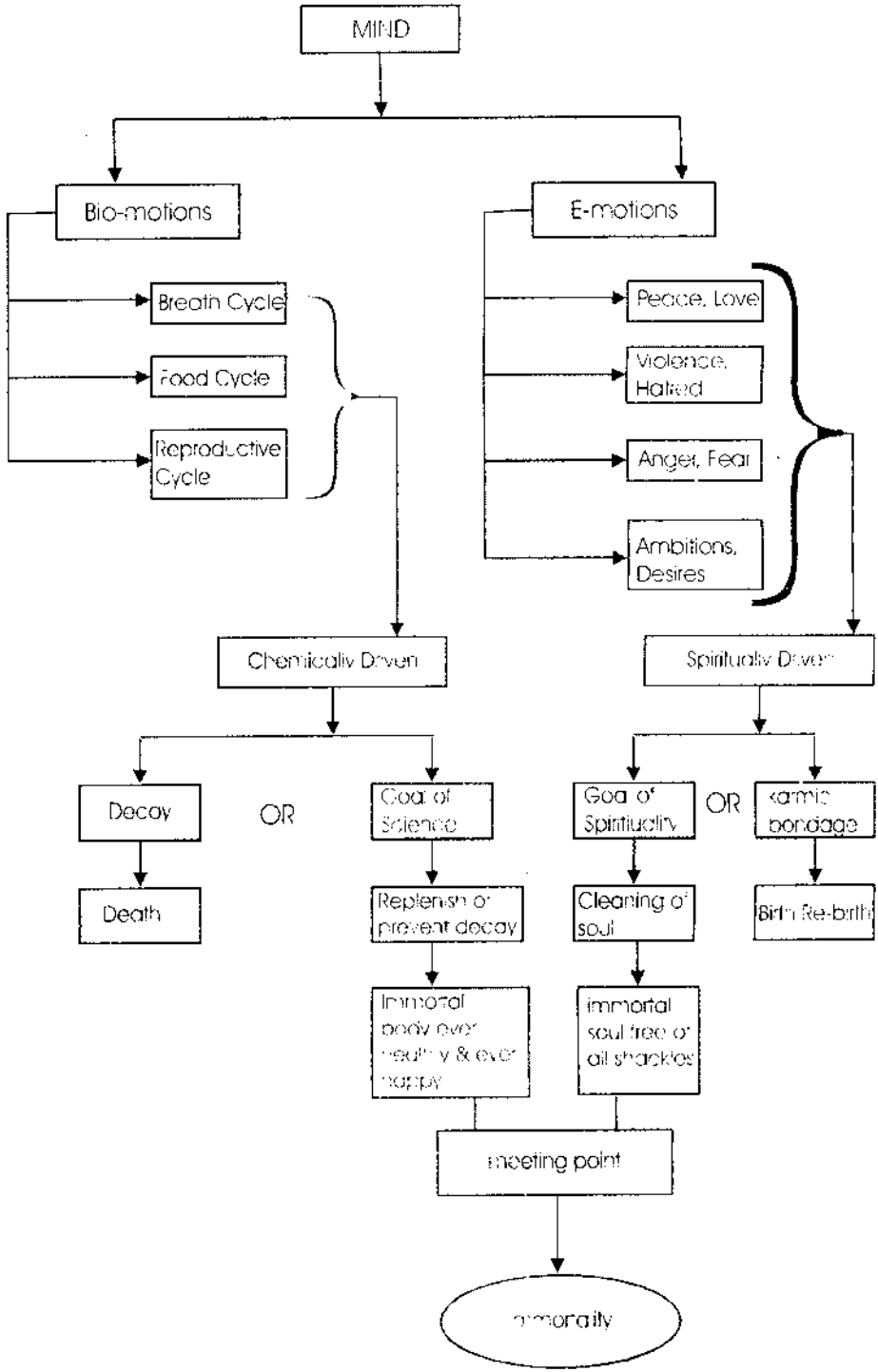
centre of energy, that centre sends request to the brain for immediate release of necessary chemicals. It is like an account holder getting his cheque remitted by the bank, which bank cannot refuse so long as the balance exists. The name Preksha itself suggests – projecting or directing concentration on something. In case of meditation, this projection of energy is done on body organs to achieve spiritual peace and ecstasy. This process of Preksha meditation helps remove internal conflicts and opens up a untapped resources hidden in our body system.



Inferior view of the Brain



Superior view of the Brain



(III) NERVOUS SYSTEM

The nervous system controls and coordinates the internal body environment as well as monitors external surroundings. Importantly, it is responsible for behaviour, thought and personality. Depending on the nature of activities carried out by different constituents of the nervous system, it is categorized into three parts –

1. Central Nervous System (CNS – comprising the brain and spinal cord)
2. Peripheral Nervous System (PNS – comprising nerves)
3. Autonomic Nervous System (ANS – comprising sympathetic & para sympathetic systems)

Unlike endocrine system which functions by the physical movement of chemicals, the nervous system uses electrical stimuli which act and travel very fast. The basic and functional unit of nervous system is **neuron.** These neurons are of varied shapes and sizes, but share the same basic structure – a cell body surrounded by cytoplasm, an axon (branch extension) and dendrites (multi-branch extensions).

1. Central Nervous System

The CNS has two interconnected but distinct important parts –

- ♦ The Brain
- ♦ The Spinal Cord

The brain is the central organ of the nervous system where all information is first collected, processed, analyzed and then decision is made and action is ordered. The cerebrum, cerebellum and the brain stem together make up the brain. An adult brain weighs about 1.5 Kg and consists of more than 12,000 million neurons. The outstanding anatomical feature of cerebrum is very irregular folds called convolutions, the pattern of which varies from person to person.

1.1. Brain Anatomy

The brain is protected within the rigid bony skull. At the base of skull is a hole, through which the spinal cord passes. The brain and spinal cord are further protected by the three covering layers of tissue called meninges. Between the two layers a fluid called cerebro-spinal-fliuid (CSF) is entrapped in such a manner that this fluid bathes the whole surface of the brain and the spinal cord.

The outer part of brain has two cerebral hemispheres, divided by a

longitudinal fissure. Its outer layer is called cerebral cortex and it contains gray matter. The inner part is composed of white matter and consists of axons or nerve fibres. It is in the cortex that the areas controlling voluntary movement, the senses, language and vision are found. Areas related to memory and thought are also housed in the cortex. Interestingly, the right hemisphere controls the left side of the body and vice versa. Large parts of cortex are yet to be understood, but various experiments have proved that logic, calculations and language are directed by the left hemisphere whereas, discipline, equanimity, calmness, patience and benevolence are guided by the right hemisphere. Mahapragya has used this fact in his technique of meditation. He has successfully projected the attention on right hemisphere for enhanced spiritual experiences.

The central brain lies between the upper cortex and bottom cerebellum. It is a monolithic section and is connected to the cortex with corpus callosum. It is here that the hypothalamus, pineal and pituitary glands are situated. This section is an important link to our physiological, mental and emotional well being.

The most interior part of the brain contains cerebellum, medulla and pons along with the brainstem. At the upper end of brainstem there are connections with the centres in the cerebellum concerned with consciousness. The lower end of brainstem, called medulla oblongata, is where sensory and motor nerve fibres of the spinal cord cross over.

1.2. Limbic System

In 1878, the French neurologist Paul Broca called attention to the fact that, on the medial surface of the mammalian brain, right underneath the cortex, there exits an area containing several nuclei of gray matter (neurons) which he denominated limbic lobe (from the Latin word 'limbus' that implies the idea of circle, ring, surrounding, etc) since it forms a kind of border around the brain stem.

Emotions and feelings, like wrath, fright, passion, love, hate, joy and sadness, are mammalian attributes, originated in the limbic system. This system is also responsible for some aspects of personal identity and for important functions related to memory.

It consists of several subcortical structures located around the thalamus:

- hippocampus: involved in the formation of long-term memory
- amygdala: involved in aggression and fear
- hypothalamus: controls the autonomic nervous system and regulates blood pressure, heart rate, hunger, thirst, sexual arousal and the

sleep/wake cycle. Connected to the pituitary gland and thus regulates the endocrine system. (Not all authors regard the hypothalamus as part of limbic system.)

Brain, therefore is the unique and indispensable part of the entire body. A person is declared dead when his brain stops functioning. Our activities – conscious, subconscious, automatic and voluntary, all are solely governed by the brain.

1.3. Spinal Cord

It is second most important part of the central nervous system. It extends from the brain stem all the way down to the lower back passing through the vertebral column. It is around 45cm long. Like brain, it is also made up of white and gray matter. Inside white matter are situated ascending and descending fibres. The whole structure of spinal cord is very delicate and its vulnerability is protected by the bony segments of vertebrae and supporting ligaments.

Spinal cord actually works as the two way highway between the brain and the body parts. One lane carries the stimulus information to the brain while the other lane brings down the action commands to various target muscles. In other words, it is an interface between the CNS and PNS.

2. Peripheral Nervous System (PNS)

Our brain has developed an ingenious way to perform all body activities with the help of receptor and effector neuron mechanism. All the limbs and senses are connected to the brain by the peripheral nervous system. PNS is subdivided into –

- Sensory – Somatic Nervous System
- Autonomic - Motor Nervous System

All our **conscious awareness** of the external environment and all our motor activities to cope with it, operate through the **sensory-somatic** division of the PNS. Nerves contained in this system are further divided into two main types –

- Cranial Nerves
- Spinal Nerves

Twelve pairs of cranial nerves run to and from the brain and branch out to the muscles and senses of head, face, neck and chest. They participate in eyeball movement, tongue, swallowing, hearing and balance etc.

In addition, thirty one pairs of spinal nerves originate and ramify from the spine to reach every part of the body. One part of these nerve pairs is called motor root and another sensory root. The motor root innervates muscles to produce movement, whereas the sensory root gathers information from the peripheral receptors like skin, joints, etc. and transmits it to the brain.

2.1. Autonomic Nervous System (ANS)

All our spontaneous internal body mechanisms like, digestion, heart-beat, hormone secretion etc. are governed by ANS. The part of brain – hypothalamus has shouldered this responsibility. From here the information passes through spinal cord via the brain stem.

The actions of the autonomic nervous system are largely **involuntary** (in contrast to those of the sensory-somatic system). It also differs from the sensory-somatic system in using two groups of motor neurons to stimulate the effectors instead of one.

The first, the **preganglionic neurons**, arise in the CNS and run to a ganglion in the body where they synapse with **postganglionic neurons**, which run to the effector organ (a muscle or a gland).

The autonomic nervous system has two subdivisions –

- **Sympathetic nervous system**
- **Parasympathetic nervous system.**

2.1.1. The Sympathetic Nervous System

The preganglionic motor neurons of the sympathetic system arise in the spinal cord. They pass into sympathetic ganglia which are organized into two chains that run parallel to and on either side of the spinal cord.

The neurotransmitter of the preganglionic sympathetic neurons is **acetylcholine (ACh)**. It stimulates action in the postganglionic neurons which in turn release **noradrenalin.** The action of noradrenaline on a particular gland or muscle is excitatory is some cases and inhibitory in others. The **release of noradrenalin** has following effects –

- increases heartbeat
- raises blood pressure
- dilates the pupils
- dilates the trachea and bronchi

- stimulates the conversion of liver glycogen into glucose
- shunts blood away from the skin and viscera to the skeletal muscles, brain, and heart
- inhibits peristalsis in the gastrointestinal (GI) tract
- inhibits contraction of the bladder and rectum

Stimulation of the sympathetic branch of the autonomic nervous system prepares the body for emergencies in such a manner that the body is prepared to either take a suitable offensive or defensive measure as the situation warrants.

2.1.2. The Parasympathetic Nervous System

The main nerves of the parasympathetic system are the tenth cranial nerves, the vagus nerves. They originate in the medulla oblongata. Other preganglionic parasympathetic neurons also extend from the brain as well as from the lower tip of the spinal cord.

Acetylcholine (ACh) is the neurotransmitter of most pre- and postganglionic neurons. Parasympathetic stimulation causes following effects-

- slowing down of the heartbeat
- lowering of blood pressure
- constriction of the pupils
- increased blood flow to the skin
- peristalsis of the GI tract

The parasympathetic system, therefore, returns the body functions to normal after they have been altered by sympathetic stimulation. In times of danger, the sympathetic system prepares the body for violent activity. The parasympathetic system reverses these changes when the danger is over.

Although the autonomic nervous system is considered to be involuntary, this is not entirely true. A certain amount of conscious control can be exerted over it as has long been demonstrated by practitioners of Jain meditation, Yoga and Zen Buddhism. During their periods of meditation, these people are clearly able to alter a number of autonomic functions including heart rate and the rate of oxygen consumption. These changes induced by the meditation are not simple reflections of decreased physical activity because they exceed the amount of change occurring during sleep or hypnosis.

AILMENTS & PREKSHA CURES

Preksha – As the name suggests, it is an art of projecting our mental energies to a specific organ - just like launching a space craft where the concentrated energy is released to achieve enough momentum to break the gravitational barrier. **Preksha can also be well understood by the analogy of bow and arrow, where first, the entire energy is collected and concentrated in the string of the bow, attention is pivoted on the aim and then the arrow released.** In Preksha meditation Mahapragya teaches to concentrate our thoughts and mental energy in such a manner that the desired organs of our nervous systems can be addressed and necessary chemical changes can be induced with curative results. We shall analyze a few medical conditions in this context–

1. Heart Ailments
2. High Blood Pressure
3. Asthma
4. GI Diseases
5. Mental Disorders and Depression

1. Heart Ailments

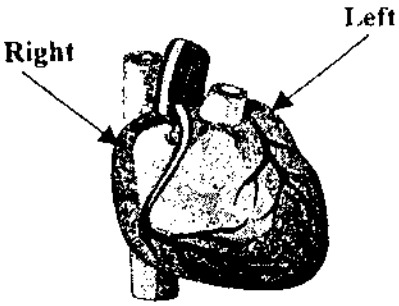
The heart is one of the most complex pressure pump ever designed. It is centre of our cardio-vascular system. It beats consistently about 70 times a minute adding to 2,400 million beats in an average lifetime. It pumps 5-30 litres of blood every minute depending upon the physical activity.

