

Sri T. K. Sribhashyam writes:

In the late nineteen sixties, I bought in an antique shop in Chennai, a book on Ayurveda: The Principles of Tridosha. The covering and the titles pages of both the Sanskrit and the English editions were already missing. The pages were glossy and very fragile. A simple folding would break the page. The contents are rich in information on Âyurveda, written with clarity and precision which testifies the author's mastery of the subject and the English language.

To mark my father's anniversary in 2004, I am offering the contents of this book to Yogakshemam.net with the hope that you would enrich yourself with the knowledge of Âyurveda. I thank my wife Claire for the faithful typing of the entire book to enable an easy access from the web pages. Please bear with us for any typing errors.

It is also my hope and wish that the unknown author is recognised. We promise that we would publish any authentic information we would receive on this publication.

Abbreviations

- A.H. Asthânga Hrudaya of Vâgbhatta
A.S. Ashtânga Samgraha of Vâgbhatta
A.V. Atharvana Veda
C.C. Charaka Samhitha of Charaka
R.V. Rig Veda
S.S. Sushrutha Samhitha of Sushrutha
V.S. Vaisheshika Sutra of Kanada

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CHAPTER I

1. Evolution of Hindu Medicine

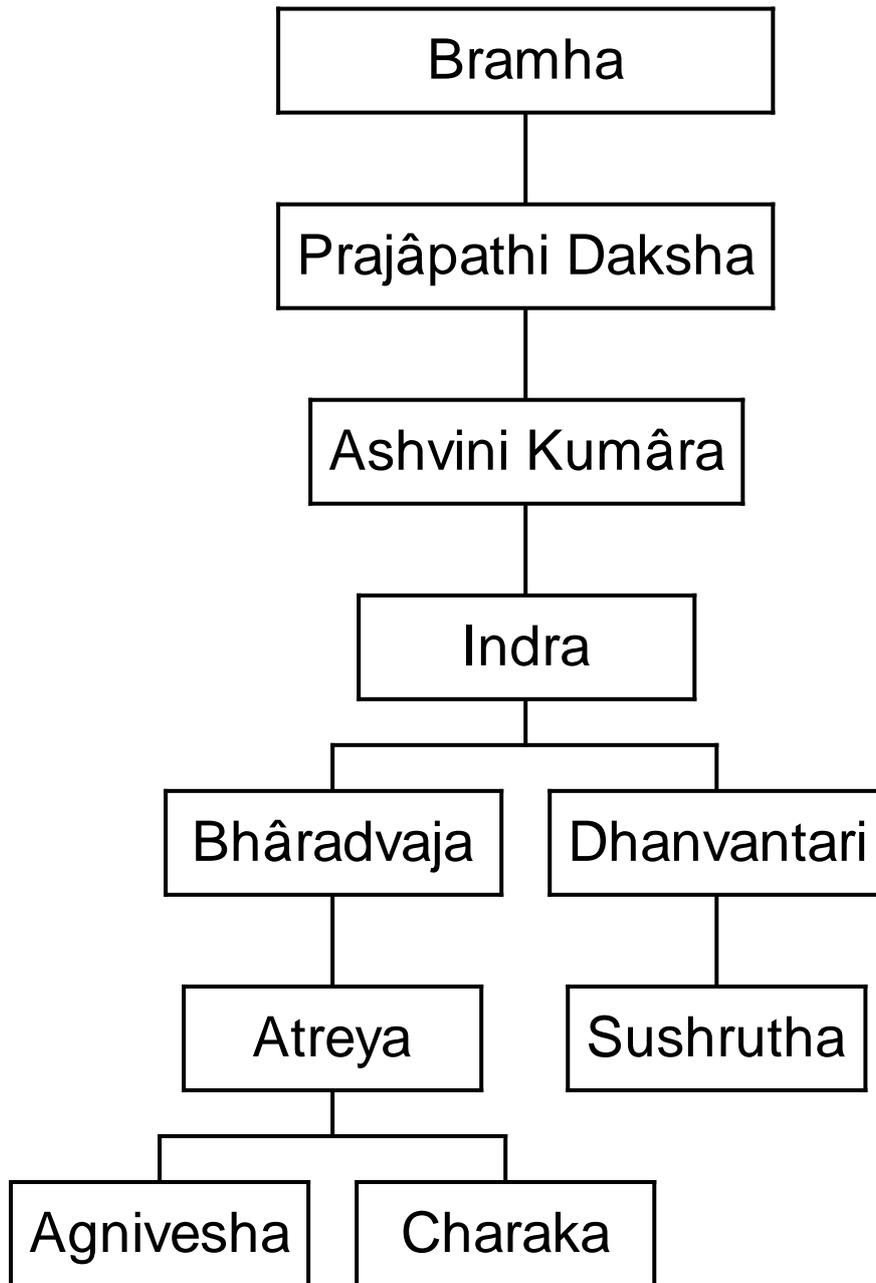
The Science of Hindu Medicine, or *Ayurveda* to call it by its proper name, is claimed to be as old as the Vedas. According to Hindu Tradition, *Brahma* is said to be the creator of the Universe; and in medical literature also we find him described as the originator of *Ayurveda*. Our present knowledge of Hindu medicine is derived mainly from the two works of *Charaka* and *Sushruta*, supplemented by that of *Vâgbhatta*. In *Charaka Samhita*, *Ayurveda* has been described as *Shâshvata* or eternal. In the beginning, it was known to *Brahma* only. Then the knowledge was handed down to *Prajâpati Daksha* and through him to the two *Ashvini Kumâras*. From the latter, *Indra*, the king of gods, learnt the whole of *Ayurveda*. According to *Sushruta*, *Brahma* originally composed the *Ayurveda* in one hundred thousand verses, divided into one thousand chapters, even before he had created living beings. Afterwards it was divided into eight parts. From *Brahma*, as before, the knowledge came down to *Indra*.

From *Indra*, the knowledge of medicine descended to earth in two different ways. It is said in *Charaka-Samhita (Sutra, Ch I)* that once upon a time, when the earth was infested with various kinds of diseases, the sage, *Bharadvaja* was deputed by an assembly of learned teachers to go to *Indra* to learn *Ayurveda*. On his return, *Bharadvaja* imparted his knowledge to *Atreya*. *Atreya* had six pupils, viz. *Agnivesha*, *Bhela*, *Jatukarna*, *Parâshara*, *Harîta* and *Ksharapâni*. Each of them wrote a separate treatise on *Ayurveda*. Of these, only two are now in existence, the *Agnivesha Samhita*; as revised and redacted by *Charaka* and the *Bhela-Samhita*.

On the other hand, it is said that *Dhanvantari*, the physician of the gods, was sent by *Indra* (after being fully instructed by the latter) to the earth to impart knowledge of medicine to human beings with special reference to Surgery. Here *Dhanvantari* was known by the name of *Divodâsa* or *Kâsirrâja*. Of all his pupils, *Sushruta* was the most intelligent and wrote a treatise on, *Ayurveda - the Sushurtha Samhita*.

It was in this way that there developed in India, two schools of *Ayurveda*, the *Bhâradvâja* or the *Atreya* school of physicians and the *Dhanvatari* school of surgeons. The above tradition, as Dr. Hoernle says in his "Osteology", traces medicine from a mythical, through a semi-mythical, to an historical beginning. We may put, the genealogy of the teachers of *Ayurveda* thus :

Geneology of Ayurveda Teachers



2. Hindu Medicine and the Vedas

There is no doubt that the germ of Hindu medicine was laid in the Vedas. Because in all the four Vedas, - Rig, Yajur, Sâma and Athravana, - we find ample reference to medicine, drugs, methods of treatment and descriptions of the different parts and organs of the human body. For example, reference is made to *Dhanvantari* in R.V IX. 112. In R.V. 1.117. 13 and V.74.5, we find that *Chyavana* was rejuvenated by the *Ashvini Kumâras*. In 1. 23. 19, the medicinal properties of water are described. Reference is made to phthisis in R. V. X. 163 and to the organs of the body in R. V. III. 36.8, III. 50. 6, VI. 53. 8, VIII. 1. 26, X. 1. 84, X. 163 and X. 186. Similarly in the *Sâma Veda* II. 10. 70. 184 and in the *White Yajur Veda* XII.74. 75 and the 16 hymns that follow, we have reference to the medicinal properties of drugs.

But it is the *Atharvana Veda* which deals more fully with medicine. Here we have reference not only to mineral and vegetable drugs but also the causes of diseases (A. V. I. 23, 24, 36). "This work in its tenth book contains", as Dr. Hroernle notes, "a hymn (the second) on the creation of man, in which the several parts of the skeleton are carefully and orderly enumerated in, striking agreement more specially with the system of *Atreya* as contained in *Charaka's* Compendium". It is for this reason that the *Ayurveda* is generally included in the *Atharvana Veda*. This is also distinctly indicated by both *Charaka* and *Sushruta*. *Sushruta* (1. 1) calls it the *Upânga* of *Atharvana Veda*; and in *Charaka Samhita* (1. 30), we find that *Atreya's* advice to his pupils was to have faith in the *Atharvana Veda*, because the latter deals with the treatment of diseases in the form of religious rites, sacrifices, oblations, expiation, fasts, the chanting of hymns, etc.

If we take the time of the Vedas to be 2000 B. C., we see that as early as this, the practice of medicine was in a very crude form. Nowhere in the four Vedas, can we find any mention of the term '*Ayurveda*'. So we may take it that when later on the medical side of the Vedas was more fully and systematically developed, it formed a separate subject by itself and came to be known as *Ayurveda*.

For all practical purposes, therefore, we may begin with *Atreya* and *Sushruta*.

CHAPTER II

1. Chronology

The time of *Atreya* and *Sushruta* cannot be definitely fixed. In fact, there is much difference of opinion regarding their dates. But there is a general agreement about these two teachers being regarded as contemporaries. To have some idea about the relative dates of Ayurvedic authors, we may take the time of *Buddha* as the standard, because the historical facts of the Buddhistic period are now well-established. I shall give here a short note regarding the chronology of the authors and the chief works on *Ayurveda* now available.

Atreya and Sushruta: Buddha was born in 557 B. C. A study of the Buddhist *Jâtakas* or Folklore shows that at the time of *Buddha*, there existed in India two great universities: one at *Kâsi* or Benares in the East and another at *Takshila* or Taxila in the Punjab. In the latter University, shortly before *Buddha*, the leading professor of Medicine was the great physician *Atreya* (Rockhill's *Life of Buddha*, pp. 65 and 96). *Atreya's* date therefore comes to be about the sixth or seventh century B.C. Hoernle has shown in his "Osteology", that from indications in the *Shatapatha Brâhmana*, the date of *Sushruta* may be referred to the sixth century B.C. His conclusion is that "*Sushruta* was a rather younger contemporary of *Atreya*, or let us say, a contemporary of *Atreya's* pupil *Agnivesha*".

