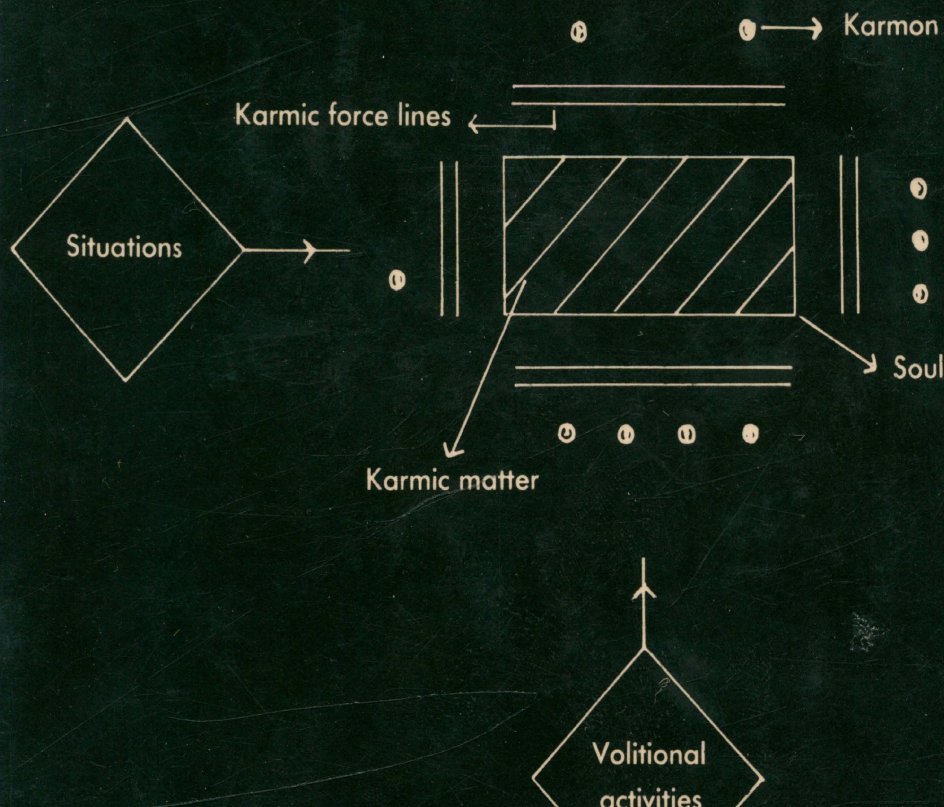


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THE SCIENTIFIC FOUNDATIONS OF JAINISM

K.V. Mardia



In *The Scientific Foundations of Jainism* Professor Mardia attempts to elucidate the point that Jainism is a science with religion. It brings together his attempts in a unified way. Four axioms are constructed which highlight the foundation of Jainism. For example, axiom 1 states that "The soul exists with karmic matter and it longs to be purified." These four axioms focus on the essence rather than on detail. After a very brief introduction to Jainism, the author introduces the Axioms and discusses their theoretical and applied aspects and their plausibility in a modern context. It gives Jaina logic together with present trends in scientific thinking and indicates how Jainism and modern science are related. The book includes a bibliography, glossary and an index. Wherever possible, a sharper scientific pictorial representation has been given, and very few original terms are used in the text so that the flow of the arguments is not hampered.

Paul Marett in the Foreword says "Prof. Mardia's book divides naturally into three parts. First he explains the basic ideas of the *soul*, *karma*, living beings and non-living matter, and brings these together in the Jain explanation of life and death and the universe. Next he moves from the general to the particular, to the practice of self-conquest and the path of the individual soul towards purification. Thirdly, in two chapters which demand, and reward, close reading, he places Jain logic in its rightful position as a valid and acceptable system, and draws together the most fundamental and up-to-date aspects of modern physics with the scientific theories of the Jain writers."

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OF
JAINISM

K.V. MARDIA

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To my mother

SANGARIBAI

and in memory of my father

VARDICHANDJI

“Science without religion is lame,”
Religion without science is blind.”

“....a person who is religiously enlightened appears to me to be one who has, to the best of his ability, liberated himself from the fetters of his selfish desires....”

Einstein (1941) see, p.93

Jain = Person who has conquered himself.

FOREWORD

IT WAS VERY flattering to be asked by Professor Mardia to write a Foreword to his book *The Scientific Foundations of Jainism* and I am delighted to do so. I am pleased for a number of reasons. I have known Professor Mardia for a good number of years and we have had many interesting discussions on questions relating to Jainism. We did, in fact, discuss his intention to write an explanation of Jain philosophy and religion in terms of modern science: I am pleased that I saw the first draft of this book and I am delighted to be one of the first to read it in its final form. I believe that he has made a valuable contribution to the literature on Jainism. And, one other reason must be mentioned: perhaps some of the reflected glory will fall on me and the learned and wise, reading Professor Mardia's book, will happen to glance at this modest note of mine!

Jainism is a religious system of great antiquity. Jain tradition traces its origins back through almost limitless time. Certainly the most sceptical cannot deny its nearly 3000 years of history. In that time, of course, it has not stood still. Generation after generation after generation of scholars have added and commented and explained, so that the total mass of written Jain scholarship is vast indeed, and growing vaster with every year that passes. I have always maintained, since I first began my own amateur study of Jainism, that its principles accord well with modern science. Jain thought, Jain philosophy is timeless. However, the ancient texts are written in the language of their particular time and their ideas are expressed in terms of the scientific vocabulary of their day. They are written in languages, Sanskrit and the Prakrits, which are well-adapted to give precision and clarity to abstruse and difficult ideas, though not infrequently they can be difficult of interpretation owing to extremes of terseness or of repetitiveness. The terminology can be difficult, and a modern book on any aspect of Jain thought will be littered with, and often rendered almost incomprehensible by, untranslated technical terms for which no concise modern equivalent has been sought or found.

Professor Mardia is a very distinguished scholar in a very exacting science. He is a mathematician, or more properly a statistician, and his university degrees include three doctorates. He is also a devoted and practising Jain. Thus he is particularly well-qualified to

approach the task of rendering the basic principles and philosophy and ethics of Jainism in the terms of modern science. His book divides naturally into three parts. First he explains the basic ideas of the soul, karma, living beings and non-living matter, and brings these together in the Jain explanation of life and death and the universe. Next he moves from the general to the particular, to the practice of self-conquest and the path of the individual soul towards purification. Thirdly, in two chapters which demand, and reward, close reading, he places Jain logic in its rightful position as a valid and acceptable system, and draws together the most fundamental and up-to-date aspects of modern physics with the scientific theories of the Jain writers.

It is a great pleasure to me to see this work of Professor Mardia in its final form after the many years labour which he has put into it. It will, I am sure, be of value both to Jains living in the modern world who often find it difficult to discern the relevance of the writings of long-dead authors to the world today. It will also be of value to non-Jains, particularly those who approach the study of a little-known religion in a spirit of rational inquiry. This is, as I said earlier, an important contribution to the literature of Jainism. I congratulate Professor Mardia on his achievement and commend the book wholeheartedly to its readers.

Paul Marett
Loughborough University

PREFACE

THERE HAS recently been a revival in seeking to understand Jainism and to search for its meaning in a modern context. Young Jains abroad who are brought up in a multicultural community are trying to understand its relevance in the new environment. Jainism, I suggest, was founded on scientific principles which can be assessed by each individual and to begin with, I have constructed four Axioms (fundamental basic assumptions) on which, in my opinion, Jainism is founded. These Axioms focus on the essence rather than on the detail.

This work started with my Inaugural Address as Professor of Statistics at the University of Leeds in 1975 where its relevance to Statistics was demonstrated. The Axioms were first presented to a small gathering in Leicester in 1979 which included Dr. Natubhai Shah and Paul Marett, when it received enthusiastic welcome. The book "The Jaina Path of Purification" (1979) by Professor Padmanabh S. Jaini of the University of California at Berkeley, rekindled my interest. The present book owes a great deal to Professor Jaini's work. The sources from the Jain scriptures which underly the following discussion can, in most cases be found in his book and, therefore, they have not been duplicated here. The spelling of Jain terms generally follows Professor Jaini's transliteration. His book also provides a very good glossary which will help the reader to realise that, for example, the words *karma* and *yoga* have completely different meanings in Jainism from those in Hinduism. That is, their popular meaning in English is not applicable (see the key words which follow). As a first introduction to the subject, we refer the reader to Paul Marett's book "Jainism Explained" (1985) and Vinod Kapashi's book "Jainism for Young Persons" (1985). A recent article by Ursula King (1987) is also recommended.

For this book we assume a nodding acquaintance with Mathematics and Physics. This allows us to use a sharper scientific and pictorial representation than would have otherwise been possible. Many Jain children follow their religion by birth rather than by conviction; there are about 9 million Jains in India and about 100,000 abroad. It is hoped that such a book as this might help teenagers to be Jains through conviction.

Chapter 1 gives a brief introduction to Jainism and lists four Axioms. Chapters 2 to 7 introduce the Axioms and discuss their plausibility in a modern context. Certain important details arise because of these assumptions and these are elaborated on. Chapter 8 outlines basic practices and Chapter 9 gives some ideas in Jain logic. Chapter 10 indicates how Jainism and Modern Science are related. Each chapter ends with the original terms with diacritical marks and our English equivalent; this will help the reader who wants to know the equivalence used as well as the diacritical spelling.

Appendix 1 gives the life of Mahavira as an individual. Appendix 2 gives some idea of the canonical scriptures from which the Axioms have been abstracted. Jainism does not have a single text like the Christian Bible; the number of existing canonical scriptures (by Svetambara) is as high as 45. Appendix 3A gives the precise original sources on which the axioms are based. Also, some important quotations which have been cited in the text are given in Appendix 3B. The important concept of purification stages is explained in a simple game-type representation in Appendix 4. We include a bibliography and index.

Those who wish to gain an idea of Jainism directly from the scriptures are recommended to read the Tattvartha-sutra of Umasvati; English translations are available, see Bibliography. However, for a first reading they should not take that text's comprehensive classification, sub-classification, etc. of Jainism too seriously, since this could sidetrack the reader from the essence into a mass of detail. These comprehensive synopses were essential for many centuries when the fundamentals were, in general, passed on by the word of mouth.

I wish to express my profound gratitude to Harry Trickett, who patiently went through the various drafts of the whole book and made many constructive comments. I also wish to acknowledge my gratitude to the President of Jain Samaj Europe, Natubhai Shah, Professor P.S. Jaini, Gurudev Shree Chitrabhanu, Ganesh Lalwani, Paul Marett, Vinod Kapashi, Nigel Smeeton, Alan Watkins, Vijay Jain, Tim Hainsworth and also my dearest friend the late Kundan Jogator. I benefitted greatly from the comments of my wife Pavan, my children Bela, Hemant and Neeta, and members of the Leeds Jain Group.

We have tried to re-interpret, as objectively as possible, various concepts in terms of modern science. One of the major difficulties in re-interpretation is that Jain terms are based on Prakrit/Sanskrit languages whereas modern science has its terminological roots in the Greek language. We recognise that in a small area of science, one works towards research degrees after many years of labour and one

should expect similar dedication in order to understand the technical basis of Jainism. We should bear in mind the time taken to comprehend Albert Einstein's Theory of Relativity, even by experts. Finally, we should also stress the Jain claim that one can see the truth of Jain Science when one attains "Kevalajñāna" or infinite knowledge!

9th November 1988

K.V. MARDIA

SPECIAL ACKNOWLEDGEMENT

MOST OF THE chapters have relied heavily on the basic material from Professor Padmanabh S. Jaini, "The Jaina Path of Purification" (1979), Berkeley University Press, Berkeley. (Reprinted by Motilal Banarsidass, Delhi, 1979). In particular, I wish to acknowledge the excerpts cited in the text from the following pages of his book:

Chapter 1	p. 32
Chapter 3	p. 98
Chapter 4	p. 109, 112-4, 125-7
Chapter 5	p. 140-1, 147, 150
Chapter 6	p. 159, 168-9, 171
Chapter 8	p. 252-3

KEY WORDS

THE ORIGINAL TECHNICAL terms in Sanskrit and Prakrit have been appended to each chapter corresponding to our English translation. However, the following basic terms cannot be translated and are used frequently in the text. These should prove useful to those who are not acquainted with Jainism.

<i>Jain:</i>	noun: a person who follows Jainism, adjective: pertaining to Jainism, some prefer Jaina to Jain.
<i>Digamabara/Svetambara:</i>	Two main Jain Schools having monks with no clothes and with white cotton garments respectively.
<i>Karma/Karmic matter:</i>	The matter determining the fate of the soul in rebirths. It is composed of (material) karmic particles (= karmons).
<i>Moksa:</i>	The state attained after emancipation from rebirths, nirvana.
<i>Soul:</i>	Pure sentient part with karmic matter.
<i>Tirthankaras:</i>	The "prophets" of Jainism; the omni- scient spiritual teachers of Jainism.
<i>Yoga:</i>	The activities of body, mind and speech.

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1

JAINS

1.1 INTRODUCTION

“Namo Arihantanam”

THIS IS THE FIRST line of the fundamental prayer of Jains which says “I pay my profound respect to any living person who has conquered his inner enemies (or his own lower nature)”. This is irrespective of the religion, caste or social status of the individual.

Jainism is derived from the word *Jina* in the old Indian language of Ardha-Magadhi which was the common language in some parts of India 2,500 years or so ago—the word *Jin* means “the person who is a spiritual victor” and Jainism is now taken to mean the religion followed by Jains. However, to emphasise the path followed towards self-conquest rather than the religion, we will understand Jainism as *Jainness*.

Loosely speaking, Jainism was founded by what are called Tirthankaras. Tirthankaras are the people who show the true way across the troubled ocean of life; they are leaders on a spiritual path. In all there were 24 Tirthankaras. The first of them was Rsabha.

Rsabha flourished ages ago according to Jain tradition, but the historicity of the religion has been unanimously accepted from the time of its 23rd Tirthankara, Parsva, about 2,800 years ago, (traditionally dated 872 B.C.–772 B.C.). The Jain logic and philosophy came into prominence at the time of its 24th Tirthankara, Mahavira, who was born in 559 B.C. and whose nirvana took place in 527 B.C. He was a contemporary of Gautama Buddha (563 B.C.–483 B.C.), the overlap being 36 years *but* they did not meet. It is commonplace to be confused between these two leaders and even their religions. In iconography a simple distinction may be made by clothes—Mahavira is normally without these unlike Buddha (see Figure 1.1.). Note that Buddha was in the process of enlightenment when Mahavira was at the peak of his career. For further details on Mahavira's life see Appendix I. To bring these dates into perspective we may note that Aristotle was born in 384 B.C. and Jesus Christ around 4 B.C. It may be noted that India celebrated the 2,500th anniversary of Mahavira's nirvana between 13th November 1974 and



Fig. 1.1 Mahavira, the 24th Tirthankara. (Svetambara image; the eyes, lips and torso are marked.) His idol is distinguished by the emblem of a lion (from Sirohi, Rajasthan).

4th November 1975. These important dates are summarised in Figure 1.2. One of the great admirers of the Jain religion was Mahatma Gandhi who was greatly influenced by certain Jains e.g. Raychand/Srimad Rajchandra (see, Hay, 1970).

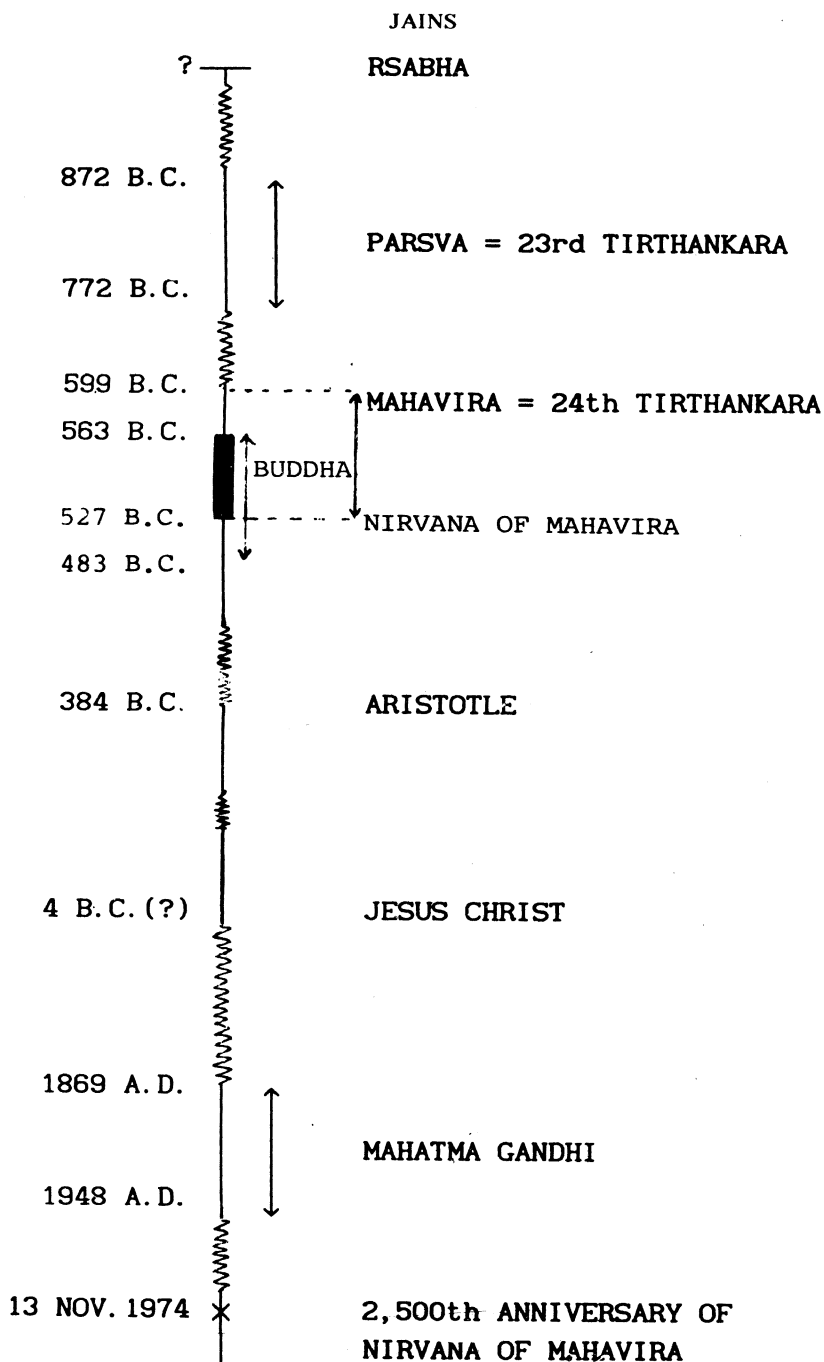


Fig. 1.2 Some important dates in Jain history, together with some other dates. (Not to linear scale)

1.2 SOME CHARACTERISTICS OF JAINISM

The most important principle of Jainism is that of non-violence in thought and deed towards, not only fellow human beings, but even the smallest forms of life. Thus, most followers are vegetarians, avoiding even honey and alcohol which are believed to contain microscopic life.

Truthfulness, refraining from stealing and moderation in acquiring personal possessions and in sexual passions are other important facets. Meditation and general self-control also form a part of Jainism.

Jains do not believe in any external God who created and sustains the world, neither do they believe in any means of redemption outside themselves. The individual has to achieve his own salvation by right faith, right knowledge and right conduct. Salvation is believed to terminate the cycle of births and deaths and reincarnation, when the soul is finally liberated to eternal bliss and infinite knowledge.

Amongst themselves, there is no single leader such as a "Pope", neither has any person supreme authority. However, there are monks and certain teachers and lay leaders who are given particular respect. There are many scriptures (see Appendix 2) but no single book like the Bible. However, Umasvati's *Tattvartha-sutra* (second century A.D.) is the most comprehensive single treatise on Jainism. Notwithstanding these aids, however, the individual must ultimately find the truth for himself as no priest or scripture is believed to have all the answers. The principles are intended to be self-verifying so that the follower discovers truths for himself rather like a research worker in a laboratory.

Amongst the Jains, there are a few different schools. The main schools are "Digambara" and "Svetambara", both believe in idol-worship. However, their idols differ; in Svetambara eyes, lips and torso are marked, see Fig. 1.1 of Mahavira (Svetambara image) and Fig. 1.3 of the 23rd Tirthankara Parsva (Digambara image). The Digambara believe that their monks should renounce everything, even their clothes, whereas Svetambara monks wear white clothes. There have been various reform movements. Two sub-groups of Svetambara, called Sthanakavasi and Terapantha, do not believe, in particular, in temples, including idol-worship. In addition, a sub-group of Digambara, called Taranapantha, also banned idol-worship. Table 1.1 gives an overview of different Jain schools with the originator, approximate time and some external signs of difference. Despite their different emphases, the basic beliefs of



Fig. 1.3 Parsva, the 23rd Tirthankara (Digambara image; the eyes, lips and torso are not marked.) His idol is distinguished by the emblem of a snake (from Leeds, UK).

Jainism including belief in the 24 Tirthankaras are followed by all Jains.

Table 1.1 *Different schools of Jains with their originator, timing and some differences.*

	Schools	Originator	Time	Comments
(1)	Digambara	Bhadrabahu	300 B.C.	Monks renounced clothes, temple-believers, no moksa for women.
Reform movements	Taranapantha	Taranswami	18th century	No temples.
	Others	Banarsi Das (Todar Mal)	16th century (18th century)	Restraints no rituals in temples.
(2)	Svetambara	Sthulabhadra?	300 B.C.	White-cotton clad monks, temple-believers, women can attain moksa.
Reform movements	Sthanakvasi	Lonka-Saha	15th century	No temples, monks wear a mouth-mask.
	Terapantha	Bhikanji	18th century	No temples and non-assistance except to monks.

1.3 AXIOMATIC APPROACH

Every spiritual path starts from some form of conviction or belief; it is argued in this book that the convictions of the Jains may be described by four basic axioms from which the whole path can be understood. These try to answer questions such as “Why are we imperfect?” and “What should we do about it?” If we were all immortal, perfect and eternally happy with fulfillment of every desire, there would be no place for any form of spiritual path. However, in reality, one goes through various ups and downs of life with pleasure and pain as the main themes of existence.

Further, one comes across all types of living entities who react differently to these various pressures. Why are there these differences? Why is one born handicapped? Why are there good people and bad? Is there anyone who could be “perfect”? Are death, decay and disease inevitable? Why are there different forms of life?

The four axioms constructed here attempt to answer these questions from the Jain standpoint and they are as follows:

- Axiom 1: *"The soul exists in contamination with karmic matter and it longs to be purified."*
- Axiom 2: *"Living beings differ due to the varying density and types of karmic matter."*
- Axiom 3: *"The karmic bondage leads the soul through the states of existences (cycles)."*
- Axiom 4A: *"Karmic fusion is due to perverted views, nonrestraint, carelessness, passions and activities."*
- Axiom 4B: *"Violence to oneself and others results in the formation of the heaviest new karmic matter, whereas helping others towards mokṣa with positive non-violence results into the lightest new karmic matter".*
- Axiom 4C: *"Austerity forms the karmic shield against new karmons as well as setting the decaying process in the old karmic matter."*

These axioms look directly at the roots of the tree rather than its branches. The meaning and plausibility of these axioms is discussed in relation to the scriptures in the following chapters. Axioms 1-3 postulate Jain's scientific theory of karmons whereas Axioms 4A, 4B, 4C postulate its applications.

1.4. GLOSSARY

1. Tirthankara = Tirthaṅkara

Rsabha = Rṣabha

Parsva = Pārśva

Mahavira = Mahāvīra

(Umasvati = Umāsvāti

Tattvartha-sutra = Tattvārtha-sūtra)

2. Jain Schools

Digambara = Digambara

Svetambara = Śvetāmbara

Sthanakavasi = Sthānakavāsi

Taranapantha = Tāraṇapantha

Terapantha = Terāpantha

(Mouth mask = Muh-patti)

2

THEORY OF SOUL AND KARMIC MATTER (AXIOM 1)

Axiom 1: *"The soul exists in contamination with karmic matter and it longs to be purified"*

2.1 AXIOM

ABSTRACTLY, the concept of soul here implies that in the inhabited universe, it is composed of two distinct parts:

- (a) non-living material,
- (b) remainder, i.e. 'living' part.

The living part can be described as the 'pure soul' whereas the non-living material (non-pure part) is the karmic matter. (As an analogy, consider gold ore: the dross is 'karmic matter' and the left over 24-carat gold is the 'pure soul'). Here karmic matter is actual physical material which makes the soul impure; it has nothing to do with the usual word 'karma', i.e. action. In the simplest terms, the pure soul contains all the important positive aspects of the living being and contamination by karmic matter produces the negative effects. However, this contamination by karmic matter is not natural for the soul which has an in-built longing to become separated from the matter.

In practice, this abstract idea implies that the aim is to acquire 'purity' of the soul or the 'victory' over the karmic matter. Karmic matter is regarded as the cause of all misery etc. (Note that we are using the word 'soul' ambiguously as either 'pure soul' or 'contaminated soul', but the meaning should be obvious from the context.) To understand these concepts and the interaction of soul and karmic matter, we have to first understand Jain Theoretical Science. Jain Applied Science will be dealt with in Axiom 4.

2.2 THE BASIC CONCEPTS

2.2.1 Soul

It is believed that in nature there exists a non-material substance which has the following four main properties¹:

1. Knowledge,
2. Perception,
3. Bliss, and
4. Energy.

We will call these the four soul elements. The first two elements are cognitive functions of the soul and represent 'consciousness'. Bliss is a state which includes 'compassion' and 'total self-sufficiency'. Energy is an abstract force which powers the operation of the knowing and perceiving qualities of the soul. (Note that one of the words used in Jainism for soul is 'Jiva', i.e. living part.)