The heart is the main force behind the entire blood flow mechanism of the body. It has two main networks attached to it. The first network called as systemic circulation, consists of arteries and veins, in which the oxygen rich blood is sent to the organs and tissues by arteries and the deoxygenated blood is received back through veins. In the second network, called pulmonary circulation, the deoxygenated blood is sent to the lungs by pulmonary artery for cleansing and the release of carbon-dioxide. The oxygenated blood is returned back to heart by the lungs through pulmonary veins. These two networks form a complex junction at the heart. The exchange of pure and impure bloods is regulated in various heart chambers, which in turn are interconnected by multifunctional valves.

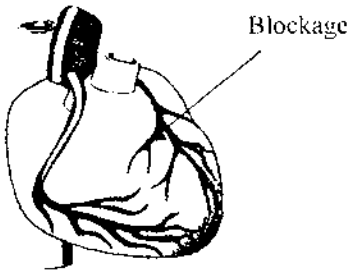
Because heart plays a pivotal role in the activities of cardio-vascular system, any disorder can have wide ranging effects on one's health. At times its

ailments could be life threatening. In fact, coronary heart disease is the single largest killer in the developed countries. Coronary heart disease or coronary artery disease or heart attack is caused due to restrictions in heart's own blood vessels. Symptom of such a condition is often called angina in which the sharp pain is felt in the chest. Narrowing of coronary heart vessels is caused due to the slow deposition of cholesterol, calcium or plaque inside the walls of the artery. A few main reasons for such a blockage are–

i. hereditary
ii. diabetes
iii. high blood pressure
iv. smoking and dietary habits



Heart



Blockages result in heart attack/failure

Medical experts have tried to prevent this avoidable condition by advising minimum intake of oily and fatty foods alongwith balanced diet and physical exercises.. They have also pioneered anti-smoking campaigns. At the same time, spiritual leaders like Mahapragya have brought forward the efficacy of yoga and meditation practices in containing the symptoms. Two major studies on heart patients have further substantiated that the experiments of Pranayam, Kayotsrg, Preksha and sound reverberations can alleviate the symptoms of angina.

1. One set of experiments was conducted by Dr. S. C. Manchanda of All India Institute of Medical Sciences (AIIMS), Delhi. His expertise as heart specialist has yielded encouraging results in, firstly, preventing the onset of heart disease in vulnerable group of people and secondly, containing the seriousness in already affected

patients. He found that those patients who religiously follow the yoga and meditation regime start exhibiting improvement and their symptoms of angina become milder. He concluded that while all did not respond to the spiritual healing, 30-40% patients were benefited. Their angiography results were wonderfully encouraging and out of them around 15-20% sufferers reported reduction in their blockages.

2. Dr. Arvind Jain, renowned physician at M.G. Hospital, Jodhpur has published a separate study on 25 heart patients. On his instructions, these patients regularly practiced Pranayam, Kayotsrg and Preksha for six consequetive months. Out of these 10 individuals reported positive results. Their blood cholesterol reduced to normal, chest pain subsided and echo cardiograph showed enhanced heart efficiency. His findings can be tabulated as follows–

Number of Patients				Average Anginal Pain Per Day		Average Maximum ST Depression in ECG	
Age	Males	Females	Total	Before	After	Before	After
31-45	03	-	03	0.8±0.6	0.6±0.4	2.1 Segments	1.4 Segments
46-60	11	04	15	Time Elapsed during T.M.T. before pain starts–			
61+	04	03	07	- 6.9 Minutes Before Preksha			
Grand Total	**18**	**07**	**25**	- 9.2 Minutes After Preksha			

Analyzing above table Dr. Jain observed that Preksha meditation acts in two ways – one, by reducing Lipoprotein in the blood and another, by inhibiting Platelets to cumulate.

A particularly helpful mean of Preksha is suggested by Mahapragya. He asks the people to echo a particular sound of 'Lnnn..'. According to him, this reverberating sound excites the Parasympathetic System which, in turn, relaxes the coronary artery and resultantly increases the blood flow. Results obtained during Preksha meditation on the patients of valve dysfunction, Myocardium and Pericardium are also encouraging. If these observations can be verified on medical grounds, it will be a great help to the mankind.

2. High-Blood Pressure (Hypertension)

It is another disease which is quite wide spread. Around 20% population is affected by it. Fast and modern life-style, coupled with tension, competition and irregular dietary habits take its toll on the people who start suffering essential hypertension. Besides, abnormal adrenal and thyroid secretions too, result in hypertension. The symptoms of this disease like, headache, giddiness etc. are often confused with those of general tiredness and people tend to ignore them. But, sustained high blood pressure may result in serious repercussions – paralysis, heart attack, kidney failure, brain or eye hemorrhage etc. It is, therefore, essential that it be taken seriously and the people after 40 years of age should get their BP checked at regular intervals. Also, the policy of 'prevention is better than cure' aptly applies in this case.

2.1. Effects of Pranayam

Mild hypertension can be fully cured by inculcating suitable changes in the life style. One such change is to develop the habit of practicing Pranayam on daily basis. Relaxing the body, results in reduced pressure on adrenal and rennin system. It is even medically accepted that relaxation techniques can alleviate hypertension. In 2003, for the first time, a medical committee acknowledged the importance of refined life style and meditation in containing the high blood pressure. They recommended that in case of mild forms of disease, meditation should be encouraged even before prescribing medicines. Though the committee did not enlist the meditation techniques, Pranayam and Preksha meditation have wide spread presence. Another study by Dr. Jain at Jodhpur has vindicated that Preksha can not only eliminate the high blood pressure in case of patients with mild symptoms but can substantially reduce the repercussions in case of serious patients. In his experiment on 25 patients, he found that 14 patients were benefited, out of which, 4 patients dispended with the medication.

Number of Patients				Average Blood Pressure in mmHg		Average Blood Pressure in mmHg	
				Before Preksha		After Preksha	
Age	Males	Females	Total	Systolic	Diastolic	Systolic	Diastolic
31-40	04	03	07	150±17	98±9	130±11	90±4
41-50	06	04	10				
51+	04	04	08				
Grand Total	14	11	25				

Similar experiments carried out at AIIMS, Delhi yielded similar results. They concluded that within 2-4 weeks of adopting the Pranayam, results are favourably manifested. They further stressed the need of regular meditation to keep the hypertension at bay. Those who have hypertension due to abnormal adrenal and thyroid too, can be benefited by meditating upon Tejas Centre or Vishudhhi Centre.

3. Bronchial Asthma

It is a complex disease with a distinct feature of breathlessness. In an asthmatic attack, the walls of the bronchi constrict and block the air passage resulting in wheezing and breathlessness. While emotional and physiological stress may trigger the asthma, it is mainly caused by allergic reaction to certain chemicals and pollens which are otherwise harmless to the others. It is observed that those prone to asthma produce lucotrines during asthmatic attack. These lucotrines are also produced in instances of stress and often trigger the asthma attack. Mahapragya feels that Pranayam and Shwash-Preksha are very effective in containing the leucotrine production resulting in reduced recurrence of asthma.

3.1. Shwash-Preksha

At Jodhpur Holistic Centre, 50 patients with tendency of asthma underwent the experiment of Shwash-Preksha. Two fold positive effects were observed – reduced frequency of attack and diminished intensities during each attack. Almost 60% of the patients started feeling healthy and energetic. Their spirometry improved and the intake of steroid inhalers too was subsided. These results are tabulated

Number of Patients			Per Day Inhalations of steroids or Bronchodilator		Spirometry FEV_1		Reduction in Asthma Attacks% perday
Age Group	Males	Females	Before Preksha	After Preksha	Before Preksh	After Preksha	
16-30	25	10	4 Times	2 Times	60%	60%	50
31-45	5	10	6 Times	4 Times	50%	60%	33

Medically, it is presumed that the mental calmness and excitation of respiration system result in minimizing the production of leucotrines. Mahapragya believes that these exercises of Shwash-Preksha can be beneficial to the patients of other respiratory problems like chronic bronchitis and

Emphysema. However, extensive scientific observations are necessary before a claim is made.

4. Disorders of Digestive System

Eating is an important, essential and pleasurable activity of life. Food provides essential energy and nutrients to the body thus maintaining proper growth and development. Like a vehicle, body too, needs proper fuel in the form of food. As it is absolutely essential to use a pure fuel suitable for the designed engine of a vehicle, it is equally important for the body as well. But, unfortunately, intake of junk food, alcohol and smoking along with fast-food varieties are giving rise to various disorders, like gas, indigestion, ulcer and hyperacidity. Like a vehicle confined to garage becomes unusable, our sedentary life-style with minimum physical activity and lack of exercise regime have further deteriorated the digestive health. Ulcer and other diseases, if left untreated for long durations, may even lead to dreaded cancer.

Basic tenets of Jainism – Satvik or balanced diet and to shun food intake after sun-set are meant to maintain a healthy digestive tract. It is observed that the food is digested within three hours if body stays awake. On the other hand, sleep soon after dinner results in partial digestion and causes long term disorders. Some such disorders are – irritable bowel syndrome, ulcers, gastritis, heartburn and flatulence. All these diseases are mostly caused by the type, quantity and frequency of food we eat. A strong discipline in all the three factors – type, quantity and frequency, is essential for healthy body and thus, healthy mind.

The correct **type** is – a balanced diet. Breath and food are two fundamental requisites of a body. These activities start right at birth and continue till death. A right approach to both needs to be cultivated. Mahapragya, therefore sermonizes Aahar-Vivek. The entire wisdom of **good food** can be summarized in just two lines –

- ♦ Relinquishing non-vegetarian foods, fast-foods, spicy and oily foods.
- ♦ Adopting vegetarian diet with optimum quantities of salt and sugar.

The correct **quantity** is – the moment our mind senses satiety. Our body has a very intelligent feedback mechanism. Whenever we eat or drink, certain chemicals send a message to the mind that enough has been consumed. We all have experienced it very distinctly when we drink water, after certain quantity is consumed, mind receives a signal that the thirst has quenched. Similar is the case with food, where a signal of satiety is transmitted. We must stop eating

there. But, when the tongue-teasing food is available, the greed takes over the senses and we tend to overeat. Remember, all decisions based on either fear or greed, tend to fail in the long run!

The correct **frequency** is four meals a day – three light meals and one sumptuous. Intake of even a single grain triggers the entire sequence of digestion – from secretion of saliva in mouth to the various acids and enzymes down the lane. In absence of enough food, these digestive juices act on walls of stomach and intestines causing ulcers, acidity and other disorders. Various trials on different age-groups have proved that a full afternoon meal, accompanied by light breakfast, evening snacks and low calorie dinner is usually ideal.

The final step in the entire digestive cycle is the **expulsion of waste and roughage**. Consider a vehicle with blocked exhaust. The vehicle's engine will start behaving strangely. Though the problem is in exhaust, it would look as if engine has gone down and vehicle does not start. Cleanse the exhaust mechanism and vehicle comes on. Similar is the case with the body. **Excretion of faeces is equally important**. After the food is broken down into simpler chemical compounds in the stomach, it travels to small intestine, where enzymes from pancreas break it down further. As the liquidized food descends, nutrients are absorbed and the undigested food and waste faeces enter the large intestine. Here, the further processing of nutrients is taken care of by the liver, absorption of water takes place and the semi-solid remains are collected in the rectum and ejected by anus. This simple looking process of waste excretion is controlled by the complex nervous mechanism using various muscles of the body. When the rectum fills, brain feels the desire of passing stool. **After examining the suitable circumstances**, brain sends a signal to the nervous centre in the spinal cord and, which in turn activates the abdominal and sphincter muscles to complete the task of discharging the waste from the body. Here, 'after examining the suitable circumstances' is of utmost importance. Brain needs to be calm. If brain is agitated or disturbed by the environmental compulsions, constipation may result, which more often becomes chronic if not taken care of. Bhavkriya and Kayotsarg help stabilize the emotions and save from wide ranging disorders of digestive tract.

4.1. Preksha and Improvement in Digestion

Mahapragya has found that Preksha meditation helps prevent digestive disorders as well as cures them in preliminary stages. Direct result of Preksha relaxation technique reduces tension and thus results in the reduced acidic secretions from stomach. This also has calming effect on parasympathetic

nervous system which reduces the secretion of gastrin. These effects of Preksha diminish the chances of any digestive disorders. Preksha Asana also includes the exercises of diaphragm. Voluntary movements of diaphragm control the Vegus Nerve. Preksha also teaches one to control emotions and to observe silence while eating with concentration. This also prevents any possible mishap of getting food entered in to the wind pipe. It is an interesting medical fact that both wind and food pipes share a common lid called epiglottis which closes off the larynx and trachea when the food or drink is swallowed. Talking and other unwarranted movements during eating may cause food to enter the wind pipe which, in worst case, may choke a person to death. Preksha, therefore, teaches us to be conscious of entire eating process and to disregard the surroundings.

5. Depression

An ailment rising from the fast and materialistic life style is - depression. Most people experience low spirits at some time in their lives. Symptoms of depression have a very wide spectrum. Though the basic feeling of low spirit is common in all kinds of depression, **neurosis and psychosis** result in experiences like, sadness, worthlessness, delusions, hallucinations etc. In extreme cases of mania, persons become aggressive and irritable. At times, severely depressed people develop suicidal tendencies as well.

Reasons of neurotic depression could either be a bereavement or failure. Psychotic depression may result from physical reasons like malfunctioning of endogenous system including some parts of brain such as hypothalamus. Whatever the reason, depression is mostly treated by those medicines which increase the dopamine and stops serotonin uptake. Dopamine stimulates the brain cells, initiates the exchange of sodium and potassium ions resulting in electrical impulses. In extreme cases where antidepressant drugs fail, doctors resort to Electro Convulsive Therapy (ECT) to cause a temporary epileptic-like fit. Brain undergoes a momentary seizure and chances of restoration of normal functioning increases.