2. The Charaka Samhitha

Charaka and Drdhabala: The Agnivesha Samhitha, written about the sixth century B. C., was revised and redacted by *Charaka* in the first century A.D. *Charaka* is said to have been the trusted physician of the celebrated Indo-Scythian King *Kanishka*. He could not, however, complete his task, but left it half-finished at a point in the *Chikitsa Sthâna*, seventeen chapters of which together with the books called *Siddhi* and *Kalpa Sthâna* were added by *Kapilabala's* son *Drdhabala*, of the city of *Panchanda*, about the eighth century A.D. The extant *Charaka Samhitha* is thus the revised *Agnivesha Samhitha* redacted by *Charaka* and supplemented by *Drdhabala*. But the texts from any portion of the book is now generally referred to as those from *Charaka*. The statement that *Drdhabala* supplemented the work is found in the current texts of *Charaka Samhitha* (C.S. VI. 30 and C. S. II. 8).

3. The Sushruta Samhitha

The two Sushruta: As we have already noted, the *Sushruta Samhitha* was written about the 6th century B.C. In contrast with the *Agnivesha Samhitha*, which is primarily a work on general medicine, *Sushruta's* work deals mainly with surgical matters. Here we have detailed information about the surgical instruments of the ancient Hindus. which are not noticed at all in the *Charaka Samhitha*. But it omitted all mention of some diseases in the treatment of which surgery, at that time, did not enter. Subsequently, a supplementary portion called the *Uttara Tantra*, was added by some anonymous writers. Who this supplementor was is not definitely known. At the present day the whole work, inclusive of the supplement, is known simply as the *Sushruta Samhitha*. In order to distinguish however between the two writers, the original *Sushruta* has been sometimes designated by the old commentator as Sushruta, the elder or *Vridha Sushruta*. The younger Sushruta has been identified by Dr. Hoernle as *Nâgârjuna*, the well-known Buddhist patriarch. If that be so, then his date would practically coincide with that of *Charaka*, namely, the First century A. D.

Accordingly, the original compendia of *Agnivesha* and *Sushruta* would have been revised and re-edited at much the same time.

4. Vâgbhatta, the Elder and Vâgbhatta II

Viigbhata knew both the *Charaka* and *Sushruta Samhitha*. He tried to harmonize the more or less conflicting views of *Charaka* and *Sushruta* and produced a more systematic work on *Âyurveda*, to which he gave the name of *Ashtânga Samgraha* or the summary of the Octopartite Science." (I have already mentioned that *Ayurveda* is divided into eight branches. These are :

1. *Kâya Chikitsa* or general medicine.
2. *Shalya Tantra* or major surgery.
3. *Shâlakya Tantra* or minor surgery
4. *Bhuta Vidyâ* or psychiatries.
5. *Kaumâra Bhrutya* or pediatrics.
6. *Agada Tantra* or toxicology .
7. *Rasâyana Tantra* or tonics, and
8. *Vajîkarana Tantra* or science of Aphrodisiacs.

Even in *Vâgbhata's* time, the study of surgery had almost ceased).

According to Hoernle, the Buddhist pilgrim Itsing, who resided ten years in the *Nâlanda* monastery in Bihar, from about 675 to 685 A.D., states in his Record of Buddhist Practices that the "eight arts (i. e. branches of medicine) formerly existed in eight books, but lately a man, epitomized them and made them into one bundle or book". Accordingly, *Vâgbhata I* may be placed early in the 7th century A. D.

The *Ashtânga Samgraha* is written mainly in prose. Later on, on the basis of the above summary, another *Vâgbhatta* wrote a new work in verses called the *Ashtânga Hrudaya Samhitha*, or the compendium of the Essence of the Octopartite Science. That the *Ashtânga Hrudaya* was based on the *Ashtânga Samgraha* is acknowledged by *Vâghhatta II* himself (*Uttara Tantra*, Ch. 40). As regards the date of *Vâgbhatta II*, Professor Jolly has shown that the evidence of Tibetan and other sources point to the 8th or 9th century.

Mâdhava: The Ayurvedic practionner cannot do without a copy of *Mâdhava Nidâna*. It is a book on pathology, collected from various authors. The arrangement of the texts is excellent, and the sequence of diseases adopted by *Mâdhava* has invariably been followed by

later writers. From the evidence of Arabic sources, Professor Jolly has placed *Mâdhava* in the 7th or 8th Century.

We thus see that the three medical writers *Mâdhava*, *Drdhabala* and *Vâigbhata II* come in the period from the 7th to the 9th century, at no very great interval from one another and that *Drdhabala* takes his place intermediately between *Mâdhava* and *Vagbhata II*.

Sârangadhara and *Bhâva Mishra*: Among the books now much in use, may be mentioned the works of *Sârangadhara* and of *Bhâva Mishra*. Their dates are respectively the 14th and 16th century A. D.

5. The Commentators

Of the commentators on Ayurvedic works, the name of *Chakrapâni Datta* stands out most prominently. He not only wrote a complete and authoritative commentary on the *Charaka Samhita*, called the *Charaka Tâtparya Tikâ* (i. e. Explanation of *Charaka's* meaning) or *Ayurveda Dipikâ* (i. e. Light on General Medicine), but also a commentary on *Sushruta Samhita* as well, called the *Bhânnumati*. He lived about 1060 A. D.

The *Charaka Tattva Pradipika* was written in later times by *Sivadâsa Sena*, who also wrote the *Tattva candrikâ*, a commentary on *Chakradatta*. We have got another well-known commentary on *Charaka*, a recent one, written by the great Sanskrit Scholar and Ayurvedist of Bengal *Gangâdhara Kavirâja*, who published his *Tika Jalpa Kalpataru* in 1879.

Of the commentaries on *Sushruta Samhita*, the most important now current is that of *Dalhâna*, called the *Nivandha Samgraha*. *Dhalhâna* has been placed by Dr. Hoernle in the 12th century. He frequently quotes a commentary by *Gayadâsa*, called *Nyâya Chandrika*. *Gayadâsa*, therefore, cannot be placed later than the 11th Century and he may have been a contemporary of *Chakrapâni*, seeing that neither appears to quote from the other.

On the compendium of *Vâgbhatta I*, we have a commentary by *Indu* called *Shashilekha*, and on that of *Vâgbhatta II* one by *Arunadatta* called the *Sarvânga Sundari*. *Arunadatta* probably lived in 1220 A. D.

On *Mâdhava's Nidâna*, there exists a commentary called *Madhu Kosha*, the joint work of *Vijaya Rakshita* and his pupil *Srikanta Datta*. They lived about 1240 A.D.

I give here a chronological list of the Ayurvedic authors and their commentators, whom I shall have to consult in writing this monograph.

6th – 8th century BC: *Agnivesha*, *Bhela*, *Sushruta I*

1st century AD: *Charaka*, *Sushruta II* (*Nâgarjuna*)

Early 7th century AD: *Vâgbhatta I*

7th Century A.D. : *Mâdhava*

8th century: *Drdhabala*

9th Century: *Vâgbhatta II*

11th Century : *Chakrapâni*, *Gayadâsa*

12th Century: *Dalhana*

About 1220: *Aruna Datta*

About 1240: *Vijaya Rakshit*

About 1260: *Srikanta*

14th Century: *Sârangadhara*

15th Century: *Shiva Dâsa*

16th Century: *Bhâva Misha*

19th Century: *Gangâdhara*

PART TWO NATURAL PHILOSOPHY

CHAPTER III :

CONCEPTION OF THE ANCIENT HINDUS REGARDING THE PHYSICAL WORLD

Ayurveda is a vast store house of knowledge and a fruitful source of research. It deals not only with the body and mind, but also with the highest thoughts of Philosophy. It has, therefore, formed the basis of study of eminent thinkers, Indian and European, and we have got some valuable and instructive treatises on different subjects included in that system. But so far, nobody has attempted any serious study of Hindu Medicine from the physiological point of view.

1. The Principle of Vâyu, Pitta and Kapha

The Physiology of *Âyurveda* is the physiology of the all-important trio, *Vâyu*, *Pitha* and *Kapha* or *Tridosha* as they are generally called. Anybody, even faintly acquainted with *Ayurveda*, must have frequently come across the terms *Vâyu*, *Pitha* and *Kapha*. But very few have any clear idea of what is really meant by the terms. Every grown-up Indian has some vague idea about *Vayu*, *Pitta* and *Kapha*, and the terms are also used in common parlance. But in the majority of instances, the popular conception is quite different from the medical one. We have ample reference in Ayurvedic literature to the properties and different functions of *Vayu*, *Pitta* and *Kapha*, both in their normal and abnormal conditions. But we have no direct evidence by which we can come to a definite conclusion regarding the ultimate nature of these three substances. All that we can do is to make some inference based on reason, by a comparison of the original texts of Charaka, Sushruta and others and supplemented by such evidence as we can get from non-medical sources. Yet *Vâtha*, *Pitha* and *Kapha* are the three entities on which stands the whole foundation of *Ayurveda*; we have to deal with them from the beginning to the end. Without their proper knowledge, successful treatment of diseases according to the Ayurvedic System is quite impossible. Before proceeding further, it is necessary that we should know something of the conception of the ancient Hindus regarding the physical world. Charaka and Sushruta have mainly followed the *Nyâya-Vaisheshika* and *Sâmkhya-Yoga* systems of Philosophy and occasionally the *Vedanta* view of the five *Bhuta*.

2. The Sâmkhya System

The Sâmkhya theory of cause and effect :

The *Sâmkhya* assumes an unmanifested *prakruthi* which is the ultimate basis of the empirical Universe. The world is considered to be the *parinâma* or transformation of *prakruti*. Everything is the effect of a producing cause; for from nothing, nothing comes. A thing is always produced, never created. This is the *Sâmkhya* theory of *satkâryavâda*.