2.2.2 *Karmons and Karmic Matter*

Karmic matter consists of sub-atomic karmic particles which will be called *karmons* by us. These karmons float freely and randomly in space but they do not interact between each other. (Presumably the gravitational force is very small.) Among all sub-atomic particles, karmons are unique in the sense that they can only be absorbed by the soul, and cannot fuse by themselves, i.e. karmic matter as "molecules" of karmons exist only in conjunction with the soul. Thus karmic matter increases by absorbing new karmons and decreases by dropping some karmons in space.

2.2.3 *Interaction*

In its purest state, the soul has infinite knowledge, perception, bliss and energy. The soul is sentient energy but in general, as this axiom states, it is polluted by the karmic matter. The interaction of two highly contradictory elements, soul and karmic matter, could lead to severe distortion.

In particular, the karmic matter

- (i) *obscures* the knowledge element of the soul,
- (ii) *obscures* the perception element of the soul,
- (iii) *defiles* the bliss element of the soul,
- and (iv) *obstructs* the energy element of the soul.

Thus, due to karmic matter, one does not get the full advantage of the soul's pure qualities.

Note that bliss is the only element of the soul which gets transformed into something else; this transformation is analogous to changes in oneself under the influence of intoxication. This defilement in turn perverts the energy element. However, karmic matter can only survive in the soul, but the soul is self-supporting and *has an inherent tendency to be free from karmic matter including the embodiment*. This inherent tendency of the soul will be called the '*freedom longing catalyst*'.

2.3 TERMINOLOGY

2.3.1. *Karmic Process*

We now describe some important technical terms. The bond between soul and karmic matter is called *karmic bondage*. Note that the karmic matter is in association with the soul, but it has no direct contact with the soul². However the karmic matter, coupled with the soul's perverted energy element, gives rise to a *karmic force-field/karmic field*. In turn, the force-field gives rise to *karmic influx*, the flow of karmons from all directions into the soul. Further, the karmic force coupled with the soul's obstructed energy element fuse the incoming karmons: we will call this process *karmic fusion*. The total karmic matter fused to the soul is thereby revised, and this dynamic karmic process continues. This process is depicted in Figs. 2. 1-2. 4. We will illustrate the soul containing karmic matter as a

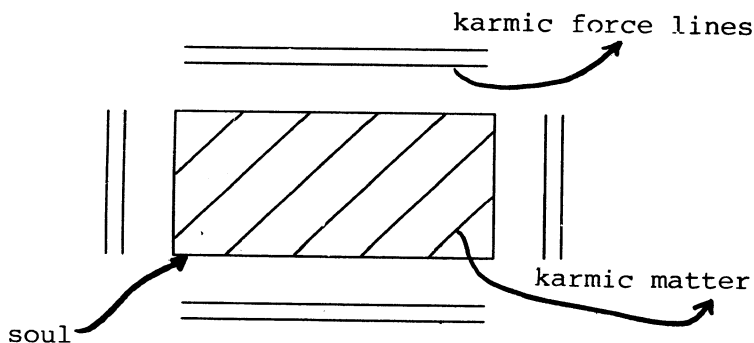


Fig. 2.1 The representation of a soul (= square) with karmic matter (= diagonal lines) and karmic force-lines (= parallel lines), *i.e.* karmic bondage.

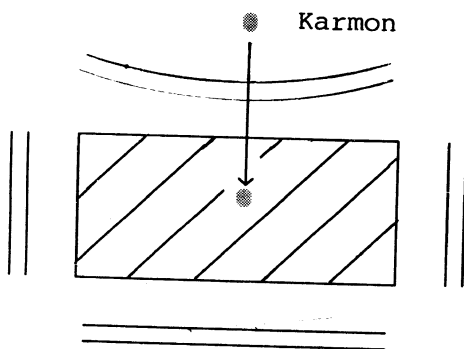


Fig. 2.2 An incoming karmon (= grey circle) and the karmic influx (= the curved lines).

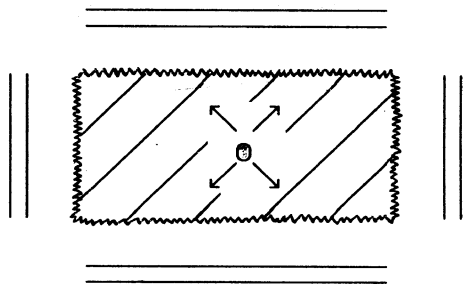


Fig. 2.3 Karmic fusion (zig-zagged boundary) with an incoming karmon of Fig. 2.2

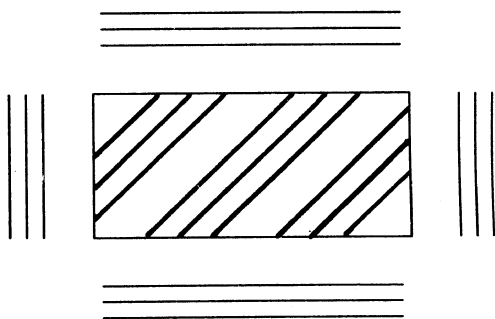


Fig. 2.4 Revised karmic matter (more and thicker diagonal lines) after fusion in Fig. 2.3.

square with the karmic matter as the diagonal lines on it, and the karmic force-field as external parallel-lines (see Fig. 2.1). In effect, Fig. 2.1 represents karmic-bondage and this representation will be used throughout the book. Fig. 2.2 shows a karmon (represented by a grey circle) attracted by the karmic field; the attraction is indicated by the force-lines being curved. The process of karmic fusion is indicated by the zig-zagged external boundary of the soul (Fig. 2.3). The increase in karmic matter and consequently stronger karmic force-field are indicated by more, and thicker, diagonal lines (Fig. 2.4).

It is important to distinguish between different states of the soul and the material forces in consequence of these states. Thus, the actual physical condition which allows the bombardment of the soul by karmons is karmic bondage, whereas the actual assimilation of karmons with the karmic matter is karmic fusion.

We have described karmic fusion but in the same way there is also *karmic decay/karmic fission* when karmons drop out/are emitted. However, if there is no karmic matter, the karmons cannot have any effect.

2.3.2 Karmic Density

Karmons exist in an undifferentiated form in nature, but the karmic force coupled with the obstructed soul energy introduces specific functions to the karmons so that they are differentiated.³ It is assumed that the karmons decompose into 'heavy or light karmic matter' i.e. karmic matter with high or low density. *Heavy karmic matter* implies that the karmic bondage is strong, whereas *light karmic matter* implies that the karmic bondage is weak and it is therefore easier to remove this karmic matter from the soul. Thus there is a dynamic process of updating the karmic matter and therefore its functions. This process is depicted in Fig. 2.5, where the

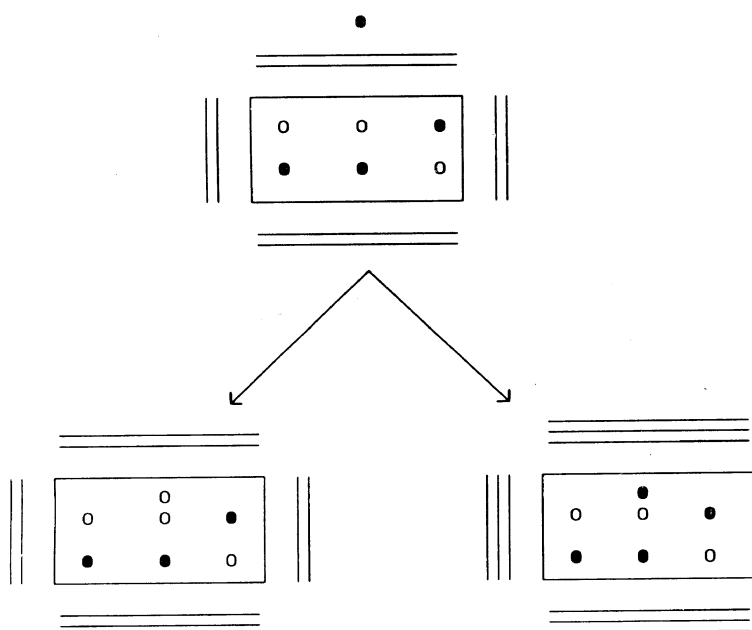


Fig. 2.5 The process of interactive activity between soul and a new incoming karmic particle \emptyset in terms of light (\circ) and heavy karmic matter (\bullet).

constituents of the light karmic matter are represented by open circles and those of the heavy karmic matter by dark circles rather than diagonal lines. This alternative representation highlights the constituents of the karmic matter.

The karmic density distinguished above as light or heavy karmic matter, depends on the following factors:—

- (i) the number of karmons in karmic fusion,
- (ii) the potential energy in karmic decay,

- (iii) the time to decay of fused karmons,
- and (iv) the number of karmic components of the karmic force

The karmic components are the antithesis to the four basic soul elements and thus defile the bliss element, obscure the knowledge/perception element or obstruct the energy element of the soul. Further discussion is given in Ch. 3.

2.3.3 Long-term Equilibrium State

We have described above the short-term state of the soul. We now describe the long-term equilibrium state of the soul. When all the karmic matter is removed from the soul through the emission of karmons, what is left is the pure soul, that is, it has infinite levels of the four elements of the soul described above in Sec. 2.2.2. There are two stages in the attainment of this state. Firstly, karmic influx is stopped by creating a *karmic force shield* which implies the total end of the inflow of new karmons. The next stage is the total dropping of the accumulated karmic matter, i.e. *total karmic decay/fission*. When all the karmons have been emitted, the soul no longer has a karmic field and thus has attained its full potential: this is the *liberated state*. Thus there is everlasting karmic fusion and fission except under the liberated state. (How these are achieved in practice will be left to Chs. 5-7). Fig. 2.6 illustrates this mechanism with a representation similar to that of Fig. 2.5. Fig. 2.6a is the soul with karmic matter, and Fig. 2.6b shows influence of incoming karmons on the karmic force. Fig. 2.6c shows the karmic force shield to cease the karmic influx and Fig. 2.6d indicates karmic decay of the last karmon under the karmic force shield. Fig. 2.6e shows the liberated soul, with the release of infinite energy etc. indicated by the emanating rays.

The idea of karmons is profound. One can compare the concept with that of psychological responses under different circumstances, but these responses, of course, do not explain the psychology of other living beings nor the inner mechanism.

2.3.4 The Nine Reals

We have described the concept of non-sentience which includes:

- (1) karmic matter,
- (2) karmic bondage/fusion,
- (3) karmic force/influx,
- (4) karmic force-shield,
- (5) karmic decay/fission, and
- (6) liberation.

With (7) soul,

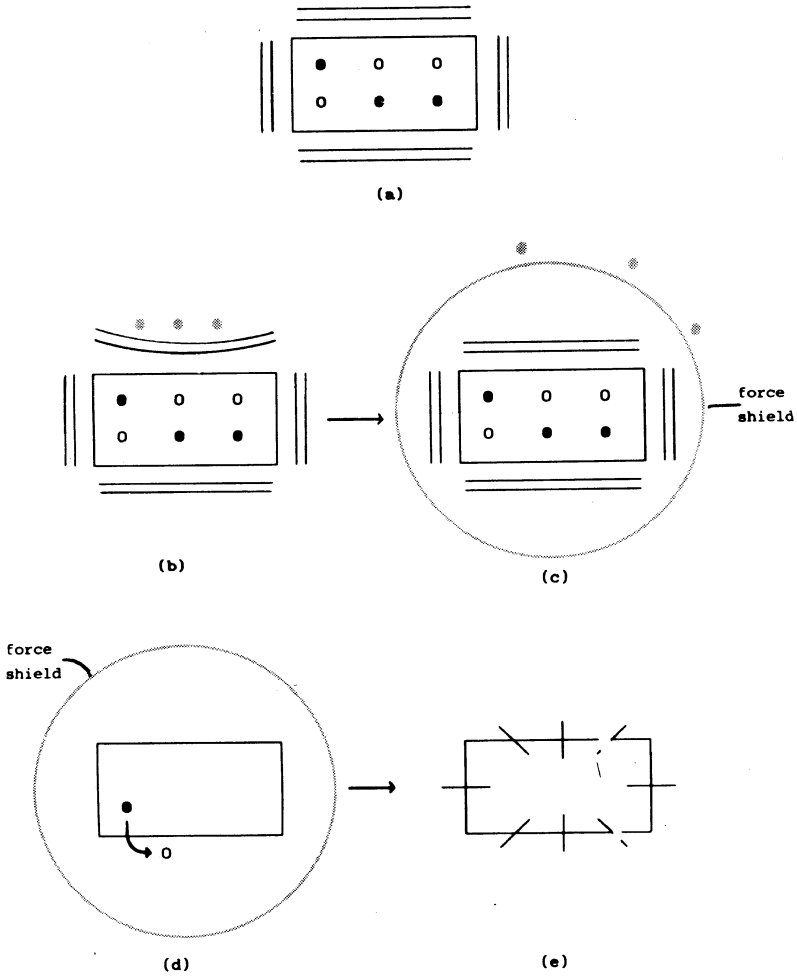


Fig. 2.6 The definitions of some reals: (a) karmic bondage, (b) karmic influx and force, (c) karmic force shield, (d) karmic decay under shield and (e) liberated soul.

- (8) heavy karmic matter, and
- (9) light karmic matter included,

we have what are called the nine fundamental reals (facts) of Jain Science. (Note that category (1) is very large and includes six existents to be described later). for the standard order of these reals, see. § 2.5)

It is claimed that these reals have existed eternally and form the essential part of the natural laws: they explain the evolution of the universe. To quote (from *Mahapurāṇu*):

“Know that the world is uncreated, as time itself is;
without beginning and end,
and is based on the principles, life and the rest”.

The ‘principles’ here mean the nine reals—‘life’ means the soul and the ‘rest’ implies the other eight reals. Therefore, no particular being is the creator of the universe. Belief is in the reals of Jain Science, consequently it is sometimes called a transatheistic religion rather than an atheistic religion. One of the reasons put forward against the existence of a personal god, as a creator is as follows. If the world was created by someone, then this would imply that the creator had a desire to create beings of a low level of life in their spiritual evolution, i.e. far from being a perfect-soul. Further, by definition, a higher being would only create a perfect world, not an unequal/unbalanced world. Thus, a higher being could not be the creator.

2.4. IMPORTANT ANALOGIES

We have defined the various terms above by using only the concepts of physics, but otherwise not introducing any analogies, which have tended to make the literature seem obscure. However, karmons, soul etc. can only be known through their properties as such. Since these can be comprehended only through their effects, we will therefore give various analogies which have been used to give ideas of their different properties. Nevertheless, it should be borne in mind that, for instance, *light can exhibit both the properties of particles and waves depending on the way in which it is considered, but light is light*. The properties of a substance cannot uniquely determine the substance itself. This rationale very much applies to karmons and the soul.

2.4.1 Magnetism

We may regard the polluted soul as a magnet. It attracts iron fillings which can be considered as karmons. The magnetic force lines are equivalent to karmic force lines, the joining of the iron fillings to a magnet can be looked at as karmic fusion, that is, they get strongly bonded to the soul. Creating a force field shield which stops new fillings from being attracted is a form of insulation. The shedding of old particles in the force field, of course, implies demagnetisation so there is no attraction and when all the particles are dropped, the soul is free from the magnetic element of this karmic matter and what is left is the liberated soul. This is shown in Figure 2.7. As mentioned before, it should be remembered that this is only an analogy since

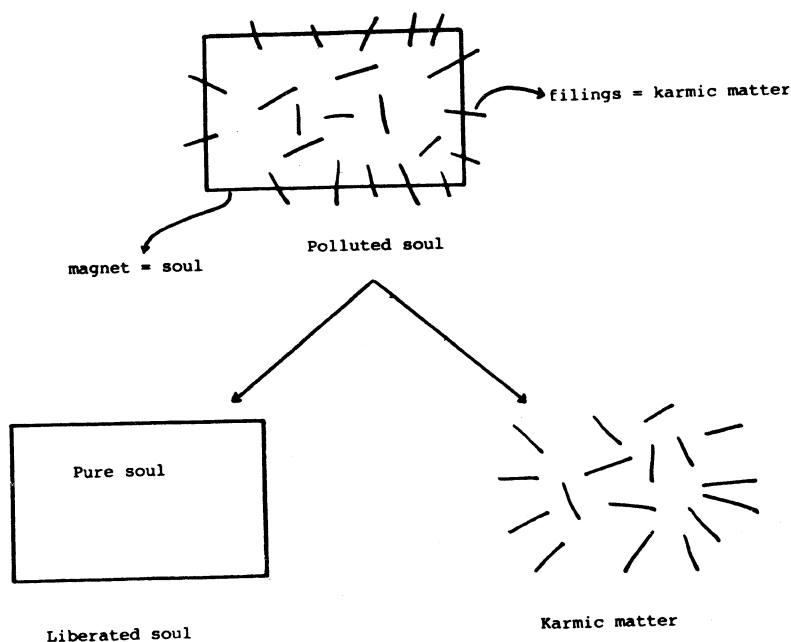


Fig. 2.7 The soul as a magnet, and karmic matter as filings.

karmic matter attracts its own particles (karmons) unlike fillings which do not attract each other.

2.4.2 Miscellaneous Analogies

Another analogy is with petrol. This is a refined stage of crude oil, thus in nature the energy is obscured because of the impurity and only refinement leads to the full combustive power of petrol. Obviously, the refined stage is the pure soul and impurities are karmic matter.

Another comparison which is made is that the impure soul is like an oiled cloth. This cloth can attract, because of the moisture, dust particles which are karmic particles, where the bond between the cloth and the oil is like karmic bondage. Note that the nature of the soul remains invariant under adaptation to a particular body's dimensions, like a cloth which can be folded into various shapes without any alteration in its mass. Finally, an interesting analogy is how a virus can effect the body resulting in changes (e.g. long illness); in the same way, karmic matter can influence the soul.

2.5 GLOSSARY

1. *Nine Reals (Tattva)*
 Soul = Jiva
 Karmic matter = (part of 'Ajiva' = 'insentient')
 Karmic force/influx = Āsrava
 Karmic bondage/fusion = Bandha
 Karmic force shield = Saṃvara
 Karmic fission/decay = Nirjarā
 Liberation = Mokṣa
 Heavy karmic matter = Pāpa
 Light karmic matter = Puṇya
2. *Soul's element (Guṇa)*
 Bliss = Sukha
 Knowledge = Jñāna
 Perception = Darśana
 Energy = Virya
 Freedom longing (catalyst) = Bhavyatva
 (Liberated soul = Siddha,
 Perfect being = Arihaṇṭa).
3. *Karmic Dynamics and Karmic density*
 Number of karmons in karmic fusion = Pradeśa
 Potential energy in karmon-decay = Anubhava
 Time to decay of fused karmons = Sthiti
 Karmic components of karmic force = Prakṛti
 Emission = Udaya
 Suppression = Upaśama

NOTES

1. P.S. Jaini, p. 114. "Jainas speak of the 'innumerable qualities' of the soul. Nevertheless, it can legitimately be said that the presence of those qualities which have been briefly discussed above—perception, knowledge, bliss, and energy—are sufficient to define the soul as a totally distinct and unique entity, an existent separate from all others."
2. P.S. Jaini, p. 113. "It should be made clear that Jainas view the soul's involvement with karma as merely an "association" (*ekakṣetrāvagāha*, literally, occupying the same locus); there is said to be no actual *contact* between them...."
3. P.S. Jaini, p. 112. "Karmic matter is said to be found "floating free" in every part of occupied space. At this stage it is undifferentiated; various types (prakṛti) of karma, classifiable by function, are molded from these simpler forms only after interaction with a given soul has begun."

3

HIERARCHY OF LIFE (AXIOM 2)

Axiom 2: *“Living beings differ due to the varying density and types of karmic matter”*

3.1 THE AXIOM

HOW DOES THE karmic matter divide different living species? If we accept Axiom 2, then it says that the differing density of the karmic matter is one of the main reasons for the differences between living species, i.e. the purer the basic elements of the soul, the higher is the form of life. We will define fully types of karmic matter (heavy, light) in the next chapter but these are the components into which karmic matter gets differentiated.

3.2 LIFE-UNITS AND LIFE-AXIS

The degree of soul-purity can be quantified in a relative way. We may define for convenience a unit of soul-purity as being that degree of purity of the soul which leads to 100 life-units in the average human being. This figure of 100 might be compared to the intelligence quotient for our ease of understanding. Thus at one extreme, the pure soul will have an infinity of life-units whereas an insentient object will have zero life units. Thus we can represent the soul's purity or the life units of the living beings along a line taking value from zero to infinity: we will call this the life-axis. Note that as the degree of soul-purity varies from zero to infinity the density of the karmic matter will vary from infinity to zero, inversely as it were.

The two main components of the soul's purity can be regarded as the number of senses related to energy/bliss elements, and the level of intelligence related to knowledge/perception elements described in Ch.2. Bearing these in mind, we will further divide the life-axis in the next section. These divisions have always existed qualitatively in Jain Science, but we can now quantify them.

3.3 DIVISION ACCORDING TO THE NUMBER OF SENSES/INTELLIGENCE OF THE LIFE AXIS

The lowest forms of life are the micro-organisms which possess only one sense, that of touch. These are infinitesimal and can only exist as part of a larger body (living or non-living) and therefore they should have very few life-units, say 10^{-4} life-units.

The next stage of life is another group of one-sensed micro-organisms which take the subtlest possible unit of matter as their bodies and these are earth-bodies, water-bodies, air-bodies and fire-bodies.¹ We will denote earth, water, air or fire bodies in Fig. 3.1 by a life-unit of 5×10^{-4} . Next are plants which are rated higher than the preceding, having gross individual bodies, and we will rate them at 10^{-3} life-units. It is interesting to note that one can distinguish

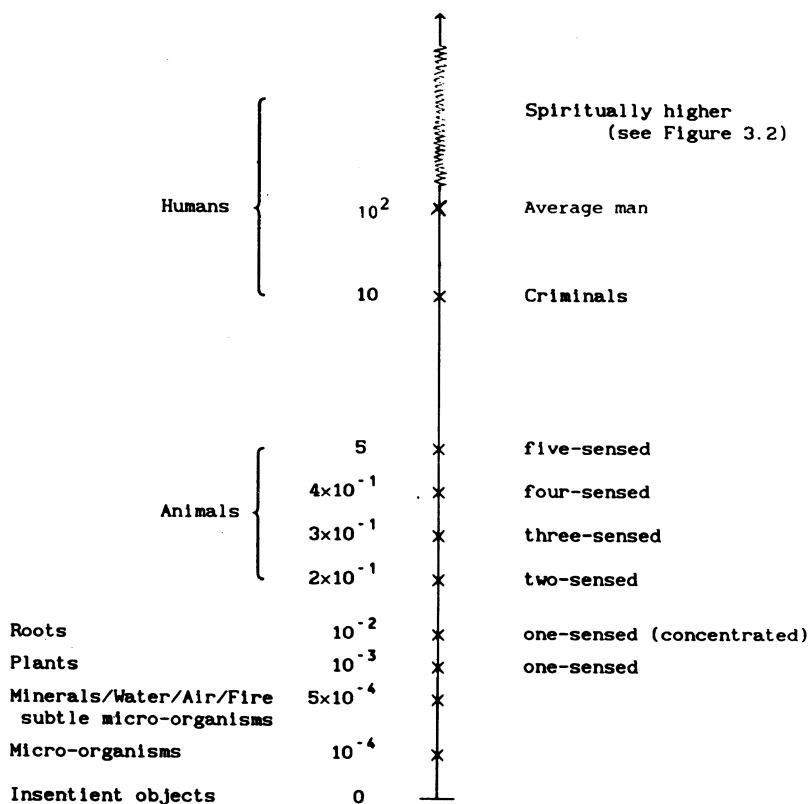


Fig. 3.1 The life-axis giving the degree of the soul's purity for different beings. (Not to linear scale).

between the various concentrations of life in plants. These are shown in Fig. 3.1. For example, onions are believed to have a more concentrated form of life than apples since one seed of an apple gives rise to thousands of apples, so the life gets sub-divided whereas an onion root gives only one onion in the process and, therefore, we can regard the life in an onion not 10^{-3} life-units but something like 10^{-2} life-units. This comment also applies to trees. Further, plants or dead flesh infested by innumerable micro-organisms will also have a higher degree of life units.

When some of the karmic matter is removed, then the next higher form of life appears in which the being has two senses, a body and a mouth/tongue. The two senses are touch and taste as it appears say, for example, in seashells, mussels, etc. We give these 2×10^{-1} life-units.

The next stage of higher life has, of course, three senses, where it has also a nose; that is, having the additional sense of smell, for example, an insect without eyes. We regard these as having 3×10^{-1} life-units. Further reduction of karmic matter leads to four-sensed beings which develop eyes or the sense of sight, for example, bees, flies, etc. These are assigned 4×10^{-1} life-units. Finally, we have beings with ears or a sense of hearing, for example, horses, camels, etc. These have five senses—touch, taste, smell, sight and hearing, i.e. they have a body, mouth, nose, eyes and ears. These are called five-sensed beings. Among the five-sensed beings is the first level of animal life where there is no sense of time, viz., what is past, what is present and what is future. These are given 5 life-units on the life-axis. After animal life, the next stage is the human body which has a sense of time or a high degree of coherence in addition to the five senses above. This class is very broad, and thus, for example, a criminal would receive a lower score along the life-axis than a humanitarian. For an average human, the base score of 100 life-units has been agreed so that a criminal may score only 10 life-units. This completes a description of the life-units along the life-axis in Fig. 3.1.