Keeping mentally fit is a skill which everybody can and should master. It is a two-pronged strategy –

5.1. Relieving tension by

- Muscle Relaxation
- Deep Breathing

- ♦ Meditation
- ♦ Exercise

5.2. Increasing mental resilience by

- ♦ Acting and thinking positively
- ♦ Keeping busy
- ♦ Living in present
- ♦ Discussing problems over
- ♦ Avoid taking problems to bed
- ♦ Observing fast - overcomes laziness and enhances self control

Conclusion

Spiritual tools like meditation, yoga etc. have found universal acceptance even in the medical fraternity. These exercises keep both - mental and physical health in good condition. They are based on the axiom that 'the prevention is always better than cure.' Time-tested spiritual practices are like a 'stitch in time saves nine.' On the other hand, advancements in medical, computer, electronics and space sciences have given rise to very interesting and peculiar possibility – **'an eternal soul need not leave a Nashwar Shareer, rather it can find a permanent abode in an immortal body.'** The possibility is not very far off.

LIFE SCIENCES

Mahapragya has introduced a new chapter on Life Sciences in the field of education. According to him, the body, the mind and the soul work in consonance and need to be maintained in harmony, only then the orchestra of life will produce music. If these three components fall out of sync, we just listen to noise. We shall briefly analyze the concept of Life-sciences and its practical use in living the healthy and meaningful life. Man has evolved to its present state employing three natural tenets –

- ✦hunger of knowledge (Jigyasa)
- ✦Thirst of change (Bubhusha)
- ✦Ability of action (Chikeersha)

Human being is full of quest. He is yearning to explore esoteric. He is also eager to break the monotony, tedium and tradition. He desires change and transformation. And to earn knowledge and to achieve change, he is raring to act. He is full of life-energy to do something.

Human being remains an animal until educated to become a part of civilized society. Education lays the foundation for progress.

Balanced Development

Growth on all fronts – physical, mental, behavioural and emotional – is the hallmark of life-sciences. Here we are not discussing the academic education, but the art of overall development of human personality. A balanced educational pattern only can result into the holistic development of a human being. Interestingly, the anatomy of human body has several aspects which are apparently beyond the conscious control, yet a student of life-science can learn an indirect method to address these autonomous functions to his advantage. In order to accrue these four-fold results, basic constituents of any comprehensive educational prototype should be –

- ♦ **Sturdy Nervous System:** Our consciousness is the result of an intricate nervous system. This system alone is responsible for our behaviour, thought and personality. Two streams of our autonomic nervous system – Ida and Pingla - medically known as sympathetic and parasympathetic, control most glands, heart, bronchi, arteries, stomach and intestine. Both sympathetic and para- sympathetic systems work in opposite manners. Stimulation of sympathetic

nervous system increases heart rate which in turn results in aggression, antagonism and hostility, while the stimulation of parasympathetic system slows the heart beat and results in weakness, fear and inferiority. Only a balance of these streams of life can develop a proper personality.

- **Biological balance:** Second most important is endocrine system. This includes several glands like pituitary, hypothalamus, thyroid, adrenals, gonads etc. These glands secrete various chemicals called hormones. These hormones play a vital role in controlling wide range of body activities, such as digestion, excretion and reproduction. Any imbalance in the secretion of hormones may result in wide ranging ramifications. Equilibrium is essential for rational, intellectual and physical growth.

- **Enhanced Mental Capability:** It is now been medically established that humans use only 5-7% of the available mental resources. With 10% usage one can become a genius. This leaves for a tremendous scope for mental augmentation.

- **Refined vision, conduct and sentiment:** We know that the body organs (like various telephones) work through the nervous system (acting like telephone cable) and controlled by the hypothalamus (like telephone exchange). All these human hardware are coordinated and controlled by the software written in the brain cells. It is this software which can be refined, purified and decontaminated of bugs. **While we have little control over the anatomical hardware available, we surely have control over the software formed by vision, conduct, emotions, sentiments and thoughts. The exercise of refining this software is essential part of Life-Science.**

'A healthy body alone can house a healthy mind.' Life science believes in this axiom and extends this concept to spiritual awakening. According to Mahapragya, study of life-science has four fundamental elements –

1. Decontamination of Body

- Relaxation through Kayotsarg
- Yoga-Asana
- Health Education

2. Sanitization of Breath

- ♦ Right inhalation
- ♦ Mitigation of Stress
- ♦ Resonance of Sound (Naad)

3. Refinement of Speech

- ♦ Recitation of hymns and verses
- ♦ Determination and non-violence
- ♦ Value based teaching

4. Purification of Conscience

- ♦ Preksha-Meditation
- ♦ Emotional health

While readers can find various Yoga techniques elsewhere, here it would be suffice to state that the various yoga-postures help in achieving balanced hormonal and chemical composition of the body. Mahapragya too has stressed the need of incorporating these time tested asana in one's daily life. He has given similar emphasis to various relaxation techniques which de-stress the mental tension. Relaxation through Kayotsarg has yielded proven results. Here, we shall elaborate on exercising 'Mahapran Reverberation.'

Mahapran Reverberation

Importance: It addresses the body, caresses the mind and forms a prelude to embracing soul through meditation. It activates cerebral nerves, reduces restlessness and enhances concentration. Its regular practice results in slow and deep breathing, peaceful mind, strong memory and chaste behaviour.

Procedure:

1. Bring body to standing posture of *Sampadasana*. Maintain body steady and relaxed.
2. Slowly inhale through nose and retain the air in the lungs. Latch your attention to larynx.
3. While keeping mouth shut, produce 'm.....m' sound using vocal

chords (larynx) and nose such that its reverberations are felt right up to the cerebral hemisphere.

4. During this process let the lungs spontaneously exhale the accumulated alveolar air.

5. Feel as if the entire body is engulfed in to the sound waves of *Mahapran* Reverberations.

6. Now, inhale again. Repeating it five times is normally adequate.

This exercise can be attempted anywhere, anytime during the day. Benefits will be tangible within a short period of time.

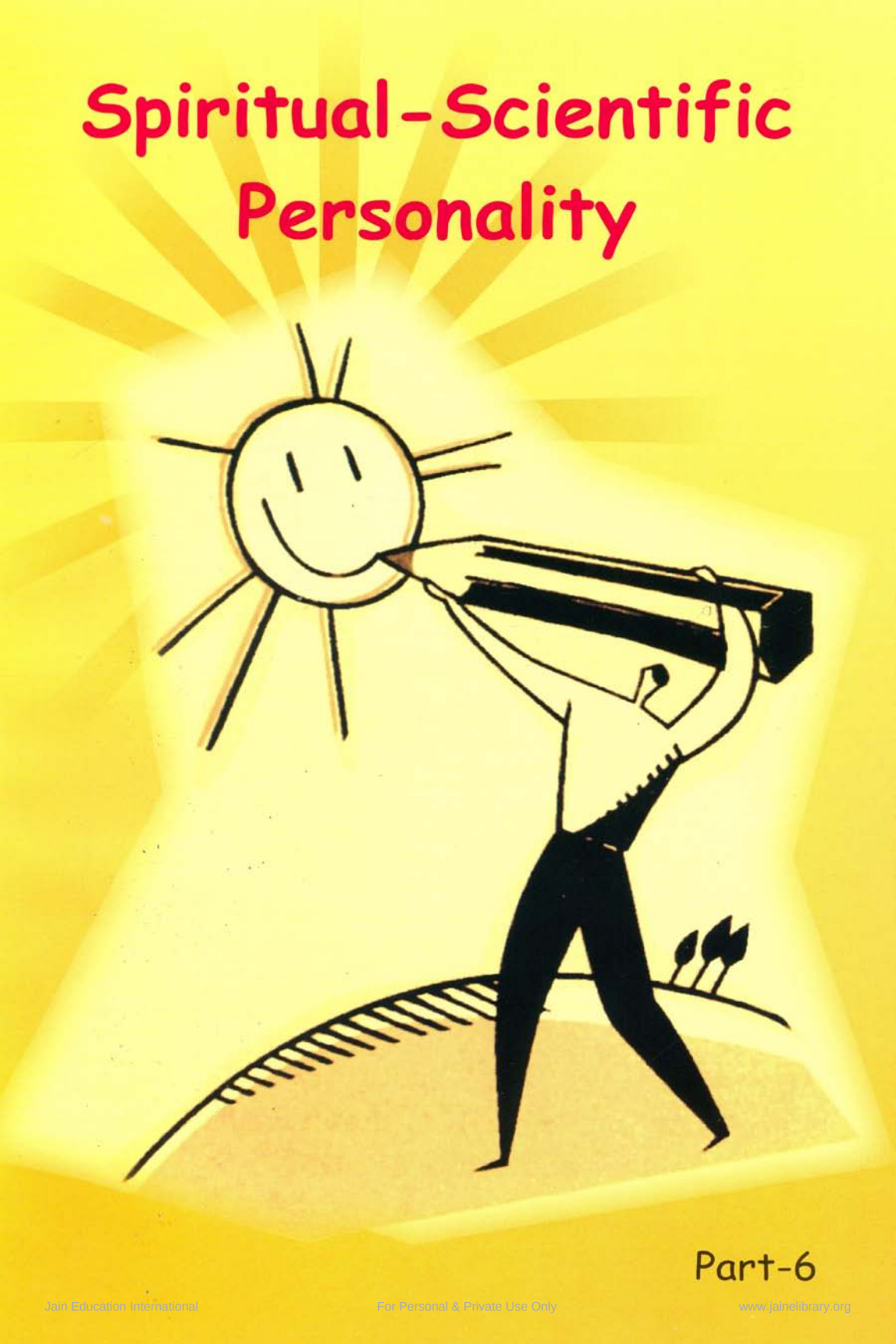
Two-pronged Strategy

There are schools and institutions which impart education on wide ranging subjects but there is hardly any organized effort to impart moral and behavioural guidance. This lopsided stress on knowledge is slowly resulting in weird sadism, bizarre violence, and barbaric treatment of weaker strata of society, which includes not only economically poor but women and children too. This calls for an immediate strengthening of our moral back-up programs. Study of Life-sciences as proposed by Mahapragya is a timely step in right direction as it emphasizes on four-fold development –

- ♦ Management of Emotions, Values and Virtues
- ♦ Mitigation of Temper and Destructive Tendencies
- ♦ Enrichment of Positive and Constructive Energy
- ♦ Nurturing of Team and Social spirit

We must acknowledge the fact that all humans born with natural instincts which have both virtues and vices. These emotions of anger-compassion, revenge-forgiveness, love-hate, etc. are nothing but various chemical activities within the brain. And these activities can be controlled through the proper software programming of thoughts. To achieve this we shall have to adopt two-pronged strategy – one of acquiring academic excellence through institutional education and second of practicing life-sciences through meditation, yoga and moral building. Mahapragya says the vehicle of life can run and achieve new goals if the two wheels of knowledge and character are maintained well balanced. And then only the moral bankruptcy, blatantly visible today, will give way to cultural and spiritual richness.

Spiritual-Scientific Personality



Part-6

SECTION - 6

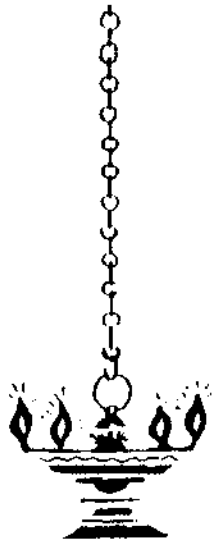
SPIRITUAL-SCIENTIFIC PERSONALITIES

SPIRITUAL-SCIENTIFIC PERSONALITIES

The discourses and dialogues of Acharya Mahapragya and President A.P.J. Abdul Kalam

(Courtesy-Terapanth Weekly Publication 'Vigyapti' and Sh. Jhanwarlal Chopra, Jaipur)

1. 13th August 2002 at Ahmedabad – Dialogues
2. 14th February 2003 at Mumbai – Dialogues
3. 15th February 2003 at Mumbai – Discourses
4. 15th October 2003 at Surat - Spiritual declaration.
5. 15th October 2003 at Surat - Discourses
6. 15th June 2004 - 85th Birthday of Acharya Mahapragya.
7. 18th February 2005 - Message of A.P.J. Abdul Kalam on 75th Monk hood year of Acharya Mahapragya.
8. 4th July 2005 - 86th Birthday of Acharya Mahapragya.



A dialogue between Jain Acharya Mahapragya and the President of India Dr. A.P.J. Abdul Kalam on 13th August 2002 at Ahmedabad

In the year 1999, Dr. A.P.J. Abdul Kalam paid his first visit to Acharya Shree Mahapragya as a renowned scientist. He got the first hand and pure knowledge of Jain philosophy during that meeting which lasted for around forty five minutes. The logical and scientific contents of the Jain philosophy left a lasting impression on him. His virtues of politeness, simplicity, congeniality and adaptability remained undiminished even after acquiring the highest office of our country. Abstract of the talks held between the President of India, Dr. Kalam and Mahapragya are –

Dr. Kalam: Swamiji! I intend to eradicate the problems being faced by our country. I need your blessings. I firmly believe that your blessings will enable me to achieve my goals.

Mahapragya: You have made certain declarations during your oath ceremony; you have to mould our nation accordingly.

Dr. Kalam: Yes! Yes!

Mahapragya: Today, nation is facing three major problems –

1. Poverty
2. Terrorism
3. Casteism and Religious fundamentalism.

So long as these problems persist, our nation can not embark upon the journey of peace and development. These problems can not be overcome by the missiles and weapons of destruction but with the 'Madhur-Shastra' (weapon of politeness).

Dr. Kalam: 'Madhur-Shastra'....?

Mahapragya: There is an incident in Mahabharat. Krishna was very disappointed with the rising unrest and discontent among his natives. He discussed them with Narad. The witty Narad advised, "You overcame the enemies with weapons, but to win over your internal problems, you must deploy 'Madhur-Shastra' – the non-destructive weapon of politeness. This alone can bring back the peace."

Dr. Kalam: Swamiji! What you say is correct. Problems like poverty etc. can be resolved by `Madhur-Shastra` only.

Mahapragya: Today, problems are aggravated due to lack of long-term vision and foresight. We do not think of permanent solutions. We adopt ad-hoc and short-term measures. We simply dress a wound but do not eliminate its root cause. For permanent and effective solutions, scientific attitude is required. Like, it was the long-term vision of our scientists that the nation is in the forefront of world's technology.

The similar policy of scientific attitude must be followed to solve the other problems of our nation. Instead of ad-hoc, permanent and lasting solutions must be found.

Dr. Kalam: We have planned to eradicate poverty and to fully develop the nation within next twenty years. Earlier I did the same planning as a scientist, now I have to accomplish this task as a President. I wish to do this job with the help of our parliament.