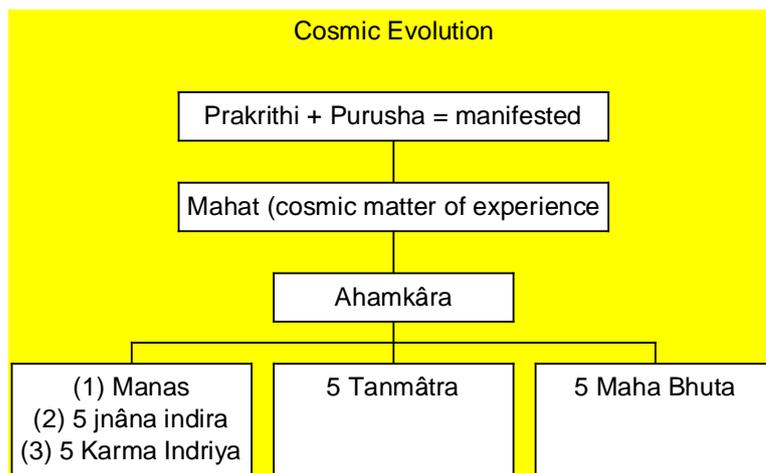
Prakruti is the fundamental substance, out of which the world evolves under the influence of *Purusha*. The development of *prakruti* arises by means of its three constituent powers or *Gunas*, viz. *sathva*, *rajas* and *thamas*. *Sathva* is potential consciousness and therefore tends to conscious manifestation. The second *rajas* is the source of all activity. The third is *thamas*, that which resists activity. The respective functions of *sathva*, *rajas* and *thamas* are manifestations (*prakâsha*), activity (*pravritti*) and restraint (*niyamana*) producing pleasure, pain and sloth. The three *gunas* are never separate. They support one another and intermingle with one another. They constitute the very substance of *prakruthi*. All things are composed of the three *gunas* and the differences of the world are traced to the predominance of one or the other of the three *gunas*. The three *gunas* have thus been described by Dr. Sir B. N. Seal : "Every phenomenon consists of a threefold *arche*: intelligible Essence, Energy and Mass. In intimate union, these enter into things as essential constitutive factors. The essence of a thing (*sathva*) is that by which it manifests itself to intelligence and nothing exists without such manifestation in the universe of consciousness (*samastibuddhi*). But the essence is only one of three moments. It does not possess mass or gravity; it neither offers resistance nor does work. Next, there is the element of *thamas*, (mass, inertia, matter-stuff), which offers resistance to motion as well as to conscious reflection. But the intelligence-stuff and the matter-stuff cannot do any work and are devoid of productive activity in themselves. All work comes from *rajas*, the principle of Energy, which overcomes the resistance of matter and supplies even intelligence with the energy which it requires for its own work of conscious regulation and adaptation". - *Positive Sciences of the Ancient Hindus*, P: 4.

The first product of the evolution of *Prakruthi* is *Mahat* or the Great, the cause of the whole universe. It is the basis of the intelligence or *buddhi*, of the individual. *Ahamkâra* (self-sense) or the principle of individuation arises after *buddhi*. The *gunas* are always associated with all the products of *prakruthi*. They take however three different courses of evolution from *ahamkâra*, according to which the latter is said to be *sâthvika*, *râjasa* or *thâmasa*. From *ahamkâra* in its *sathva* aspect (*vaikârika*) are derived the *manas* and the five organs of perception (*jnânendriya*) and the five of action (*karmendriya*) and from the same in its *thâmasa* aspect (*bhutâdi*) the five fine elemental substances, the *tanmâtra*. The *tâijasa* aspect (*taijasa*) plays its part in both and is present in the results. From *tanmâtra* or the five fine substances are produced the five *bhuta*, by a preponderance of *thamas*. In all these developments, though one of the *gunas* may be predominant, the others are also present, perform their functions and help indirectly the evolution of the products. The fine organs of perception are the functions of sight, hearing, smell, taste and touch. The senses are not formed of the *tanmâtra*, as these arise out of *ahamkâra*. (According to *Ayurveda*, however, these senses are derived from the five *bhuta*). Each sense grasps one quality only. The world, as the object of perception, has the five *tanmâtra* corresponding to the five sense-organs. These are the essences of sound, touch, colour, taste and smell, conceived as physical principles, imperceptible to ordinary beings. Each of them is exclusively concerned with one sense, while the gross *bhuta* appeal to more than one sense.

The series from the *prakruthi* to the five *mahâbhuta* numbers twenty-four and *Purusha* is said to be the 25th Principle of the *Sâmkhya* system. All the things of the world are said to be the *vikruti* of *Prakruthi*. *Mahat*, *ahamkâra* and the five *tanmatra* are the effects of some and the causes of others. The five *bhuta* and eleven organs are only effects and not causes of others. So while *prakruthi* is only cause, sixteen of the products are simply, effects; seven of the products are both causes and effects, while *Purusha* is neither cause, nor effect; it is *nirvikâra*.

The gross atoms or *Mahâbhuta* which are formed from the compounding of the five *Tanmâtra* constitute the inorganic as well as the organic bodies, and in the development from the one to the other, there is no breach of continuity. Inorganic, vegetable and animal kingdoms are the three stages in the process of development marked only by changes in the qualities of the constituents and not in the constituents themselves. The gross body is composed of the five *bhuta*, though there are some who think that the *âkâsha bhuta* is not necessary, and others who hold that *prithvi* alone will do. We shall see later on what the view of *Âyurveda* is about this point.

"The order of Cosmic Evolution according to the *Sâmkhya* is shown below :



These five *bhutas* are the atomic and molecular constituents of gross matter.

The *Nyâya Vaisheshika* system

3. The *Vaisheshika* system

Of the six systems of Hindu Philosophy, however, it is in the *Vaisheshika* that the physical theory of the universe has been fully developed, specially in connection with the five *bhuta* - *Prithvi*, *ap*, *tejas*, *vâyu*, and *akâsha*. As Prof. Radhakrishnan says, "The standpoint of *Vaisheshika* is more scientific than speculative, more analytic than synthetic. Science sorts out, while philosophy sums up. In the spirit of Science, the *Vaisheshika* endeavours to formulate the most general characters of the things observed. It is mainly a system of physics. The *Vaisheshika* and the *Nyâya* agree in their essential principles such as the nature and qualities of the self and the atomic theory of the universe: yet the classification and characterisation of the categories and the development of the atomic theory gave to the *Vaisheshika* its distinctive interest and value". It is of special interest to *Âyurveda*, because here we have to deal primarily with gross matter, and so we find discussed in the very beginning of *Charaka Samhitha* the fundamental concepts of the *Vaisheshika*. Sound philosophy requires us to confine our attention to the things of experience, the object of knowledge and accept such hypotheses as are found to be indispensable for the explanation of the order of experience. An analytic survey is the first need of an accurate philosophy and the results of the *Vaisheshika* are set forth in the doctrine of the *padârthas*. According to Kanâda's *Vaisheshika*, there are six *padârthas* (literally, *artha* i. e., meaning or object of a *pada* or word) to which all words, i.e. all things can be referred. All things must either be -

1. *Dravya*, i.e. substance,
2. *Guna*, i.e. quality,
3. *Karma*, i.e. action,
4. *Sâmânya* i.e. genus or generality or what constitutes a genus,
5. *Vishesha*, i.e. species or particularity or what constitutes an individual,
6. *Samavâya*, i.e. inhesion or inseparability.

According to some, there is a seventh category, viz. *abhâva* or negation.

The enumeration of these categories is meant to be a complete analysis of the entire universal scheme, including God. The first three of these have real objective existence and as such form one group; the last three are the products of our conception. The six nameable things are called *bhâva-padârthas*, i.e. things that exist.

Charaka in the first chapter of his book has, after indicating the six *padârthas*, defined them one by one. We shall first deal with *dravya*, because being the substratum of all the rest, it is the most important.

SUBSTANCE

4. *Dravya* explained with reference to the other five categories

Dravya is defined as "that which contains in it action and quality and is a co-existent cause". (C. S. I. 1.50 ; V. S. I. 1. 15). Substances exist and have qualities. We have two kinds of qualities, those which reside in a plurality of objects and those which are confined to individuals. The former are the general qualities (*sâmânya*), while the latter are distinguished as permanent (*guna*) and transitory (*karma*). Inherence is a special kind of relation. Relations are of two kinds. external like conjunction (*samyoga*), or internal like inherence (*samavâya*). The first is regarded as a quality and the second is made a separate category.

The *Vaisheshika* believes that a substance is something over, and above the qualities. It is anxious to assert the existence of something which has qualities without being itself a quality, for we predicate qualities of substances and not qualities of qualities. Nor can it be said that we predicate one quality of a group of qualities. But since a substance cannot be conceived apart from qualities, it is defined as possessing qualities.

Qualities and action exist by combination with substance. Without substance, there were no qualities or action. Similarly, genus and species are correlative and are not absolute, except in the case of the highest genus which is Existence (*bhâva*) and the lowest species which is *vishesha* or individual characteristics appertaining to and inhering in the external substances. Genus and species, therefore, exist by combination with substances. Without substances, there were no genus and species. Similarly *Samavâya* or combination is "the intimate connection in the inseparably connected things", e.g. parts and wholes of substances and their qualities, of action and the seat of action of genus and species and substances in which they reside, and of external substances and their ultimate differences. Without substance, then, there were no combination. Substance or *dravya*, therefore, is the fundamental reality.

5. Dravya described

Dravyas are nine in number, viz. the five *Bhutas*,

1. *Prthivi* (Earth)
 2. *Apah* (Water)
 3. *Tejas* (Fire)
 4. *Vâyu* (Air)
 5. *Âkâsha* (Ether)
- and
6. *âtman* (Soul)
 7. *Manas* (Mind)
 8. *Dish* or dik (Space) and
 9. *Kâla* (Time).

These nine substances are intended to comprise all corporeal (*murta*) and incorporeal (*a-murta*) things. Ether, time and space are all-pervading, have the largest dimensions and are the common receptacles of all corporeal things. Soul and mind, Ether, time and space, Air and the ultimate atoms are not ordinarily perceptible, (V. S. VIII. 1.2).

[It must be clearly understood here that whenever we use the terms Earth, Water, Fire, Air and Ether, we use them only to denote the five *bhutas* and not in the sense of ordinary earth, water, air, fire or ether]

Charaka says that *dravyas* are of two varieties, - animate and inanimate. Those endowed with the senses are called animate; those devoid of senses are inanimate, (*Sendriyam cetanam dravyam, nirindriyam acetanam*, C. S. I. 1. 47.)

QUALITY AND ACTION

While a substance is capable of existing independently by itself, quality or *guna* cannot so exist. It should be pointed out here that the *gunas* of the *Vaisheshika* are quite different from the three *Gunas* of the *Sâmkhya* where the term has been used in a distinct and special sense.