Some form of ascending scores can be connected to the idea of the spiritual advancement of individuals. These are shown in Fig. 3.2. At the first stage are the saints who are supposed to walk on the spiritual path with single-mindedness. Those at the second stage are those spiritual teachers who have experienced the truth. The third are the spiritual masters who practice what they preach, being the true masters. The fourth category are the perfect living beings who have conquered their inner enemies. The nominal life-units for these categories are 10^3 , 10^5 , 10^{10} , 10^{100} , respectively. Those in the final category are pure souls (liberated souls) which are a form of absolute

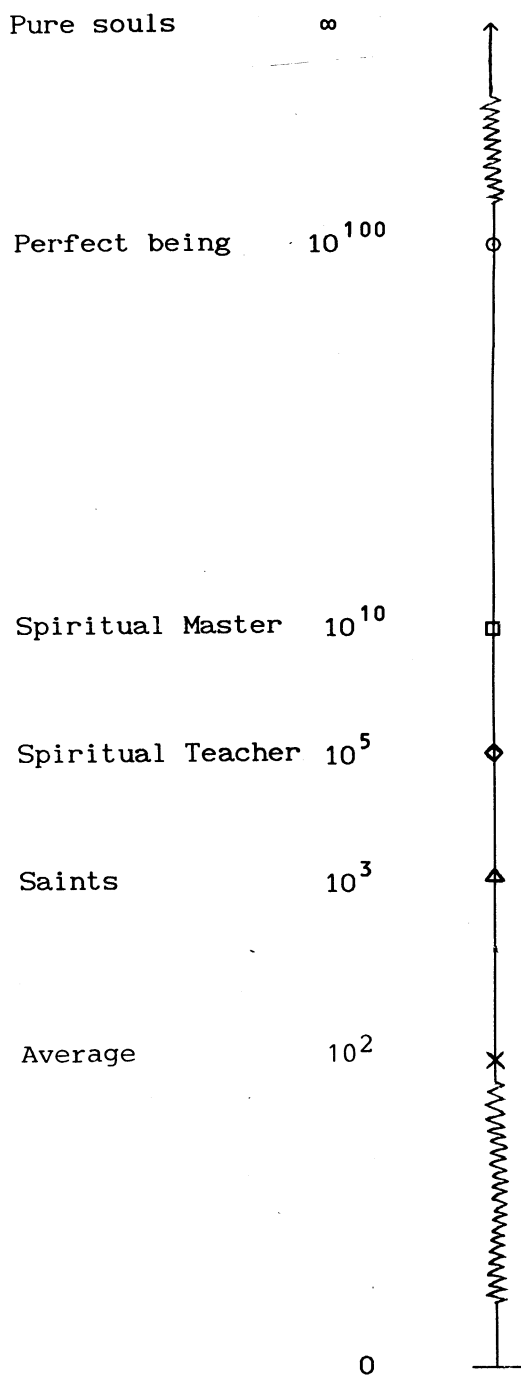


Fig. 3.2 Five spiritually higher beings on the life-axis. (Not to linear scale).

energy. The score for the liberated soul is at the point of infinity, as it has no impurity (not even a body). (Most Jains today might not accept these statements literally although some early followers believed that teachers of other religions could reach the higher states).

3.4 THE FOUR MENTAL STATES

Every living being possesses varying degrees of sensitivity due to its mental state. We describe the four main directions, which the mental state can take. The state with the highest agonising point is the hellish state. The extreme state of pleasure is called the heavenly state. This is a hedonistic pleasure but does not correspond to the state of bliss. The state where the living being does not know what is tomorrow or did not know what was yesterday, is the animalistic state. The state of the equilibrium point between the pleasure and the pain is the average human state.

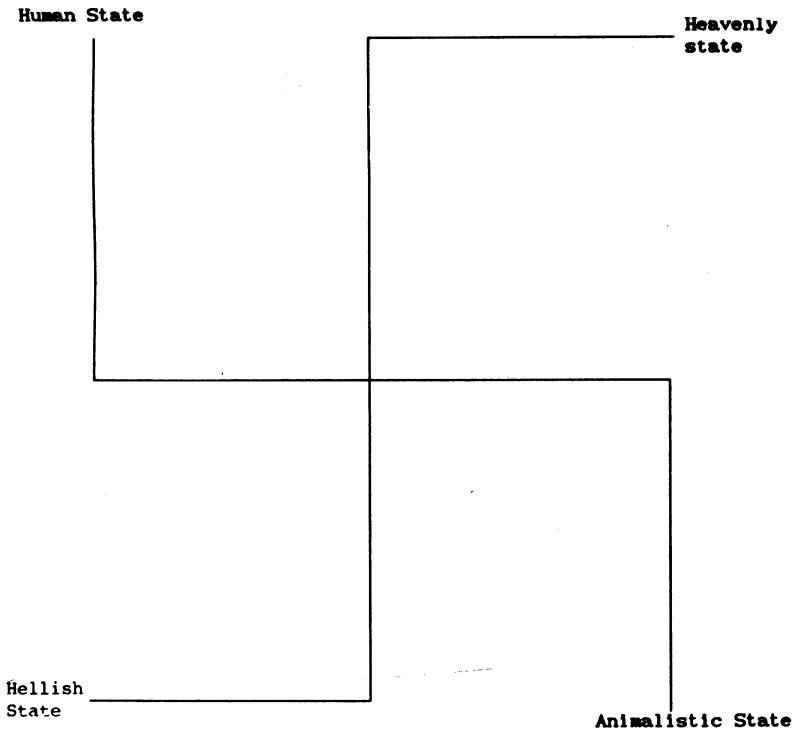


Fig. 3.3 Four directions of the mental state in living beings.

Every living being is capable of taking the above four directions of these mental states, namely:

Hellish state, Heavenly state, Human state, and Animalistic state and are represented symbolically in Fig. 3.3 in the form of a swastika; the central point being the mind. (Note that the Nazis misused the symbol by using its reflection). These directions are again influenced by the density of the karmic matter, and they should be taken into account while placing a living being on the life-axis of a given species.

The literal interpretations of these states correspond to the four states of existence: hell-being, heavenly being, animal/plant life and human being respectively. At the central point passes the axis of rotation through different lives. Our approach follows Kundakunda whereby "the self by its own thought activity creates for itself the four forms of these beings" (see, Appendix, 3B, q.3.1).

3.5 GLOSSARY

Soul/living being = Jīva

Non-soul/Insentient object = Ajīva

Micro-organisms = Nigoda

Five-spiritually high (= Pañca-parameṣṭhin)

Saint = Sādhu

Spiritual teacher = Upādhyāya

Spiritual master = Ācārya

Perfect being = Arihaṇṭa

Pure soul/liberated soul = Siddha

Four Existences (= Gati)

Heavenly being = Deva

Hellish being = Nāraki

Animal/Plant life = Tiryañca

Human = Maṇuṣya

NOTES

1. P.S. Jaini, p.109. "At the very bottom of this scale hence comprising the lowest form of life, are the so-called *nigoda*. These creatures are sub-microscopic and possess only one sense, that of touch. They are so tiny and undifferentiated that they lack even individual bodies;..... Just above the *nigoda* is another group of single-sense organisms whose members take the very elements—the subtlest possible units of matter—as their bodies; hence they are called the earth bodies (*pṛthvī-kāyika*), water-bodies (*āpo-kāyika*), fire bodies (*tejo-kāyika*), and air bodies (*vāyu-kāyika*), respectively."

4

CYCLES OF BIRTH AND DEATH (AXIOM 3)

Axiom 3: *"The karmic bondage leads the soul through the states of existences (cycles)."*

4.1 THE AXIOM

IN AXIOM 2 we concentrated only on the static situation of living beings through one life-span rather than the dynamic situation of various life cycles. The question arises as to whether there exists a cycle of birth and death. This axiom assumes that there is such a cycle. On death the soul is set free of physical body and is thus ready to move on under its own propulsion. From Axiom 2 it is quite clear that the amount of karmic matter will be responsible for the next placement on the life-axis. However, the following questions do arise:

- (1) What is meaningfully transported from one life to the next?
- (2) What form of science can allow such a transportation?

4.2 THE KARMIC COMPONENTS

To answer the above questions, we assume that the karmic matter gets differentiated into eight specific types by the activities of the contaminated soul. We call these types the karmic components.

We will view the karmic components as negative forces arising from the karmic matter and perverted energy element of the soul. Recall the four basic elements of the soul: bliss, energy, knowledge and perception and its intrinsic freedom-longing catalyst. Figure 4.1 sketches the state of the soul at a fixed point in time. On the positive scale we have infinite bliss, energy, knowledge and perception. Underlying these elements is the strong freedom-longing catalyst. On the negative side corresponding to bliss, we have a component which defiles this element. This component will be called the Bliss-Defiling karmic component; we will write it as the "a-component". The a-component has an Insight-Defiling sub-component (a_1) and a Conduct-Defiling sub-component (a_2) which we will write as the a_1

sub-component and the a_2 sub-component respectively. Recall that the Defiling-Component changes the overall structure of the soul; that is, the process leads to a very fundamental transformation of its elements, e.g. change of personality under intoxication. Similarly, we have the second negative component which obstructs the operation of the energy element and which we will call the Energy-Obstructing karmic component (b) and denote by b-component. This makes the soul not only work with restricted energy but it becomes an accomplice in the process of karmic fusion with the existing karmic matter as well as in karmic decay. Similarly, we have the third and fourth karmic components, the Knowledge-Obscuring Component (c) and the Perception-Obscuring Component (d) which we will write as the c-component and the d-component respectively. Note again that these last two components only obscure the two soul elements and do not defile the soul.

These four components are operating at every instant and are described as “destructible” (decaying) components in a given life-cycle. We will call them the “Primary-Components”.

The other four components are Secondary Components which refer to the next embodiment and indirectly they attack the freedom-longing catalyst. These components are named “Feeling-Producing” (e), “Body-Producing” (f), “Longevity-Determining” (g) and “Environmental-Determining” (h). We will write these as the e-component, f-component, g-component and h-component respectively. These four components react only slowly to the process of fusion and decay at a particular moment, except at the time just before the beginning of the next life-cycle. Table. 4.1 summarizes these components.

Table 4.1. *Eight karmic components*

Primary Components (Destructive in this cycle)	Secondary Components (Non-destructive in this cycle)
(a) Bliss-defiling (a_1) Insight deluding (a_2) Conduct deluding	(e) Feeling producing (e_1) Pleasure producing (e_2) Pain producing
(b) Energy obstructing	(f) Body producing
(c) Knowledge obscuring	(g) Longevity determining
(d) Perception obscuring	(h) Environmental determining

Although all karmic components operate independently, the defiling component—a plays a central role since it defiles the soul and

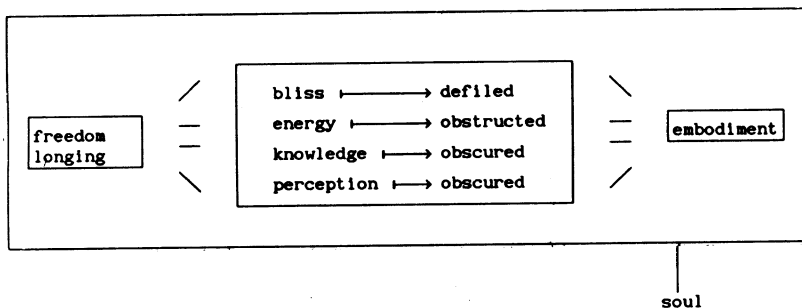


Fig. 4.1 State of a soul at a fixed point in time with its elements and the effect of karmic matter.

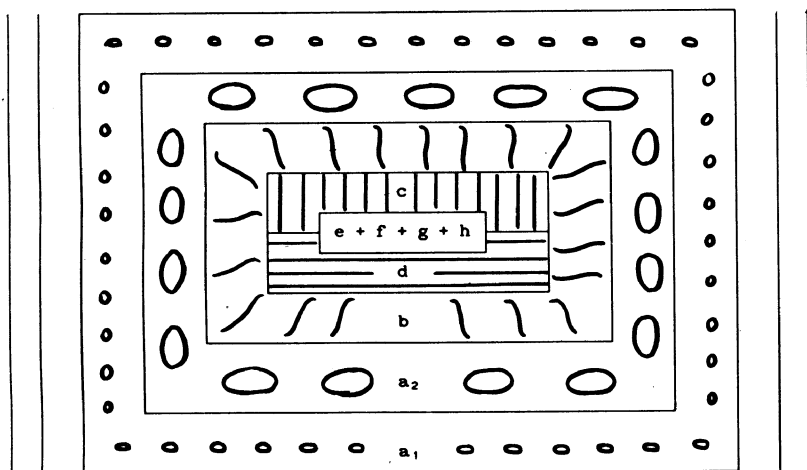


Fig. 4.2 Eight karmic components of karmic matter on a contaminated soul with the hierarchy of karmic components—the outer are more active than the inner.

allows other components to operate. In fact, the component-b is influenced by the existence of this defiling process. Figure 4.1 illustrates the static aspect of the interaction. Figure 4.2 shows the hierarchic influence of these components on the soul, so that the karmic components in the outer rectangles are more active at every instant than those in the inner rectangles, e.g. the a_1 -component and a_2 -component are more active than the b -component and so on, whereas the components e , f , g and h operate slowly. (We can

compare these karmic energy-levels to those of the electrons in the inner and outer shells of an atom.)

4.3 WHAT GETS TRANSPORTED?

As described above, the four karmic components are responsible for various aspects of the next incarnation. In particular, the body-karmic component is said to generate two 'subtle bodies' underlying the manifest physical body, (1) the *karmic capsule*, which maintains the vital functions (temperature, etc) of the organism, and (2) the *karmic body*, constituting the sum total of the karmic matter present in the soul at a given time. The existence of such kinds of bodies is important to the theory of rebirth since they constitute a vehicle whereby a soul moves under its own power from one incarnation to the next.¹

At the moment of death, the Body-Producing karmic component (f-component) has pre-programmed, as it were, the particular conditions of the coming embodiment. This information is carried in the karmic body. At death the soul is released from its physical body and is said to travel in a straight line almost instantaneously to the destination which its accompanying karmic matter has pre-determined².

The transported material is very much like a hermetically sealed capsule (the karmic capsule) containing the karmic body and the soul (see Figure 4.3) stopping the flux and shedding of any karmons. In

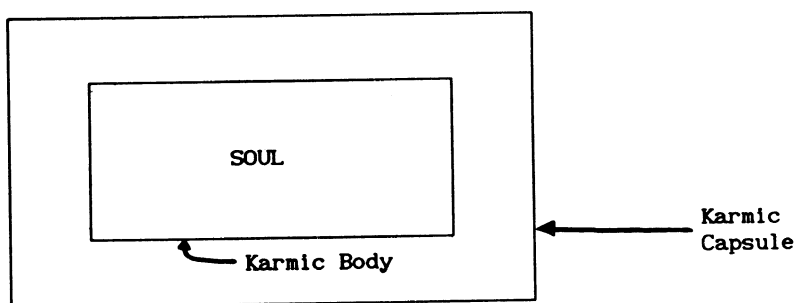


Fig. 4.3 A soul in transition: with its karmic body and karmic capsule.

spite of the inherent propulsion due to the soul energy at the time of death it cannot travel too far before it enters a physical body in an egg or womb. The stationary medium as defined in § 4.4 ensures this unless it is being liberated.

4.4 SIX EXISTENTS

We now consider the Jain Laws on Nature which allow various operations such as the interaction between soul and karmons, next embodiment, liberation of the soul, *etc.* According to Jain Science, the universe is comprised of six “existents”. These are

- (1) soul,
- (2) matter,
- (3) space,
- (4) time,
- (5) dynamic medium, and
- (6) stationary medium.

In contrast with standard physics where one deals with matter in time and space coordinate systems, in Jain Science it is the soul which is to be studied in terms of time, space and matter. These all are regarded as ‘substances’ which is also a helpful way of considering them.

Space. Jain space is sub-divided into two types. The first, which is occupied by the other five existents, and the second which is empty. We shall call these simply *occupied and unoccupied space* respectively. “Occupied space” is equivalent to the manifest universe in which all the other five existents are confined. The inherent quality of occupied space is its ability to provide a “home” for the other five existents and it is divisible into infinitesimally small *space points*, which have dimension but cannot be further sub-divided³. The idea that the occupied universe is bounded is quite implicit in this formulation. Further, the boundary between occupied space and unoccupied space is quite important as we shall see later.

Dynamic and Stationary Media. ‘The Dynamic medium’ allows interaction/motion to take place between/within soul and matter, whereas ‘the Stationary medium’ allows equilibrium/stability between/within soul and matter. The usual analogy is that the dynamic medium is like water allowing the movement of a fish whereas the stationary medium is like the shade of a tree which allows travellers to rest. Thus soul/ matter has the inherent quality to ‘go’ or ‘stop’, but these two media make these operations possible. In general, the ‘Go-mode’ includes developing, interacting, moving etc. and the ‘Stop-mode’ is the opposite.

The two media are non-atomic, inactive, formless and continuous. These co-exist and we can regard dynamic and stationary media as secondary and tertiary space respectively. The logic behind these two media is elegantly summarized as follows by Basham (1958, p. 76), where we have substituted our terminology in this quote:

“The existence of dynamic medium as a secondary space is proved to the Jain’s satisfaction from the fact of motion; this must be caused by something; it cannot be due to time or the atoms, since they have no spatial extension, and that which is spaceless cannot give rise to movement in space; it cannot be due to the soul, since souls do not fill the whole universe, but motion is possible everywhere; it cannot be due to space, for space extends even beyond the universe, and if space was the basis of motion the bounds of the universe would fluctuate, which they do not; therefore motion must be caused by some other substance which does not extend beyond the universe, but pervades the whole of it; this is what is called dynamic medium. The existence of ‘stationary medium’ is proved by similar arguments.”

The first four existents—soul, matter, space and time—do not themselves undergo any changes due to the two media, but they function insofar as soul and matter in either ‘Go-mode’ through space or ‘Stop-mode’ in space. Thus in particular, the dynamic medium allows karmic fusion/fission whereas the stationary medium allows the state of karmic bondage. Further, the dynamic medium will allow the soul to travel to the next embodiment whereas the stationary medium will allow it be planted in a womb.

We have regarded the two existents as media for motion and rest but these can be viewed as two forces: *Dynamic and Stationary forces*. These operate on the non-living as well as the living. Their relation with four forces in Nature recognised by Modern Physics will be discussed in Chapter 10.

Time. Time is also not affected by the other existents. The Jains believe that time is digital, *i.e.* consists of an infinite series of discrete time points each dimensionless, for example, whenever a particular instant of time is recorded. Time as an existent has no beginning or end. Jains have regarded time as a fourth dimension in space and time interaction; for a detailed discussion involving time, space and other existents, see Basham (1958, p.78).

Matter (Pudgala). It is important to realise that “pudgala” will be translated as “matter” but in Jain Science the word also includes “physical energy”. The word is formed from the two words *pum* (joining) and *gala* (breaking). This gives central importance to the formation and destruction of matter; destruction has the implication of converting matter into energy and energy into matter. The modern word is “mass-energy”.

Matter is finally composed of what may be described as *the ultimate particle (U.P.)*. These are the smallest indivisible particles which we write “U.P.” They can be aggregated in many different

ways so that they produce every form of organic and inorganic matter but exclude the soul.

The finest form of matter is called *fine-fine* and contains a finite number of U.P.'s. Thus, these are the particles from which the karmons are formed. The lowest number of karmons are in a *karmic body*, and a much higher number in a *karmic capsule*. One U.P. occupies at most one space-point. The physical energy in *fine-fine* is analogous to electricity. The next category of matter is *fine* which has several U.P.'s and thus is molecular. Like the *fine-fine*, *fine* is too small to be detected by these senses. Recall that molecules are aggregations of atoms in scientific terminology. Karmic matter on a contaminated soul is a *fine* matter which has an *infinite number of karmons*.

The karmic matter constituting the karmic body is extremely fine. Although slightly less so, the karmic capsule is also very fine and invisible and it is found in all polluted souls. These bodies are so subtle that they pass through and may be passed through by everything. (One is reminded of a neutrino's behaviour here.)

The karmic capsule is translated by some writers as magnetic body or electrical body. It is also claimed (C.R. Jain, 1929) that it is a body of luminous matter and is a necessary link between the other two bodies of the soul, the karmic body and the physical gross body. A link of this kind is needed because the matter of the karmic body is too fine and that of the physical body too gross to allow any direct or immediate interaction between them.

The next category is *fine-gross*. The things in this category can be recognised by the senses but are not so gross as to be visible; *e.g.* heat, sound, *etc.* which can be perceived by the four senses of touch, taste, smell or hearing, but are not tangible.

The fourth category is *gross-fine* which is grosser than *fine-gross* which cannot be seen. It is matter which looks gross or tangible but which cannot be grasped, *e.g.* light. Thus here light is regarded as an aggregation of particles. We can draw attention here to the notion that light is sometimes to be thought of as a stream of particles but at other times as an electro-magnetic wave. (See for example, Pedler, 1981).

The fifth category is *gross* which is equivalent to gases(?) / liquids and the last category is *gross-gross* which is equivalent to solids. These are the different states of matter. A summary of this classification of matter is given in Table 4.2. We have given here one type of classification of the matter, but Jains also use an alternative classification of twenty three main types of 'groups' of matter,

Table 4.2 *Classification of matter.*

Name	Definition	Examples
0 U.P.	Ultimate particle	
1 Fine-fine	"Atoms" formed from U.P.'s	Karmons, Range of karmic body to karmic capsule, Nuclear energy, Electricity.
2 Fine	"Molecules" from karmons	Karmic matter.
3 Fine-Gross	Can be perceived but are not visible.	Sound, Heat.
4 Gross-fine	Can be perceived but can not be grasped.	Light.
5 Gross	Combines itself without external material.	Gases (?) / Liquid
6 Gross-gross	All the rest.	Solid.

depending upon the degree of compactness of the U.P.'s in space (see Zaveri, 1975, pp.58-61).

As the soul has its characteristics of life including bliss, energy, knowledge and perception elements, matter has its characteristics of lifelessness, touch, flavour, smell and colour.

The important principle is that each quality produced by elementary particles undergoes constant changes of mode along its respective continuum. Thus, matter and energy may be regarded as one and the same thing, *i.e. sound, light, heat etc.* are matter but their mode is energy. These Jain concepts of matter and energy do not seem to include all the concepts of Modern Physics but nevertheless, these are compatible (see, Chapter 10). On the other hand, Jain Science explains the phenomenon of Mind over Matter. It shows how finer karmic matter from karmons and the soul are interrelated.

The soul. Occupied space contains an infinite number of souls. Each soul has an uncountable number of space points but exists within the physical limits of its current corporeal shape. Liberated souls are all distinct and are not under constraints of time, dynamic or stationary forces and are on the highest point of the boundary between occupied space and unoccupied space. The highest point on the boundary is perhaps similar to a black hole in the sense that the standard laws of physics are not applicable in a black hole. When all karmic matter, even the finest (*fine-fine*), is removed, the soul will move to this highest point. The soul now attains infinite bliss, energy, knowledge and perception.

Note that in Jain, the mind is regarded as the sixth sense, made up of matter which acts as a processor of input from five senses and it

should not be confused with consciousness—the knowledge and perception elements.

4.5 JAIN PARTICLE PHYSICS

Matter has one of five colours, one of five flavours, one of two odours and one each of the four pairs of touches. These are given below.

Five types of colour: Black, red, yellow, white, blue.

Five types of flavour: Sweet, bitter, pungent, acidic, astringent.

Two types of odour: Good smell, bad smell.

Eight types of touch in four pairs: Hot/cold, wet/dry, hard/soft, light/heavy.

The ultimate particle (U.P.) has the following properties:

One of the five colours,

One of the five flavours,

One of the two types of odour,

One of the four touches in pairs of either wetness/dryness or hot/cold.

Thus, it leads to 200 different “primary U.P.’s”. It is shown that wetness and dryness possess varying intensities which are integers. These combine together to produce composite bodies. The fundamental condition is that the U.P.’s in combination must possess more than one unit intensity of dryness or wetness. These cannot combine if the intensity is only one unit. Also, if x and y are the intensities of wetness of two U.P.’s, then to combine them

$$|x-y| \leq 2, x=2, \dots; y=2, \dots$$

The same applies to two U.P.’s with different dryness. There are no restrictions on the composition of two U.P.’s, with one U.P. of x units of dryness and another of y units of wetness, except that $x > 1$ and $y > 1$. (This principle is very similar to Paul’s exclusion principle in Particle Physics).

There are over 200 different primary U.P.’s, but the strength/intensity of each quality varies from one unit to infinite units. They can be distinguished simply as two basic types: effect U.P.’s or cause U.P.’s. Thus the whole universe is formed. Note that hard/soft and light/heavy have been excluded from the U.P.’s qualities because these are the qualities of the dense U.P.’s or their combinations. (The karmons are some of the finest particles formed from U.P.’s and therefore might be combinations of only two U.P.’s.)