Mahapragya: Pioneer of Anuvrat, Acharya Shree Tulsi had said with respect to the religion and sect, "If religion is considered prime and the sect secondary, problems of the nation can be solved." In modern context, I will transform it as, "The problems of the nation can be solved if the nation is considered prime and the party (political) secondary."

Dr. Kalam: (feeling overwelhmed) Swamiji! You are above the fundamentalism. You must convince all the politicians, social and religious leaders, who come to visit you that they must keep national interests above the party politics. Abeyance from petty party politics is necessary to embark the nation of the road of development.

Mahapragya: Sure, I will tell it to all.

Dr. Kalam: Coming from you, it will make a lot of difference.

Mahapragya: You are first a scientist and then a president. I am entrusting you a task, a scientific attitude must be inculcated in all. This alone will be good for nation. Speeches and agitations will do no good.

Dr. Kalam: Swamiji! I will try.

Mahapragya: Only speeches and agitations will not solve the problems, peace and amiability are essential.

Dr. Kalam: A peaceful and amicable environment can be created by the great people like you.

Mahapragya: For communal harmony, we have stressed on two points –

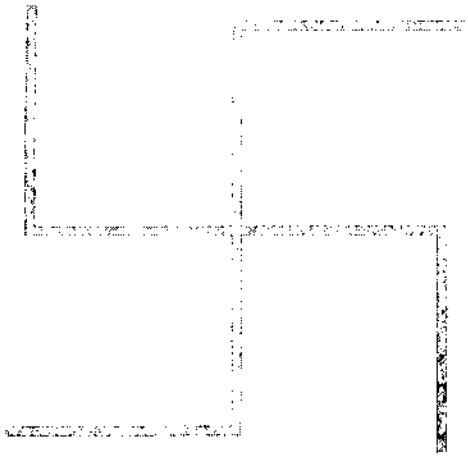
- No community should insult the religious ceremonies of any other community. If possible, they too must generously respect them.
- Entire community must not be revenged for the misdeeds of a few criminals. We cannot convict the entire society.

If these two rules are heartily followed, we can stay together and live peacefully.

Dr. Kalam: I will propagate these principles.

Mahapragya: Poverty, illiteracy and many more problems are there. These cannot be addressed until an environment of peace is established. Amiability and friendship in all will pave the way for permanent solutions.

Dr. Kalam: Swamiji! No one can achieve the communal harmony, brotherhood and reconciliation as skilfully as you can. That is why the nation has lot of expectations from the saints like you. We will totally cooperate with you in this task.



A DIALOGUE BETWEEN JAIN ACHARYA MAHAPRAGYA AND THE PRESIDENT OF INDIA DR. A.P.J. ABDUL KALAM DATED 14TH FEBRUARY, 2003

On 14th February, 2003, His Excellency President Sh. A.P.J. Abdul Kalam had an audience with Rev. Acharya Mahapragya. The President had driven straight from the Mumbai airport. The President arrived at the Terapanth Bhavan at about 9 p.m. and headed straight into the chamber of Acharya Mahapragya. An epitome in the world of science, Shri Abdul Kalam, with a heart full of faith and devotion, touched the feet of a beacon of spirituality, Acharya Mahapragya. The humility of the First Citizen of the country touched the heart of everyone. The President sat down humbly in front of Acharya Mahapragya, seated on a wooden board, and the conversation began. The conversation centred on several problems facing the country. That important and stimulating conversation is being exactly reproduced below.

President: I am very happy to have had an audience with you today. How are you keeping?

Acharyashri:I'm well.

President: Your life of toil and discipline is continuing!

Acharyashri: Yes, that indeed is necessary.

President: Acharyashri! I have read five books authored by you. They are 'Mirror of the Self', 'Mind Beyond Mind', 'Economics of Mahavira', 'New Man, New Society' and 'I and Mine'. They all contain enough scientific analysis of the subjects dealt with.

Acharyashri: Science is your subject.

President: You have discussed sixteen values in these volumes and have emphasized the development of moral, individual, social and national values.

Acharyashri: Yes, a citizen is expected to cultivate these values in his life.

President: Acharyaji! When do you get time to write so prolifically?

Acharyashri: (Smiling) I keep my mind empty and remain in a state of abstract thinking. I note down the ideas that sprout in this state of mind. I believe that if there is single-mindedness, the work, which usually takes eight hours, can be completed in just three hours.

President: I fully agree with you. In your literature, I have come across a detailed analysis of ekant (absolutism) versus anekant (non-absolutism). Anekant, as I understand is the teamwork wherein people with diverse beliefs work together whereas ekant is an individual attitude. Am I right?

Acharyashri: There may be diverse beliefs and diverse thoughts but they should coexist and should not contradict one another. It is quite possible to find the essence of conciliation even in two different streams of thought.

President: I find that more and more people are becoming absolutist in their ideas. How can this absolutist way of thinking be removed? How can one be inclined towards non-absolutistism? Anekant is the most important aspect of Mahavira's philosophy. How can we popularise it?

Acharyashri: The greatest problem we encounter today is related to emotions.

President: Is emotion a barrier in the path of Anekant (non-absolutist way of thinking)?

Acharyashri: Yes, negative thoughts are at the root of the problem. They create absolutist way of thinking and give rise to conflicts. In order to develop the philosophy of non-absolutism, we must see that an individual learns how to control his emotions. Its practice is essential. If we can awaken the right hemisphere of our brain, these conflicts can be ended altogether.

President: What you are saying is right but the difficulty is how we can do it. Is it possible through intellectual development?

Acharyashri: Intellect awakens the left hemisphere of the human brain. In order to awaken the right hemisphere, one has to practice meditation and try to harmonize the nervous system.

President: Is it possible through meditation?

Acharyashri: Yes, it is an established fact that the part of our body on which we meditate is developed. The part through which the vital force (praan) flows becomes active. Medical science has so far unfolded the secrets of the body and mind, but it is still far away from the knowledge of praan-the vital force.

President: Yes, science has not yet succeeded in unraveling the mystery of praan. Acharyaji, many problems are manifesting themselves among students.

The modern student is in the grip of tension and depression. We also find that the minds of many students remain undeveloped. I have a research scholar

who is doing research under my guidance. His subject is: "The children with undeveloped brains are a challenge, how can they be cured?"

We have made some experiments in this respect. Two groups of children with developed and undeveloped minds were formed. Each group consisted of ten children. They were all subjected to MRI tests. We tried to find out if there was any difference in their physical structure, but no difference was found. But we discovered a difference in both the function and connection of neurons. The number of neurons in the left hemisphere of an undeveloped child was less. The neurons were also not fully connected. Can we compensate the deficiency of the left hemisphere of human brain by activating the right hemisphere? What measures do you suggest to awaken mind, body, psyche and intellect-all the four major components?

Acharyashri: We must add two more to them, i.e., 'praan' (vital force) and emotions.

President: You are right. Acharyashri! Videh Janak and Mahrishi Ashtavakra had attained the higher level of spiritual consciousness. What is the meaning of their statement – 'I am consciousness and I am in consciousness?'

Acharyashri: Our mind has three parts:

a. Higher conscious mind

b. Unconscious mind and

c. Conscious mind.

Mahrishi Ashtavakra and Videh Janak had already attained the state of higher consciousness.

President: Were they able to establish contact with Brahm the eternal spirit?

Acharyashri: Yes, their pragya (wisdom), intuitive knowledge or insight was awakened.

President: How can we attain this state of mind? Had Mahavira attained super consciousness?

Acharyashri: There is a commonly used word in the Jain spiritual practice i.e. 'veetraag' (one who has transcend passions and desires).

President: (jotting this word in his diary) What does 'veetraag' mean?

Acharyashri: One who is absolutely free from attachment and hatred and is

above the feeling of 'I' and 'mine' is 'veetraag'. The spiritual practice of 'veetraagta' or the state of mind free from desires and passions takes a person to a state of higher consciousness.

President: The greatest problem is that of ego - I and mine. How can it be expelled from the human mind?

Acharyashri: The frontal lobe of the human mind is the territory of emotions and feelings. If one meditates upon it, the ego diminishes and the positive emotions become active. There is another part of the brain called 'limbic system'. Hypothalamus is one of its parts. The vibrations emitted by our higher conscious mind influence the hypothalamus. One may be a student or an adult, if we want to transform him, he should be made to meditate on his hypothalamus. Change is inevitable. If a person visualizes bright white colour on 'Jyoti-kendra' (centre of mind), his passions, like anger etc. will calm down.

President: Acharyaji, today, the problem is that our country is very big and it is in fact being ruled by arrogance and self-centredness.

Acharyashri: Persons who attain high positions, after undergoing proper training can be transformed, but those who hold the rein of power have not undergone any sort of training, they create problems. If they are trained right from the beginning, such a situation will not arise.

President: We will have to begin the process of training from the children only.

Acharyashri: Yes, we have identical views. If we concentrate our efforts on the present generation, the future generation is likely to be better. We have made some experiments of 'Jivan-Vigyan' in the tribal area of Jhabuva district and that training has yielded very encouraging results.

President: What types of experiments are made under your guidance?

Acharyashri: We make experiments on meditation, which help the practitioners to control their emotions. We also carry experiments on yogic postures, preksha meditation, contemplative meditation (anupreksha) and willpower. They awaken pituitary and pineal glands and control the adrenaline gland. Not mere theoretical but also practical training is imparted. The entire programme of training is being conducted in a scientific manner.

President: And this is done by means of spirituality?

Acharyashri: Our guru, Acharya Tulsi used to say, **"The greatest need of**

today is the evolving of a spiritual-scientific individual. Mere spirituality is not very useful and mere science can prove to be dangerous. That is why we need to create an individual who is both spiritual and scientific."

President: Both spirituality and science are connected with each other.

Acharyashri: As a matter of fact science and spirituality are not two separate things.

President: yes.

Acharyashri: Both science and spirituality aim at seeking the truth.

President: A spiritual leader can also be a scientist and a scientist is also likely to be spiritual person. **But the problem today is a different one, which is, how can a religious person become a spiritual person? Today an individual may be religious but it is not necessary that he is also spiritual.**

Acharyashri: What you are saying is true. There was a time when dharma was in the hands of those who practised it. Today, it has passed into the hands of priests and preachers. Mahavira, Buddha, Christ, Nanak, Zoroaster were all devoted to spiritual practice. Today we have mere religious preachers in their names. Today religion is dominated more by plutocracy than by spiritual practice.

President: In India there are millions of people who believe in religion. How can we transform them? How can we mould them into spiritual humans?

Acharyashri: It is extremely difficult, but if we begin from students and mould their minds, we can achieve some success. We are working in this direction. If we can have some representatives from your side, the work can make tremendous progress.

President: I have met about twenty thousand students in a period of two years. Why do I meet them? Acharyaji, it is my mission. I have a strong desire deep in my heart as to how we can make our country spiritually elevated. This is a legacy of our country. It is imperative that we disseminate widely the spiritual legacy bequeathed to us by Mahavira, Buddha and other spiritual leaders.

Acharyaji, I went to Nagaland and met the students of eighth standard. On of the children said, "I want to live peacefully. I want to live a happy, secure and prosperous life. Please tell me when will it be possible? When will our country be beautiful, secure and prosperous with peace prevailing everywhere?" I told him that I would let him know after I have consulted Acharyaji. Guruji Acharyaji, I know how India can be developed and made economically prosperous. We

have a potential to take India to the path of prosperity. But, I seek your guidance and views as to how the people of India can make strides in spiritual thinking.

Acharyashri: Send your representatives to me. Let us reflect on it deeply, formulate a plan and make an intensive effort in that direction.

President: The spiritual leaders should join hands and build a bridge.

Acharyashri: It is a very good idea.

President: Do I take it as your blessing?

Acharyashri: Yes, we have established 'Ahimsa Samvaya' (a forum of nonviolence). It too has exactly the same objective. The individuals and organizations working in the field of non-violence and world peace should think over it collectively. Their unified energies will lend strength to this project.

President: Yes, I agree.

Acharyashri: We were in Gujarat some time back. Communal riots hit the state. We invited the main leaders from both the communities - Hindus and Muslims. We had a dialogue with them and explained to them that the violence was not the solution to any problem. We had many meetings. Everyone respected our views. It led to the creation of a peaceful environment. If religious leaders undergo a change, violence generated by sectarian fundamentalism will come to an end.

President: (Smiling). It would be better if you could persuade them to meditate on their 'frontal lobes'.

Acharyashri: If the research scholar who is doing research under your guidance directs his study towards these experiments, his research may lead to some positive results.

President: I will certainly send him to you.

Acharyashri: It is imperative that this process of thinking between you and me continues. It will not be possible for you to come everywhere but your representative can become the bridge of a dialogue.

President: My friend and eminent scientist, Dr. Y.S. Rajan will continue to meet you as my representative.

Acharyashri: Your scientific thinking may prove to be highly beneficial to the country. Socrates had said, "A ruler should be a philosopher." Today I want to

say in these words, "A ruler should be a scientist. If it is so, he will try to reach the root of the cause. He will also be less egoistic."

President: (Smiling) And, if egoism persists, he can be advised to meditate on the 'frontal lobe'. Is there any role of breathing in it?

Acharyashri: There is an intimate connection of breathing. Long breathing is very important in controlling emotions. An ordinary person completes 15 to 16 breaths in a minute. The number goes up to 30-40, the moment he is excited or when he is in the grip of anger, fear and passions. If the excitement is most intensive, the number of breaths can still be more. In figurative language an emotion can be likened to a king who will not come without an aeroplane. Short breath is his vehicle. If the number of breaths is less, emotions will calm down. Long breathing awakens the right hemisphere.

President: (Turning his attention towards the notes written in his diary). Is it possible to diminish or lessen ego and anger?

Acharyashri: It is quite possible. In preksha Meditation camps we had many people who practised it and were able to exercise control over it. Send five students who are temperamental and are always angry. We will expose them to the experiments of Preksha Meditation for a period of five weeks. You will yourself notice the wonderful result.

President: I am happy. I have got a new insight, a new light today. I have discovered a new pathway as to how we can mould our people into spiritually elevated humans and how we can succeed in this direction.

Acharyashri: If this process of thinking continues for a longer period, we can succeed in resolving many problems.

President: ....Your wise counsel is auspicious not only for me but for the entire country.