6. Guna defined

Kânada defines *Guna* as "that which has substance for its substratum, has no further qualities and is not cause of, nor has any concern with conjunction or disjunction", (V. S. I. 1.16 ; Cf. C, S. I,1.50.) We see that quality can reside in substances only. At first sight it appears difficult to see the correctness of this notion; as we often make use of such expressions as 'red colour', 'sweet taste', etc., where qualifications of the redness and sweetness are found to be spoken of with reference to colour and taste, which are themselves qualities. But what the *Vaisheshika* will say is that the redness has for its substrate the coloured substance and not the colour or that sweetness is an attribute not of taste but of the tasteful substance.

7. Karma defined

Karma is defined to be "that which resides only in one substance, is devoid of qualities and is the direct and independent cause of conjunctions and disjunctions", (V. S. I. 1.17 ; C. Sl. 1.51).

Karma here signifies movement, and voluntary action or the law of moral causation. All movements belong to substances as much as qualities, only while a quality is a permanent feature of the substance, activity is a transitory one. The heaviness of the body is a quality, while its falling is an accident. Qualities which continue to exist are called *Guna*, while those that cease to exist are called *Karma*. It is a distinction between continuant and occurrent qualities.

The *Vaisheshika* mentions seventeen qualities, (V.S.. 1. 1.6),

1. Colour (*rupa*)
2. Taste (*rasa*)
3. Smell (*gandha*),
4. Touch (*sparsa*)
5. Number (*samkhya*)
6. Size (*parimâna*)
7. Individuality (*prthaktva*)
8. Conjunction (*Samyoga*)
9. Disjunction (*Vibhaga*)
10. Priority (*paratva*)
11. Posteriority (*aparatva*)
- 12, Knowledge (*buddhi*)
13. Pleasure (*sukha*)
14. Pain (*dukha*)
15. Desire (*icchâ*)
16. Aversion (*dvesha*) and
17. Effort (*prayatna*).

To these, *Prasastapâda* added seven more, making a total of twenty-four :

18. Heaviness (*Gurutva*)
19. Liquidity (*dravatva*)
20. Viscidity (*Sneha*)
21. Merit (*dharma*)
22. Demerit (*adharma*)
- 23 Sound (*Shabda*)
24. Faculty (*Samskâra*).

8. Guna enumerated

Charaka enumerates 41 *gunas* as : "*Sârtha gurvâdayo buddhi prayatnântah parâdayah Guâh proktâh* " (C. S. I. 1.48).

These are :

I. (5) Artha (i.e. the five sense-objects), Sound, touch, colour, taste and smell.

II. (20) *Gurvadaya* (i.e. *Guru* etc.). These are twenty in number, as mentioned in C. S. I. 25. 35, given below.

III (1). *Buddhi*.

IV (5). *Prayatnânta* (i.e. ending with *prayatna*), viz. *lccha*, *dvesha*, *sukha*, *dukha* and *prayatna*.

V (10). *Paradaya* (i. e. *para* etc.),- *Para*, *apara*, *yukti*, *samkhya*, *samyoga*, *vibhâga*, *prthaktva*, *parimâna*, *samskâra* and *abhyâsa* (C, S I. 26,27, 28). Apart from the twenty qualities of *Guru*, etc., we see that Ayurvedxa accepts practically all the qualities mentioned by *Prashastapâda*. *Dharma* and *adharma* are included in *Samskâra* and two extra qualities are mentioned,--*Yukti* (reason) and *Abhyâsa* (habit).

Ayurveda deals with the human body and is primarily concerned with the gross *Pânchabhautika* matter. That is why it has to enumerate the twenty special qualities to suit its special need. For our purpose, it is very important to explain the definite meaning conveyed by these terms. These twenty *Gunas* are:

1: *Guru* – heavy

2. *Laghu* - light.

3. *Shîtha* - cold.

4. *Ushna* - hot.

5. *Snigdha* - viscous.

6. *Rukshma* - dry.

7. *Manda* - Inactive (*Cirakâri* i.e., slowly, according to Arunadatta, A. H. I. 1).

8. *Tikshna* - Active, energetic (*Sighrakâri*, i.e. that which acts quickly).

9. *Sthira* - motionless (as a solid)- *avyâptishila* i.e. that which does not spread out.

10. *Sara* - fluid (*vyâptishila*, i.e. that which spreads upwards, downwards etc.: does not stand still).

(There is another term '*Cala*' used instead of '*Sara*'. It means that which flows - does not remain in one place).

11. *Mrdu* - soft, acting,

12. *Kathin* - hard.

13. *Vishada* - clear, transparent.

14. *Picchala* - Slimy.

15. *Slakshna* - Smooth.

16. *Khara* - rough.

17. *Sthula* - bulky, coarse.

18. *Sukshma* - penetrative (*shrotah-pravesitvât*, "that which can penetrate into the finest interstices").

19. *Sândra* - dense, solid.

20. *Drava* - liquid.

Of the above qualities, we see that *Guru* is opposite to *Laghu*, *Shita* is opposite to *Ushna* and so on.

9. Karma and force

Kânada has distinguished five kinds of *Karma* or movement, upward, downward, contraction, expansion, and movement in general. *Charaka* describes *Karma* in a different way. He says, "*Prayatnâdi karma cetitam-ucyate*" (C. S. I., 1.48) - that whose *âdi* or cause is *Prayatna* i.e. effort, is *Prayatnâdi*. This is *Ceshta* or Action. The Self generates *Ichha* or desire. Due to desire is originated *krti* i.e., *yatna* or effort. From effort we get *Cestâ* or action. We see therefore that the impulse must always come from, or in other words, must originate from Self. If we want, for example, to move a body, the Self in me first wishes to move it. So we make an effort, which produces an action, the result is that we put some force on the body. This force may or may not be able to move the body. Still there is some action or *Cestita*.

SÂMÂNAYA AND VISHESHA

10. Sâmânya and Vishesha

When we admit of a plurality of substances, it is evident that there will be relations among them. The substances will be similar to one another in some respects, since they are all substances; they will also diverse from one another, since they are separate substances. When we find a property residing in many things we call it *sâmânya* or general; but if we regard it as distinguishing these objects from others, we call it *vishesha* or particular.

Sâmânya is the abstract noun derived from the word *Samâna*, i.e. equal or similar; and thus it stands for the property that tends to make certain things to be regarded as similar; hence the common characteristic belonging to many individuals. And *vishesha* serves the purpose of differentiating one individual substance from another and also distinguishing itself from all other things. It is the basis of exclusion. So we find *Charaka* saying: "*Sâmânyam-ekatva-karam visheshastu prthaktvakrt*" (C.S. I.1.44), i.e., *Sâmânya* makes different individuals one and *vishesha* makes them different.

Sâmânya and *Vishesha* have been given special prominence in *Ayurveda*, because it is upon *Sâmânya* and *Vishesha* that the fundamental principle of the treatment of diseases according to the Hindu System of Medicine is based. That principle is the Law of Similar and Contraries. *Charaka* enunciates it thus, "The cause of increase of substances, qualities and actions at all times is *Sâmânya*, the cause of decrease is *Vishesha*" (C. S. I. 1.43).

SAMAVĀYA

11. Samavâya defined

Prasupthapâda defines *Samavâya* or inherence as "the relationship subsisting among things that are inseparable, standing to one another in the character of the container and contained,- such relationship being the basis of the idea that 'this is in that', (cf. V. S. VII. 2.26). *Charaka* says, - "The state of inseparability of the qualities from the substances *Prthivi*, etc. is *Samavâya*. This relationship is eternal; because where there is substance there is also quality without exception". (C. S. I. 1.41).

CHAPTER IV : THE PĀNCHABAUTIKA THEORY OF MATTER

We have seen that the five emanating from *Ahamkâra* are Sound, Touch, Colour, Taste and Smell.

1. The five *Tanmâtras*

The essences of sound are perceived in sounds only. Differences of sounds such as acute, grave, the five circumflexed, etc. are perceived; but there is no difference in the essence of sound.

The essences of touch are perceived in touch only. Differences of touch such as soft, hard, rough, slippery, cold or hot are perceived; but there is no difference in the essence of touch.

The essences of colour are perceived in colour only. Differences of colour such as white, red, black, green, yellow or purple are perceived; but there is no difference in the essence of colour.

The essences of taste are perceived in taste only. Differences of taste such as sweet, sour, salt, pungent, bitter or astringent are perceived; but there is no difference in the essence of taste.

The essences of smell are perceived in smell only. Differences of smell, such as sweet or offensive are perceived; but there is no difference in the essence of smell.

2. The five *Mahâbhutas*

The five *Mahâbhuta* originate from the five *Tanmâtra*. Of these, the *Prthivi* helps the other four by being their support. *Ap* helps the other four by moistening. *Tejas* helps the others by ripening. *Marut* helps by drying and *Akâsha* helps the other four by giving space. *Prthivi* is possessed of five qualities, - sound, touch, colour, taste and smell. *Ap* is possessed of four qualities, - sound, touch, colour and taste. *Tejas* is possessed of three qualities, sound; touch and colour. *Vâyû* is possessed of two qualities, - sound and touch. *Akâsha* has only one quality, sound.

We thus get :

Âkâsha – (Sound-essence)

Vâyû – (Sound + touch)

Tejas – (Sound + touch + colour)

Ap – (Sound + touch + colour + taste)

Prthivi – (Sound + touch + colour + taste + smell).

Though Earth contains a number of qualities; we yet say that it has smell, on account of the predominance of this quality. If water and other substances besides earth possess smell, it is because particles of Earth are mixed up with them. We cannot think of Earth without smell, though we can so think of air and water. The special quality of Water is taste. Fire has for its special quality luminosity. Air is invisible, though limited in extent and made up of parts. The discrete nature of Air is inferred from the movements in the air, which would not be possible were Air an

absolute continuum devoid of parts (V. S. II.1.14). Its existence is inferred from its special quality of touch and it is said to be a substance, since it possesses quality and action.

According to the *Vaisheshika*, the ultimate constituents of the concrete things of earth, air, fire and water are called *paramānu* or atoms.

Charaka has pointed out the primary qualities or special physical characters, of the five *Bhuta* in a different way. He says, "The characteristic of Earth is roughness, that of Water liquidity, of Air expansion, of Fire heat and that of Ether non-resistance. All these qualities are perceived through the sense of touch," - "*Sparshendriya gocharam*", (C. S, IV. 1,27).