4.6 PRACTICAL IMPLICATIONS OF CYCLES

It is quite clear that karmic matter plays a central role in shaping one’s next incarnation along the life-axis (see Chapter 2). Hence, an

average human being indulging in criminal activities might end up in the next life as a snake because of the heavy karmic matter (see Fig. 4.4.). On the other hand, an average human being after expiation of his heavy karmic matter can go higher up the spiritual ladder, that is, he may be reborn with the karmic density, say of a *spiritual teacher*. The cycle continues: for example, the one who has become a snake could, after reducing karmic matter, again go higher as a human being in his second cycle, (see Figure 4.4). (It is possible for a snake to

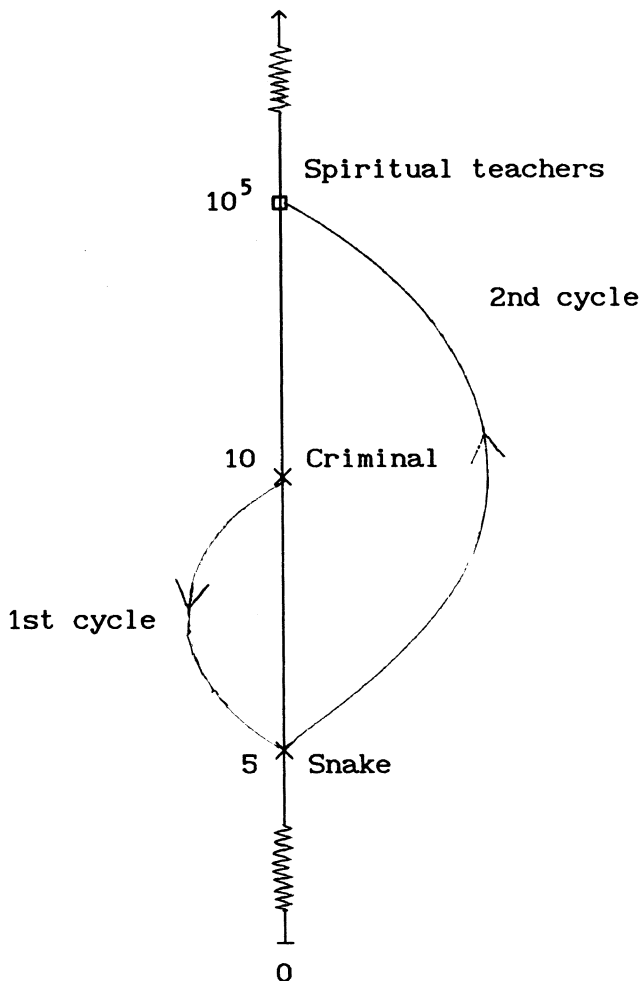


Fig. 4.4 Life-axis with two consecutive life-cycles depending on the karmic matter from a criminal to a snake in the first cycle and then to a spiritual teacher in the second cycle.

shed his heavy karmic matter; see the well-known Jain legend about a snake in Mahavira's life, Appendix 1.)

In view of Axiom 2, one can end the cycles only through the human state for which the karmic density is comparatively lower than for any other form of life. The methods of removing all the karmic matter in the human state, *i.e.* to finally cut the bonds that imprison the soul, will be given in the next chapter (see Axiom 4A). However, when one's soul is liberated from the cycle of rebirth, it is stipulated that immediately another soul from a low form of life shoots higher; this leads in turn to souls in lower forms moving higher. Therefore, in liberating ourselves we are helping a lower life-form etc. to rise up on the life-axis. This chain-like progression is an interesting concept.

4.7 GENERAL COMMENTS

The two important points assumed in Axiom 3, are (1) the science of mind and matter and (2) the theory of reincarnation. Pedler (1981) deals with the present trend amongst physicists to find laws which govern not only matter but also consciousness, *i.e.* to explain various phenomena such as metal bending, object moving, telepathy, *etc.* However, progress is limited in spite of great efforts. He describes those which are now at least being scientifically investigated. The work of Capra (1975) is definitely a step forward.

Regarding reincarnation, Wilson (1981) examines the credibility of various reports of subjects who, under hypnosis, have apparently regressed into previous lives which they have described in realistic detail. He records that one Joe Keeton, a hypnotist, pronounces that there is no limbo, no rest between one life and another. From death to reincarnation is instantaneous. This hypothesis is precisely as given above.

4.8 GLOSSARY

1. Eight karmic components (=karma)
 - A. Primary (=Ghātiyā)
 - (a) Bliss-defiling = Mohanīya
 - (a₁) Insight deluding = Darśana-Mohanīya
 - (a₂) Conduct deluding = Cāritra-Mohanīya
 - (b) Energy obstructing = Vīrya-antarāya
 - (c) Knowledge obscuring = Jñānā-āvaraṇīya
 - (d) Perception obscuring = Darśan-āvaraṇīya
 - B. Secondary (= Aghātiyā)
 - (e) Feeling producing = Vedanīya

- (e₁) Pleasure producing = Sātā-vedanīya
- (e₂) Pain producing = Asātā-vedanīya
- (f) Body producing = Nāma
- (g) Longevity determining = Āyu
- (h) Environmental determining = Gotra
- 2. Type of bodies (= Śarīra)
 - Karmic body = Kārmic Śarīra
 - Karmic capsule = Taijas Śarīra
- 3. Six Existents (= Dravya)
 - (1) Soul = Jīva
 - (2) Matter = Pudgala
 - (3) Space = Ākāśa; occupied space = Loka Ākāśa;
unoccupied space = Aloka-Ākāśa.
 - (4) Dynamic medium = Adharma
 - (5) Stationary medium = Dharma
 - (6) Time = Kāla
- Space point = Pradeśa
- Ultimate Particle = Paramāṇu
- Sub-atomic = Aṇu.
- (Particle-Groupings = Vargaṇā)

NOTES

1. P.S. Jaini p. 125. Nāma-karmas pertaining to śarīra are also said to generate two subtle bodies underlying the manifest physical one. These are the *taijasa-śarīra*, heat body, which maintains the vital temperature of the organism, and the *kārmana-śarīra*, the karmic body, constituting the sum total of karmic material present in the soul at a given time. The conception that such bodies exist is important to the Jain theory of rebirth, since they constitute the "vehicle" whereby a soul moves (albeit under its own power) from one incarnation to the next.
2. P.S. Jaini pp. 126-7. At the moment of death, the *aghātiyā* karmas have pre-programmed, as it were, the particular conditions of the coming embodiment. This information is carried in the *kārmana-śarīra*, which together with the *taijasa-śarīra*, houses the soul as it leaves its physical body. A soul is said to be inherently possessed of great motive force; set free of the state of gross embodiment, it flies at incredible speed and in a straight line to the destination which its accompanying karma deemed appropriate. This movement is called *vigraha-gati*, and it is said to require, as noted above, only a single moment in time, regardless of the distance to be traversed.
3. P.S. Jaini p. 98. The distinguishing quality of space is its ability to provide a locus for such existents; this is true whether it actually does so (as in the case of loka-ākāśa) or not (as in the case of aloka-ākāśa). Hence, there is only one "space"; its extent is infinite. Ākāśa is further described as divisible into infinitesimally small "space-points" (pradeśa); these units have some dimension and yet cannot be subdivided.

5

PRACTICAL KARMIC FUSION (AXIOM 4A)

Axiom 4A “Karmic fusion is due to perverted views, nonrestraint, carelessness, passions and activities.”

5.1 THE AXIOM

WE KNOW from previous chapters that the density of karmic matter makes the difference between various species, and at the human level the density is small. However, to realise the full power of the soul it is important to remove the karmic matter. Before we try to find how this can be achieved at the human level it is important to understand how karmic fusion takes place in practice.

We now try to give practical ideas of the abstract themes developed in Chapters 2-4. The karmic force field is set up by the activities of the body, mind and speech or in short by Jain yoga, whereas the karmic fusion takes place due to the volitional activities of the individual, i.e. the exercise of one's own will. Note that activities in themselves, like a new born child who has no volition to do right and wrong, cannot set up a karmic force field and thus cannot attract karmons. However, when these volitional activities are performed, the karmons are attracted and fused¹.

The axiom gives the five agents:—

Perverted Views, Nonrestraint,
Carelessness, Passion and Activities,
which influence the karmic matter and its forces; we will call these the five karmic agents, each undermining the four soul-elements:—

Knowledge, Perception, Bliss and Energy.

The karmic agent, Perverted Views, means false notions regarding the nature of the soul or misunderstanding about “Who am I?” In our context it will mean not believing in Axioms 1 to 3. Thus the knowledge and perception elements are obscured. The term Nonrestraint implies there is no self-control which may lead to involuntary evil deeds. Thus, the bliss element is defiled. The term Carelessness implies general inertia in working towards mokṣa. Thus the Energy Element is obstructed. Jain Yoga refers to general

activities of the body, mind and speech and should not be confused with the modern meaning of the word yoga. Positive Yoga leads to light karmic matter whereas Negative Yoga leads to heavy karmic matter (Appendix 3B, q. 5.1). The last of the agents responsible for karmic fusion is Passion. This is the main agent for fusion (Appendix 3B, q.5.2), and it influences all the four soul elements which we will describe fully in § 5.3.

5.2 KARMIC COMPONENTS IN PRACTICE

We now describe the practical effect of each of eight types of karmic components defined in § 4.2. The Insight Deluding Component gives rise to false views including extremism and an inability to discriminate between what is proper and what is improper. The Conduct Deluding Component generates passions and sentiments which delude right conduct. These two sub-components act simultaneously to create a state of spiritual blockage. The Knowledge Obscuring Component obstructs knowledge in five ways. It obstructs (1) the function of the senses and mind, (2) logical ability, (3) clairvoyance power, (4) mind-reading ability and (5) omniscience ability. The Perception Obscuring Component obstructs perception by means of eyes and other senses, perception before clairvoyance, perception related to omniscience. The Bliss Defiling Component (Insight Deluding and Conduct Deluding) limits the energy of the soul and activities of the body, mind and speech, and it creates confusion and desires which then allow other karmic components to be operative. Its effect is very much like the significant transformation of oneself taking place under intoxication.

We now summarise the secondary set of karmic components. The Feeling Producing Component characterises mental state. The Body Producing Component determines the type of species, sex and colour. The Longevity Component determines longevity in the next birth. The Environmental Component determines the level of circumstances conducive to pursue spiritual life.

5.3 VOLITIONAL ACTIVITIES AND THE FOUR PASSIONS

We now give the details of the karmic dynamics in practice. Let x be the number of karmons involved in fusion due to a volitional activity. Note that the new karmic matter remains dormant for some time before the emission begins. Table 5.1 gives the four important factors related to the x karmons. The precise number of karmons, x ,

Table 5.1 *The life and activity of x-karmons involved in fusion with $x_1 + \dots + x_8 = x$*

Karmic components	Quantity to each component	Time interval to decay	Strength in decay
a	x_1	$(t_1^{(1)}, t_1^{(2)})$	f_1
b	x_2	$(t_2^{(1)}, t_2^{(2)})$	f_2
c	x_3	$(t_3^{(1)}, t_3^{(2)})$	f_3
d	x_4	$(t_4^{(1)}, t_4^{(2)})$	f_4
e	x_5	$(t_5^{(1)}, t_5^{(2)})$	f_5
f	x_6	$(t_6^{(1)}, t_6^{(2)})$	f_6
g	x_7	$(t_7^{(1)}, t_7^{(2)})$	f_7
h	x_8	$(t_8^{(1)}, t_8^{(2)})$	f_8

in fusion depends upon the *degree of volition* with which the activity was carried out. The distribution of x over the different karmic components depends on the *type of activity* i.e. the type of activity determines the specific karmic component taken up by the undifferentiated karmons. The time to decay and the corresponding potential strength of each component is fixed by the *degree of passions* with which the activity takes place. Once the karmon has had its effect, it is emitted from the soul, returning to an undifferentiated state and thus to the infinite pool of free karmons.² Note that the time of activation, duration of emission and the strength of each karmic component can be different. Also, it is possible to enforce premature decay, suppression of their effect *etc.* through practical means (see, Chapter 7). Passion is the main agent for karmic fusion. It has four main sub-agents:—

Anger, Greed, Deceit and Pride.

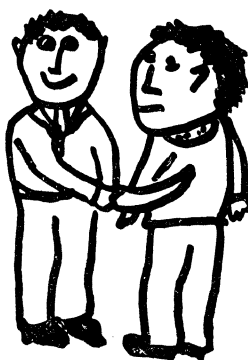
We will describe these as the Four (principal) Passions. They are depicted in Figure 5.1. Note that gluttony and covetousness are both expressions of greed. The attraction of karmons is stronger on greed and deceit but weaker on anger and pride. However, both can occur simultaneously. Given a particular situation, the activities of body, mind and speech occur (Figure 5.2a), activating the karmic field. Karmons are picked up and then attracted or repulsed by the Four Passions (Figure 5.2a). The incoming karmons go through the process of fusion to the existing karmic matter (underlining the Four Passions for simplicity) through the energy element of the soul (Figure 5.2b); this is one's personal reaction in view of the existing karmic matter. They are then assigned a function depending on subsequent volitional activity, i.e. a righteous action will lead to light karmic matter being added whereas an unrighteous action leads to



(a) Anger



(b) Pride



(c) Deceit,

(d₁) Gluttony,(d₂) Covetousness.

Fig. 5.1 The Four Passions (principal) in Jainism.

heavy karmic matter being added (Figure 5.2b), i.e. ending up with a stronger or weaker karmic fusion, respectively. Note how these processes compare in practice with those abstract processes described in Chapter 2. In particular, Figure 5.2 is a practical representation of Figure 2.1.

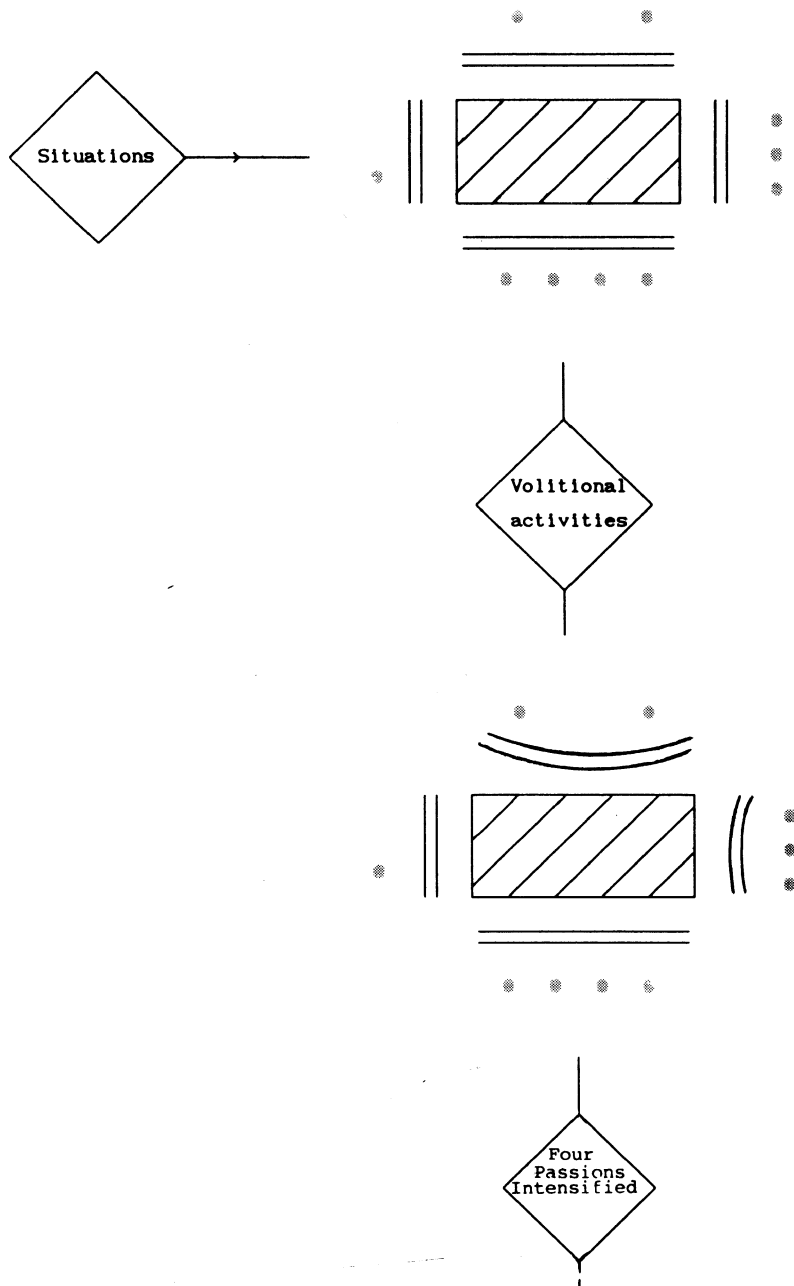


Fig. 5.2 A flowchart of the dynamics of karmic bondage shown in two parts:
(a) situation and volitional activities with activated karmic force;

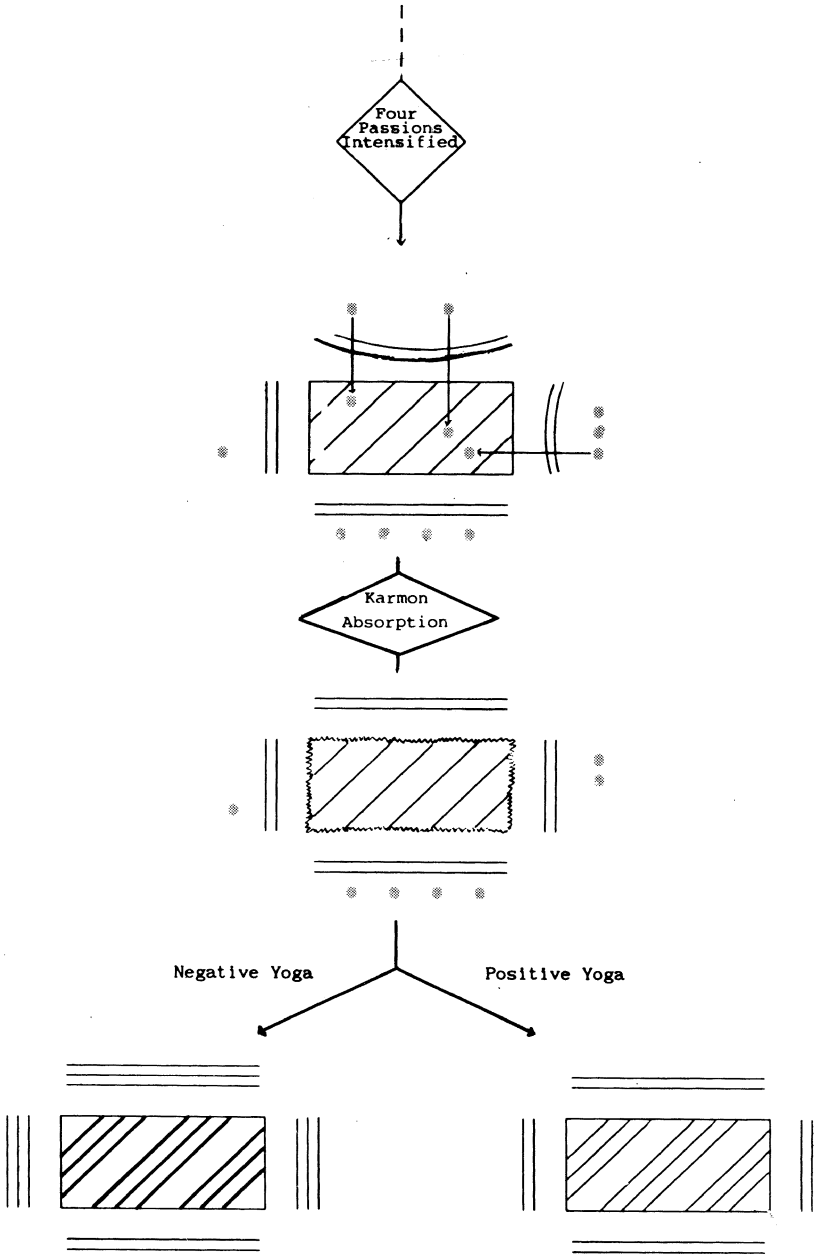


Fig. 5.2 (b) passions and yoga leading to karmic influx, karmic fusion and revised karmic matter.

5.4 DEGREES OF PASSIONS

We may now illustrate the strength of the main passions—anger, pride, deceit and greed, assigning to them five degrees 0, 1, 2, 3, 4. Of course, these imply the proportional density of fusions of karmons, that is, the higher the degree, the larger is the fusion, longer is its time to decay, and stronger is the karmic force.

The degrees of anger, pride, deceit and greed of 0, 1, 2, 3, and 4 can be illustrated through (cf. Stevenson, 1915, p. 124) the following metaphors:

1. *Anger*: In the case of anger, Degree 1 is like a line drawn with a stick on water which almost instantaneously passes away. Degree 2 is like a line drawn on a beach which the tide washes away. Degree 3 is like a ditch dug in a sandy soil which, after one year's weather, silts up. Degree 4, the worst of all, is like a deep crack in a mountain side which will remain until the end of time. Degree zero of anger implies serenity/tolerance.

2. *Pride*: We now illustrate the five degrees of pride. The first one is like a twig which is pliable and easily bent. The second degree is like a young branch of a tree which can be bent by a storm. The third degree is like beams of wood cut from a mature tree which may only be bent by being oiled and heated. Pride in the fourth degree, outdoes any analogy taken from a tree, being as unbending as a piece of granite. Degree zero of pride implies humility.

3. *Deceit*: Deceit can be compared to crookedness. In the first degree it can be straightened as one could straighten a stalk of wheat bent by the wind. In the second degree it is like the edge of a lawn which has been badly cut and requires much work to straighten it. In the third degree it is like a crooked tooth which once allowed to grow unchecked cannot be straightened. The fourth degree is like a knot in a tree. Degree zero indicates straightforwardness.

4. *Greed*: Greed is said to change the colour of the human heart. In the first degree it will stain the heart yellow like a water based paint that can be easily washed off with just water. In the second degree, the heart will be soiled like cooking pans full of fat which can only be cleaned with great labour. In the third degree, the stain is like the mark left by oil on clothing which is only removed after much dry-cleaning. In the fourth degree, it is like a permanent dye which cannot be removed. Degree zero of greed implies complete contentment and charitable attitude.

These degrees can be related to the lengths of the time periods for their effects to last (see Glasenapp, 1942). Degree 4 of a major

passion is of lifelong duration. Degree 3 of a major passion is of one year duration. Degree 2 of a major passion lasts 4 months. Degree 1 of a major passion is the level called smouldering passions and is of a fortnight duration. Degree zero of all major passions implies a higher spiritual state.

We mentioned Four (principal) Passions— Anger, Pride, Deceit and Greed. In fact, these four are also responsible for subsidiary passions or sentiments of nine kinds—namely laughter, pleasure, displeasure, sorrow, fear, disgust and sexual cravings for male/female and hermaphrodite. Worrying is included in “fear” *etc* but more as a part of violence to oneself to be discussed in the next chapter.

5.5 GLOSSARY

1. Activities = Yoga
Volition = Bhāva
2. *Five Karmic Agents*
Perverted Views = Mithyādarśana
Nonrestraint = Avirati
Carelessness = Pramāda
Four Passions (principal) = Kaṣāya
Activities = Yoga
(Subsidiary Passions = No-Kaṣāya)

NOTES

1. P.S. Jaini, p. 112. “The energy quality, “perverted” by this impurity, produces vibrations (yoga), which bring about the influx (āsrava) of different kinds of material karma. The vibrations referred to here actually denote the volitional activities of the individual. Such activities can be manifested through either body, speech, or mind;...”
2. P.S. Jaini, p. 113. “The precise amount (pradeśa) of karma that engulfs the soul after a given activity is said to depend upon the *degree of volition* with which that activity was carried out. The type of activity, moreover, determines the specific nature (prakṛti) assumed by the theretofore undifferentiated karmic matter..... As for the duration (*sthiti*) and result (*anubhava*) of given karmas—how long they will cling to the soul and what precise momentary effect they will eventually have upon it—these are fixed by the degree to which such passions (kaṣāya) as anger and lust coloured the original activity. Once a karma has given its result, it falls away (*nirjarā*) from the soul “like ripe fruit”, returning to the undifferentiated state and thus to the infinite pool of “free” karmic matter;.....”

6

EXTREME ABSORPTION OF KARMONS (AXIOM 4B)

Axiom 4B “Violence to oneself and others results in the formation of the heaviest new karmic matter, whereas helping others towards moksa with positive non-violence results in the lightest new karmic matter”.

6.1 THE AXIOM

FROM THE PREVIOUS chapter we know the agents which make the karmic flow possible. In Chapter 5 we have also mentioned that under positive yoga, the karmons get converted into light karmic matter whereas under negative yoga, the karmons get converted into heavy karmic matter. Conversely, the emission of that light karmic matter leads to good fruits while the fusion of that heavy karmic matter leads to bad fruits, e.g. light karmic matter may provide a better environment for spiritual progress whereas heavy karmic matter may lead to a lower form of life in future cycles.

Now there arises the question of how one gathers the lightest or the heaviest karmic matter. The actions which are responsible for these two extremities of fusion are violence and non-violence respectively (see, Fig.6.1). Here, the word violence is used broadly. One commits violence to oneself or to others through volitional activities of body, mind and speech, or by urging others to commit violence or by approving violence committed by others. Further, the term violence implies any action accompanied by the giving of pain and the heightening of passion. Of course, the term includes killing which is reprehensible not only for the suffering of the victims but more for the highest degree of passions which significantly strengthens the killer's karmic bondage.