SPEECHES DELIVERED ON THE OCCASION OF THE INAUGURATION OF THE SEMINAR ON "MORAL VALUES IN EDUCATION" AT MUMBAI ON 15th FEBRUARY, 2003

Dr Kalam's Speech

Inaugurating the Seminar, President A.P.J.Abdul Kalam said, "The creation of good people, better society and world peace is possible only with coordination between spiritual and scientific thinking."

Referring to the detailed discussions held with Acharya Mahapragya, Dr Kalam said, "From Acharayaji I received directions as to how we can build an alert, moral and cultured man. Acharyashree suggested that the building of a good human being is possible with coordination between intellectual and emotional development."

Alluding to the smiles on the faces of the newly-initiated ascetics, the President said, "Out of the hundred crore population of India, one-third are children and adolescents. By building beautiful citizens with beautiful minds, we shall be able to remove hatred from our lives."

Quoting several times from the statements of Acharya Mahapragya, the President said, "In order to develop a mind that is peaceful, violence less and without hatred, it is necessary to create a new environment. We should create an environment in which both the tendencies - of 'I' and 'mine' - are annihilated. The two elements of 'I' and 'mine' have created all our problems; have generated the environment of war and disturbance of peace."

Describing Acharya Mahapragya's directions as useful for the whole world, the President said, "Religion and science acting together will be able to give a new direction to mankind. Science needs the helping hand of spirituality."

Referring to the incident involving his teacher Dr Vikram Sarabhai and Bishop Parel, the President said, "Without the helping hand of the spiritual teacher, science could not have moved forward. The scientist asks questions, looks for reason. He can create wealth and property with the help of revolution in communications and agricultural production, provided that he continues to receive help from spirituality. Not only science, the whole nation needs spirituality. The work that Acharya Mahapragyaji is doing in this direction is very valuable.

Acharya Mahapragya's Address

Addressing the Seminar Acharya Mahapragya said, "Yesterday I had a discussions with the President on three issues: How to develop moral and character-related values? How to achieve emotional development? How to get rid of the 'I' and 'mine' mindset? If moral values are not developing in spite of so much education, discussions and movements, then the only explanation is that the malady is somewhere else and the treatment is being administered somewhere else. To bring about change, one must reach the unconscious mind. All our effort is focused on changing the conscious mind. Emotion, behaviour, habit and memory - all these fall in the realm of the unconscious mind. For moral and character-related development, we shall have to adopt such effective experiments and procedures which can influence the unconscious mind, and solve the problems existing there. Life science is such an experimental procedure and it can influence the unconscious mind."

Discussing the applications of life science, Acharya Mahapragya said, "The child whose sympathetic nervous system is active will turn out to be rude, cheeky and undisciplined. The child whose parasympathetic system is active will turn out to be cowardly, timid and meek. Till such time as we are able to find a method to strike a balance between the two, children cannot have a proper development. The experiment of life science is an experiment aimed at achieving a balance between the two."

Referring to coordination between spirituality and science, Acharya Mahapragya said, "We have been talking about coordination between spirituality and science, but the credit for presenting these two in an applied form goes to Acharya Tulsi. With his intellect and understanding, he pushed it forward. He conceived the idea of building of a spiritual-scientific personality and did significant work towards this end. Mere spirituality is not very useful for this world. A mere scientist can also be dangerous. A person in whom both spirituality and science develop becomes beneficial to the world."

"Socrates said that a ruler must be a philosopher. I want to say that a ruler must be a scientist. A scientist will not only think about a problem, he will also look for a solution. Today a confluence between spirituality and science is being achieved. Both are engaged in the pursuit of truth. I have discussed several issues with the President. We have decided that this consultation will be carried on in the future too. That together we may do our bit to find a solution to the problems of the country is what is expected of us today."

SURAT SPIRITUAL DECLARATION 15th OCTOBER, 2003

On the 15th October 2003 a historic declaration in the name of **Surat Spiritual Declaration** was presented to the Hon'ble President of India, Dr. A.P.J. Abdul Kalam by 15 leading spiritual leaders. The Declaration seeks to foster **Enlightened Citizenship**. It seeks to do so by exploring and harnessing the different dimensions of spirituality. "Every religion has a central component - spirituality driven by compassion and love. Rationality and logic are intrinsic to science and spirituality. A spiritual experience is the goal of the deeply religious person whereas a major discovery or invention is the goal of a scientific mind. If both aspects are unified and amalgamated in our own pattern we can transcend to that level of thinking in which unity is a cohesive concept. The enlightened citizenship will then take place - with the interaction of science and spirituality". Science and spirituality have to interact in the context of economic growth and development, this action oriented declaration states "It is our responsibility as religious and spiritual leaders to carry out this mission of removal of poverty from our people".

DECLARATION

CREATOR'S MESSAGE

God has created the human being with brain and thinking faculty. He has commanded His creation to use the faculty with reasoning to reach His image.

This is the mission of human life.

Science is a recent boon God has bestowed upon mankind. Science with reasoning becomes the capital of the society. Spirituality is a special quality God has given to the human being. The duty of the human being is to discover it and use it for the benefit of all.

In whatever field we work, be it science, technology, medicine, politics, policing, theology, religion or judiciary, we have to remain in the service of the common man whose well being is central to all human knowledge and endeavour.

THE PRESENT CONDITION

Even while the above is the main focus of human life we find that our nation is facing loss of confidence in itself, at various levels. There is lack of

tolerance for others' religion, faith and philosophy or viewpoints; there is lack of harmony; there is lack of respect for moral, ethical and cultural values and there is lack of sensitivity to poverty and inequality. Womanfolk is not given its rightful place. There are various social problems like lack of employment opportunities and the resultant rise in crime and other social evils like addiction to drugs etc. Thus there are various forms of violence spreading in the country. While science and technology and economic growth would help in solving some of these problems, it is possible to manage these complex forces to the benefit of humanity only when the dimension of spirituality is embedded in human knowledge and efforts.

DIMENSIONS OF SPIRITUALITY

Every religion has a central component - spirituality driven by compassion and love. Rationality and logic are intrinsic to science and spirituality. A spiritual experience is the goal of a deeply religious person, whereas a major discovery or an invention is the goal of a scientific mind. If both the aspects are unified and amalgamated in our own patterns, we can transcend to that level of thinking, in which unity is a cohesive concept. Then the enlightenment of citizenship will take place. For this environment, the two major components - Science and Spirituality have to interact. A peace prayer can be the foundation for both.

PEACE PRAYER

"Oh Almighty, create thoughts and actions,
in the minds of the people of the nation,
so that they live united.
Oh Almighty, bless the people,
to undertake a path of life with righteousness,
as righteousness gives the strength of character.
Help all religious leaders of the country,
to give strength to the people to combat the divisive forces.
Guide the people to develop an attitude,
to appreciate different viewpoints and ways of lives,
and to transform enmity among individuals,
organizations and nations,
into friendliness and harmony.

Embed the thought 'Nation is bigger than the Individual'
in the minds of the leaders and people.
Oh God, bless the people to work with perseverance,
to transform the country into a peaceful and prosperous nation."

SPIRITUAL COMPONENT OF RELIGION

In our country, certain regions are presently being subjected to tremendous stress due to violence in body and mind. If we study the history of India over 3000 years, we will find that the country has always stood for peace. It worked for peace; it prayed for peace and lived in peace. But these days, peace seems to be endangered due to societal dynamics described briefly earlier. So, how does one bring back peace? Paradoxically, the 'I' in us wants peace. Nevertheless, to get peace one has to first get rid of the 'I' and 'me' as per our scriptures. This may be a tough proposition. For, in virtually every sentence, every thought we are dictated by 'I' and 'me'. As said, if we remove 'I' and 'me', the ego will vanish. When the ego vanishes, hatred fades away. When hatred goes away, violence in mind and body will disappear. Therefore, peace comes when you forsake 'I' and 'Me'. The spiritual goal of every religion is indeed violence free individual in mind and body and thereby a peaceful society. Removal of poverty is one of the components for realising peace.

REMOVAL OF POVERTY

We realise that the 300 million young citizens who are below 20 years of age in India want peace, prosperity, happiness and safety. It is our responsibility as religious and spiritual leaders to carry out this mission of removal of poverty from our people.

Fortunately, there is a road map to go to the 'India 2020' of our national dream. That entails working intensively on five important areas that have been identified. These are agriculture and food processing, education and healthcare, information and communication technology, infrastructure development including networking of rivers and providing urban amenities in rural areas. If the villages prosper, the states prosper; if the states prosper, India can prosper. Such a network of prosperity is extremely important to realize the vision of the nation. Removal of poverty means addressing several related elements like removal of illiteracy and providing good governance as it is vital to ensure that funds allotted for the poor and the earnings by the poor people are not frittered away in various forms of social evils like corruption. This is where making of an enlightened citizen comes in. This acquires a moral, ethical and spiritual

dimension. Therefore, another component for prosperity is religious and spiritual partnership. We have considered how this partnership can be developed.

RELIGION: A BEAUTIFUL PARTNER IN THE NATION'S PROSPERITY

Religions are like exquisite gardens, places full of surpassing beauty and tranquillity, like sacred groves filled with beautiful birds and their melodious songs. Religions are beautiful gardens, but they are islands. They are enchanting islets, veritable oases for the soul and the spirit. But they are islands nevertheless. If we can connect all these islands with love and compassion, in a 'garland project', we will have a peaceful, happily and prosperous India in front of us. Universal truths embodied in each religion are very similar and they will help to form the bridge thus reinforcing basic unity. Another fact of today is that the intellectual gap between the opinion-makers and the masses is rather large. The removal of the gap is best done by spreading knowledge and increasing the knowledge base of every citizen in all vital aspects of their lives. As the number of enlightened citizens increases, the ability to cope with and transform problems also increases. In order to achieve this, in addition to concentrating on education of the youth, there is also need for continual education of adult population and senior citizens on values of lives and about the basic spiritual unity of all religions.

Education and intellectual activities are vital. In addition, these values have to be reinforced in every citizen through specific projects, which can bring people together, irrespective of their social levels or religious beliefs.

GARLAND PROJECTS

In order to do so we resolve to undertake the following projects and activities.

PROJECT 1: CELEBRATION OF INTER-RELIGIOUS FESTIVALS

Every month in all parts of India their can be a multi-religious gathering to convey the core message attempted in the prayer of peace and about the basic truths contained in various religions. Such a prayer should be preceded by prayers from all religions practiced in that part of the country by respective religious and spiritual leaders in the presence of the people. Each month the day selected could be a holy day from one religion: Islam, Hindu, Christianity, Sikh, Parsi, Jain, Buddhist etc. Regular conduct of such meetings by all religious leaders and people from different religions respecting holy days of other religions will send a powerful message. If possible, such gatherings can take place at the

religious places where all persons from other religions also can gather on that day. People should also exchange pleasantries and sweets during these meetings, as is the practice in some parts of the country where unity of minds prevails. In addition, in order to spread the message of equality to everybody on that day a 'langar' (community kitchen and eating) can be arranged so that all people eat common food sitting side by side.

How to organize these? We believe that, if all the religious and spiritual groups build strong connectivity between their own beautiful islands of happiness and solace, it is possible to turn these monthly meetings into mass movements for respecting each other's rituals, ways of life and view points. It will bring harmony and love. Peace and happiness will follow.

PROJECT 2: MULTI-RELIGIOUS PROJECTS

So far, religious groups have taken many efforts towards the removal of poverty and the accruing misery, in large or small scales, but in isolation. We will launch additionally a number of multi-religious projects in education, healthcare and water supply as well as for generating entrepreneurship and employment, to help the poor people. People will see for themselves that multiple religions are working together for common good. These efforts will elevate religions in the minds of the people and the nation will benefit.

PROJECT 3: EDUCATION IN AND WITH THE AMBIENCE OF UNITY OF RELIGIONS

All religious educational institutions operating in different parts of the country should enrol children from other religions in certain proportions and imbibe values such as religious tolerance and righteousness. The real purpose and the unity of religions should be embedded in the minds of the students. These children, who are the pillars of tomorrow, will foster a sense of peace and amity between themselves and for others. Simple exercises to reinforce positive thinking can also be attempted. In addition to these, specially designed value based educational material should be generated so that they are supplied in a large scale to the children. Attempts should also be made for large-scale dissemination of these materials through various forms of media. It may not be necessary to begin an exercise to generate these materials, as a large number of them are available in India and abroad. It may be necessary to search for them and shape them to suit our specific needs.

PROJECT 4: INTER-FAITH-DIALOGUE

In addition to the above projects impinging directly on common people and citizens, it is also necessary to have a continual Inter-Faith-Dialogue between the religious and spiritual heads as well as scholars. This dialogue

can address, among other things, minimum common code between religions, methods of creating congenial atmosphere for various religions, solutions for some of the burning problems of the society etc. Proceedings of and conclusions from such an Inter-faith-Dialogues can be widely disseminated among people through various electronic and print media. Models for these Dialogues exist in some other countries as well. Maximum benefit may be derived from such knowledge sharing in addition to finding our own unique methods.

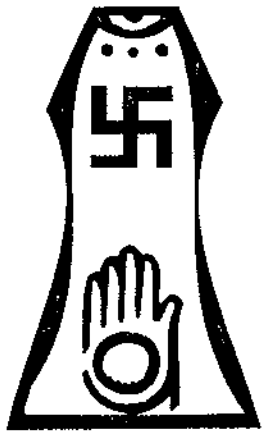
CONCLUSION

On the whole, the congregation of spiritual and religious leaders came to the conclusion that with the above five key elements the 'GARLANDS PROJECT' for 'Unity of Minds' and for creating 'Enlightened Citizens' in India and eventually in the world, can be successful if we start taking action in all earnestness after this 'SURAT SPIRITUAL DECLARATION' made on 15th October, 2003 in the presence of Hon'ble President of India.

India can emerge as a Developed Nation by 2020 with its civilizational heritage and value systems spreading harmony and peace to the whole world. This 'Unity of Minds' can be achieved even while keeping intact the rich diversity of rites, rituals, ideas and beliefs amongst us and blending them with modern knowledge and skills.

As soon as the President came out, he was thronged by the media. They all asked in unison, "What did you get there?" The President replied, "Enlightenment and new energy."