3. *Bhutas* are not elements

The *Bhuta* has been translated as 'element'. This is misleading. *Bhutas* are not elements and *paramānus* are not atoms or molecules in the modern sense of the terms. Modern writers laugh at the idea of calling the earth, water, fire, air and ether elements, ignoring the fact that a *Bhuta* is just an element, in the chemical sense of a substance that cannot be further analysed. "On referring to any *Vaisheshika* manual, it will be clear that what is ordinarily known as 'earth', is not regarded by the *Vaisheshika* to be an 'element' – in the technical sense; if it were so regarded, then alone could the *Vaisheshika* view be stigmatised as primitive and unscientific. The touch of 'Earth' in its pure state is said to be 'neither hot nor cold' so also the touch of 'Air' and when asked why the ordinary earth and ordinary air are found to be very far from 'neither hot nor cold', the *Vaisheshika* explains that this is due to earth and air being mixed up with particles of Fire or Water, which make them hot or cold. From this, it is clear that what is regarded as 'element' is not the earth etc., as we know and see them, but as they exist in their pristine and pure state, unmixed with any other substances". Just as an atom of a chemical element has no free and independent existence, so also the five *Bhutas* in their pure state are never found in nature. What we find are compounds of the five *Bhutas*, mixed together in different proportions; that is to say, all gross matter is penta-bhautika.

4. Psychological explanation of the five *Bhutas*

The question may be asked, why were only five *Bhutas* postulated? Now, God has endowed us with only five senses, neither more nor less. The external world can only be apprehended by us through these five senses or *Indriya*. There is no other source which can give any information about matter which constitutes the physical world. For one particular *Indriya*, there is only one particular sense-object. The *srotarindriya* or the sense of hearing can appreciate only the quality of sound. Sound, touch, colour, taste and smell are the five sense-objects corresponding to the five senses. These are *gunas*, and as such cannot exist independently by themselves, but must have some receptacle. In this way, we get five receptacles,- the five *Bhutas*. What, for example, is the 'atom' of Earth, but an ultimate material substratum of odour. On the other hand, let us take the case of the coloured gas Chlorine. It can be felt, smelt, tasted and seen. We are cognizant of its existence by at least four different sensory impressions; therefore it is not an element in the *Vaisheshika* sense of the term; it must be composed of at least four different *Bhuta*. The Hindu classification of matter into five *Bhuta* is, therefore, not at all absurd, as is supposed by many scientists who have an altogether different viewpoint.

According to Dr. Ganganath Jha, what the *Vaisheshika* means by saying that there are five *Bhuta*, is that there are five states of matter, viz., solid (Earth), liquid

(Water), gaseous (Air), luminous (Fire) and etheric (*Akâsha*). It is better, however, to regard them as the *Ashrayas* or repositories of the five qualities, viz. of smell, etc.

The confusion has been introduced by denoting the *Bkutas* by terms which are also used with reference to external objects of matter, such as earth, etc. But, as Hoffding says, "because language was developed under the influence of attention directed to the external world, we find that expressions for mental phenomena were originally taken from the material world. The inner "World behind is denoted by symbols borrowed from the "outer world of space".

5. Panchabhautika matter

We shall now expound this *panchabhautika* theory as detailed in Ayurveda. Matter, as we meet with it, is a mixture of the *Bhutas*, containing one or the other in a predominant degree. As *Sushruta* says, all substances are derived from a combination of the five *Bhutas* and the predominance of any one of them in a particular substance determines its character; and we say, this is Earthy (meaning thereby that it contains the Earth *Bhuta* in a predominant degree), this is Watery, this is Fiery, this is Airy and this is Ethereal (S. S. I.41.3 ; cf. C. S. I.26).

According to the elder *Vâgbhatta*, every form of matter is penta-*bhautika*. Of the *Bhutas*, *Prthivi* is the repository, *Ap* the source and *Âkâsha*, *Vâyu* and *Tejas* are the accompanying causes by the combination of which the resulting body is produced, (A. S. I. 17).

6. The *Bhutas* ; their qualities

Sushruta has enumerated the respective qualities of the five *Bhutas* (S. S. III. 1.19). But as we have already noted, five *Bhutas* in their absolute states are not found in nature. What we find is qualities *Panchabhautika* matter. As *Ayurveda* has to deal always with gross matter, both Charaka and Sushruta have described the properties and functions of matter classifying them as Earthy, Watery, etc. (C. S. I.26.11; S. S. I.41.4 ; also *Vâgbhatta*, A. S. I. 17).

The qualities of the five *Bhutas* have thus been described by *Sushruta* with reference to the human body: (S.S.III.1.19)

Of *Âkâsha-bhuta*:

1. Sound (*Shabda*)
2. Sense of hearing (*shabdendriyam*)
3. Porosity (*Sarva-cchidrasamuhah*)
4. Power of differentiation (*Viviktatâ*)

According to the commentator Dalhana, *Viviktatâ* means individualisation of the arteries, veins, nerves, muscles, bones and other parts of the, body.

Of *Vâyu-bhuta*

- 1.Touch (*Sparsha*)
2. Sense of touch (*Sparshendriyam*)
3. All activities (*Sarva-ceshtâsamuhah*)
4. All vibrations (of the body) - *Sarva-sharira-spandana*
5. Lightness. (*Laghutâ*).

Of *Tejo-bhuta* :

1. Colour (*Rupam*)
2. Sense of sight (*Rupendriyam*)
3. Complexion (colour of the skin), *Varnah*
4. Heat (*Santâpa*)
5. Lustre (*Bhrajishuntâ*)
6. Digestive power (*Paktih*)
7. Anger (*Amarsha*)
8. Energy or, activity (*Taikshnyam*)
9. Valour (*Shauryam*).

Of *Jala-Bhuta*:

1. Savour (*Rasa*)
2. Sense of taste (*Rasanendriyam*)
3. Liquidity (*Sarva-dravasamuhah*), of all liquid parts of the body
4. Heaviness (*Guruta*)
5. Coldness (*Shaityam*)
6. Viscosity (*Snehah*)
7. Semen (*Retas*), i.e. power of producing semen

Of *Prthivi-bhuta*:

1. Odour (*Gandhah*)
2. Sense of smell (*Gandhendriyam*)
3. Hardness (of all solid parts of the body) - *Sarva-murtasamuhah*)
4. Heaviness (*Gurutâ*).

And *Sushrutha* adds (following the *Sâmkhya view*), that the quality of *Sattva* predominates in *Âkâsha*, *Rajas* in *Vâyû*, *Sattva* and *Rajas* in *Agni*, *Sattva* and *Tamas* in *Ap* and *Thamas* in *Prithivi*.

THE PROPERTIES AND FUNCTIONS OF *panchabhautika* MATTER

The properties and functions of gross matter, classified as Earth-predominating substance, Water-predominating substance, etc., are enumerated below in a tabular form :

PROPERTIES:

Of Earthy matter	Of Watery	Of Fiery	Of Airy	Of Ethereal
Bulky	-	Penetrative	Penetrative	Penetrative
Dense	Dense	-	-	-

Heavy	Heavy	Light	Light	Light
Hard	Soft	-	-	Soft
Inactive	Inactive	Active	-	-
Motionless	Flowing	-	-	-
Rough	Moist	Rough	Rough	Smooth
-	Viscid	Dry	Dry	-
-	Cold	Hot	Cold	-
-	Slimy	Clear	Transparent	Transparent
Firm	-	-	-	-
Smell predominates	Tastes predominates	Colour predominates	Touch predominates	Sound predominates
Slightly astringent	Slightly astringent, sour and salty	Slightly sour and salty	Slightly bitter	Unmanifested taste
Mostly sweet	Mostly sweet	Mostly pungent	Mostly astringent	-
Natural tendency to fall down	-	Natural tendency to go upwards	-	Vyavâyi, i.e., has instantaneous effect like poison
To make the body steady, strong, heavy and hard	To make the body viscid, moist and compact. To make the liquid parts of the body flow.	Combustion Digestion To keep up heat of the body. To manifest the parts. To impart a glow to the body.	To make the body non-viscid, dry and light	To make the body soft, porous and light

According to *Ayurveda*, the body as well as the five *Indriyas* are derived from the five *Bhutas*. *Caraka* says (S.S.IV.7.15):

“Those parts of the body which are specially bulky, motionless, solid, heavy, rough and hard, such as the nails, bones, teeth, muscles, skin, faeces, hairs, ligaments, etc., - are *Parthiva*; the smell (of the body) and the sense of smell also are Earthy. Those parts of the body which are liquid, inactive, viscid, soft, slimy and which flow, such as chyle, blood, fat, lymph, *Kapha*, *Pitta*, urine, sweat, etc, are *Apya*; the taste and the sense of taste also are Watery. The heat of *Pitta* and the radiance of the body are *Agneya* ; the colour and the sense of sight also are Fiery. Exhalation, inhalation, the opening and closing of the eye-lids, contraction, expansion, movement, incitement, sustenance, etc., are *Vâyaviya*, i.e. due to *Vâyû*, (*Vâyû* being invisible, its presence is inferred from its actions and qualities); touch

and the sense of touch also are Airy. The pores and channels of the body are *Āntarikshaka*. Soul and the sense of hearing also are Ethereal. The atoms constituting the body, being infinite in number, extremely minute in size and, being beyond the perception of the senses, cannot be counted". So the above general division has been made.

PART III THE PRINCIPLE OF VĀYU, PITTA AND KAPHA

CHAPTER V : THE THREE DOSHA ARE DRAVYA

Now comes the question of *Vāyu*, *Pittha* and *Kapha*. The body is *pancabhautika*, but with this penta-bhautika body is associated from its birth till death, the three entities *Vāyu*, *Pittha* and *Kapha*. The body is derived from the five *Bhutas*, and still it is said that the cause of generation of the body is *Vāyu*, *Pittha* and *Sleshama* (i.e. *Kapha*) (S.S. Ch. 21).

This conception of the body as being caused by *Vāyu*, *Pittha* and *Kapha* is unique and is peculiar to *Ayurveda*, and by this originality *Ayurveda* stands apart from every other concept of Hindu Philosophy.

The question now arises, - Why, if the *Panchabhautika* theory was sufficient to explain everything, have these three entities been introduced in *Ayurveda* ? What is the utility of acknowledging these three substances as separate entities? Are they really separate, i.e. distinct, apart from the five *Bhutas* ?

The aim of *Ayurveda* is two-fold, - to preserve the health of the healthy and to cure the patient of his diseases. Any disturbance in the normal proportion of the five *Bhutas* which go to make up the whole body, constitutes a disease. But a change in this proportion may take place in an infinite number of ways, causing an infinite variety of diseases. On the other hand, there is an infinite variety of *Panchabhautika* matter, each different from the other. So it is certain that we can select a particular kind of matter to get rid of a particular kind of disease; because, for any abnormal proportion of the five *Bhutas* in the body, we can find out a particular substance in which the proportion of the *Bhutas* is just the opposite. This latter substance, when used as a medicine, will bring about the normal condition again. We thus see that there is no substance in this universe which cannot be used as a medicine (Cf. C.S. I. 26.12).