From Axiom 1 we are aware of the aspiration of all living beings to remove their karmic matter. Helping them towards this objective with dynamic non-violence rather than self-pity is positive non-violence. The intrinsic property of the soul is to “live and help others to live” (Appendix 3B, q.6.1) i.e. the function of every soul is to gain mutual benefits by interacting with all others for the common good

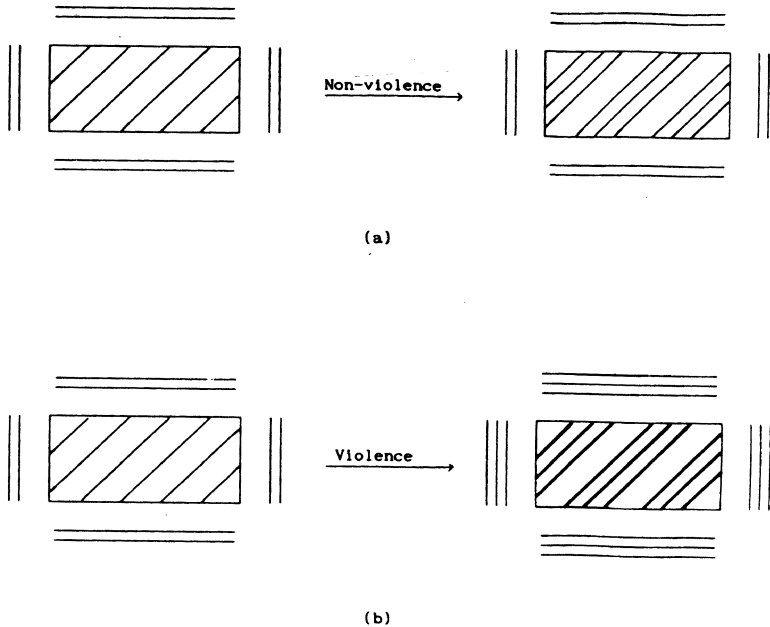


Fig. 6.1 Effect of (a) positive non-violence and (b) violence on the soul.

of spiritual advancement. Thus this Axiom encourages not only the aspirations of a single soul but, simultaneously, of all souls. However, the first responsibility is to oneself (i.e. love thyself), so that one is then capable of showing compassion, appreciation etc. to others. The idea is emphasized in the quotation "You are your own best friend" (Appendix 3B, q.6.2).

6.2 IMPLICATIONS

The idea of this Axiom lies in the belief that all living beings are sensitive to pain and no-one desires death (Appendix 3B, q.6.3.). These remarks even apply to micro-organisms. However, consuming any creature represented on the life-axis (see Ch. 3) necessarily involves killing, so ideally it should be avoided.

For survival one has to consume food and thus we absorb life-units but the aim is to use the minimum possible number of life units. The higher the spiritual growth, the lesser will be the total life units. In general, the consumption of life units of 10^{-3} consisting of vegetable life, is regarded as tolerable. However, note that highly concentrated micro-organisms should be avoided since then the life unit will be above 10^{-3} : this not only excludes honey and wine but also dead flesh

as it is an ideal breeding ground for innumerable micro-organisms¹. It also excludes tissues of certain plants hosting micro-organisms² (figs and tomatoes are taken as its symbolic representation). Of course, onions etc. are avoided since their life units are 10^{-2} . These represent minimizing violence by 'body' only.

The karmic matter which is taken in due to volitional activities affects the individual for a certain period of time only, the length of which depends on the type of action, degree of passion, motive etc. In fact, extreme forms of violence committed under perverted views could have an effect lasting for aeons, whereas if it is influenced by any of the Four Passions then the effect would not be quite so long-lasting. However, the duration of karmic matter in destroying only a one-sense life is very limited. The minimum times to karmic decay under Anger, Pride, Deceit and Greed are conventionally taken as 2 months, 1 month, a fortnight and less than 48 minutes respectively. Presumably an act of non-violence motivated by, say, greed may have this time decay. However, the maximum decay will be further reduced depending upon the weaker strength of the Four Passions. Of course, no karmic matter is absorbed during immobility (no-yoga) and therefore only the remaining karmic matter can be shed.

Implementation of positive non-violence requires full alertness in any action—physical, mental or through speech. Mahavira prefixed various discourses to his chief disciple Gautama (Appendix 3B, q.6.4)

'Never to be careless even for a moment'.

It has four practical components: Amity, Compassion, Appreciation and Equanimity as described in the following quotation (Appendix 3B, q.6.5):—

"To develop a feeling of amity towards all beings, a feeling of appreciation towards the meritorious, a feeling of compassion towards those in misery, and equanimity in instructing those who have lost the true values."

These ideas are expressed in an inspiring poem by Chitrabhanu which is now a well-known prayer.

As an analogy, it is like driving a car (a vehicle with tremendous power) towards one's destination. It is not only how you drive and what route you take, but carefulness plays a key role each second. We will come back to this analogy in Ch. 8.

Figure 6.2 shows various situations in which violence and non-violence are manifested through activities of the body, speech and mind. It should be noted that (a) represents murder whereas (b) represents compassion, (c) represents extreme speech and (d) represents amity. For (e) the individual is thinking of fighting



(a)



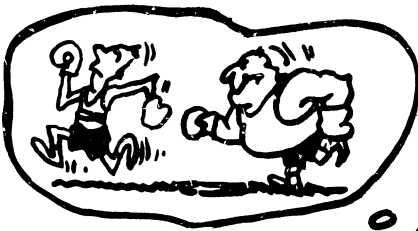
(b)



(c)



(d)



(e)



(f)



Fig. 6.2 Situations illustrating how violence and corresponding positive non-violence occur through body [(a), (b)], speech [(c), (d)] and mind [(e), (f)] respectively.

his enemy and for (f) the individual ponders on how he can help a friend (with an alcohol problem) with equanimity.

6.3 VOLITIONAL ASPECT OF VIOLENCE

As we have mentioned, thoughts as well as deeds, play an important role in forming heavy and light karmic matter. Thus one should exclude any deed involving "premeditated violence". However, such deeds should be contrasted with those which constitute "accidental/occupational violence". Thus the number of karmons assimilated by a surgeon even on the death of his patient under an intricate operation, is much less than that of a murderer. Further, the surgeon accumulates only light karmic matter (unless he is incompetent), whereas the murderer always accumulates the heaviest karmic matter³. An arable farmer kills insects accidentally in the course of his profession but he accrues mildly heavy karmic matter. Nevertheless, the use of insecticides and pesticides constitutes premeditated destruction of life. In general, the concept of non-violence restricts occupations to those which do not involve premeditated destruction of life above 10^{-2} life units. Killing, even when done in the most extreme situation of self-defence—"defensive-violence", accrues heavier karmic matter.

For most individuals such drastic behaviour is rarely needed. However, the aim is to desist from performing or encouraging others in the premeditated or intentional destruction of souls embodied with two or more senses.

6.4 THE JAIN UNIVERSAL TEMPORAL CYCLES

Jains believe that the universe is finite and it contains various worlds supporting life, including human life. Each of these inhabited worlds goes through an endless series of cycles, half-progressive and half-regressive. However, their phases are different so that at every moment there is a living Tirthankara somewhere. These half-cycles are divided into six time-sections. We write m for misery and h for happiness.

For the regressive half cycle the successive time sections are:

- (1) extremely happy, say hhh
- (2) happy, hh
- (3) more happy than unhappy, hhm
- (4) more unhappy than happy, hmm
- (5) unhappy, mm
- (6) extremely unhappy, mmm.

time-sections, is:

(1) (2) (3) (4) (5) (6) (7) (8) (9) (10) (11) (12)
 hhh hh hhm hmm mm mmm mmm mm mmh mhh hh hhh

We denote a full Jain Temporal Cycle by 1 j.t.c. We note the following points.

In Figure 6.3, the time goes around clockwise. The periods in each section are very large. One of the smaller units is *sagarpomas*, 1 *sagarpomas* = 5×10^{-17} j.t.c. In this unit, as we have described before, the duration of various karmic components is measured. The time-sections 5, 6, 7 and 8 are believed to be of 21,000 years each, others are vast but not infinite, and these are therefore represented by broken sector-lines. The time-sections and half cycles follow on from each other in a continuous and smooth manner. At the present time, we are 2400 years into time-section 5 of the regressive half-cycle.

It is believed that only during time-sections (3, 4) or (7, 8) can one possibly be a Tirthankara/perfect being. All the twenty four Tirthankaras of the present half-cycle (regressive) were born during the third (hhm) and fourth (hmm) sections. These combinations of h and m are necessary and sufficient to pursue the course of self-realization. We are now 2,400 years into the fifth time-section of 21,000 years so that it will be a long while before any more Tirthankaras/perfect beings emerge on this earth. However, spiritually higher persons can contact Tirthankara in other worlds as there is always one Tirthankara somewhere in the universe at any instant⁴.

Jambu, one of the third generation of the disciples of Mahavira, is assumed to be the last person in the present time cycle to reach moksa on earth, about 463 B.C. A verse of the scripture Kalpasutra (v. 146) describes when Mahavira instituted the fifth section; Jacobi (1884, p. 269) describes this verse as a 'rather dark passage' for obvious reasons.

6.5. GLOSSARY

1. *Violence* (= *Hiṃsā*)

Non-violence/harmlessness = *Ahiṃsā*

Premeditated violence = *Samkalpajā-hiṃsā*

Accidental/occupational violence = *Ārambhajā-hiṃsā*

Defensive violence = *Virodhi-hiṃsā*

2. *Temporal Cycles* (= *Kāla*)

Progressive half-cycle = *Utsarpiṇī*

Regressive half-cycle = *Avasarpiṇī*

Happy= Suṣamā

Misery/ unhappy= Duṣamā

NOTES

1. P.S. Jaini, p. 169 “....the dead flesh itself is a breeding ground for innumerable nigodas and hence must not be consumed.”
2. P.S. Jaini, p. 168. “Such creatures (nigodas) are said to be especially prevalent in substances where fermentation or sweetness is present; hence the consumption of liquor or honey brings untold millions of these organisms to an untimely and violent end. The tissues of certain plants, especially those of a sweet, fleshy, or seed-filled nature, are also thought to serve as hosts for nigoda; plants of this type are termed sādḥārana, ‘those which share their bodies.’ The avoidance of figs as part of the mūlaguṇa practice seems to represent a symbolic renunciation of all nigoda-ridden vegetable substances;....”
3. P.S. Jaini, p. 171. “A murderer, for example, clearly sets out to end the life of his victim, hence commits saṃkalpajā-hiṃsā. Surgeons, on the other hand, may cause pain or even death during a delicate operation, but are guilty only of the much less serious ārambhajā-hiṃsa”.
4. P.S. Jaini, p. 32 “.....at every moment there is a living Jina somewhere. In other words the path of salvation is open at any time; one need only be born into one of the Videhas in order to have an immediate chance for mokṣa.”

7

THE PATH TO SELF-CONQUEST (AXIOM 4C)

Axiom 4C: "Austerity forms the karmic shield against new karmons as well as setting off the decaying process in the old karmic matter."

7.1 THE AXIOM

FROM AXIOMS 4A and 4B we know how karmons flow in. However, from previous chapters it is clear that the general aim is two-fold, (1) to stop the inflow of new karmons through the karmic shield and (2) to completely emit the old karmic matter. If these objectives can be achieved then one will be left with pure soul with its full power, namely, its infinite energy, absolute bliss, and perfect knowledge and perception as described in Chapter 2.

It is expected that the full power of the soul can only be achieved by removing the effects of the karmic matter revealed in practical terms by the volitional activities of body, mind and speech. As we have seen, these are the external functions which continuously act and react in the karmic field as reactions in a nuclear reactor. Further, there is a sort of personal karmic computer attached which keeps on up-to-date record and manages instructions in real time. The question arises as to how one can remove karmic matter as well as stop further karmic fusion. Rationally, one's slavery to the dictates of one's lower nature should be part of karmic matter since it checks the soul from having its full power. Hence, it is only some form of austerity or restraint that can check the inflow of karmons, i.e. austerity is the only way by which one is able to escape from constraints of one's physical nature and psyche which are under the continuous influence of the karmic field (see, Fig. 7.1). Also, this Axiom advocates austerity as a way of eliminating the five karmic agents of Axiom 4A, viz, perverted views, nonrestraint, carelessness, passions and activities. The process of the gradual elimination of these karmic agents can be presented in "fourteen purification stages" which we describe below.

Austerities should be understood in a wider context. They imply the control of the senses with extreme alertness while keeping positive non-violence in the forefront. That is, "Exert yourself

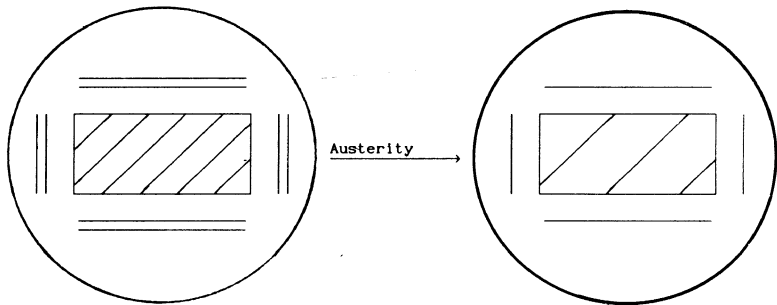


Fig. 7.1. Karmic force shield (circle) and karmic emission (less diagonal lines) through austerity.

according to your capacity” (Appendix 3B, q. 7.1), which means that one should not practise austerities to the extent of harming oneself by trying to go beyond one’s capabilities. It should never be confused with masochism.

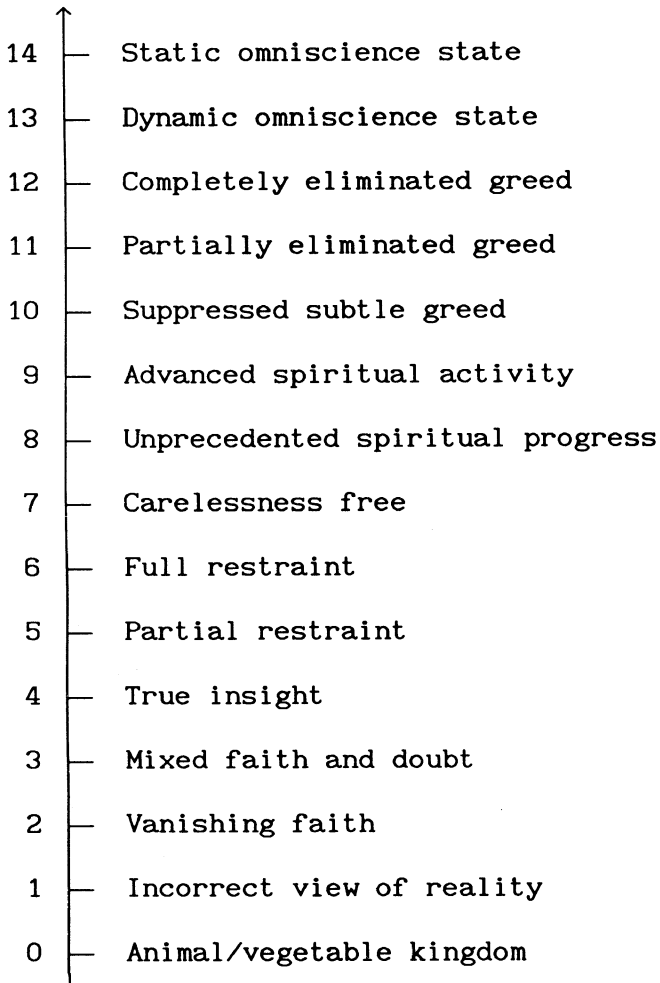
7.2 PURIFICATION AXIS & FOURTEEN PURIFICATION STAGES

We have already introduced the life axis in Chapter 3. Now we come to the upper portion relevant to human beings who are already spiritually higher than other life forms. The purification axis plots the human beings from those with low life units to those with very high life units, i.e. with maximum karmic density to those who have the lowest karmic density. In other words, it is the upper part of the life-axis which has been extended. This is described as the ladder one must climb as one progresses from heavy karmic density to a very low quantity of karmic matter and eventually to liberation.

This ladder has fourteen rungs which are stages of spiritual purification. We will call these the “*fourteen purification stages*”. The higher one is on the ladder, the higher is the degree of purification (*or Jainness*) and the lesser is the karmic matter. Figure 7.2 shows the purification axis with the names of the stages.

The zero stage is for the animal/vegetable kingdom. The first point shown on the axis is the first rung applicable to human beings and it is here that the karmic matter is at its densest for human beings. The karmic matter decreases up the ladder and is zero at the 14th rung. Thus inversely, we could view the purification axis as through the karmic density axis with fourteen important points on it—the karmic density axis being continuous.

To understand the dynamic process of karmic fission, it should be clearly understood that as karmons are shed, there is an increase in the energy of the soul which allows further spiritual growth. It is assumed that future karmic influx will be checked, and there will be a



Purification stage

Fig. 7.2 Purification axis with fourteen stages.

further release of energy and knowledge elements which allows the soul to search for its true nature. Another important point to note is that the effect of the karmic matter is mostly first suppressed rather than altogether eliminated. Furthermore, each stage severely limits karmic fusion and diminishes old karmic matter, and at most of the stages the degrees of Anger, Pride, Deceit and Greed are reduced gradually, with anger being the first to be reduced and so on. The five degrees of the Four Passions have already been described in Chapter 5. However, the overall aim is to eradicate all the five important agents of karmic fusion given in Axiom 4A.

7.3 FIRST FOUR STAGES

The first four stages in Fig. 7.2 are Incorrect View (of reality), Vanishing Faith, Mixed Faith and Doubt, and True-Insight respectively.

7.3.1 *Definition of stages and internal motion*

The first rung of the ladder corresponds to humans with an "Incorrect View of Reality". In the beginning every soul is in this stage of complete ignorance, i.e., it has the Four Passions at the maximum level. However, in view of Axiom 1, every soul strives to release its four elements from karmic matter. This process can be triggered off by either internal experience such as remembering past lives or external experiences such as hearing the Jain teachings¹. This event is followed in a flash by passing through stages 2 and 3 (defined below) to stage 4 which corresponds to "True Insight". This experience is the complete revelation of the true nature of life and the reality of the soul.

This first experience of True Insight lasts only for a few moments and it comes from jamming the insight-deluding karmic component rather than from its elimination. The jammed component will be quickly unjammed and will assert its influence again. Hence the soul will revert to its extreme perverted stage with all five karmic agents—Perverted Views, Nonrestraint, Carelessness, Passions and Activities—operating with full force. However during this fall, the soul goes through the third purification stage for a short time where the gross passions remain suppressed but there is no longer True Insight; this stage is described as the stage of "Mixed Faith and Doubt". Below this is stage 2, the "Vanishing Faith" stage, in which the fourth degree of passions reassert themselves and instantaneously drop the soul down to stage 1 again. In the first transition to the fourth stage, the insight deluding component is suppressed only, but in subsequent (guaranteed) transitions, of longer durations, there is also partial elimination of this component. After a number of such transitions involving partial elimination-cum-suppression, the soul gets firmly established in the fourth stage to proceed to the fifth stage and beyond as it is described below. Table 7.1 is a summary of these stages.

7.3.2 *Description of the fourth stage and visible signs*

At the fourth stage Perverted Views are removed and equanimity is attained. It is this increase in purity which allows the flash of T

Table 7.1. *List of the first four purification stages and the corresponding status*

Stage	Name	Status
1.	Incorrect View of Reality	Perverted state
2.	Vanishing Faith	
3.	Mixed Faith and Doubt	
4.	True Insight	
		First step to purification

Insight to take place. The removal of the 4th degree of the Four Passions leads to increased energy and knowledge elements of the soul, which makes the soul search for true knowledge more vigorously than before. Also it places significantly less emphasis on the manifestation of karmic matter including on one's own body, psychological states seen through the Four Passions and one's personal possession to which it had formerly identified itself². Thus, a pure and serene state is attained.

Attitude & Inner-self.

By now, one's serene state encourages an attitude which wishes to address the question "Who am I?" This attitude exerts the perception element of the soul even further and, through a surge of the energy element not before experienced, further removal of karmic matter takes place. Permanent attainment of True Insight is now possible. One becomes aware of the truth of the first three axioms. An aim to remove the effect of karmic forces is thus created and this desire leads to a further release of the energy element. All obstructions to insight are thereby prevented from exerting any influence and at that moment the soul experiences a permanent view of reality.

The internal sign of "True Insight" due to the Four Passions being limited to the third degree is self-transformation. The attention of the soul is deliberately reorientated, coming to focus upon nothing but its own true nature. Thus identification with the true inner-self, as opposed to 'I', is achieved, and the bliss element is now deeply experienced.

Behaviour and Positive Non-Violence³

Being at peace with oneself leads to sublime and relaxed behaviour. One is aware of the fundamental similarities of all living beings and this feeling of togetherness generates amity towards all and great compassion for the less fortunate. This *compassion* is free from pity and free from any personal ties with a particular being. Due to this realisation the soul recognises that all creatures are potential

candidates for liberation. There is an unselfish longing to help other souls towards liberation with equanimity. Positive non-violence causes the evils of exploitative and destructive behaviour to be recognised. This aspect of positive non-violence is the practical application of Axiom 4B.

Effects on the Four Passions

In order to reach the fourth stage, austerities are not mentioned explicitly anywhere, but implicitly it is assumed that they are required since, to be in the fourth purification stage, one has to have all the degrees of the Four Passions down to level three which cannot be achieved without restraint. In any case, non-violence cannot occur without self-restraint.

The first awakening removes some of the karmons leading to a moderate degree of self-control/ restraint, i.e. one does not get into a fit of anger, intriguing deceit, blinding pride, devouring greed etc. Further, on the perfection of the fourth purification stage, there will be evidence of more tolerance and less anger, more humility and less pride, more straightforwardness and less deceit, more contentment and less greed.

7.4 STAGE FIVE TO STAGE ELEVEN

As already seen in §7.3, when perverted views are replaced by True Insight one rises to the fourth stage. At the fifth stage one starts working to achieve even greater restraint; that is, one follows various vows that lead to partial restraint. At the sixth stage, full restraint is accomplished.

The fifth stage is equivalent to the way of life of the ordinary layman whereas the sixth stage corresponds to following the path of a monk. At stage six, i.e. at the state of full restraint, full discipline and higher vows are achieved. How these various stages are achieved is described in Chapter 8.

At stage seven, one removes Carelessness to zero, implying also that anger goes to zero and therefore this stage is called the Carelessness-free stage. However, some remnants of the Four Passions still persist. At stages eighth, nine and ten one tries through meditation to decrease the degree of Pride, Deceit and Greed to the zeroth degree respectively. The eighth, ninth and tenth stages of meditational attainment are: Unprecedented Spiritual Progress, Advanced Spiritual Activity and Suppressed Subtle Greed respectively. Table 7.2 summarises the details of these stages.

When in these states, if the Four Passions are suppressed rather than eliminated, then one will only be able to reach the eleventh stage

Table 7.2. *List of the fifth to eleventh purification stages and the corresponding status.*

Stage	Name	Status
5.	Partial Restraint	True Jain Layman
6.	Full Restraint	Monk
7.	Carelessness Free	Spiritual Teacher
8.	Unprecedented Spiritual Progress	Spiritual Masters
9.	Advanced Spiritual Activity	Advanced Masters
10.	Suppressed Subtle Greed	
11.	Partially Eliminated Greed	Passionless State

called the Partially-Eliminated-Greed State from which one will be forced to move downwards. However, if the Four Passions and their effects are fully eliminated during the trances, so that the degree of greed becomes permanently zero, then one will jump straight from the tenth stage to the twelfth stage—the “Completely Eliminated Greed” state.

7.5 LEVELS TWELVE TO FOURTEEN

On the instant of attaining the twelfth stage, three remaining primary karmic components (other than Deluding Karmic Component) are automatically eliminated, leading to the attainment of the thirteenth stage which is the state of omniscience and will be called the “Dynamic Omniscience State”. At this stage only yoga governs the remaining activities which are necessary for the physical body to still function. These activities do not, however, lead to new karmons. Also, secondary karmic components of the omniscient being gradually fall off until eventually none of them remain. In the final moments, the body is in a state of total immobility—this state is the “Static Omniscience” stage and is the fourteenth stage⁴. This state lasts only for the instant prior to moksa. The moment death occurs, the soul, completely and forever freed from the cycle of rebirth, attains moksa. Table 7.3 summarises these details for these higher stages.

Table 7.3. *List of the final three purification stages and the their status.*

Stage	Name	Status
12.	Completely Eliminated Greed	
13.	Dynamic Omniscience state	Tirthankara
14.	Static Omniscience state	Towards Moksa

Note that stage four is the attainment of “True Insight”; stage five is attainment of the household state of lower vows; stage six is the attainment of a saintly level of higher vows; stage seven is very much like the state of a spiritual teacher; stages eight to ten are those of spiritual masters; stages twelve and thirteen are stages of Tirthankara/Dynamic Omniscience. The fourteenth stage is the state of omniscience at the instant prior to moksa. These stages can be approximately correlated with different personality profiles. Stage 1 is marked by primitive personality, stage 2 represents regression to primitive personality from higher stages, and stage 3 relates to confused personality. Stage 4, 5, 6 can be ascribed to solid, refined and sublime personalities respectively. In stage 7, the sublime personality also has the hall-mark of extreme alertness. All higher stages denote various levels of transcendental personalities.

7.6 SCHEMATIC REPRESENTATIONS OF THE LEVELS AND TRANSITIONS

It will be useful to express these ideas quantitatively. Recall from Chapter 5, that we have the five degrees 0, 1, 2, 3, 4 for each of the Four Passions. The following question arises—how can one assign the degrees to the other karmic agents? Remembering from Chapter 6 that violence through Perverted Views can last for $3\frac{1}{2}$ j.u.c. (Jain universal cycle) in relation to 2 j.u.c. for any of the Four Passions. Thus, we give a nominal scale of 0 to 7 to the characteristic Perverted Views. Taking this point further, we can assign a maximum score of 4 to Nonrestraint, 4 to Carelessness, 4 to Subsidiary Passions and 1 to Activities. Thus at stage I, we have a total karmic density of 36 units. Working in this way for each stage, we can assign karmic densities which are presented in Table 7.4 together with some comments. However, these scores and scales are very arbitrary, and their function is only to give some insight into the gradual progression.

Figure 7.3 gives a schematic representation of Table 7.4 at a finer scale. Along the x-axis are the Karmic Agents, and along the y-axis is the level of spiritual purification. The karmic density should be looked at in a negative way, that is as the purity increases the karmic density decreases, i.e. the effect of the Four Passions becomes less. The karmic density has been represented by the z-axis parallel to the y-axis. By stage six, restraint has been fully accomplished and the total of the degrees of Anger, Pride, Deceit and Greed has dropped to eight. Following the lines from B to B' and C to C' we find that the values for Carelessness and Anger have become zero, although some degrees of the other three principal passions still remain.