The Surat Spiritual Declaration came into being.



STATEMENTS MADE ON THE OCCASION OF THE SURAT SPIRITUAL DECLARATION 15th OCTOBER, 2003

The President Dr. A.P.J. Abdul Kalam, in the company of Acharya Mahapragya, had a dialogue on the problems of the country with other Acharyas, maulvis, priests, saints, and philosophers on 15 October 2003. This dialogue on the subject of **"Unity of Minds"** culminated in the form of the Surat Spiritual Declaration dedicated to the people. The statements made by Acharya Mahapragya and President Kalam are reproduced here for the benefit of the readers.

Acharya Mahapragya's Address

In his message prepared for the Conference, Acharya Mahapragya said, "Awakening of spiritual consciousness and development of moral values - this is the platform of the universal religion. From this platform, all religions can send out a message of unity."

Communal harmony

"Each religion can have its own modes of worshipping and devotion and nobody can have any kind of objection with regard to this. The divergence in religious concepts is actually on account of different modes of worship.

If we bring ourselves to value freedom of thought and devotion to faith, then in spite of the divergences we can come close to each other, can share the same platform of spirituality and morality and engage ourselves in identical pursuits. If we can prepare the background for such contemplation, a new sun can arise on the horizon of the world."

Why do we neglect moral values?

"In the field of religion, moral values are not being given importance. As a result, a religious person does not hesitate in resorting to unrighteous conduct. Similarly, in the field of religion, spirituality is not being given importance either, and as a result the dream of the unity of mankind is not being realized. No improvement is taking place in human relations."

Spiritualisation of religion

"Spirituality is the path to the development of pure consciousness. The

consciousness, which develops as the attachment and animosity diminish, has three resultants:

a. calm disposition, feeling of real peace
b. detachment
c. compassion

These are the main consequences of religion. It is only religion which can be of benefit to both the individual and society. In order to achieve this, the following are necessary:

a. development of concentration
b. development of the capacity to resolve
c. mitigation of one's state of agitation

These three powers have nothing to do with any particular community. They can be a common platform for all communities."

Spiritual-scientific personality

"Our fundamental objective must be: building up of the spiritual-scientific personality. A purely spiritual personality can neither present its spiritual contemplation in the language of the contemporary times nor can influence contemporary thinking. A purely scientific personality cannot transcend the limits of matter to touch the consciousness, and therefore, it cannot solve problems arising out of consciousness.

It is, therefore, a requirement of the times that every enlightened person become spiritual-scientific.

Only that person can become spiritual who can exercise control over his impulses. It is surprising that even religious persons do not show perseverance in controlling their impulses. For controlling our impulses, mere awareness of the principle is not enough. For this, it is necessary to know the regulating elements of impulsive behaviour. In this context it is essential to be aware of scientific disciplines like Anatomy, Physiology, Psychology, Bio-chemistry, etc.

At present violence is on the increase, and its main cause is our unruly emotional impulses. Mitigating impulses and spiritual reinforcement must be properly coordinated to achieve the spiritualization of religion; otherwise we cannot succeed in bringing the spate of violence to a halt. For the uplift of mankind and peaceful coexistence, it is essential to develop a practical methodology to extinguish our impulses.

The President's vision of transforming India into a country of the first order cannot remain confined to economic and industrial development. It will be possible only if economic and spiritual developments go hand in hand. It is a main duty of religious teachers that they take a wide-ranging view of their responsibility for the spiritual development.

I trust that this dialogue between religious teachers and the President of India, who is endowed with a scientific vision and is committed to spiritualism, will prove to be significant in solving many problems of the nation. This guidance will effectively contribute to the solving of the problem of unrest in the world."

Acharya Mahapragya added, "In this council, poverty was discussed. I consider richness more dangerous than poverty." Dwelling on experimental techniques for bringing about change, Acharya Mahapragya said, "Change is brought about by reading books, but along with that we should have the empirical mode too. We underwent an experience, experimented with ANUPREKSHA, and also saw the results. In that mode, one is required to experiment with resolution, suggestion, etc. It goes a long way in helping a man bring about a change in himself."

"We heard such excellent views of all religious teachers. All religions are so full of good things that I find it difficult to decide which religion is the best. But, despite these noble principles, violence is on the increase - this is the issue before us. There seem to be three main reasons for this:

There is a strategy of violence. There is no strategy of non-violence.

There is a network of violence. There is no network of non-violence.

There is a system for training in violence. There is no system for training in non-violence.

The President has a dream, we all share that dream: we must arrive at the conclusion that we should have a strategy of non-violence, have a network of non-violence and should start a training programme for non-violence. Merely speaking good words, giving lectures using charming language will achieve nothing. For this we should draw large scale plans for training through which students and youth, policemen and soldiers may be trained in non-violence. We are working in that direction and we are confident that we shall succeed in this."

President Dr. Kalam's Address

"Respectable Acharyashree Mahapragyaji, Swamiji, Maulviji, Father,

My regards and greetings to you all. I am extremely happy to be in the midst of all of you spiritual leaders and devotees. I look upon it as a great undertaking that in collaboration with a spiritual group we have gathered here to deliberate upon the ways to translate into actuality our vision of a developed India. I attach great importance to this Conclave organized by Acharyashree Mahapragya. I did some homework in order to prepare myself for discussions with you, but after listening to you I have decided that I shall not read out the prepared text I brought with me.

I have gone round the sun seventy-two times and am now entering the seventy-third round. I put a question to myself: Have I ever experienced happiness during these seventy-two years? Is there anything beyond happiness? This question has been troubling me. On arriving here I read your Surat Spiritual Declaration. How beautifully you have researched the subject how to develop the feeling of solidarity in us! I consider this feeling of solidarity on the same level as strengthening of economy. On the one hand economic prosperity and on the other hand spiritual harmony - a conjunction of these two make an effective contribution towards making our country prosperous, developed, peaceful, secure and spiritual.

I read quite carefully the Surat Spiritual Declaration having five principles approved by you. Certainly the time has come when spiritual leaders, thinkers, philosophers and saints of our country should contribute to the transformation of the country. I deliberated with several religious leaders on a vision of advanced and developed India. I held discussion in five such areas where development is required:

- agriculture and food preservation
- education and health
- information and broadcasting technology
- alternative resources
- self-reliance in the field of technology

I also talked about the development of the villages so that villages too enjoy prosperity. I have called it PURA (Providing Urban Facilities in Rural Areas). Let villages also have urban facilities. This will become possible when these four systems are interlinked: material, electronic, intellectual and economic

development. All the religious leaders felt that this should be implemented on the basis of our glorious civilization and heritage and with a spiritual lifestyle as its focal point.

The rich civilization and culture which we have inherited takes us towards good conduct. I am reminded of a lovely poem on good conduct:

Where the heart has good conduct, there is beauty in character;

where character has beauty, there is cordiality in the home;

where the home has cordiality, there is a strong system in the country;

where the country has a strong system, there is peace in the world.

The question is: who will build character? Religion, guardian or teacher - all these three can sow the seeds of good conduct in the youth. Therefore, religious leaders have an important role in inculcating the habit of good conduct in the youth and other members of society. Religious teachers can play an important role in preparing citizens having a tendency towards culture and good conduct and in fully developing the country by the year 2020. We have to build a beautiful nation, where we adore good qualities.

I want to share with you one of my childhood experiences at the island town of Rameswaram. My father had two friends. Father Bodel and Shri Lakshmana Shastrigal. This was when I was at the age of 10, these three great human beings discussing together the Bible, the Quran and the Gita. Interesting part of these three - my father was a custodian and the head of the Mosque. Pakshi Lakshmana Shastrigal was the Vedic scholar of Rameswaram Temple and Father Bodel was the founder of the Christian Church of Rameswaram. I got the best learning from them. How in an island, where there was no school, these three enlightened souls could sit and discuss about the love and compassion of religions? For me they are the most important learned role models who taught me how a religion could be transformed into spirituality. These three great minds belonging to three religions working together in a small village had provided the foundation for promoting unity of minds for generations to come. Rameswaram is also famous for a Siva temple where Rama had prayed, renowned Abul Kabul Darga and the first famous Church in the island.

Incidentally, I would like to quote Shri Krishna in Mahabharat where he tried to persuade Arjun for the war. To justify his instance, Krishna described 'A flower' in the Bhagwat Gita like this:

"See the flower, how generously it distributes fragrance and honey.

It freely gives its love to one and all.

When its work is done, it falls away quietly.

Try to be like the flower, egoless despite all its qualities."

What a beautiful message for all generations of this nation, on integration of minds and formation of universal mind. We have a tradition of experience with noble leadership, indomitable spirit and universal mind.

At this point I recall a sutra from the Holy Quran:

"O' Prophet, you proclaim to the people

Who do not accept your preaching,

What you worship I do not worship

And what I worship, you do not worship.....

The result of your actions belongs to you,

The result of my actions belongs to me."

The gist of this verse is peaceful coexistence. We all are destined to reap fruits of our own deeds.

The prayer of St. Francis of Assisi goes like this:

Lord, make me an instrument of peace;

Where there is hatred let me sow love;

And where there is anguish, equipoise;

And where there is doubt, faith;

And where there is despair, hope;

And where there is darkness, light;

And where there is sadness, joy.

Oh Divine Master, grant that I may not so much seek

... to be consoled as to console;

... to be understood as to understand;

... to be loved as to love.

... it is in giving that we receive;

... it is in pardoning that we are pardoned;

... it is in dying that we are born to eternal life.

Tawanag Message

I learned in the Tawang monastery the concept of peace in the environment of violence in mind and body. The chief monk said that "If you look at the 3,000 years' history of India, you'll find that the country has always stood for peace. It worked for peace; it prayed for peace and it lived for peace. But these days, peace does seem to be in short supply."

"So how does one bring back peace?" the monk asked rhetorically. "Paradoxically, the 'I' in you wants peace. Nevertheless, to get peace you have to get rid of the 'I' and 'me'. (This is what the Buddha realised after his enlightenment, when he grasped the principle of causation and the lack of 'self' in all that is.)

"So, can you get rid of the self? Seems like a tough proposition. For in virtually every sentence, every thought we have 'I' and 'me'. But if you remove these entities, the ego will vanish," the monk said to me. "When the ego vanishes, hatred fades away. When hatred goes away, then violence in mind and body will disappear. Therefore, peace comes when you forsake ego and the sense of self."

Acharya Mahapragya's Message

"All waywardness of mind begins with the body and being unaware of this fact is the root cause of fear. Fear can exist only in a state of wilderness of ignorance. In a state of mindfulness fear cannot exist. Knowledge is an emancipator. A child fears many things which an adult does not, because the latter has come to know many laws. Only that man can give others freedom from fear, who has attained such freedom for himself and whose whole being is resonant with vibrations of fearlessness. Only such men have complete protection from fear and are able to offer such protection to others."

Maharish Pathanjali's Yoga Sutra

"When you are inspired by some great purpose, some extraordinary project, all your thoughts break their bounds, your mind transcends limitations, your consciousness expands in every direction, you will find yourself in a new great and wonderful world. Dormant forces, faculties and talents become alive and you discover yourself to be a great person by far than you ever dreamt yourself to be."

That is something inspiring to all of us.

Conclusion

As an individual and as the President of this country, I have studied the democratic and other forms of government in many countries. In my view, no other society such as ours, of a billion people is there with such a multi-lingual, multi-community, multi-religious, multi-ethnic, multi-social diversity. Our core competence has been to provide democratic leadership and management to over one billion people. What makes such a mammoth system to move? It is the rich heritage of our great country.

Each one of us has a page in history. Everyone has a religion, a family, a supporting society and a dream. We do not have time to observe what is happening around us. We generally tend to revolve around ourselves. Earth revolves around itself and orbits around the sun. The choice before us is of rotating round ourselves to die, or of revolving round the sun in order to live. Hence, our thoughts, ideas and actions have to constantly change and expand. Now it is the right time for all of us to think of the nation beyond the boundaries.

There are two parameters of national development - economic development and the evolution of moral values. The country's population is a hundred crore. Seventy crore people live in villages and remaining thirty in cities. There are six lakh villages in our country. Twenty-six crore people, who live below the poverty line, have to be helped out of their sufferings. We have to ponder over how the country can achieve greater prosperity. We have to take adequate precautions keeping in mind that a dangerous situation may arise if we achieve economic prosperity without a proportionate rise in moral values.

Why have I come here in the midst of you all? I urge you all religious leaders and philosophers to contribute to the development of the country. You are our partners. We all together have to make the life of the hundred crore population of the country happy, prosperous and secure.

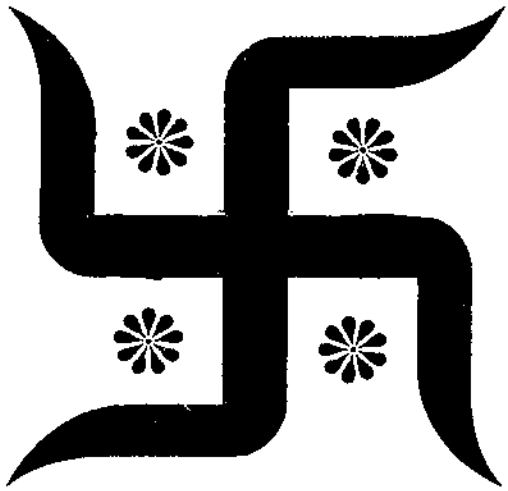
Who can make us happy? Who will impart education in the values of life? Who will create the atmosphere for the unity of minds? As you have all the requisite good qualities, I request you that you perform this task.

I am very happy today that you - Acharyashree, teachers, the Maulvis and Father - have worked together to chart a plan. Our country will present before the world a unique example of unity in diversity.

So far as the question of removing poverty and misery is concerned, all the religions are doing their bit in their own ways. In the near future we shall implement such plans as will make available to the people of our country new opportunities for education, self-study, water-supply, self-reliance and employment. Educational institutions which are run by religious bodies must encourage the followers of other religions to be associated with their own institutions.

I read in some book that after making an effort for millions of years, God created the universe and the human race. During the course of development, He established both kinds of tendencies - noble and devil. The mission of 'Unity of Mind' is to encourage our godly tendencies and help us triumph over our beastly tendencies. God gave us the gift of contemplation and reason so that with their help we may distinguish between these two tendencies and make our choice of conduct accordingly.