(Let us take a hypothetical case. Suppose, the blood has become abnormal. Now, blood is *Panchabhautika*, let us say,

Blood = Earth-bhuta 1 part + Water 3 parts + Fire 4 parts + Air 1 part + Ether 1 part.

For some reason or other, this proportion is disturbed, the Fire-part becoming 2 and Water-part 5; the blood also in consequence, becomes impure. Let us suppose again that

Iron = Earth-bhuta 4 parts + Water 1 part + Fire 3 parts + Air 1 part + Ether 1 part.

If we use iron for the above case of impure blood, it will increase the Fire-part and by the preponderance of the Earth-part will decrease the Water-part, and in this way will bring about the normal proportion of the *Bhutas* in the blood again).

The above is quite all right, so far as theory is concerned. In practice, however, it is quite impossible to ascertain the change of proportion of the *Bhutas* brought about in the body. Moreover, it is also practically impossible to ascertain the numberless indirect causes that produce a disease. So the Aurvedists adopted a simpler method; they said that the body is composed of *Dosha*, *Dhatu* and *Mala* (S.S.1.15.3 ;Cf. A.H. I. 11). The *Doshas* are three, namely *Vâyu*, *Pitha* and *Kapha*. Without their association no disease is possible. The *doshas* are in fact, the direct causes of a disease. It is the *Vâyu*, *Pitha* and *Kapha* which are the causes of the production, preservation and destruction of the body.

1. The Tridosha must be included in the six *Padarthas*

Now whatever *Vâyu*, *Pitha* and *Kapha* may mean they must be included in the six *Padârthas* mentioned in the *Vaisheshika*; otherwise the whole foundation of the physical conception of the ancient Hinduism as adopted by the Ayurvedists breaks down. Of the six *padârtha* we see from the very definition of *sâmânyam*, *vishesha* and *samavaya*, that the *Tridosha* cannot be included in these three. Also, as we shall see later on, *Vâyu*, *Pitha* and *Kapha* have some definite *Gunas* attributed to them. So, they cannot be *Gunas*; because, as we have already seen, a quality cannot possess other qualities. For the same reason, the *Tridosha* cannot be *Karma*. So they must be, *Dravyas*. Of the *Dravyas* or substances, we can at once eliminate soul, mind, space and time; and ultimately we are left with the five *Bhutas* in which to include the three *Doshas*.

It would not, however, be correct simply to say that, *Vâyu*, *Pittha* and *Kapha* are not separate entities, but are included in or identical with one or the other of the five *Bhutas*; because *Kanada*, *Gotama* and others have fully dealt with the five *Bhutas*; but although we have the term *Vâyu* mentioned by everybody, nowhere can we find even the faintest mention of *Pittha* and *Kapha*.

It would not be proper also to say that *Pittha* having got the distinctive property of *Tejas*, namely hot in touch, must be included in that substance; and similarly *Kapha*, having got the distinctive properties of *Ap*, is not separate from the latter; because the *Vâyu* of *Ayurveda*, having got similar properties to the *Vâyu* of *Kanada*, etc., has been called by the same name and not designated by a different term. Then why, if *Pitha* and *Kapha* are identical with *Tejas* and *Ap* respectively, has a new nomenclature been introduced in the case of these two?

2. Pitha is Taijasa

For the purpose of *Ayurveda*, all substances have been taken to be *panchabhautika* Because *Pitha* of the body effects heat, digestion, etc., which are also the effects of the *Tejas*-substance it has been called by *Sushrutha*, "*Taijasa*" i.e. of the nature of *Tejas* only. *Pitha* is produced by a conglomeration of the primary of inherent causes of the body, viz. the five *bhutas*, the *Tejo-bhuta* predominating. So Gangadhara in his commentary on the *Charaka Samhita* says "*Pittam sarîrambhaka tejah pradhâna panchabhuta vikârâtmakam tejah svarupam agni sangam* (C.S. I. 1. 56). By the association of four *Bhutas* other than *Tejas*, *Pittha* becomes possessed of some distinct qualities of its own (in excess of the general qualities of *Tejas*), such as liquidity, bitterness, mobility, etc. It is for this reason and because of its characteristic form in the body that this *Tejas* or *Agni* of the body has been given a new and distinctive name; just as gold, although it is included in the *Tejas*-substance by *Kanada* because of its lustre, has nevertheless been designated by a separate term.

3. *Kapha* is *Âpya*

Similarly *Kapha* or *Slesman* of body is nothing but a combination of the five *Bhutas*, the *Jala-bhuta* predominating, - "*Kaphah sharîrârambhaka-soma-pradhâna-panchabhuta-vikâra-vishesha*". It may, therefore, be called *Jaliya* or *âpya* having got the characteristic moist and viscid properties of *Ap*. But because, due to the conjunction of the other four *Bhutas*, it gets new and separate properties of its own; and because it has a distinctive form in the human body, it been called by a separate name,- *Kapha*; just as the same substance water, when by different causes and by combination with different substances takes on new forms, is called by different names *Tushra* (snow); *Hima*, (dew) and *Karakâ* (ice).

A question may be pertinently asked now. Like *Pittha* and *Kapha*, the *Vâyû* of the body should also be considered as *pancha bhautika*. Then why, like the other two, has it not been called by a different name, instead of being designated by the universally recognised term *Vayu*?

4. The *Vâyû* of the body

The *Vâyû* of the body is, of course, *Pâncha bhautika*, the *Vâyû Bhuta* predominating. The atmospheric air also has been described as *Pancha bhautika*. In our common experience, we see the air being associated with earth and water particles, with *Tejas* in the form of the sun's rays and with the all-pervading Ether; but still the air remains invisible. The reason is that the other four *Bhutas* are in so very fine states of division, that their mixture with the air does not give the latter a compact and distinct form. As practically every gas is invisible and has no distinct form to distinguish one from the other, the Hindu philosophers did not mention different varieties of gases. For them, there was only one kind of *Vâyû*, and any gaseous substance may therefore be considered as a *Vâyû*. The atmospheric air being the most common example of a gaseous body, came to be regarded as the only *Vâyû*, - meaning thereby that it is a *pancha bhautika* body with a preponderance of the *Vâyû-bhuta*. The Ayurvedists also, when they had to postulate a *Vâyû* for the body, could adopt only the same procedure. The *Vâyû* of the body is produced by a mixture of the five *Bhutas* with a preponderance of the *Vâyû bhuta*. The other four *Bhutas* being in a very minute form, the body-*Vâyû* has no characteristic shape to distinguish it from the outside air. And so, it was denoted by the same term *Vâyû*. According to *Sushruta*, it is *Vâyû* itself that is the cause of production of the body (*Vâyorâtmaivâtma*, S.S: I. 42.5). The body-*Vâyû* is, so to say, a transformation of the *Bhuta-Vâyû* (C. S.-I. 1. 56); as Gangâdhara says, - "*Vâuh sharîrârambakseshu panchasu bhutesu yad dvitiam bhutam, tat parinâmavisheshah sa eva*", C.S.I.I.56).

Here we must point out that although the *body-vâyû* and the external air are both denoted by the same term *Vâyû*, the Ayurvedists had made a clear distinction between the two, as would be evident from *Charaka Samhita*, *Sutra-sthanam*, Chapter 12, where we find *Vâyû* classified as (1) *Sarîracara*, i.e. that moving in and through the body, and (2) *Vahiscara*, i.e. that flowing outside. The *Vâyû* in the body has functions quite distinct from those of the external air; and the different actions of the, *Sarîracara* and the *Vahiscara Vâyûs* have been separately elucidated by *Charaka*.

CHAPTER VI : THE TRIDOSHA AS THE CAUSES OF PRODUCTION, PRESERVATION AND DESTRUCTION OF THE BODY.

We come to the conclusion, therefore, that although *Pitta* and *Kapha* are called by separate names, -- because by association with other substances in the body, they get new forms, they are nothing but transformations of *Tejas* and *Ap* respectively and so must be included in the *Tejas* and *Ap-Bhutas*, -- two of the five primary constituting substances of the body. *Vāyu* also, as we have seen, must be included in the *Bhuta-Vāyu*, which is also one of the constituents of the body. In short, *Vātha-Pitta-Kapha* of the body are particular forms of the Air, Fire and Water *Bhutas*.

1. *Vāyu*, *Pitta* and *Kapha* are the causes of production of the body.

That these three substances are the causes of production, preservation and destruction of the body, can be inferred from our everyday experience. Let us take the familiar example of the Hindu philosophers, that of an earthen vessel. For its complete production, we want water to moisten the clay, air to make the moist jar dry and to help the fire during the burning process and fire to burn it and to change its colour. In the evolution of a plant also, it is evident that nature cannot do without these three substances. Without water, the plant will become dry. Without air, it, cannot grow (as Charaka says - the external air is the cause of the sprouting forth of a plant -C. S. I. 12.8), and without heat (or *Tejas*) there will be no colouration of the leaves, flowers or fruits. In the same way, the process of reproduction of a human being from the fertilised ovum, through the foetal stage and finally to the fully grown and developed child takes place with the help of water in the form of *Kapha*, fire in the form of *Pitta* and air in the form of body-*Vāyu*.

That *Vāyu* is necessary for the production of a body is evident from the fact that it is the *Vāyu* alone which acts in all directions. By this action, it can thoroughly mix up the semen (spermatozoon) of the male and the blood (ovum) of the female. It is the *Vāyu* which, by its activity, causes the segmentation of the fertilised ovum and it is the *Vāyu* again which helps the foetus to assume a definite shape and develop into a full human body.

The sense of touch also, as we have seen, originates from *Vāyu*.

A process of digestion (*Pitta*) is always going on in the body, because without digestion there can be no change. But digestion cannot take place without the association of heat. As *Tejas* is the only substance endowed with heat, we see that the production of a body cannot be effected without *Tejas* (in the form of *Pitta*).

The sense of sight also is produced from *Tejas*, which in the body takes the form of *Pitta*.

As regards *Kapha*, we see that without the presence of some moist watery substance, the body would have been reduced to ashes by the influence of *Pitta*, the transformed *Tejas*. So to keep the body succulent, we must have water in the form of *Kapha*.

The sense of taste also is derived from *Ap*.

Kapha the transformed water-*bhuta* is required to bind up the different parts of the body into a compact whole. The *Tajjasa Pitta* is there to keep up the heat of the body. And the ever-moving *Vayu*, acting in all directions, keeps the different channels of the body in their proper form and directs the other two in their movements throughout the body.

We thus come to the definite conclusion that without *Vāyu*, *Pittha* and *Kapha*, the body cannot be produced.