Table 7.4. *The karmic density of karmic agents at different stages*

KEY Perverted Views = PV, Non-restraint = Nr, Carelessness = C, Anger = A, Pride = P, Deceit = D, Subsidiary Passions = SP, Greed = G and Activities = Ac. Total karmic density is the sum of the densities for PV, Nr, , G and Ac.

Stage	PV	Nr	C	Passions					Ac	Total Karmic Density	Comments
				A	P	D	SP	G			
1.	7	4	4	4	4	4	4	4	1	36	
2.	5	4	4	4	4	4	4	4	1	34	
3.	3	4	4	4	4	4	4	4	1	32	
4.	0	4	4	3	3	3	3	3	1	24	Correct View achieved
5.		2	4	2	2	2	2	2	1	17	
6.		0	2	1	1	1	1	1	1	8	Full Restraint achieved
7.			0	0	1	1	1	1	1	5	Watchfulness achieved, A=0
8.					0	1	1	1	1	4	Pride zero
9.						0	1	1	1	3	Deceit zero
10.							0	0.5	1	1.5	Subsidiary Passions removed
11.								0.1	1	1.1	Very low Greed
12.								0	1	1.0	Passions removed
13.									0.1	0.1	Knowledge perfected
14.									0.01	0.01	Activities stopping

In Fig.7.3, it is worthwhile to note that there are separate boundaries for each of the agents, since there is no continuity, say, between perverted views and passions or even with the Four Passions and nine Subsidiary Passions. The dissolution of every activity of the karmic agents starts as soon as the boundary line begins to become 'inclined', that is, with the emergence of triangular shapes. Thus point 0 represents the beginning of the removal of Perverted Views, but A becomes the point of the correct views of Table 7.4. The Nonrestraint begins to be removed at point B, and by the time one reaches point B', there is Full Restraint or Discipline. Similarly, point C' is the point of Carefulness which is achieved at stage seven. D is the point of No Anger, that is, tranquility. E is the point of No Pride, that is, humility. F is the point of No Deceit, that is, straightforwardness/simplicity; G is the point of No Subsidiary Passions. H is the point of No Greed, that is contentment; and K is the point just prior to moksa. It is to be observed that at the point K', that is, at stage thirteen, cessation of activity starts.

From Fig.7.3, we can assess the karmic density to a finer value. For the first stage, we have $y = 1$ and from Table 7.4, the karmic density due to the Perverted Views (PV), Nonrestraint (Nr), . . . , Greed (G)

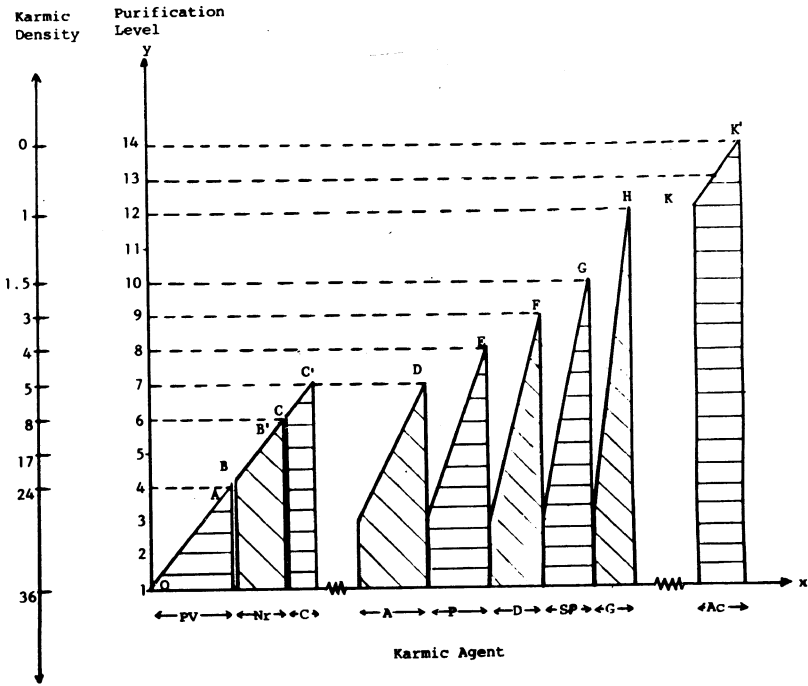


Fig. 7.3 Reduction in the karmic density and increase in the purification level; Perverst Views (=PV), Non-restraint (=Nr), Carelessness (=C), Anger (=A), Pride (=P), Deceit (=D), Greed (=G), Subsidiary Passions (=SP) and Activities (=Ac). The intercept of the line $y = \text{Constant}$, with the shaded figures represents the corresponding karmic density of the agents, when the base lengths at $y = 1$ are 7, 4, 4, ..., 4, and 1 for PV, Nr, A, ..., G and Ac, respectively.

and Activities (Ac) are 7, 4, ..., ..., 4 and 1 units respectively. To find the karmic density at stage 5, we note that the line $y = 5$ does not intercept the triangle for PV so that the karmic density for PV is zero whereas at BB', the intercept at the trapezium is $\frac{1}{2}$ the 'base' length of 4 so that the karmic density for Nr is 2. These are as in Table 7.4, but for G the intercept is not the half-length of the base of the corresponding trapezium as required in Table 7.4, but has karmic density slightly more than 2. Thus it is a continuous version of the 'step function' in Table 7.4.

Note that the life units $10, 10^2, 10^3, 10^5, 10^{10}, 10^{100}$ of Chapter 3 correspond roughly to these karmic density units of 36, 24, 8, 5, 3, and 0.01 respectively.

7.7 TRANSITIONS BETWEEN STAGES

We have indicated how the transfer takes place from one stage to another. Figure 7.3 shows the various transitions. The first part is the spiritual axis. From stage 1, we go into stage 3 then 4 and then either progress to stage 5 or fall back to stage 2, as indicated in Fig. 7.4. Again from stage 5, either we proceed to stage 6 or we go down to stage 4 or 2. From 6 we proceed to 7 or again we fall down to 5 or 4. From 7 we proceed to 8 or, as at 6, we go down. From 8 one can proceed to 9 or again we can go down. From 9, transition to 10 is possible. One can jump straight from 10 to 12. Stage 11 is very slippery and one can go downward anywhere, usually to 6 or 7. Once one has reached stage 12, then there is no fall and one progresses to stages 13 and 14. Appendix 4 gives a modified game of snakes and ladders to illustrate the most significant transitions.

7.8 GLOSSARY

Fourteen purification stages (= Guṇasthānas)

Stage

1. Incorrect View (of reality) = Mithyādr̥ṣṭi
2. Vanishing Faith = Sāsvādāna
3. Mixed Faith and Doubt = Mishra
4. True Insight = Samyak-dr̥ṣṭi
5. Partial Restraint = Deśa-virata
6. Full Restraint = Sarva-virata
7. Carelessness Free = Apramatta-virata
8. Unprecedented Spiritual Progress = Apūrva-karaṇa
9. Advanced Spiritual Activity = Anivṛtti-karaṇa
10. Suppressed Subtle Greed = Sukṣma-moha
11. Partially Eliminated Greed = Upasanta-moha
12. Completely Eliminated Greed = Kṣjṇa-moha
13. Dynamic Omniscience State = Sayoga-kevalin
14. Static Omniscience State = Ayoga-kevalin

NOTES

1. P.S. Jaini, pp. 140-1. "... thanks to the fluctuations in the ongoing interaction of vīrya and karma, certain experiences (especially an encounter with a Jina or his image, hearing the Jaina teachings, or remembering past lives) *may* bring the bhavyatva out of its dormant state and thus initiate the process that leads eventually to mokṣa."

2. P.S. Jaini, p. 147. "Previously he has identified his being in external signs of life—the body, states, possessions; thus he has been in the state known as *bahirātman*, seeing the self in externals dominated by the consciousness which is aware only of the results of karma (*karma-phala-cetanā*). This orientation depends on the false notion that one can be the agent (*kartā*) of change in other beings;"
3. P.S. Jaini, p. 150. "This awareness of the basic worth of all beings, and of one's kinship with them, generates a feeling of great compassion (*anukampā*) for others. Whereas the compassion felt by an ordinary man is tinged with pity or with attachment to its object, *anukampā* is free of such negative aspects; it develops purely from wisdom, from seeing the substance (*dravya*) that underlies visible modes, and it fills the individual with an unselfish desire to help other souls towards mokṣa."
4. P.S. Jaini, p. 159. "In the last few moments of embodiment, even yoga is brought to cessation; this state of utter immobility is called omniscience without activities (*ayoga-kevalin*), the fourteenth *guṇasthāna*. At the instant of death (*nirvāṇa*), itself, the soul is freed forever from the last vestige of sāmśāric influence;"

8

THE PURIFICATION PRESCRIPTION

8.1. INTRODUCTION

IN THE LAST CHAPTER, we described austerities as the antidote to the five karmic agents, Perverted Views, Nonrestraint, Carelessness, Passions and Activities. In fact, the term austerities (according to Umasvati, see Appendix 3A, q.8.1) implies the development of

Restraint, Watchfulness, Righteousness, Reflection, Affliction-Mastery and Right Conduct.

Thus, there are 6 antidotes to the 5 karmic agents responsible for the stoppage of karmic influx and dissociation of karmic matter. However, all these 6 antidotes can be regarded as austerities by Axiom 4C.

We now describe in detail these 6 antidotes in relation to the fourteen purification stages. The above antidotes become effective at the sixth stage once the basic foundation is laid down. The important point to bear in mind is that the prescription consists mainly of purifying the body through fasting, limiting speech through silence, and stilling the mind through meditation.

8.2 EIGHT QUALITIES OF THE TRUE-INSIGHT

Once the fourth stage of 'True Insight' is attained, there are eight Qualities of True Insight that arise before one can rise to a higher stage on the purification axis. Four of these Qualities are of a negative nature. These are (1) Freedom from Doubts—regarding Jain teaching, (2) Freedom from Anticipation regarding speculation about the future, (3) Freedom from Disgust—arising from making a distinction between a pair of opposites, and (4) Freedom from False Notions—regarding gods, gurus and religious practices. The other four Qualities are of a positive nature. These are (5) Safeguarding—the Jain faith from public criticism, by dealing with the failings of a fellow Jain through discreet instruction, (6) Promoting Stability—by making others more certain of their religious conviction when they are sceptical, (7) Illumination—by positive actions which promote the Jain religion. The last Quality is (8) Disinterested Love which

involves a selfless devotion to the ideal of mokṣa and thus great devotion to the monks pursuing this goal.

8.3. FIFTH STAGE FOR JAIN LAYMEN

Stage 5 involves the following eleven sub-stages of renunciation by laymen. This sub-ladder is shown in Figure 8.1. The most important stage is the taking of the Lower Vows prescribed for a layman. Of

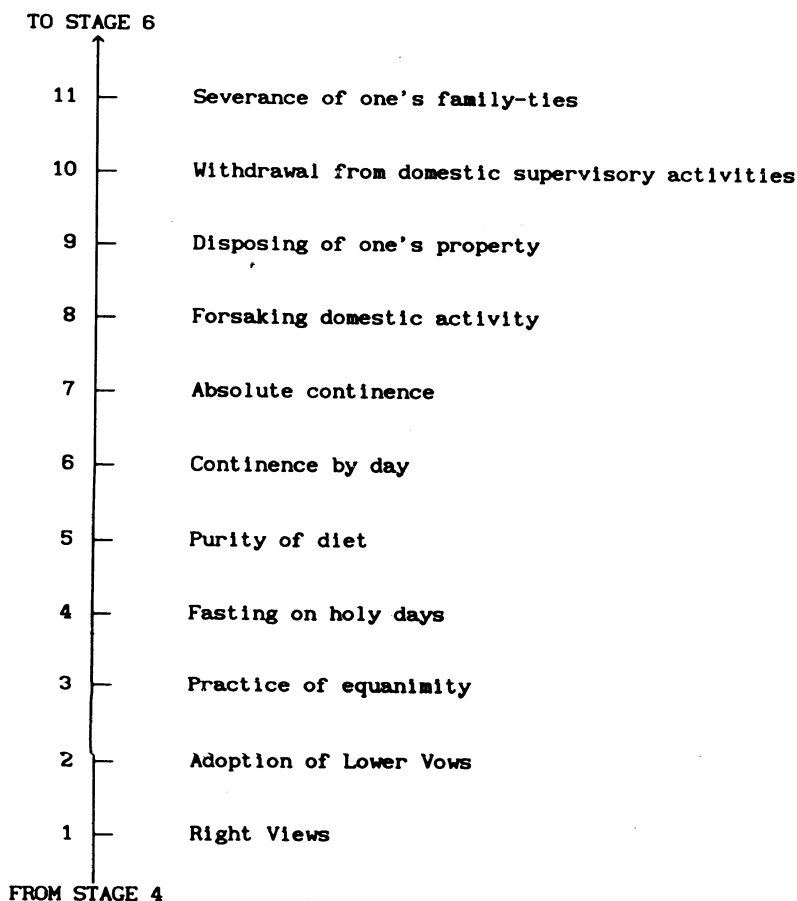


Fig. 8.1 The eleven sub-stages of renunciation for a layman associated with the fifth stage of purification.

these, the five Lower Vows are the most important. These are (a) avoiding injuring beings having two or more senses, (b) being truthful, (c) refraining from stealing, (d) not having sexual activities outside marriage, and (e) limiting one's possessions. Some additional vows help to strengthen and complement these lower vows. For details, see P.S. Jaini (1979. p. 187) and Williams (1963).

This last of the eleven sub-stages culminates in preparation for the next stage, that of the monk.

8.4 STAGE SIX AND MONKS

Stage 6 involves following Higher Vows which involve tougher austerities. These are extensions and additions to the Lower Vows (a)—(e) above and, in particular, include total renunciation of one's possessions, and ending domestic life altogether.

The overall aim is to minimize the extent and the frequency of activities which would lead to additional karmic matter being taken in through the arousal of new passions. We now describe in detail the practices required of a monk. These are meant to prepare an aspirant for the advanced meditational states through which karmic matter is finally eliminated from the soul, so that moksa is achieved.

1. *Restraint*: There are three restraints which imply progressively curbing the activities of the body, mind and speech, i.e. aiming for single mindedness and avoiding what is not necessary.

2. *Watchfulness*: There are five types of Watchfulness involving positive caution in one's activities. These are (1) taking care when walking to avoid killing or hurting small creatures, (2) attempting to speak truthfully and as little as possible, (3) accepting alms in such a way that there is no feeling of self-gratification, (4) care in picking up and putting down objects so that no form of life is disturbed or crushed, and (5) care in performing the excretory functions so as not to disturb living things.

3. *Righteousness*: One cultivates ten rules of righteousness to reinforce these practices. These are perfection in forbearance, modesty, uprightness, truthfulness, purity, restraint, austerity (related to intense meditation), renunciation, detachment and continence.

4. *Reflections*: The twelve mental reflections engaged upon are given below.

The traditional approach makes them rather negative but Chitrabhanu (1981) has stated them in a more positive manner. Here, we integrate the two approaches. The twelve reflections are as follows.

- (1) Impermanence. There is impermanence of everything surrounding one but there is unchanging soul beneath the changing body.
- (2) Helplessness. We are helpless in the face of death but the inner invisible force always lives.
- (3) Cycle of Rebirth. Liberation from the cycle of rebirth is possible.
- (4) Aloneness. There is the absolute solitude of each individual as he goes through this cycle and therefore one should achieve dependence only on oneself.
- (5) Beyond Body. The soul and body are separate and we are more than just corporeal. We must seek the true meaning of life through the existence of the soul.
- (6) Impurity. How even the most physically attractive body contains impurity.
- (7) Karmic Fusion. How karmic influx happens and how to stand apart and watch the inflow.
- (8) Karmic Shield. How such influx may be stopped and how to close the window when the storm, in the form of the Four Passions, is about to come.
- (9) Total Karmic Decay. How karmic matter within the soul may be shed so that the soul may be cleaned to move towards permanent reality.
- (10) Universe. The universe is eternal and uncreated, hence each person is responsible for his own salvation—for there is no God to intervene.
- (11) Rarity of True Insight. True insight is rarely attained and human embodiment bestows the rare privilege and opportunity to attain moksa.
- (12) Truth of Jain Path. The truth of the teachings of the Tirthankaras which leads to the goal of eternal peace through understanding one's own true nature.

5. Afflictions' Mastery: Mastery over afflictions consists of over twenty typical hardships which should be meditated upon; examples are hunger, thirst, cold, heat, insect bites and ridicule.

Table 8.1 gives a summary of various practices under different purification stages.

Note that the Three Restraints, the Five Watchfulnesses, the Ten Righteousnesses, etc are only guidelines for laymen to give insight into possible procedures and they are not in general habitually carried out and even when they are, not always to perfection. The layman may carry out some of these (such as fasting on special days). However, the monk is expected at all times to follow these guidelines

Table 8.1. *Purification stages and the corresponding practices.*

Purification Stage	Practices
1-4	Question: "Who am I?" Answer: "Belief in Axioms 1-3, 4A, 4B, 4C." (Practice Qualities (8) of True-Insight)
5	Layman's eleven renunciation sub-stages (see Fig. 8.1)
6	Restraints (3), Watchfulness (5), Righteousness (10), Reflections (12), Afflictions' Mastery (20).
7	Virtuous meditation.
8-10	First two pure trances.
12-14	Last two pure trances.

to near perfection. For instance, the diet of the monk is much more restricted than that of the layman.

8.5 THE HIGHER STAGES AND MEDITATION

To move on to higher stages, one uses advanced meditation comprised of 'Virtuous Meditation' and 'Pure Trances'. These are part of the specific austerities under the Ten Righteousnesses, described in § 8.4. Virtuous Meditation entails deep contemplation¹ for up to 48 minutes on:—

- (i) the Jain teachings on nine reals,
- (ii) the means by which to assist others,
- (iii) karmic decay/emission, and
- (iv) the structure of the universe.

(It is believed that on average one can maintain deep concentration for about 48 minutes). During such periods, Carelessness is suppressed and the meditator temporarily attains the seventh stage. As he enters and leaves the contemplation periods, the meditator will be alternating between the sixth and seventh stages.

These contemplations, free from Carelessness, are considered to be preparatory to moksa but do not themselves lead to the defeat of the subtle passions. Only with the attainment of the eighth stage, "Unprecedented Spiritual Progress", can one be sure of reaching the highest step leading in the end to moksa. This can occur only through Pure Trances, of which there are four types:—

- (i) Pure Concentration on nature and multimodal aspects of the six existents,
- (ii) Pure Concentration on a unimodal aspect of an existent,
- (iii) the transcendental state of subtle movement, and

(iv) the transcendental state of absolute immobility.

The first two Pure Trances operate in the eighth, ninth and tenth stages, during which both the subsidiary passions and very subtle passions are progressively suppressed or eliminated (see § 7.4). Eventually the soul will gain sufficient energy to mount the ladder and so eliminate rather than suppress passion at each stage. Thus, the eleventh stage will be skipped and the soul will enter the twelfth stage. The purification of the soul is now at its highest which *instantaneously moves to the thirteenth stage*, of “Dynamic Omniscience State”.

Just a few moments before death, the last two Pure Trances are employed in succession and this sets the irreversible process of reaching the fourteenth stage. As mentioned in § 7.5, this stage lasts for only an instant before physical death. Through the third Pure Trance, one completely stops the activities of the body, mind and speech except for the regulatory processes of breathing, heart-beat etc. Through the fourth Pure Trance, even the regulatory processes are stopped, and the soul attains moksa.

For further details on Jain-Yoga, we recommend Tatia (1986).

8.6 THE THREE JEWELS

Our axioms can be summarised into the following single verse of Umasvati,

“Right Faith, Right Knowledge and Right Conduct constitute the path to moksa”

(Appendix 3B, q.8.2). Right Faith, Right Knowledge and Right Conduct are called the Three Jewels of the Jain path and these are attained sequentially; the Right Faith is the first to be achieved—this occurs at stage 4—then Right Conduct is achieved at stage 8 and Right Knowledge at stage 13. Figure 8.2 represents the traditional symbolic way of summarising these ideas, (used normally in worship). They are usually depicted with the swastika beneath it to indicate the four directions of the mental states/four states of existence which have been given in Figure 3.2. Of course, as described in § 7.2, “Right Faith (= True Insight) consists of belief in the soul, karmic matter and the other seven Reals, the Right Knowledge is their comprehension and Right Conduct is austerity” (Appendix 3B, q.8.3).

Right Knowledge also emphasises non-absolutism achieved through conditional predication, by thinking in relative terms through pluralism, scientific reasoning though the Jain syllogism, etc

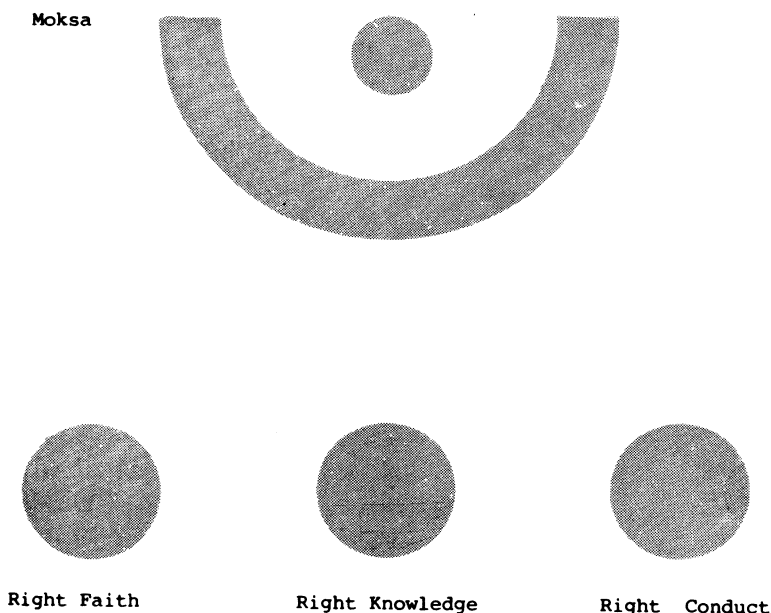


Fig. 8.2 The three 'jewels' of Jainism and moksa (swastika of Fig. 3.3 is depicted below these three jewels).

(see Chapter 9). It is said that the order of development is "first knowledge, then compassion" (Appendix 3B, q.8.4). Right Conduct is austerity, already described in detail, but in fact blind austerities cannot take one very far. To quote, "if a man without Right Knowledge were to live on only a blade of grass once every month, he would not be entitled to even a sixteenth part of merit" (Appendix 3B, q.8.5).

Note that, in practice, the effects of different levels of the Four Passions on an individual are as follows. With degree 4 of the Four Passions, neither one's faith nor conduct can be correct. With degree 3, one's faith is right but the renunciation of wrongful conduct is hindered. Degree 2 hinders complete self-discipline although Right Faith and partial self-discipline are achieved. Degree 1 allows complete self-discipline but there is some apathy in meditation and subtle attachment to the body. Degree 0 means that total self-discipline has been achieved.

Further, the karmic components are removed as follows. (We use the notation of § 5.4). The karmic component (a_1) is removed at the fourth stage and (a_2) at the twelfth stage. The other three main components (b), (c) and (d) are removed at the thirteenth stage. All

four secondary karmic components are removed simultaneously at the time of death in the fourteenth stage. It is worthwhile to note that in terms of Figure 5.4, one starts by purifying the outer rectangles, leaving them blank and working towards the centre. When one has removed all the karmic matter, Figure 5.4 is transformed to a single blank expanse with no boundaries, indicating pure soul.

One of the traditional analogies with the spiritual progress is the making of clarified butter (ghee) from milk. Table 8.2 shows the parallel, stage by stage. These stages are approximately identical to the order of the purification stages, as shown in the last column.

Table 8.2 *Analogy of purification stages with the stages in the production of clarified butter (ghee).*

Ghee Stages	Parallel	Purification Stage
1. From milk to make ghee ↓	Realize existence of pure soul as Right Faith ↓	4
2. Heat milk ↓	Do fasting (austerity) ↓	5
3. Cool milk ↓	Cool mind (initial meditation) ↓	6
4. Add culture ↓	Add Right Knowledge. ↓	6
5. Keep still for 6 hours ↓	Take vow of silence (Right Conduct). ↓	6
6. Churn it to get butter ↓	Advanced meditation. ↓	7-11
7. Then put it on the fire again to produce ghee	Fire= Advanced trances Ghee= Pure soul	12

8.7 ANALOGY OF THE SPIRITUAL PROGRESS WITH DRIVING A CAR

The spiritual progress of the individual through the fourteen stages can be illustrated by the process of learning to drive a car and then becoming increasingly skilled (Mardia, 1981). Note that the British test standard does not require perfection and that further improvement should take place after the test is passed. However, in life the individual is a “learner” until moksa is reached.

Stages 1 to 4 are equivalent to gaining a correct understanding of the use of the car—not that it is a vehicle to admire but a useful machine which must be driven in such a way that both oneself and



Fig. 8.3 The Four Passions in a driver.

others are not placed at risk. A person who believes, and can put into practice, this concept should be able to pass the British test. However, subsequent improvement may take place in order to become an advanced motorist, rather like the path of the monk.