God will be immensely pleased with this noble-minded effort of yours and crores of people in the country will always remain indebted to you.



15TH JUNE, 2004 - 85TH BIRTHDAY OF ACHARYA MAHAPRAGYA

MESSAGE

"OM ARAHAM!

Today is 15th June. It is also my birthday. Along with self introspection, I am also indulging in pondering about the society and the nation.

When I see the conditions prevailing in the society, I find no reason for happiness. About the nation too, the same can be said. And the important reason for this is that the economic organization is not healthy, not balanced.

The Surat Spiritual Declaration is a document into which a lot of thinking has gone. When the many spiritual leaders met they were of the unanimous opinion that we should work in the field of spirituality and simultaneously in the field of science. In other words, they opined that we should bring about a balance between spirituality and science. Along with this, there should be reflection on the economic aspect also.

The ahimsa-yatra has lent strength to my conviction that as long as we do not look at religion in relation to economic organization, I am doubtful of the benefits that religion can bring. It is necessary to reflect on both together. Economics and Religion seem contradictory, but I do not think they are contradictory. They influence and solve each other's problems.

Many philosophers and intellectuals are meeting in Rashtrapati Bhavan, in the presence of the President and are meeting otherwise also. May all of them take forward the reflection on how to solve the difficult problems of poverty which is the greatest cause of violence? I know it is such a big problem that it cannot be solved in a day or even in a hundred days. But if we do not direct our attention to it in all earnestness now, then we may not be able to solve the problem even in a hundred years. Therefore, as detailed in the action plan of the Surat Spiritual Declaration, we must reflect seriously in the context of training in ahimsa and spirituality, taking into consideration all the branches of learning like science, economics, sociology and psychology and so on to develop a comprehensive multi disciplinary view, on the basis of anekanta, such that it can uncover a new path to solve the problems that defy solution when viewed from the narrow uni-disciplinary perspective.

I am confident that the meeting which is taking place in the presence of an enlightened scientist like the President will result in a change in our

manner of thinking and conduct and along with it the attention of the society and nation will be drawn towards the most complex problem of fulfilling the basic needs of the people so that we may become partners in the process of getting rid of the external reason for violence."

PRESIDENT'S ADVICE

The Importance of the Living

"I am indeed delighted to participate in the launching of the People's Foundation for Development of Enlightened Citizenship in continuation of the spiritual meet at Surat where H.H. Acharya Mahapragya was present. I greet the spiritual leaders, intellectuals, thinkers, social reformers and Gandhians for participating in this mission. When I am with this distinguished audience I would like to share the spiritual pilgrimage I experienced during my visits to Bihar and Jammu & Kashmir."

I. My Pilgrimages

a. Bihar Experience

When I visited Bihar, I was really moved by the way the land of Bihar emanated as an integrated spiritual entity. During my visit I saw in Apapuri, the sinless town, a very sacred Jain pilgrim centre with a beautiful temple of white marble where Lord Mahavira had delivered his sermons. In Jal Mandir the place where Lord Mahavira attained Nirvana, I undertook the traditional parikrama of the temple while chants of religious shlokas rent the air. During the Parikrama, I saw lotus flowers around me blooming in the Jal Lake. When my mind was engulfed in the flowers, I remembered a couplet written by a famous Tamil poet Tiruvalluvar 2000 years ago, which gives the axiom of life.

The couplet means: whatever be the depth or the state of cleanliness of the pond, the lotus flower springs out and blooms majestically looking towards the sun. Similarly the human living can be transformed into a purposeful high living, only when a great aim engulfs the mind of the individual.

I visited Bihar School of Yoga, which guides yoga projects and medical research association with prestigious hospitals drawing inspiration from Adi-sankarAcharya. I also visited Khanquah Rahmani a holy shrine established over 100 years ago by the eminent Sufi Hazrat

Moulana Mohammed Ali. This shrine commands respect from both muslims and non-muslims. I went to Maha bodhi temple where Lord Buddha who was born on a full moon day and attained Maha Nirvana also on a full moon day. I visited Takht Shri Harmandir Sahib, one of the holiest of five takht (in Patna City). It happens to be the birth place of Shri Guru Gobind Singhji. In all these places, I found great souls had propagated the philosophy of good life and above all these centres with multi religious environment provided a harmonious integrated ambience for the people to live in peace and happiness.

b. J&K Experience

Similar experience, I had in Jammu and Kashmir where I visited the Mata Vaishnav Devi Temple, where Goddesses Maha Kali, Maha Lakshmi and Maha Saraswati are venerated. The Hazratbal shrine on the banks of Dal Lake which houses the holy relic of the Prophet inspired me and gave me divine feelings. Gompa (Budhist Monastery) at Leh, where I met venerable Kushok Bakula Rinpoche who was recognised by the 13th Dalai Lama as a reincarnation of Bakula Arhat. Gurudwara Shri Patthar Sahib, the jealous demon who threw stone on Guru Gobind Singh is believed to have turned into wax. In all these places I prayed for peace. When peace comes people will live in happiness.

c. Interaction at Orphanages

Another series of visits pertain to orphanages in various parts of the country namely Dakshineswar Ramakrishna Sangha Adyapeeth and Calcutta Muslim Girls Orphanage at Kolkata, Shraddhanand Mahilashram at Mumbai, Sivananda Ashram near Kancheepuram and Ramakrishna Mission, Chennai. These institutions are models of total integration of the society without regional and religious bias. They are attempting to mould the inmates as enlightened citizens through value based education. In some places the orphanages are so designed that it houses both orphan children and older parents. Both provide emotional support to each other.

d. Interaction with Students

I have also interacted with over four hundred thousand children of different age groups during my various visits. Every day at Rashtrapati Bhavan at least one group of children from some part of the country

visits and interacts with me. I could see in the faces of all these children a common secular feeling of seeing India as a developed nation at the earliest. Here I would like to give a message that a movement has already started with participation from multi religious forces.

II. A Spiritual Movement

Surat Spiritual Declaration was indeed a great milestone. Your divine presence in Surat has resulted in such a beautiful event.

a. Spiritual Garden

Spiritual garden at the Rashtrapati Bhavan teaches us the message of give, give and give irrespective of the religion we belong to. We have a biodiversity park where animals and birds live in amity. A children's gallery, where hundreds of children visit and get inspired for fulfilling their dreams. A herbal garden for motivating the younger generation towards life sciences and bio-technology. Also the herbal garden has Braille facility for visually challenged people to use, feel and smell the plants.

b. National Festivals

We celebrate Sarva Dharma Prarthana on 2nd October every year, the Diwali, Guru Nanak's birthday, Christmas, Id-ul-fitr and Holi where thousands of citizens from various religions participate and interact.

c. Ten Point Oath

On 26th January, 2004 as a part of the national broadcast and on 8th February, 2004 at Akshardam, a 10 point oath was administered to the youth of the nation. The Golden Jubilee celebration of BAPS at Akshardam was telecast live both nationally and internationally. I had met thousand differently abled youth, who participated in Abilympics, which gave me an opportunity to see the indomitable spirit in them to face the challenges of life.

III. God Commands Service from His Creation

My visits to Apapuri, School of yoga, Khanquah Rahmani, Maha boodhi temple, Takht Shri Harmandir Sahib in Bihar and Matha Vaishnav Devi, Hazaratbal, Buddhist monastery, Gurudwara Shri. Patthar Sahib in J&K and interaction with inmates of Orphanages and 400,000 students gave me a glimpse of the fabric of connectivity and the aspiration of our people.

I have also visited a number of shrines in other parts of the country like Ajmer, Tirupati, Kochi, Amritsar, Nizamuddin at Delhi and Rameshwaram.

The message I get from all these experiences is: when people visit a place of worship their minds are definitely converging towards the divine as thanks giving or pleading to the God. In turn their minds are conditioned to serve the God in whatever form it is possible. Here I would like to explain, the unique Punjab experience, where the spirituality has resulted into a societal mission.

The status of environmental cleanliness is one of the indicators of development of a nation. As a nation, we have to keep our environment clean and tidy including all our places of worship and rivers. I am delighted to learn the Kali Bein rivulet, the place where Gurunanak Dev is said to have received enlightenment and which had over the centuries turned literally into a sewage ridden, weed choked drain, is today flowing clean and proud due mainly to the efforts of Baba Balbir Singh Seechewal in partnership with the Punjab State Government. From the discussions, I understand that he organized people's participation in stopping the massive flow of sewage into the Bein and cleaned 160 km. long polluted and choked rivulet within the last three and a half years by deploying on an average 3000 devotees per day of the Gurudwara who have become volunteer workers for the mission. Today one can feel the flow of fresh water in this rivulet released from the Tarkina Barrage by the government about a year ago. The revival of the rivulet has recharged the water table as the hand pumps that had became dry for the past 4 decades are now pumping out water. Baba with the volunteers, not only did the cleaning up operation by clearing Bein from the weeds and hyacinth, but also built bathing ghats at five places. He also built more than 100 km long kutcha road on the bank of the rivulet.

Since spiritual leaders are present here, I would like to put forth this thought for discussion and evolve a method of extending it to other places of worship. In major places of worship, every day at least five hundred thousand people on an average go for prayers. Normally when we go to a religious place we pray for our happiness and prosperity. At the place of worship, shall we suggest, display of the following vows. Each devotee can take any one of them as a thanks giving to The Almighty:

- ❖ I will be responsible for educating at least five students for 3 years.
- ❖ I will activate at least one water pond in my neighbourhood or nearest village.

- ❖ On return from this place of worship, I will remove all enmity within my family and I will withdraw all court cases.
- ❖ On return from this place of worship, I will plant five fruit bearing trees.
- ❖ I will not gamble and succumb to any addiction.
- ❖ I will treat my family members, male and female children equal in education.
- ❖ I will lead, from now onwards a righteous life, free from corruption.

I feel in this graceful occasion, even ten percent of the devotees take any one of the vows and practice it; it will bring great peace and stability to the society and above all the enriched societal life. This can be introduced after discussion in the charter of 'People's Foundation for development of enlightened citizenship.'

IV. Righteousness is the foundation for World Peace

Righteousness of the heart of the human being leads to a perfect life of an enlightened citizen. This is beautifully explained in ascent and descent phase of human life by Confucius. He states that "People who desired to have a clear moral harmony in the world, would first order their national life; those who desire to order their national life would first regulate their home life; those who desire to regulate their home life would first cultivate their personal lives; those who desired to cultivate their personal lives set their heart to righteousness and would first make their wills sincere; those who desire to make their wills sincere would first arrive at understanding; understanding comes from the exploration of knowledge of things. When the knowledge of things is gained, then understanding is reached; when understanding is reached, then the will is sincere; when the will is sincere then the heart is righteous; when the heart is righteous then the personal life is cultivated; when the personal life is cultivated, then the home life is regulated; when the home life is regulated, then the national life is orderly; when the national life is orderly then the world is at peace. From the Emperor down to the common man, the cultivation of the righteous life is the foundation for all.

What a beautiful spiritual environment we have today! Rashtrapati Bhavan indeed has been greatly enriched by your presence. It is a great honour for me to launch People's Foundation for Development of Enlightened Citizenship.

Best wishes. May God bless you!"

MESSAGE FROM HON'BLE PRESIDENT OF INDIA DR. A.P.J. ABDUL KALAM

(Special Video message on H.H. Acharya Mahapragyaji on the 75th year of his Monkhood. At Jain Vishva Bharati Institute, Ladnun)

18th February, 2005

Acharya Mahapragyaji : The Beacon of Monkhood

Acharya Mahapragyaji,

Namaskar.

Today is a very important day. I am seeing in our country, a great sage, who has been performing asceticism for the last 75 years. Through the intense penance, he has freed himself from passion, anger, love and hate. Presence of such a great soul in the country, spreads peace and promotes spiritual prosperity. He is a beacon light that attracts lesser mortals towards him to become an enlightened soul.

There are three characteristics of his intense endeavour - walk, acquire and give. He walks with undeterred dedication and concentration; acquires knowledge from every one he meets as well as from nature; and radiates hope to the society through his writings, actions and practices. He is a towering inferno of knowledge that purifies every soul that comes into contact. I myself experienced this when I met Acharya Mahapragyaji at Adhyatma Sadhna Kendra, Mehrauli in 1999 at around mid night.

He prayed three times with his distinguished Jain Munijis for the welfare of the nation and the people. After the prayers, I still remember, he gave a divinely message to me which still reverberates in my mind. He said, "Kalam, God bless you for what you have done with your team. The God Almighty has a bigger mission for you and that is why you are here with me today. I know our country is a nuclear nation now. The mission for you is greater than what you and your team have done, and it is greater than any human being had ever done. The nuclear weapons are proliferating in tens and thousands in the world. I command with all the divine blessings, you and only you, to find a solution to make the same nuclear weapons ineffective, insignificant and politically inconsequential."

When Acharyaji finished his Great advice, there was a pin drop silence; it looked to me as though the confluence of heavens concurred with the sagical message. This command shook me for the first time in my sixty-eight years of life. It had since then become a challenge for me and the motto of my life.

On this day of celebration of 75th year of Jain Acharya Mahapragyaji entering the monkhood, I would like to give my respects by reciting one kural (couplet) from my favourite Thamiz classic composed over 2200 years ago by Thiruvalluvar. The Saint Poet has devoted one full chapter of 10 kurals out of 1330 kurals to penance. It means:

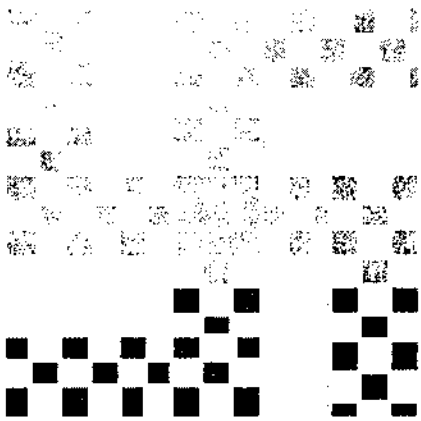
"With the power of ascetisim, if one discards the attachment to ones own life and 'I' the 'ahankar' in him, then all lives in the universe will bow before him."

How true, in 21st century, we see a walking and saintly example in H.H. Acharya Mahapragyaji. I join the lives in the universe to pay my reverence and respect to him.