2. *Vayu, Pitta and Kapha* are the causes of preservation of the body.

That the *Tridosha* are necessary for the preservation of the body is evident from the opinion expressed by Sushruta, namely "that the body is maintained so long as the three *Doshas* remain normal" – S.S. I.21.3 Before the birth of the child, when the foetal body is in the womb, it is nourished by the blood of the mother. After the birth, however, it has independent action of its own.

From that time onward, it is the *Vâyû* which causes the proper functioning of inhalation, exhalation and the general movements of the body. The chyle, blood and other *Dhatu*s of the body have no independent movements. It is *Vâyû* which drives them all over the body, assists one *Dhatu* to nourish the other and thus sustains the whole body.

The *Pitta* turns chyle into blood, keeps up the memory and intellect, preserves the heat of the body and thus helps to maintain the body in proper order.

Kapha keeps the body succulent, binds the different joints, makes them firm, strengthens the heart and by such other nourishing properties preserves the body.

Then again, the body is being constantly wasted away by hunger and thirst, by physical and mental exercise, by the constant combustion of the body-*Dhatu*s and by the exit from the body of the excreta, -- the sweat, urine and faeces. The waste is primarily made up by food. When the food is properly digested, it goes to nourish the different *Dhatu*s of the body. and so keeps it normal. For the proper digestion of food, however, *Vâyû, Pitta* and *Kapha* are essential.

As an ordinary fire, when assisted by air and water, can cook the food, so also the internal fire in our body, namely *Pitta*, can digest any food taken by us, with the help of *Vâyû* and *Kapha*. It is self-evident that without the help of *Vâyû* we cannot even keep any article of food in our mouth. For without an in-taking of air, nobody can put anything in the mouth, simply with the help of the tongue. It is the *Vâyû*, which drives the food down through the gullet to the stomach. This we can see for ourselves. If you first blow out the air from the mouth-cavity, you cannot, of course, swallow anything. You have to take in air in order to push the food down. That *Vâyû* helps to inflame the body-fire has already been mentioned. The *Kapha*, as the water in the body, breaks up the solid food and moistens it so that the *Pitta* may readily act upon it.

This single example of the process of digestion alone, convinces us of the fact that the three *Doshas* are the causes of preservation of the body.

3. *Vâyû, Pitta and Kapha* are the cause of destruction of the body.

That which preserves a body when in a normal condition, will evidently destroy the same when in an abnormal condition. When cause is vitiated, the effect will also be vitiated or may even be destroyed. So it is proved that *Vâyû, Pitta* and *Kapha* are the causes of destruction of the body.

WHY HAVE NOT THE *Prthivi* AND *Akâsha Bhutas* BEEN REGARDED AS THE CAUSES ?

We have proved that the Air, Fire and Water *Bhutas* in their characteristic forms of *Vâyû, Pitta* and *Kapha* are the causes of generation, preservation and destruction of the body. But like these three substances, Earth and Ether also go to

produce the body. Then why have these two been excluded when postulating the *Doshas* ?

Sushruta when describing the different temperaments say - "According to some, the temperaments are classified according to the five *Bhutas*. Three kinds of temperaments due to Air, Fire and Water are similar to those of *Vâta-Pitta-Kapha*. Persons having *pârthiva* (Earthy) temperament are very bulky, their structures are very firm and they are generally of a forgiving nature. Those with *Nâvasa* (Ethereal) temperament are long-lived, the cavities of their noses, ears, etc., are big and they generally lead a holy life, (S. S. III. 4.80).

4. *Pârthiva* and *Âkâsha* are not the causes of destruction

So we see that the *Prthivi* and *Âkâsha Bhutas* are not only the causes of production of the body, but are also instrumental in the formation of original temperaments. But the difference between this group of two and the other group of three is that like *Vâyû, Ap* and *Tejas, Prithivi and Âkâsha* have got no independent actions of their own and so they are not the direct causes of any disease. It is by association with any one of the other three substances that these two can function. *Vâyû* and the other two however, can individually bring about an effect independently of any other substances.

Vâyû, Pitha and *Kapha* may be deranged by their respective *Nidânas* (i.e., causes of derangement); the derangement of one may be effected independently of any other derangements. The Earthy parts of the body, however, are affected only by the action of one or the other of the three substances, *Vâyû, Pitta* and *Kapha*. So although the Earth is a constituent, even the main support of the body, it is not recognised as a *Dosha*, because it has no independent control over the preservation and destruction of the body.

Similarly, although we have to acknowledge the existence of *Akâsha* or ethereal space within the hardest stone, because otherwise no action can take place between two substances (say for example between two *paramânu* or molecules of the stone), yet the Ether has no independent action. Also, as the Ether is not made up of parts like *Vâyû* and others, there can be no *Vikriti* or abnormality of Ether and consequently there is no question of its bringing about destruction of other substances.

We therefore conclude that both *Prithvi* and *Âkâsha* have nothing to do with the destruction of the body.

It is this reason that led the Ayurvedists to postulate only three *Doshas*, - *Vâyû, Pitta* and *Kapha* - corresponding respectively to the three *Bhuta* - *Vâyû, Tejas* and *Ap*.

PART FOUR THE PHYSIOLOGY OF VAYU, PITTA AND KAPHA

CHAPTER VII The nature and Physical Properties of the *Tridosha*.

The fundamental principle underlying the Ayurvedic System of Medicine is that of the *Tridosha*. In a nutshell, this Principle may be stated as follows:

There are three *Dosha, Vâyû, Pitta* and *Kapha*, which when in equilibrium keep the body sound, but which when vitiated, either singly or in combination, bring

about diseases. The method of treatment would therefore be to bring the vitiated *Dosha* back to normal state, so that the three *Dosha* are again in equilibrium.

We have seen that *Āyurveda* developed from the four Vedas; it is also regarded as a supplement of the *Atharva Veda*. But nowhere in the four Vedas can we find any specific mention of these substances. It is in the *Rig Veda* only (1.3.6) that we find what may be regarded as the root idea of *Vāyu*, *Pitta* and *Kapha* :

“Tri-no asvinā divyāni bhesajā trih pārthivāni trirudattamadvyaḥ;

Omānam samyor-manma kāyasunave tridhātu sarma vahatam subhaspatī.

Here “*tridhātu sarma vahatam*” has been explained thus by the commentator Sāyana:

That is to say that when the three *Dhātu* - *Vāyu*, *Pitta* and *Kapha* - remain normal and undisturbed, the body is at ease and there is no disease.

With the advancement of the knowledge, when the science of medicine was systematically studied, *Āyurveda* as a separate and special subject evolved out of the Vedas. The Principle of *Vāyu* *Pitta* and *Kapha*, was then fully developed and so we find copious reference to these terms in the *Mahā Bhārata* and *Upanishads*.

1. The Nature of the *Tridhātus*

Vāyu, *Pitta* and *Kapha* are three substances found in the body. Of these, *Vāyu* is the nature of a gas, *Pitta* is of a fiery nature and *Kapha* or *Sleshman* is of a watery nature. The elder *Vagbhata*, however, says that *Vāyu* is derived from *Vāyu* and *Ākāsha*, *Pitta* is *Āgneya* i.e. predominantly of the nature of a gaseous body, with a little admixture of properties of Ether. The most prominent characteristic of *Pitta* being its property of heat and its power of digestion, it has been called *Tajjasa* or *Āgneya*. As regards *Kapha*, we shall see that it has properties which are similar to those of Water and Earth.

The terms *Vāyu*, *Pitta* and *Sleshman* are derived respectively from the roots ‘*vā*’ to move or excite, ‘*tap*’ to heat and ‘*slis*’ to embrace. From this we infer that the natural attributes of *Vāyu* are motion and the power of imparting that motion to other bodies, that of *Pitta* heat and those of *Sleshman* or *Kapha* union and integration.

Although the body is made up of five *Bhūtas*, yet the convenience of *Āyurveda*, it is said that *Dosha*, *Dhātu* and *Mala* are the roots of the body.

The *Dosha* are three in number, - *Vāyu*, *Pitta* and *Kapha*.

Dhātu are seven, *Rasa* (chyle), *Rakta* (blood), *Māmsa* (flesh), *Medah* (fat), *Asthi* (bone), *Majjā* (marrow) and *Sukra* (semen).

The *Mala* are the excreta, -the sweat, urine, faeces, etc,

The word *Dhātu* is derived from the root ‘*dhā*’ which means to sustain and to nourish. So anything which sustains and nourishes the body is called a *Dhātu*.

Vāyu, *Pitta* and *Kapha* pervade the whole body; but their special seats in the normal states are respectively the lower, middle and upper portions of the body. Thus as three pillars can support a building, so also these substances support and maintain the body; and because they make the body firm they are called ‘*Sthūna*’ or pillars, (S.S.I.21.3).

Vāyu, *Pitta* and *Kapha* are called the *Dāthū*, because when in the normal state, they sustain the body. *Sushruta* has described these three as the causes of

production of the body. He also says, - "The body cannot be produced without *Kapha* or *Pitta* or *Vâyu* or without blood. It is these substances that sustain the body."

Vâyu, *Pitta* and *Kapha* are called *Dosha* or vitiators, because it is these three that vitiate other substances of the body. Sushruta has included blood in the category of *Dosha*; but that is in an indirect sense. His work being mainly one on surgery, he has to deal frequently with blood. But blood cannot vitiate another substance independently by itself. It is the deranged *Vâyu*, *Pitta* or *Kapha* that first vitiates the blood. This impure blood, being thus associated with one or the other of the vitiating *Dosha* has now the power of deranging another substance. So blood cannot be strictly called a *Dosha*.

Vâyu, *Pitta* and *Kapha* are also called *Mala* or filth or waste-product, because they can make the body unwholesome and also because they are produced as waste-matter during the process of digestion (as we shall see later on).

But *Vâyu*, *Pitta* and *Kapha* are generally described as *Dosha*, because they have a natural tendency of vitiating other substances.

2. The nature and physical properties of *Vâyu*

Caraka says (C.S.VI.28 and C.S.I.12) that *Vâyu* is our life, *Vâyu* is our strength; it is *Vâyu* which keeps the body sound and it is *Vâyu* which controls everything. Sushruta also says (S.S.II.1) that *Vâyu* is omnipresent and it is *Vâyu* which is the root cause of the production, preservation and destruction of the universe. We may take it that this is the description of the atmospheric air. When we inhale this air, it enters into the body. There is another *Vâyu*, however, which is produced within the body, - namely in the intestines, - during the digestion of food. We shall speak more fully of this in the section on the Physiology of Digestion. These two kinds of *Vâyu* mix with each other and form the *Vâyu-Dhâtu* of the body. This *Vâyu-Dhâtu* nourishes the original *Vâyu*, i.e. the *Vâyu bhuta*, which is one of the primary constituting causes in the production of the body. When in the womb, the original *Vâyu* is nourished by the *Vâyu-Dhâtu* of the mother. The two kinds of *Vâyu* mentioned above must act in concert in order to maintain the body because it is evident that without external air we cannot live; and on the other hand, however much we inhale the external air, we cannot also live long if that *Vâyu* is not helped by fresh production of the internal *Vâyu*, - that is to say if we do not take any food.