Stages 5 and 6 involve the attainment of full restraint, that is, although in control of the car, one must nevertheless avoid accelerating quickly, braking hard, or flashing lights/hooting unnecessarily. Figure 8.3. shows the manifestation of the Four Passions in a driver. The Three Restraints mean a progressive curbing of the activities of the body, mind and speech so that one acts instinctively, without conscious thought. Stage 7 is the achievement of Watchfulness, i.e. using mirrors, indicators, lights, etc when necessary so that no other user is made anxious by one's bad driving, even though an accident would have been unlikely. Also, one is alert at every moment so that enough time is allowed to take corrective action on the bad driving of others, etc. Stages 8 to 12 involve the reduction and elimination of passions in driving. These are the most difficult faults to remove and involve feelings such as impatience in a long traffic jam, and uneasiness when being repeatedly overtaken, even though driving at just below the maximum legal speed. These passions may smoulder and only arise occasionally, since they are usually kept in check. At stage 13, one has reached the position of causing the minimum possible danger on the road. Stage 14 is the beginning of the cessation of activity which means that one sees that doing without a car altogether eliminates this contribution to danger. Note that none of these activities takes place whilst the car is stationary with the engine not running, i.e. there is no yoga. It should be remembered that this is a less than perfect analogy.

We can also illustrate the use of the Five Watchfulnesses through this same analogy. The first Watchfulness is rather like driving so as not to hit birds, rabbits, etc on the road. The second is similar to reducing conversation in the car to decrease distractions. The third can be likened to not drinking and driving, thereby retaining full concentration. The fourth is like looking around the car before starting and choosing a parking space carefully so that no child or animal is hit. The last Watchfulness is the avoidance of running the car engine in a confined space where people may be affected by the exhaust fumes.

8.8. GLOSSARY

1. *Eight qualities of the True Insight* (/ Aṣṭāṅga)
Freedom from doubt = Niḥśaṁkita

- Freedom from anticipation= Nihkāmṣita
 Freedom from disgust= Nirvicikitsā
 Freedom from false notions= Amūḍhadṛṣṭi
 Safeguarding= Upagūhana
 Promoting stability= Sthitikaṇa
 Illumination= Prabhāvanā
 Disinterested love= Vātsalya
2. *Five Lower Vows (= Aṇuvrata) of Jain Layman (= Śrāvaka)*
 Non-violence= Ahimsā
 Truthfulness= Satya
 No-stealing= Asteya
 No sexual deviations= Anu Brahmavrata
 Non-possession= Aparigraha
 (Renunciation stages= Pratimā)
3. *Antidotes to Karmic Forces*
 Restraint Gupti [three:—mana (mind), vachan (speech) and kāyā (body)]
 Watchfulness= Samiti
 Righteousness= Dharma,
 Ten-fold Righteousness= Daśa-Dharma
 Reflections= Anuprekṣa: [Anitya, 'Asarana, Mokṣa, Ekatva, Anyatva, Asucya, Āsrava, Samvara, Nirjarā, Loka-ākāśa, Bodhi-durlabha, Dharma-svākhyātatva]
 Afflictions mastery= Parisahajaya
 Right Conduct= Samayak-cāritra
4. *Meditation= Dhyānas*
 (1) Virtuous Meditation= Dharmadhyānas
 (2) Pure Trance= Śukladhyānās
5. *Three Jewels (= tri-ratana)*
 Right Faith= Samyak-darśana
 Right Knowledge= Samyak-jñāna
 Right Conduct= Samyak-cāritra

NOTES

1. P.S. Jaini, pp. 252-3. "Dharmadhyāna entails the intense contemplation, for a short period (up to forty-eight minutes), of one of several objects: (1) the teachings of the Jina on the nine tattvas and how these teachings can best be communicated to others (*ājjñāvicaya*); (2) the great misery suffered by other beings (whose minds are impelled by passions and blinded by ignorance) and the means by which these beings can be saved (*apāyavicaya*); (3) the mysterious mechanisms of karmic influx, binding, duration, and outcome and the fact that the soul is fundamentally independent of these processes and thus able to disengage itself therefrom (*vipākavicaya*); (4) the structure of the universe and the interplay of causes that brings souls to their particular destinies (*saṃsthānavicaya*)."

9

JAIN LOGIC

9.1 INTRODUCTION

THE JAIN BELIEF is that the purer the soul, the higher is its knowledge, perception, bliss and energy. Only omniscience can perceive the entire truth of reality or the nine reals. However, we are left with the other four types of knowledge, namely through mind and senses, scriptures (the highest authority in the field!), clairvoyance and mind-reading. As in science, one either accepts the assertions as theories established by the authorities in the field (which we mostly do), or one verifies every assertion for oneself (which we are rarely able to do). However, there should be some plausible principles which one can adopt for any enquiry undertaken. Further, there is always room for some improvement. We give details of a few main principles of Jain logic which allow conclusions to be drawn when the types of questions asked do not lead to complete certainty or complete uncertainty. Note that the present theories in Particle Physics (see Ch.10) rely heavily on such a principle.

9.2 SYLLOGISM

We will first consider the Jain syllogism. A 'medium' syllogism of Jain consists of five propositions. For example,

1. Tom died, Dick died and so did Harry.
2. Tom, Dick and Harry are truly universal types of men.
3. Therefore, all men die.
4. John is a man.
5. Therefore, John will die.

The last three terms of the medium syllogism can, of course, be recognised as the Aristotelian syllogism which would be:—

Man is mortal.

John is a man.

Therefore, John is mortal.

The medium syllogism clearly combines inductive and deductive methods of reasoning. In fact, it reflects the main stages of scientific/statistical thinking. The first two terms can be thought of

as taking observations from a population and the third term as drawing inference from the observations. The last two terms give a projection about a new observation. This empirical logic is the basis of scientific methods and should not be lost sight of in all scientific applications.

9.3 THE CONDITIONAL PREDICATION PRINCIPLE

Another central feature of this system is a principle of conditional predications (called Syadvada) in which one examines inference from seven standpoints (Saptabhangi-naya) prefixed by “maybe”:

- (1) it is (from one standpoint);
- (2) it is not;
- (3) it is and is not;
- (4) it is indeterminate;
- (5) it is and is indeterminate;
- (6) it is not and is indeterminate;
- (7) it is, is not and is indeterminate.

Note that all predications have a margin of uncertainty; predication (1) can be visualised as ‘green’ at a set of traffic lights, (2) as ‘red’. Its special feature is (4) which allows the possibility of indeterminacy, *i.e.* ‘amber’. Other predications are syntheses of (1) and (2) with (4). “Maybe” is not a good translation of the word “syat”; another translation is “from one standpoint”.

+	=	Maybe IT IS (from one standpoint)
—	=	Maybe IT IS NOT
±	=	Maybe IT IS and IT IS NOT
?	=	Maybe <i>IT IS INDETERMINATE</i>
+?	=	Maybe IT IS and is also <i>INDETERMINATE</i>
—?	=	Maybe IT IS NOT and is also <i>INDETERMINATE</i>
±?	=	Maybe IT IS and <i>IT IS NOT</i> and is also <i>INDETERMINATE</i>

Fig. 9.1. Schematic representation of the seven conditional predications: O = Bold capital letters, — = Capital letters, ? = Italic capital letters.

Thus, we can come to qualitative judgement. A schematic picture is given in Fig. 9.1. We know that in every act of observation, the observer is involved. The above principle attempts perception without the observer, but allowing for the margin of error.

9.4 THE CONDITIONAL HOLISTIC PRINCIPLE

We have described methods of looking at sub-parts of the problem through conditional predication. However, the knowledge is to be

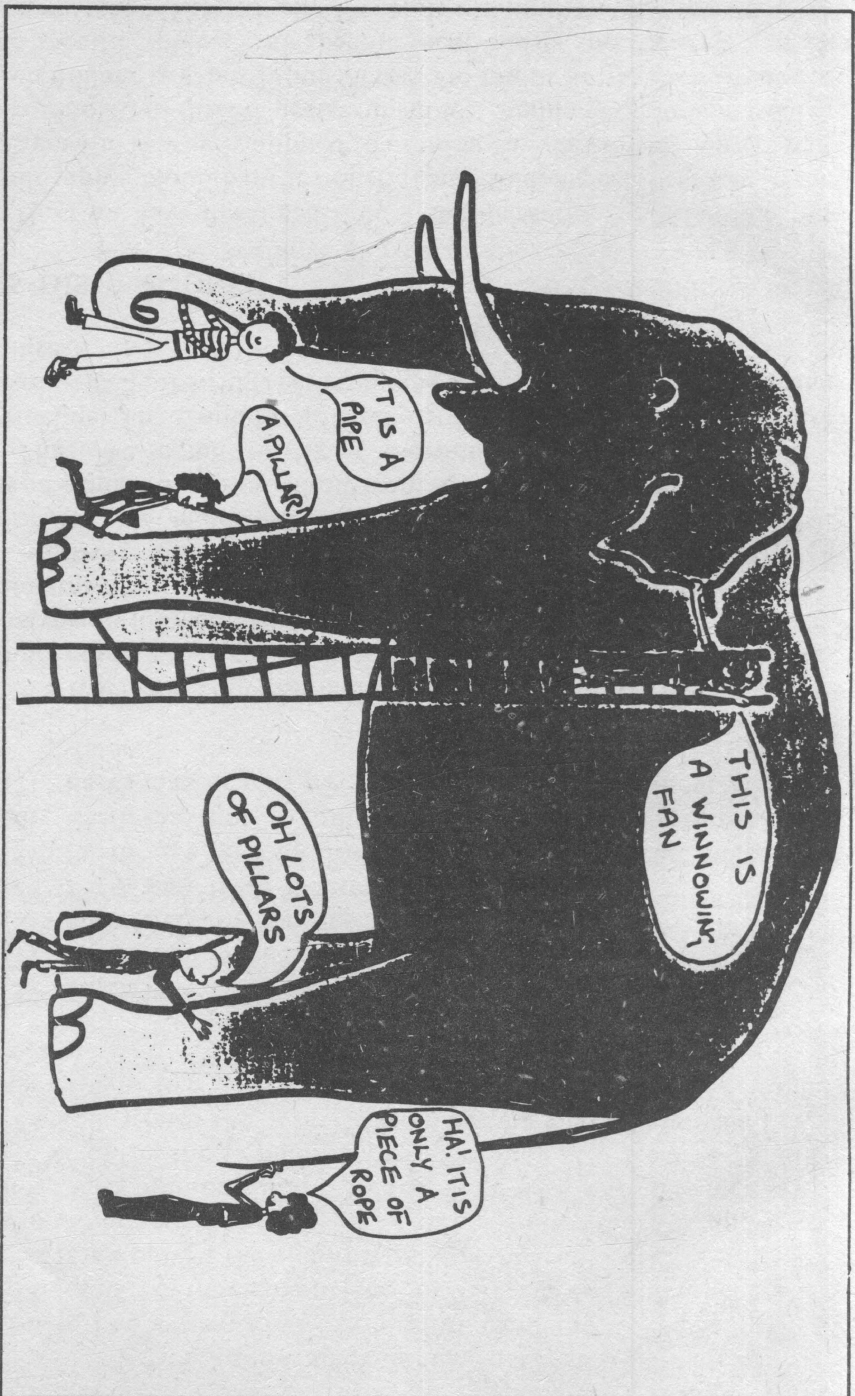


Fig. 9.2. A depiction of Jain Holistic Principle: Elephant and six blind men (five shown).

combined through, for example, the repeated use of the syllogism. Consider first the following example. There are six blind men who want to know what kind of object an elephant is. Each touches a different part of the elephant (see Fig. 9.2). The one who touches a leg says "It is a pillar", the one who touches the trunk says "It is a pipe", the one who touches an ear says "This is a winnowing fan", and so on. Thus, each opinion differs. Hence, if we wish to understand what kind of object the elephant is, we must look at it from all sides.

This illustrates the Jain Holistic Principle (Anekantavada). We now apply it to a real example. Consider the following conditional predicates.

- (1) Earth may be round.
- (2) Earth may not be round.
- (3) Earth may, or may not, be round.
- (4) Earth may be of indeterminate shape.
- (5) Earth may be round or may be of indeterminate shape.
- (6) Earth may not be round or may be of indeterminate shape.
- (7) Earth may or may not be round, or may be of indeterminate shape.

We reach the conclusion that the Earth is round from a global stand-point but is not round from a local stand-point. A similar conclusion may be reached about Mars and Venus. Therefore, the same may be true for all the planets.

Applying the syllogism to a new planet which has these same properties, we may conclude that this planet is round from a global stand-point but is not round from a local stand-point.

Thus we come to the Conditional (non-absolute) Holistic Principle. The Conditional Predications applied to each entity are beads which are held together by the Holistic Principle behaving like a thread.

9.5 DISCUSSIONS

Here we have discussed only a small fraction of Jain logic and philosophy. Note that the holistic (manifold) aspect is the key to the system and is usually applied to ontological questions. Each existent is composed of three aspects: substance, quality and mode. Also, for each unilateral aspect, four factors are important to each situation; the specific "object", its specific location, its specific time and its specific state. The Holistic Principle attempts to view the existents from these multimodal aspects. In practice this principle implies that

one should avoid extreme views and also take a broad view rather than a narrow one.

For a quantitative study inspired by the Conditional Predication Principle, we refer to Haldane (1957) where it is seen how we can apply the system to learning experiments, such as that of Pavlov. Mardia (1975, 1988a) indicates some other aspects including the relationship of Jain logic with Karl Popper (1968), who claims that we cannot have absolutely true scientific laws. For a comprehensive treatment we refer to Tatia (1984); for Jain syllogism see J.L. Jaini (1916). We conclude with the following quote from Mahalanobis (1954) on Jain views:

“Finally, I should draw attention to the realist and pluralist views of Jain philosophy and the continuing emphasis on the multiform and infinitely diversified aspects of reality which amounts to the acceptance of an “open” view of the universe with scope for unending change and discovery”.

9.6 GLOSSARY

Jain Holistic Principle ⁴ Anekāntavāda

Conditional Predication Principle = Syādvāda

Unique standpoint principle = Nayavāda

Comprehensive Right Knowledge = Pramāna

Classification of imports of words = Nikṣepa

The seven-fold conditional predication = Sapātābhaṅgi-naya

maybe it is (from one standpoint) = syādasti

maybe it is not = syātnāsti

maybe it is and is not = syādasti nāsti ca

maybe it is indeterminate = syādavaktavyah

maybe it is and is indeterminate = syādasti ca avaktavyaśca'

maybe it is not and is

indeterminate = syātnāsti ca avaktavyaśca

maybe it is, is not and is

indeterminate = syādasti nāsti ca avaktavyaśca

(Maybe = syāt, indeterminate = avaktavya)

10

JAINISM AND MODERN SCIENCE

10.1 ANALOGIES

TO CALL JAINISM simply a religion is a misrepresentation since it tries to give a unified scientific basis for the whole cosmos including “living and non-living” entities. Thus, it is a holistic science which encompasses everything including religion. The main contributions of science in this era and their parallels with Jainism are as follows (Mardia, 1988b). In the discussion below, one should bear in mind that Jain Science is very much qualitative. However, Jain Science goes beyond Modern Science in many places, but only rarely do the two conflict.

(1) *Particle physics and quantum theory.* It is only in this century that technology has advanced to the point where atomic processes and elementary particles may be studied and understood in detail. However, it is interesting to note that Jains had formulated their ideas presumably one step further by evolving the concept of *karmons*. Whether such particles exist or not may be debatable, but it is interesting that they fit in well with a self-regulatory universe and the life in it.

Quantum theory is very much probabilistic. In some cases it is very near the probabilistic Jain principle of Conditional Predication (see Ch.9). This principle is partly a probabilistic principle connected with the reductionistic principle of science. Jain would complement this principle with the Holistic Principle (see Ch.9). At present, science is moving within these two principles. However, there are claims that the world is made up of objects whose existence is independent of soul (human consciousness): this turns out to be in conflict with quantum theory and with facts established by experiment (see, d’Espagnat, 1979). There are also attempts to bring the consciousness components into quantum theory models (see, Jahn, 1982). As a first introduction to the subject of quantum theory and reality, we refer the reader to Gamow (1965) and Gribbin (1984).

(2) *Evolution.* One of the greatest achievements of the biological science of the last century has been Darwin’s theory of evolution. It is interesting to note that through the density of karmic matter in

living species, one goes beyond evolution and tries to encompass the whole of creation. It tries to answer the fundamental question of the evolution of life as an individual mechanism.

(3) *Exchangeability of matter and energy*. One of the most revolutionary ideas of Albert Einstein was the claim that matter can be converted to energy and vice versa, *i.e.* matter and energy are exchangeable. This concept has been with Jains for centuries. *Pudgala* is the word that is used to describe this phenomenon (see Chapter 4). Explicit in this word is that matter and energy are the two sides of the same coin. As we know there is no terminology to describe this phenomenon in the Greek language and therefore no such scientific expression. The best one can do is to write mass-energy for this profound concept.

(4) *Fundamental forces*. Science recognises at present four fundamental forces:

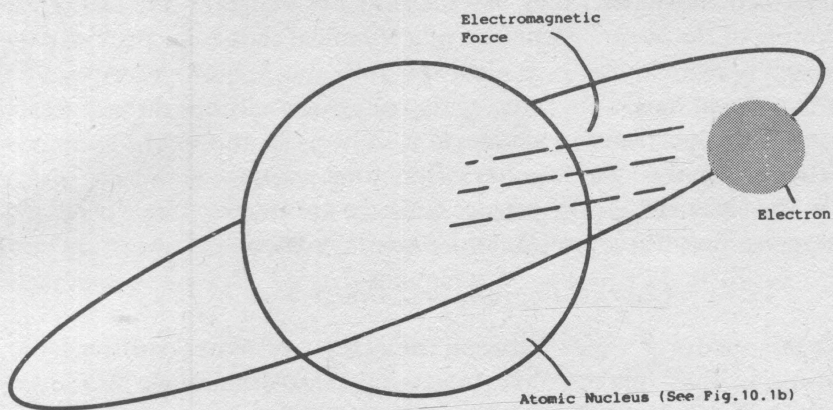
gravitational, electro-magnetic, weak nuclear and strong nuclear. Investigations are in progress to reduce these forces to a single "superforce". Importantly, Jain's concept of karmic force/animation force, which must be an additional force requiring further studies, might explain various non-physical phenomena such as mind over matter. If such forces do exist, the underlying particles of this force are karmons which have subtle properties because of their absorption into anything living. Thus it will make tracking them down much more difficult.

In Chapter 4, we have mentioned that the two Jain existents—Dynamic and Stationary Media—can be viewed as Dynamic and Stationary forces which allow interaction (non-uniform motion) and equilibrium (in uniform motion?) between/within soul and matter. This may be the qualitative answer to a super-force. Jain, G.R. (1975) identifies the Dynamic Medium as the non-material Aether of space, whereas the Stationary Medium is identified as the unified force of Gravitation and Electro-magnetism.

We now discuss these in detail in the following sections.

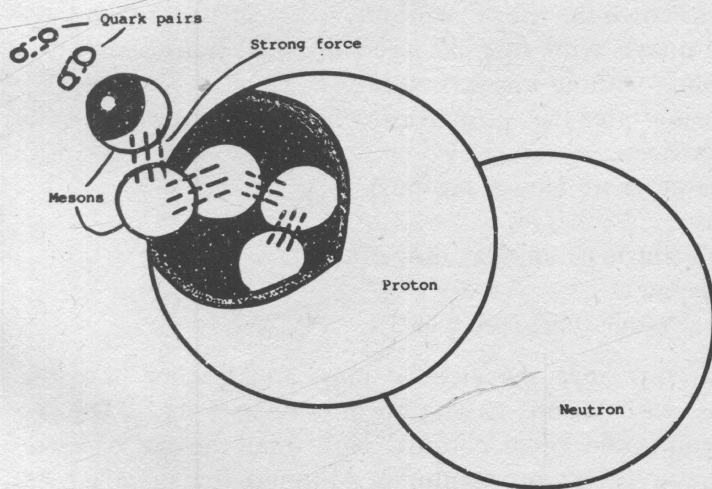
10.2 MODERN PARTICLE PHYSICS

As is already known, the discovery of electrons at the end of the last century by J.J. Thomson led to further investigation of similar constituents of chemical elements, namely atoms. It was around 1910 that Rutherford and others first discovered that atoms contain electrons and a nucleus. (The nucleus contains neutrons and protons which are collectively called nucleons.) It is known that electrons are negatively charged particles (charge = -1) and neutrons are



(a)

Fig. 10.1 (a) Hydrogen atom with a single electron, atomic nucleus and the strong nuclear force.



(b)

Fig. 10.1 (b) Sub-atomic particles of the hydrogen atom: neutron, proton with its mesons and quarks.

uncharged particles, that is, electrically neutral. The simplest example of the atomic structure of a chemical element is provided by hydrogen, which has one electron and one proton; however, its 'isotopes' can have either one or two neutrons without disturbing its chemical properties. For chemical stability, the number of electrons is always equal to the number of protons.

In the early 1970's, the picture changed completely (see Fig. 10.1). There are now three groups of elementary particles:—

Quarks, Leptons and Gauge Bosons.

The bosons form a glue between the other two. Quarks differ from leptons in that quarks have fractional charges, namely $2/3$, $1/3$, $-1/3$, and $-2/3$, whereas leptons have charge 0 or -1 . Further, bosons differ from the other two because quarks and leptons have $1/2$ -spin, whereas bosons have 1-spin. The electron is an example of a lepton with charge -1 . The neutrino is an example of a lepton with no charge.

Quarks can exist in clusters of two or three. One can have three quarks as in the proton. The groups containing three quarks are called "baryons", and the groups containing only two quarks under certain compatibility conditions are called "mesons". In the latter case, there can be one quark with one anti-quark. The simplest example of a meson is the "positive pion" which consists of one quark with one anti-quark. Note that like electrons, quarks are assessed to be perfect points without any structure.

The following are the properties which distinguish various elementary particles.

- (1) Charge or no charge (colour).
- (2) Mass.
- (3) Spin (intrinsic angular momentum).
- (4) Lifespan.
- (5) Force (four types, see § 10.3).

Note that baryons have the greatest mass and leptons have the smallest mass, with bosons having an intermediate mass. Quarks have six flavours and three colours. Note that the use of these flavours and colours is only symbolic. Amongst the so called six flavours, the most important are "up" and "down" (for the lightest pair of quarks). If "u" denotes up-quark and "d" denotes down-quark, then the corresponding notations for an anti-particle are " \bar{u} " and " \bar{d} " respectively. A positive pion is then either $u\bar{d}$ or $\bar{u}d$. The three colours are red, green and blue: these are the three "electrical" colours.

10.3 FOUR FORCES IN NATURE

The four fundamental forces in Nature are gravitational, electromagnetic, weak nuclear and strong nuclear. These are all thought to operate through gauge bosons. The particles interact via a gauge boson as a heavy snowball exchanged between two skaters; e.g. for two electrons (the skaters), the photon (the snowball) tells one electron of the presence of the other electron and then induces a response: this is the electro-magnetic force (see Fig. 10.2a). In the

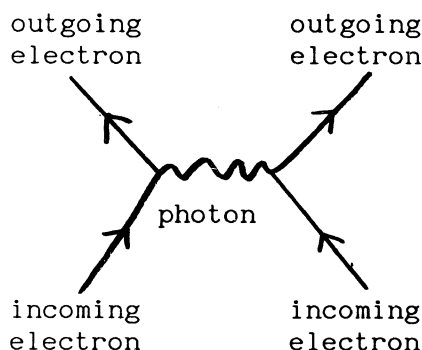


Fig. 10.2 (a) Two electrons and their respective paths. Electro-magnetic force with its gauge boson 'photon' (zig-zag line).

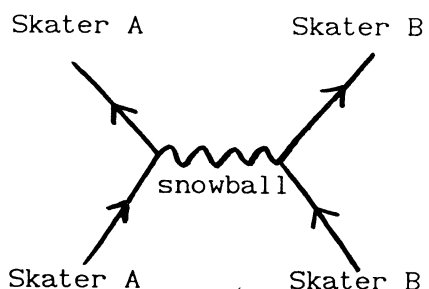


Fig. 10.2 (b) Two skaters exchanging a snowball.

case of the two skaters, say A and B (Fig. 10.2b), skater A throws (emits) the snowball (photon) on skater B, who will be recoiled (the weak-force), after which the snowball disintegrates (is absorbed). These are Feynman diagrams.

Recall that the force acting between a proton and a neutron in the nucleus is a strong nuclear force (see Fig. 10.1). The strong nuclear force acts between the baryons through a coloured gluon (see Fig.

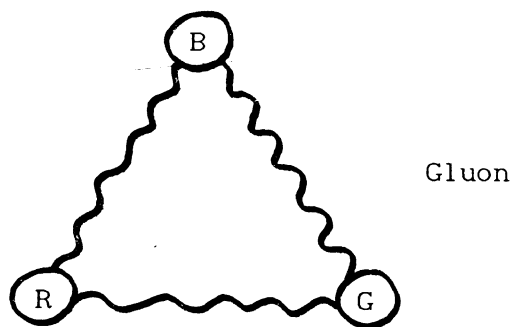


Fig. 10.3 A baryon with its quarks (in circles, red—R, green—G, blue—B) and the strong nuclear force with its gauge boson 'gluon' (zig-zag lines).

10.3). Baryons feel the strong force, whereas leptons do not feel this force since they do not have a colour. The energetic quarks radiate gluon; however, as they emerge, the gluons must neutralise their colour which they do by converting the energies through observable particles, mainly mesons. The weak nuclear force underlies radioactivity: the particles Z and (W^+, W^-) are the gauge bosons of the weak nuclear force for the electrically charged and neutral

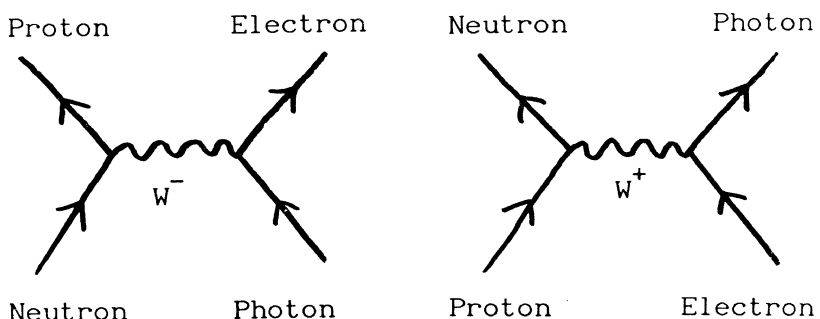


Fig. 10.4 Weak force: (a) a neutron and a photon exchanging W^+ and (b) a proton and an electron exchanging W^-

versions, respectively (see Fig. 10.4). The gravitational force (see Fig. 10.5), which is the weakest of the four, holds matter together in the bulk, but the evidence for a particle to transmit gravity—the graviton—is very limited.