My Greetings to all of you.

18th February, 2005 **A.P.J. Abdul Kalam**

www.presidentofindia.nic.in



86TH BIRTHDAY OF ACHARYA MAHAPRAGYA A GREAT MEETING ON A GREAT DAY 4TH JULY, 2005

Hundreds of people were waiting with excitement. The President, Dr. A.P.J. Abdul Kalam was about to come to visit their guru, Acharya Mahapragya. Inside the hall where Acharyashree was waiting for him, there was a little flurry of activities. Acharyashree and the President seemed to share something more than just respect for each other. Acharya Mahapragya genuinely appreciated the qualities of Dr. A.P.J. Abdul Kalam. Later he says "I am happy that I am seeing the Rashtrapatiji as a true human being whose value is not derived from any post or power. Therefore, we expect that since he is not a politician but a scientist he will go to the depth of the problem and find its solution."

The appointed time arrived. The President's car drew in. As the President walked into the hall, he greeted Acharya Mahapragya on his birthday asking him which year was he entering?

Acharyashree: 86th year.

The President: So much penance, such hard work and at this age, truly amazing!

Monks: Acharyashree has walked 4513 km. to reach Delhi.

President expressed wonder on hearing this and asked the young monks if they had also walked with him. He also asked them how they enjoyed their walk. They said they had enjoyed it very much.

The President: Acharyaji, when you walk, your perspiration is not droplets of sweat, but each one of them is a weapon of non-violence, against violence. This new weapon for non-violence will release a new flow of faith in the people.

Acharyashree: The contemporary age needs this.

The President: On this great day I have penned some of my thoughts and brought them. Acharya Mahapragya and President then sat down for a private tête-à-tête. The President commented on the picture of Acharya Tulsi with Acharya Mahapragya. This picture showed Acharya Tulsi embracing Acharya Mahapragya. Acharya Mahapragya told the President that this was his Guru, Acharya Tulsi. The President liked the picture very much.

Acharyashree: Rashtrapatiji, you have used the word *vivek* (noble discretion). The same word has been used by Acharya Hemchandra.

The President: Acharya Hemchandra ?

Acharyashree: He was a great Acharya who wrote in praise of Bhagwan Rishab.

The President: Bhagwan Rishab?

Acharyashree: The first Tirthankara. Bhagawan Mahavira was the 24th Tirthankara.

The President: Oh! Adi Bhagwan! In Tirukural we have Agara Mudala Ezhuthellam Adibhagavan Mudatre Ulagu.

Acharyashree: Yes. It is very important to awaken the conscience.

The President: Acharyaji, today corruption has become rampant. It is spread equally from top to bottom. Many people have begun to look at it as an essential part of life. This is creating complications. I feel that some thing should be done to change this. I request your help in doing so. With your great penance and knowledge you will be able to help in this.

Acharyashree: In Jaipur some journalists asked me and I said that today we should not call corruption, *bhrashtachar*, but *shishtachar* (courtesy) because those who are proliferating corruption are those who are supposed to set them right.

The President: This is a difficult job but even difficult jobs have to be done. And in this your guidance will be significant.

Acharyashree: I think and feel that for this we should rectify the imbalance in our economic system. One of the important reasons for corruption is our imbalanced economic system. Till the economic system is not balanced corruption can not be ended. Contemporary economists have made man's desires limitless. Against this background, the question of morals and good conduct has got lost. They want to acquire everything whatever be the cost. Today the need is to rethink economics. I have written a book called Mahavira's Economics where I have made a comparative analysis of Gandhi, Marx and Keynes.

The President: What is the essence of these four economists? I want to read your book. Acharyaji, today 26% of people in India are below the poverty line. They can be uplifted. The danger is not from them. The danger is from

those who have forgotten their values and virtues. In high levels unless values are reinstated, there will be corruption on the basis of either power or money.

Acharyashree: Let us through FUREC present an economic system to draw up a balanced economic system. I too have seen in my travels that wealth is more dangerous than poverty.

The President: This is very true. The great poet of Tamil Nadu, Idangoadigal has written that when people in power give up good conduct then their Karma (or destiny) become their destroyer.

Acharyashree: This is true. We should do something in this direction through FUREC. FUREC should present the model village where it imparts vocational skills leading to self sufficiency. Along with this it is also essential to present an economic system based on values.

The President: Man can become rich but without values his development is meaningless. He is like a balloon without air.

Acharyashree: There are four measures of development.

1. Material development
2. Economic development
3. Moral development
4. Spiritual development

If all these develop together then there would be no problem.

The President: Very true.

Acharyashree: Chanakya presented an important principle for balanced development. He said do not give in so much to your desires that you lose your wealth. Do not pursue wealth to such an extent that your desires are killed. Do not pursue either wealth or desire to such an extent that your dharma is endangered. Do not pursue your dharma to such an extent that your wealth and desires are endangered. This advice portrays the balanced lifestyle of an individual. The problem today is that contemporary economists and sociologists are not able to strike this balance. From the perspective of Anekanta all aspects should be developed equally.

The President: The perspective of Anekanta is very significant. It can bring about better understanding.

Acharyashree: You have to make this dream of balanced development a reality. You have to do this.

The President: You have already given me a very big job to build a weapon for destroying all weapons.

Acharyashree: The second job is to bring sociologists, economists, psychologists, philosophers, scientists and religious and spiritual leaders on one platform to draw up a new economic system. Let it not be the preserve of only economists. It is important for you to bring together all on one platform and do this.

The President: This is a very big job. Even bigger than previous one. Acharyaji, you have given me two jobs.

Acharyashree: They both will be genuine contribution to the times.

The President: How long are you here?

Acharyashree: Till the end of November or the first week of December.

The President: I will think about them and let you know.

Acharyashree: This will be a contribution of the President.

President: I will meet you again and discuss with you.

Acharyashree: Y.S. Rajan and Sudhamahi Regunathan will become our messengers for this. Your contribution to FUREC is really significant.

The President: It is a very big job.

Acharyashree: FUREC and President - both have become one like milk and sugar.

The President: FUREC will make spirituality luminous.

Acharyashree: And the resolve for a bright future our country will be strengthened.

THOUGHT ON THE GREAT BIRTHDAY

A P J Abdul Kalam

Conscience is the light of the Soul that burns within the chambers of our psychological heart. It is as real as life is. It raises the voice in protest whenever anything is thought of or done contrary to the righteousness.

Conscience is a form of truth that has been transferred through our genetic stock in the form of knowledge of our own acts and feelings as right or wrong.

Conscience is also a great ledger where our offences are booked and registered. It is a terrible witness. It threatens, promises, rewards and punishes, keeping all under its control. If the conscience stings once, it is an admonition, if twice, it is condemnation.

Cowardice asks, "Is it safe?" Greed asks, "Is there any gain in it?" Vanity asks, "Can I become great?" Lust asks, "Is there pleasure in it?" But conscience asks, "Is it right?" Why have we become deaf to its voice, insensitive to its pricks and callous to its criticism?

The answer is corruption.

Corruption is an assault on consciousness. The habit of taking bribes and seeking favours has become very common. People holding important positions have developed inconsiderateness to their conscience. They pretend everything is all right. Do not have they the idea of the law of action and reaction? Have they forgotten how impressions of the subconscious mind and its force work? If you take bribes, your thoughts and actions are registered in the subconscious mind. Will you not be carrying forward your dishonesty to your next generations causing them great suffering? It is a painful reality that corruption has become a way of life affecting all aspects of living, personal as well as social. It is not merely the pecuniary corruption but other forms as well. Immoral ways of people holding high positions and handling power have taken away guilt out of the minds of lesser mortals. What a dangerous situation!? A great civilization is endangered.

A virtuous man alone can use the instrument of conscience. He alone can hear the inner voice of the soul clearly. In a wicked man this faculty is dead. The sensitive nature of his conscience has been destroyed by sin or

corruption. Hence he is unable to discriminate right from wrong. Those who are leading organizations, business enterprises, institutions and governments, how can they be corrupt? Is it not wise to have a clean conscience and enjoy freedom from anxiety and all kinds of worries?

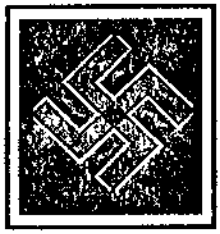
If you do wrong actions and sinful deeds and treat them lightly today, you will not hesitate to perform serious crimes tomorrow. If you allow one sin to enter and dwell in your conscience, you certainly pave the way for the entry of a thousand sins. Your conscience will become blunt and lose its sensitivity. The habit of doing evil deeds will pervade the whole body like the poison of a scorpion.

Do you know when you are corrupt; your children who are indeed enjoying the fruits of your corruption are mocking at you? After all they are well informed and knowledgeable. Your parental mask it too thin to hide the contempt of your children. You are no more the role model of your own children. Is this disgrace not enough?

Our society is fast reaching a stage when the immunity of conscience of people holding position of consequences is challenged by the corruption, as HIV would do to the body of an AIDS patient. The corruption has seeped into every stream of our life-blood. Can we save ourselves as a civilization?

Spiritual leaders have evolved morals, codes and teachings of righteousness. Beautiful hymns, songs and prayers have been written and composed. But the annihilation of conscience by corruption appears frightening. Religion has not been effective in evoking the conscience. Who then will? Can our conscience be redeemed? "A movement through Foundation for Unity of Religious and Enlightened Citizenship (FURIEC) against corruption has to make a new beginning."

4 July, 2005



GLOSSARY
OF NEWLY CHRISTENED NOUNS

Copposites Coexisting opposites world as a whole is sum total of two opposites which do not nullify each other but reinforce; Creation-destruction, life-death, ephemeral-immortal, light-dark, positive-negative are all pairs of inseparable copposites; one entity draws meaning only in the presence of the other.

Actons *Karma Pudgals*, karmic atoms, their attachment to the soul, movement of soul during birth-rebirth and ultimate emancipation are all attributed to the weightlessness of the *actons*.

Karmasomes *Karman Sharir* 'soma' means body, 'Karmasomes' is meant to represent the karmic body - the blue print of bios' lives; formed by actons (one type of quadons, chatu-sparshi pudgals) which are massless and exhibit affinity towards the soul which binds the 'Karmasomes' with the soul. Soul and karma thus form a single entity for all practical purposes.

Dion *Dwi-sparshi pudgal* smallest, indivisible particle of matter having two attributes out of the possible four - positive/negative *(Snigdh-Rukshd)* and hot/cold *(Ushna-Sheit)*.

Quadons *Chatu-Sparshi Pudgals* one step higher in pudgal hierarchy; are made up of multiple dions, have all the four touches, namely, positive-negative and hot-cold; comprise a minimum of two up to a maximum of infinite dions; quadons with infinite dions again come together to constitute an entity, octon which is the quintessential step of migration from micro towards macro world; also called *Anant-Pradeshi Skandh*.

Octons *Ashta-Sparshi* the state *of pudgal* which possesses eight touches - four primary ones, positive-negative and hot-cold, and four secondary touches namely, light-heavy and soft-hard; the former two secondary qualities are responsible for the constitution of **mass of the octons;** the Jains do not consider mass as the primary property of a *pudgal* but it manifests only after the formation of octons from the relatively massless quadons and dions; also called *Anant-Anant-Pradeshi Skandh*.

Mattereals *Dravya* six entities or reals co-exist simultaneously to manifest the Universe; *Dharm-astikaya* (Dyanons - Medium of movement), *Adharm-astikaya* (Statons - Medium of rest), *Akash-astikaya* (space), *Pudgal-astikaya (Sthul-roaVi&t* & *Sukshma*-energy), *Jiva-astikaya* (conscience/intelligence), *Kaal* (time).

Dynaons *Dharmastikaya* one of the six mattereals, omnipresent throughout the universe, interleaved to form a continuous, monolithic medium, support *Gati* (dynamism) of all the other mattereals like/zva *said pudgal*.

Statons *Adharmastikaya* one of the six mattereals, omnipresent throughout the universe; interleaved to form a continuous, monolithic medium, support *sthithee* (rest) of all the other mattereals like *jiva* and *pudgal*. *An* anti-matter to dynaons; co-exist with dynaons in the entire universe. ❑❑❑

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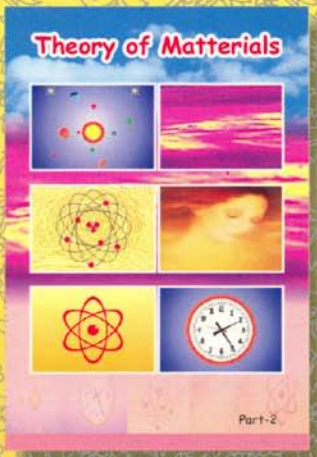
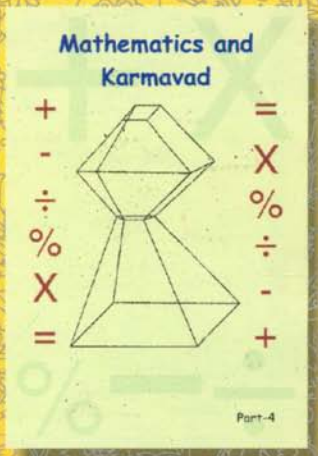
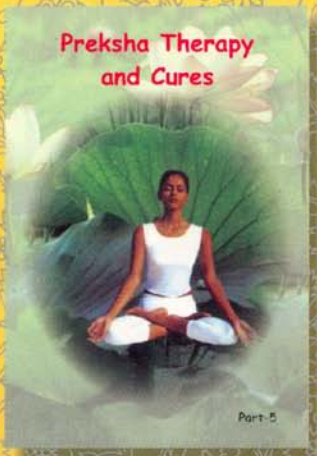
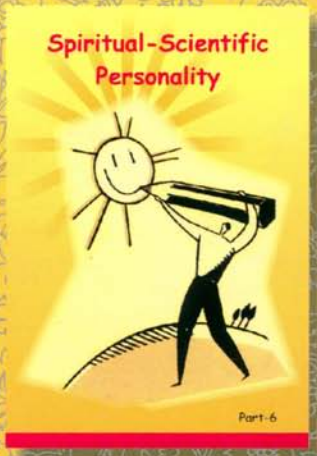
Jain Studies and Science

Context : Acharya Mahapragya's Literature









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