We could add karmic forces to the list. Karmic fields are also non-material regions of influence extending in space and continuing in time, but allow interaction between the non-living and the living, *i.e.* soul and karmons. For karmic forces, it seems that the bosons for interaction between the soul and karmons are 'Passions' (a form of

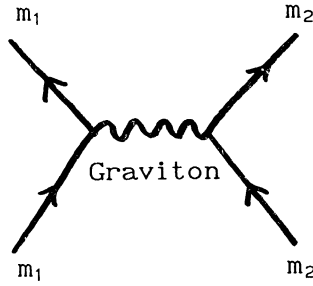


Fig. 10.5 Gravitational force between two mesons (m_1 , m_2) and gravitons.

karmic radiation), except that under no-Passion (a force-shield) there can only be karmic radiation (see Fig. 10.6) but no karmic fusion. Perhaps we could term these two bosons as 'Passiono' and 'Apassiono' particles, respectively. At another level, (see S.K.Jain 1980) karmic force might explain the cycles of rebirth in the form of energy (karmic capsule) released as electro-magnetic type of waves at the time of death. Thus it can travel instantaneously at a long distance carrying specific messages, e.g. in karmic body. For example, the karmic body might carry pheromones (the chemical components produced by an animal carrying individualized communication) etc. in the karmic body which are attached and transfused with the zygote (the zygote is the first cell resulting from the union of two parental germ cells of the new born). The "energy" received by the zygote could induce predestined changes in DNA (the genetic code of life)". However, a deeper study of this topic is required.

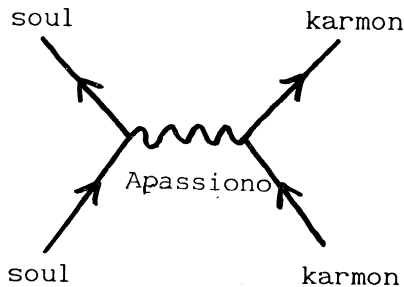


Fig. 10.6 Karmic force with an 'apassiono' as its boson.

10.4 SOME FURTHER ANALOGIES

Various similarities between Modern and Jain Particle physics have already been pointed out by Jain, G.R. (1975) and Zaveri (1975).

The five attributes of Jain ultimate particles given in § 4.5 can be equated to present Physics as follows.

- (i) Five colours = 3 - charge colours of quarks + two charges of positive and negative as white and black.
- (ii) Five flavours = flavours of quarks and leptons.
(The sixth flavour of quarks is not yet established.)
- (iii) Two smells = spin of 1 and $\frac{1}{2}$.
- (iv) Touch: (a) Palpability = Gauge bosons.
(G.R. Jain identifies it with positive and negative charges.)
(b) Temperature = Radiation.
Intensity of palpability = Energy levels.
(The rule of combining the ultimate particles given in § 4.5 is similar to Pauli's exclusion principle.)
- (v) Two kinds of ultimate particles: effect (action) and cause particles = particle and its anti-particle. (G.R. Jain identifies these with the electron and the positron, respectively.)

Some other comments are as follows. In some sense the ultimate particles are particles and in another sense they are energies. The properties of ultimate particles related to motion and state are probabilistic and seem to reflect Heisenberg's uncertainty principle. Further, the ultimate particle cannot be obstructed or stopped in motion except when in an aggregate. Thus, it is like a neutrino, or maybe like a Tachyon, of speed greater than that of a photon.

In addition to the four fields corresponding to the four established forces in Nature, Sheldrake (1981) puts forward a "morphic field" corresponding to "morphic resonance"; Jain Science relies on a "karmic field". Time and space are the usual four dimensions but a fifth dimension of mass is regarded as essential in some new relativity theories: note that the definition of a "space point/spatial unit" of Jains is regarded as a point with dimensions (however infinitesimally small) and all the ultimate particles in the universe can be contained in this single point (see Basham, 1953, pp77-78). Thus the Big-Bang theory is alluded to. Also, Basham (1953, p78) quotes an old Jain verse—"The complex of dimensional points is horizontal, while that of which the function is characterized by moments (time) is vertical". Thus time is the fourth dimension.

One of the present leading pioneers in modern physics is Stephen Hawking. He argues that the universe has no beginning and no end (see Hawking, 1988; p.116) and this idea clearly underlies the Jain

universal cycles described in § 6.4. Again, his claim that the universe is finite is implicit in the Jain concept of the universe. The concept of the black hole (Hawking, 1988) is related to Moksa as pointed out in § 4.4. The boundary between occupied and unoccupied space is also similar to 'event horizon' which stands for the boundary of the black hole (see Hawking 1988, p.89). However, one would prefer to reach Moksa rather than a black hole! The claim that thoughts are made of particles is also in accord with Jain science.

10.5 CONCLUDING REMARKS

Modern science is in a state of fermentation and entirely new concepts of matter and of fields are appearing. Readers interested further in an overview of Science and 'Religion' are recommended to Davies (1983) and Khursheed (1987). We conclude with a few of Einstein's views (Einstein, 1941). First, his concept of religion is very near that of Jains:—

“.....a person who is religiously enlightened appears to me to be one who has, to the best of his ability, liberated himself from the fetters of his selfish desires....”.

Secondly, his attitude (Einstein, 1941) to Science and Religion is worth bearing in mind:

“.....there also belongs the faith in the possibility that the regulations valid for the world of existence are rational, that is, comprehensible to reason. I cannot conceive of a genuine scientist without that profound faith. The situation may be expressed by an image:

Science without religion is lame,
Religion without science is blind”.

APPENDICES

APPENDIX 1: THE LIFE OF MAHAVIRA

Mahavira was born in 599 B.C. in Kundagrama, then a large city in Northern India near the modern city of Patna. His father was King Siddhārtha and his mother Trīśalā. His original name, Vardhamāna, which means “ever growing” was given to him because everything in the kingdom became abundant during the period of his mother’s pregnancy.

He soon developed a great sense of understanding and rapport with animals. Even in his childhood he courageously subdued a terrifying snake. He also calmed an elephant which had gone on the rampage and stopped it from doing further damage. A fight with a large bully led to the name Mahavira or “Great Hero”.

He almost certainly received the typical training of a prince of that period e.g. in literature, political science, archery, mathematics, etc. He was very intelligent and at an early age his teacher confessed that Mahavira was ahead of him in knowledge.

He led a normal domestic life and married Yaśodā (that is according to Svetambara, but was not married according to Digambara), having a daughter named Priyadarśanā. According to one version, when he was 28 years old, on leaving the palace one day he saw a slave being whipped by his owner. Through this incident he became unhappy with the exploitation of the poor, ignorant and illiterate by richer members of the community, and a desire to leave family life developed within him. He did, however, have a deep feeling of consideration for his parents and this moved him to vow that he would not renounce domestic life until they had both passed away. After the death of his parents he waited until some two years later when their loss had become bearable to his elder brother, and then asked his permission to leave the palace. (The Digambaras believe that he became a monk while his parents were still alive.) It is believed that during these last two years in the palace he spent a considerable time in self-analysis, rather than in mundane, everyday pursuits.

He then left home to search for the root of all problems, i.e. to understand human nature and to study the universe in general. Obviously, his social status and environment whilst living in the palace was unsuited to this quest.

A.1.1 PURSUIT OF THE GOAL AND ENLIGHTENMENT

He devoted the subsequent twelve and a half years to his research with intense single-mindedness. As he felt that it would assist his meditation, he lived very frugally, wandering from place to place wearing only a single garment and frequently fasting. He also reduced his other needs, e.g. by removing his hair by hand. So intense was his concentration on his goal, that when his garment was accidentally caught on a thorn bush and pulled off, during 13 months of renunciation, he remained naked. (However, according to the Digambaras, he removed his clothes at the time of renunciation.)

Another incident showing his single-mindedness of purpose relates to how he was meditating in a standing posture in a farm and the farmer who had his cows grazing around him, asked him to look after them whilst he was away. Since he was in a state of deep meditation, Mahavira did not notice that the cows were wandering away. When the farmer came back, he asked Mahavira about the missing cows and since he was under a vow of silence, he did not reply. The already upset farmer was further infuriated and he hammered two wooden nails through Mahavira's ear to punish him for this lapse. But even that action did not break Mahavira's silence, and Mahavira remained compassionate towards him.

It is said that he remained in total solitude until Mikkhali Gosāla, who had heard of Mahavira's outstanding abilities, searched and found him. Gosāla was a travelling storyteller and a follower of the fatalist doctrine of the Ājīvika sect of which he later became chief spokesman. It is related that they were together for six years during which time Gosāla became thoroughly acquainted with Mahavira and his abilities. Mahavira described the six months of austerities which he thought necessary for the attainment of these abilities.

Mahavira finally attained kevalajñāna (Dynamic Omniscience State) precisely 12 years, 6 months and 15 days after starting out on his search. Thus he was able to comprehend the mechanism of the universe as a whole and human nature in particular, which led him to the root of all problems.

A.1.2. CAREER AS A TIRTHANKARA

Having left his princely state in pursuit of his goal, on his enlightenment Mahavira came back to share his knowledge with the community. The event of coming back is far more significant than his search. He gave his first sermon to an audience which included Indrabhūti Gautama, who was well versed in Hindu scriptures and

extremely proud of his knowledge. Through this encounter Gautama became his chief disciple (*gaṇadhara*). Eventually he had eleven *gaṇadharas* as his inner circle. He had a great natural organisational ability and as his followers grew in number, he formed "*tīrtha*" (the order) of monks, nuns, laymen and laywomen. Also his daughter, *Priyadarśanā*, who was married to *Jamāli*, eventually became a follower of Mahavira.

To distinguish his ideas clearly from the prevalent influence of Hinduism, he developed a very versatile talent for coining new terminology, e.g. the lay followers were called *śrāvaka*, those who are attentive (right) listeners, and monks were called *śramaṇa*, that is, labourers on the spiritual path. He vigorously reaffirmed the concept of autonomous self-responsibility, that is, removing the idea of a God who influences the day to day activities of everyone. Further, he claimed "Every man has a right to and could attain nirvana by his own effort without the help of any supreme authority or mediatory priest".

He preached equality to all living beings, including the equality of all mankind, i.e. abandonment of slavery, the caste system, animal sacrifices etc. In fact, the leader of the order of nuns was a slave named *Candanā*. At the other extreme, one of the kings of that time, *Bimbisāra*, became a staunch follower. (See, H.L. Jain & Upadhye, 1974.)

One of the revolutionary contributions of Mahavira was to change the Hindu recommendation that monkhood should not commence before the latter part of one's life. He introduced the idea that there is no particular time for worldly renunciation, with gradual transformation advocated for those who are not ready for total renunciation at an early age.

One of the outstanding features of Mahavira was that he was the perfect living image of compassion towards all forms of life. An example quoted is of a cobra called *Chandkosiā*, which had been withstanding all who had tried to cross its path. One day, the cobra bit Mahavira, but such was his knowledge that he could see, through the cobra's past lives, how it had developed such a nature and he had great compassion for it. Such was his compassion, rather like a mother for her child, that it was as though milk flowed through the wound and the injury became secondary to the concern that Mahavira had for the cobra's well-being.

Ultimately, *Gosāla* turned against Mahavira and challenging Mahavira, he tried to intimidate him with a curse, saying that he would die of a fever within six months. Mahavira did become ill but eventually recovered. The death of *Gosāla* shortly afterwards gave

the impression that the curse had returned to its source. However, Mahavira himself was always against magical or Yogic power.

Mahavira continued to teach and practise the three jewels up to the time of his holy death. Various fundamental teachings and practices, with only minor variations, are still prevalent among Jains. In particular, all Jains celebrate the festival of lights (Diwali) because on Diwali's day Mahavira achieved Moksa, whereas on the same day his main disciple Gautama attained the omniscience state.

APPENDIX 2 : JAIN SCRIPTURES

It is believed that the sermons of a Tirthankara take the form of what is known as the divine language/sound. (According to Digambaras, this sound transmits the intrinsic meaning of the teaching which is then translated into the scriptures by several chief disciples, “gaṇadharas”, whereas according to Svetambara, the tirthankara speaks in a divine human language). In general, the role of the gaṇadharas was of translators/editors. Thus, one should not take the scripture literally, but keep in the forefront the idea of self-analysis and synthesis.

A.2.1 MAIN SCRIPTURES

In all there are 60 Jain scriptures (Āgamas) which are classified into three parts:—

Part I: Pūrva; Part II: Aṅga; Part III: Aṅgabāhya. Out of these 60 texts, only 45 are still in existence. Table A.2.1 gives a skeleton of these texts with some details, whereas Table A.2.2 gives details for the sub-parts of Part III: Part IIIa,..., Part IIIe. Gautama, Mahavira’s chief disciple, (see Appendix 1) has been the main contributor to the main twelve scriptures (Aṅgas) but the tradition of oral transmission was carried on for a long time.

The writing up of the canon with commentaries really began around 450 A.D. at the instigation of a council which was held in Valabhi. Bhadrabāhu (fifth century) and Jinabhadra (sixth century) are two famous commentators.

Some of the important texts in the scriptures are as follows.

Table A.2.1. *Main Scriptures of Jains.*

Number of texts	I Pūrva (old texts)	II Aṅgas (main texts)	III Aṅgabāhya* (Subsidiary texts)	Total 60
Total Available	14	12	34	60
Svetambara	0	First 11	34	4
Sthanakvasi	0	Same first 11	21+	32+
Digambara	0	0	?	?

*See Table A.2.2.

Table A.2.2. *Some details of Part III: Āṅgabāhya of Table A.2.1.*

Name	Meaning	Number of texts	
		Svetambara	Stathankvasi
a Upāṅga	Subsidiary to Aṅga	12	Same 12
b Chedasūtra	Books of discipline	6	Same 6
c Mūlasūtra	Main scripture	4	1 of 4*
d Prakīrṇakasūtra	The miscellaneous	10	(1 extracted from 10 ?)
e Cūlikāsūtra	Appendix	2	2

*Daśavaikālika.

- (A) *Ācārāṅga* (Part II). The law book of Jain monks and nuns dealing with their conduct.
- (B) *Sūtrakṛtāṅga* (Part II). Gives a critical examination through non-absolutism (anekāntavāda) of the teaching opposed to Jain.
- (C) *Bhagavatī* (Part II). (Means the venerable.) Gives questions of Gautama and answers of Mahavira, with the use of the conditional dialectics (Syādvāda). Also the confrontation of Gosāla with Mahavira is recorded.
- (D) *Ācāradaśāḥ* (Part IIIb). Kalpa-sūtra is another important work which is the eighth chapter of *Ācāradaśāḥ* appended with a collected biography of Tirthankaras and the lineage of successors to the gaṇadharas: the eighth chapter gives the rules for monastic life during the rainy season. This has been used in public recitation for over 1500 years (especially during Paryūṣhaṇa— a ten-day holy period of Jain) ever since it was chanted before King Dhruvasena of Valabhi to comfort him on the death of his son.
- (E) *Daśavaikālika* (Part IIIc). Contains topics on the monastic life. However, the ten lectures which it contains are to be studied beyond the prescribed hours.
- (F) *Uttarādhyayana* (Part IIIc). This work (book of later instructions) is claimed to be the last sermon of Mahavira, especially the advice of Mahavira to Gautama on non-attachment to his teacher. Also, it contains the dialogue between Keśi and Gautama on increasing the number of vows from 4 to 5 in Mahavira's time. The appended fifth vow is regarding celibacy.
- (G) *Āvaśyaka* (Part IIIc). Contains most of the content of the present Pratikramaṇa Sūtra (ritualised confession) still in usage which summarises Jain teaching.

A.2.2 SECONDARY SCRIPTURES

The secondary scriptures (*Ānuyogas*) supplement the older material and there are four parts just as if they were the four vedas of the Jains. These were mostly written by monk scholars.

(1) *Prathamānuyoga* (the primary exposition) deals with biographies of Tirthankaras.

(2) *Karaṇānuyoga* (exposition on technical matters) deals with ancient sciences such as cosmology and astrology.

(3) *Caranānuyoga* (exposition on discipline) is the most important work on Jain Yogas. It includes Hemacandra's *Yogaśāstra* (twelfth century) and Haribhadra's *Dharmabindu* (eighth century).

(4) *Dravānuyoga* (exposition on existents) includes the most important work, *Tattvārtha-sūtra*, of Umāsvāti (second century). This work summarized concisely the whole of the Jain doctrinal system into about 350 verses. It is comparable to Patañjali's *Yogasūtra* by presenting the teaching in an integrated philosophical school. Other works included are of Siddhasena Divākara's *Nyāyāvātara* and *Sanmati-sūtra* (5th century) which are excellent works of logic. Yaśovijaya (eighteenth century) represents the modern school of logic.

Our discussion is somewhat restricted to Svetambara. Digambara also believes that there were 60 texts with the above titles but believes that they are all lost. They possess some record leading to two important scriptures of the second century:- *Ṣaṭkhaṇḍāgama* (scriptures in six parts), and *Kaṣāyaprabhṛta* (Four-Passions—'Gifts'). The work of Kundakunda (perhaps second century) is the most comprehensive which includes *Samayasāra*, *Niyamasāra* and *Pravacanasāra*. His tradition was continued in the sixth century by Pūjyapāda. The important commentary "*Ātmakhyāti*" on *Samayasāra* by Amṛtacandra appeared in the twelfth century. Other representative writers to be mentioned are Jinaseṇa (ninth century) and Somadeva (tenth century). Appropriate versions of Umāsvāti's work "*Tattvārtha-sūtra*" (as well as Siddhasena's work on logic) are accepted by both sects. For further details, we refer to P.S. Jaini (1979, Chapter 2).

The first group of *Āgamas* scriptures were written in *Ardha Māgadhi* which was a Prakrit dialect of *Māgadha*. The subsequent works are in Sanskrit, starting from the work of Umāsvāti. Thus, there is a vast literature available but it seems that *Tattvārtha-sūtra* of Umāsvāti can be regarded as the main philosophical text of the religion and is recognised as authoritative by all Jains. Part A of the Bibliography gives references to translations of a few important works.

APPENDIX 3: CITATIONS

A. *Axioms.* (v = verse)

Axiom 1.

Jīva ity ... karma-sayūnkataḥ,

(Pañcāstikaya-Sāra, v.27)

Yathā-pravṛtta-karaṇam ity arthaḥ,

(Viśeṣāvaśyaka-bhāṣya, v. 1202)

Axiom 2.

Nārkatīryaṅ manuṣyā devā ity nāmsanyotaḥ prakratyaḥ.

(Pañcāstikaya-Sāra, v.55)

(cf. “karmāvaran mātṛāyāḥ, tāratmya vibhedataḥ”. Nathmal, 1970, Ch.2. v.63).

Axiom 3.

Pariṇāmātkarma karmaṇo bhavati gatiṣu gatiḥ.

(Pañcāstikaya-Sāra, v. 128).

Axiom 4A.

Mithyādarśana avirati pramāda kaṣāya yogāḥ bandhahetavaḥ.

(Tattvārtha-sūtra, Ch.8, v.1).

Axiom 4B.

... Prāṇighāten saptaṃ narkan gatoḥ,

Mātev serva bhūttānāmahimsa hitakāriṇi,

Ahiṃsāyāḥ phalaṃ sarva, kimnyataḥ kāmdaiva sah.

(Yogaśāstra, Ch.2, vs.27, 51, 52).

Axiom 4C.

Tapsā nirjarā ca.

(Tattvārtha-sūtra, Ch.9, v.3).

B. *Texts* (Quotation = q)

q3.1 Savve karei jīvo ajjhavasāṇeṇa tiriyaṇeraie,

devamaṇuve ya savve puṇṇaṃ pāvaṃ ca aṇeyavihaṃ.

(Samayasāra, v.268).

- q5.1 Śubhaḥ puṇyasyāśubhaḥ pāpasya.
(Tattvārtha-sūtra, Ch.6, v.3).
- q5.2 Sakaṣāyatvājīvaḥ karmaṇo ... sa bandhaḥ.
(Tattvārtha-sūtra, Ch.8, v.2).
- q6.1 Parspropagraho jīvānām.
(Tattvārtha-sūtra, Ch.5, v.21).
- q6.2 Purisa! tummev tuṃ mitraḥ, kiṃ bahiya mitramitcchasi.
(Ācārāṅga-sūtra, Ch.3, v.125).
- q6.3 Savve jīvā vi icchanti jīviṃ na marijjim.
(Daśavaikālika-sūtra, Ch.6, v.10).
- q6.4 Mā pamāyae.
(Uttarādhyayana-sūtra, Ch.10, v.1)
- q6.5 Matrī pramoda kāruṇyamādhyasthāni ca
sattva guṇādhika kliṣyamānā vineyeṣu.
(Tattvārtha-sūtra, Ch.7, v.6)
- q7.1 Jānaṃ balābalam.
(Yogaśāstra, Ch.1, v.54).
- q8.1 Sa gupti samiti dharmānuprekṣā puriṣahjaya cāritraiḥ.
(Tattvārtha-sūtra, Ch.9, v.2)
- q8.3 Samyag darśana jñāna cāritrāṇi mokṣa mārgaḥ.
(Tattvārtha-sūtra, Ch.1, v.1).
- q8.2 Nāṇeṇ jāṇi bhāve dansṇeṇ ya suddadahe;
caritṭeṇ ṇiginhai taveṇ parisujji.
(Uttarādhyayana-sūtra, Ch.28, v.35).
- q8.4 Prathamam jñānam. tato dayā
(Daśavaikālika-sūtra, Ch.4, v.10).
- q8.5 Māse māse tu jo bālo kūsggeṇ tu bhunje;
ṇa so sūyakkhāy dhammassa kalaṇ agghai solasiṇ.
(Uttarādhyayana-sūtra, Ch.9, v.44).

APPENDIX 4: PURIFICATION STAGES AND A GAME OF SNAKES AND LADDERS

The present author has invented a modified form of the game of snakes and ladders to represent the key transitions between the purification stages (see Figure A.4. i). The playing board has sixteen squares and moves are made after tossing a coin: a 'tail' scores 1 and a 'head' scores 2. The first two squares on the board represent lower life and higher life in the animal kingdom respectively.

At square 3 we have the human form ready to ascend from its first stage, step by step, to the higher stages. The rules of the game are:—

- (a) to begin a tail must be thrown;
- (b) at square 2 a tail must be thrown: this takes the player to square 3 and hence up the ladder to stage (3).

Note that it is not permitted to move from square 2 to square 4 by throwing a 'head'. The player can only occupy square 4 by arriving at stage (7) and falling down the snake. The end of the game must be exact, i.e. a player on stage (13) must throw a 'tail'.

In view of the case of a Mahavira's disciple (Ānanda) it is possible to take a ladder from stage (5) to stage (8), *i.e.* without passing through the stage of being a monk. In general, the game emphasises where progress (ladders) can occur where downfalls (snakes) can take place. Once stage 12 has been reached one can always reach stage (14) and then attain moksa.

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Professor Mardia was born on 3rd April 1935 in Sirohi (Rajasthan). He received the M.Sc. (Statist.) degree from the University of Bombay in 1957; the M.Sc. (Pure Maths.) degree from the University of Poona in 1959 and the Ph.D. degree from the University of Rajasthan in 1964. He received the Ph.D. degree and the D.Sc. from the University of Newcastle, UK in 1967 and 1973 respectively. He was appointed to the Chair of Applied Statistics at the University of Leeds, UK in 1973 and has been Head of the Department since 1976.

In the Foreword, Paul Marett writes "Professor Mardia is a very distinguished scholar in a very exacting science. He is a mathematician, or more properly a statistician, and his university degrees include three doctorates. He is also a devoted and practising Jain. Thus he is particularly well-qualified to approach the task of rendering the basic principles, philosophy and ethics of Jainism in the terms of modern science."



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Vol. I

JAINA YOGA

A Survey of the Mediaeval Śrāvakācāras

R. Williams

THIS BOOK describes what the Jainas considered to be the way of life proper to a layman. It attempts to examine the contents of the principal Jaina *Śrāvakācāras*. As these texts are not well known and often not easily accessible, some information about their authors has also been given and a few excerpts, designed to show the extent to which one writer depends on another, have been included in an appendix.

Vol. II

A Comparative Study of THE JAINA THEORIES OF REALITY AND KNOWLEDGE

Y. J. Padmarajah

THE BOOK is divided into two parts (bound in one Volume). Part I is related to the nature of reality. The author formulates five types of approach to the problem of Reality. He discovers flaws in the following four: (1) the philosophy of identity, (2) that of difference, (3) of identity in difference in which identity predominates and (4) of identity in difference in which difference predominates. The only approach which he finds flawless is the Jaina view, namely of identity in difference in which identity is co-ordinate with difference. The author proceeds to discuss two aspects of reality, viz. the relational structure and causal efficiency and shows that the two can exist and function only within the framework of a co-ordinate identity in difference, accepted by the Jaina thinkers.

Part 2 presents an analytical account of the methods of knowledge recognized by the Jaina thinkers under the characteristic doctrines of standpoints and of conditional predication (*Nayavāda* and *Syādvāda*) preceded by an investigation into the nature and the logical evolution of the theory of manifoldness (*Anekāntavāda*).