That a close relation exists between the body-*Vâyu* and the external *Vâyu* is also evident from a study of Caraka because, in connection with the description of the normal and abnormal functions of external air have also been mentioned in that chapter of the Caraka Samhitâ, we can definitely conclude that the internal *Vâyu*, i.e. the *Vâyu-Dhâtu* of the body is the nature of air; and by no stretch of imagination can it be called a force.

Vâyu is invisible; it has no definite shape or size. Sushruta calls it 'Avyakta' i.e. of invisible form ('avyakta' i.e. 'adrsya-murti' - Dalhana's commentary, S.S.II.1.7). It is however 'Vyakta-Karma' i.e. manifested through its 'Karma' or actions. These actions depend upon its properties. For the purpose of the treatment of diseases, some specific physical properties have been attributed to the body-*Vâyu*. The *Vâyu-Dhâtu* of the body being a mixture of the external and internal *Vâyu*, it is quite possible that this *Vâyu* would be endowed with some new qualities which are different from the general properties attributed to 'Mahat *Vâyu*' or the atmospheric air by the Hindu philosophers. We must remember that the body-*Vâyu* depends upon the kind of food that we take and the proper digestion of that food. Its qualities and functions would naturally, therefore, be different from those of the external *Vâyu*. That is why Caraka

differentiates the two *Vâyu* as '*Vahiscara*' or that which flows outside and '*Sarîsracara*' or that which pervades the body (CC.S.I 12). And Susruta also, after describing *Vâyu* in a general way says,- Now hear from me its symptoms (i.e. actions) when flowing within the body – "*Dehe vicaratastasya laksanani nivodha ma*", (S.S.II.1.9).

3. Physical Properties Of *Vâyu*

The characteristics of *Vâyu* have been described by Caraka (C.S.I.20.13)¹ as,

1. Dryness
2. Lightness
3. Transparency or clearness (*Vaisadya*)
4. Motility (*gati*)
5. Invisibility (*a-murtatva*). '*Amurtava*' has been explained by Cakrapâni as '*adrsyatva*'.

In *Sûtrasthâna*, chapter 12, of the Caraka Samhitâ we find the mention of six qualities of *Vâyu*, namely *ruksha* (dryness), *laghu* (lightness), *shita* (coldness), *dârûna* (motility), *khara* (roughness) and *vishada* (transparency). Cakrapâni interprets '*dârûnatva*' as *calatva*' i.e. motility ; according to some , '*dârûnatva*' is *kâthinyâ* or hardness. But *Vâyu* cannot be hard. What they mean is that *Vâyu* can make a thing hard by drying it up.

According to Susruta (S.S.II.1), *Vâyu* is dry, cold, light, rough, has movement in all directions, is possessed of the two qualities of sound and touch and has the *Rajas guna* in a predominant degree. In this, as in other instances, Susruta has followed the Sâmkhya System.

In *Âyurveda*, *Vâyu* has been described as cold, whereas in the *Vaisesika* it is said to be neither cold nor hot in touch. The difference of opinion about this quality of *Vâyu* is only apparent. *Vâyu*, *Pitta* or *Kapha* is increased if we partake of things which have similar qualities to these substances, and they are diminished when we use any substance which has opposite qualities. So, because the body-*Vâyu* is increased by cold substances and diminished by using hot substances, coldness has been mentioned as one of its qualities.

Caraka also says that *Vâyu* is a medium which when associated with a hot substance produces a feeling of hotness and when associated with cold substances produces a feeling of coldness (C.S.VI.3.38).

The quality of 'coldness', attributed to *Vâyu* in *Âyurveda* has thus been explained away by the commentators. But we can explain it in another, and I think in a more proper, way.

When the Hindu Philosophers say that *Vâyu* is neither hot nor cold, they mean neither hot nor cold in touch. (Heat and cold in the sense of their effects on the body). The quality of '*Shita*' as attributed to *Vâyu* in *Âyurveda* should not, however, be taken to be '*Shita*' in touch. For when enumerating the 41 qualities, Caraka says, "*Sârthâ gurvâdaya* , etc," (CC.S.I..1). We have found (§11) that in "*Sârthâ*" is included the quality of touch. Now touch is of three kinds, (1) cold, (2) hot and (3) neither cold nor hot. Again in "*gurvâdaya*", we find the qualities of '*shita*' and '*ushna*' i.e. coldness and hotness. So this coldness must be quite different from the quality of 'cold in touch'. This *Shita* or *Ushna* is the quality of the substance with reference to its action in the body? In fact, when we say that "*Haritaki*" (chebulic myrobolan) is hot, *Âmalaki* (Emblic myrobalan) is cold or that cucumber

is 'Shita' when green and 'Ushna' when ripe, we do not speak of these qualities as perceived by our sense of touch, but of their actions within the body.

Similarly, when we shall speak of *Pitta* as hot or *Kapha* as cold, we must remember that the action of *Pitta* within the body is hot. So *Pitta* is increased by hot substances, i.e. substances which produce heat in the body and it is diminished by cold substances i.e. substances which have a cooling effect upon the body.

The body-*Vāyu*, having got no compact form, its normal quantity within the body cannot be fixed, and being invisible, it follows that it can have no definite colour.

Pitta is of nature of a hot liquid, rather of the nature of a strong acid.

4. Physical properties of *Pitta*

It is hot (hot in action and also in touch because it is *Taijasa*). It is active (*tikshna*), and is slightly viscid. Its color is other than white and *Aruna* (faintly red); its smell is like that of raw meat and its taste is bitter and sour (C.S.I.20.17).

Susruta says that *Pitta* is liquid, hot, active, foul-smelling, blue, yellow, etc. in color, and bitter in taste; when fully digested, it is sour, (S.S.I.21.11). Dalhana explains that the taste of *Pitta* in the ripe i.e. mature state is bitter and in the raw i.e. immature state is sour, as also that the color of *Pitta* is blue when it is in the 'Āma' i.e. raw or immature condition. The color of mature or ripe *Pitta* is yellow. From the word 'ca' in, 'nilam pitam tathaiva ca' of that text, we may infer that there may be other colors of *Pitta*. The only colors that *Pitta* may not have white and faint-red. Caraka also says, "Samyogad dusanat tattv samanyad ganhvarnayoh, rktassya Pittam akhyatam rakta-Pittam manisibhih"-(C.S.VI.4.7). Here we see that the smell and color of *Pitta* have been described as similar to those of blood. Like the blood, *Pitta* is also foul-smelling (like the smell of a raw meat or of a burning corpse) and scarlet in color. We may take it, therefore, that the color of normal *Pitta* is red or yellow. When vitiated, it may have other colors, excepting white and light-red.

The normal quantity of *Pitta* in the body is five *Anjalis* i.e. five times the quantity that can be contained in the hollow of one's hand (C.S.IV.7.14).

5. Physical Properties of *Kapha*

Sleshman or *Kapha* is heavy, cold (in touch as well as in action), white in color, viscid, soft, slimy, motionless and sweet in taste. According to Susruta (S.S.I.21.15), the taste of normal *Kapha* in the mature state is sweet; it is salty when in the immature condition.

The normal Quantity of *Kapha* in the body is six *Anjalis* (C.S.IV.7.14).

In this connection, we have used the terms, - 'mature', 'immature', 'ripe' etc, - with reference to *Pitta* and *Kapha*. To explain, we must mention here, that *Pitta* and *Kapha* are produced in the body in two different ways, - once during the digestion of food and again during the digestion of the *Dhātu*. These newly-formed fresh *Pitta* and *Kapha* go to nourish the original constituting *Pitta* and *Kapha* of the body. When the digestive process is thoroughly completed, we get them in the immature condition. We shall speak more fully of this in the Section on the Physiology of Digestion.

To sum up, *Vāyu* is of the nature of ordinary air, that is to say, it is a gaseous substance. *Pitta* is an active liquid, like a strong acid; and *Kapha* is a semi-solid,

viscous and sticky substance like a thin jelly. *Vâyu* is very light, as a gas should be. *Pitta*, being a liquid, is heavier than *Vâyu*; *Kapha* is the heaviest of the three. *Vâyu* is penetrative; being a gaseous substance, it can enter into the finest structures of the body. It is '*Cala*', i.e. does not remain in one place; like a gas, it spreads at once over the whole body. *Pitta* is '*Sara*' i.e. it flows. But *Kapha* is dense(*sandra*); it is '*sthira*' or motionless; it is inert (*mrdu*). *Vâyu* is dry, it is never viscous; *Pitta* is slightly viscous; but *Kapha* is totally viscid and is sticky. *Vâyu* can never be sticky; it is always '*Vishada*' i.e. clear; *Pitta* also is '*Visada*'. *Kapha* has been described by Caraka as '*vijjala*' or slimy and '*accha*' or transparent (C.S.III.8.14.7.5). A clear, watery and thin gum-like substance can both be slippery and transparent. *Vâyu* is '*asanghata*' i.e. has no compact form like those of *Pitta* and *Kapha*(Cf. Chakrapani...CSI.123)

That is why it has got no definite color or shape or any fixed quantity within the body.

Of the three *Samkhya-gunas*, the *Rajas guna* predominates in *Vâyu*, *Sathva* in *Pitta* and *Thamas* quality in *Kapha*.

I give below in a tabular form the qualities of the three *Dosha* in the normal state:

Physical Properties Of *Vâyu*, *Pitta* And *Kapha*

	<i>Vâyu</i>	<i>Pitta</i>	<i>Kapha</i>
General Properties	Dry Expanding Non-sticky Light Cold (in action) Penetrative Rough Rajas predominating	Slightly viscid Flowing Non-sticky - Hot (in action and in touch) Active - Sattva predominating	Viscid Motionless Sticky, slimy Heavy Cod (in action and in touch) Inert Soft Tamas predominating.
Taste	-	Bitter	Sweet
Smell	-	Of raw meat	-
Colour	-	Red, yellow, etc. excepting white and light red	White
Normal quantity	-	5 <i>Anjalis</i>	6 <i>Anjalis</i>

1. Seats of Vāyu Pitta and Kapha

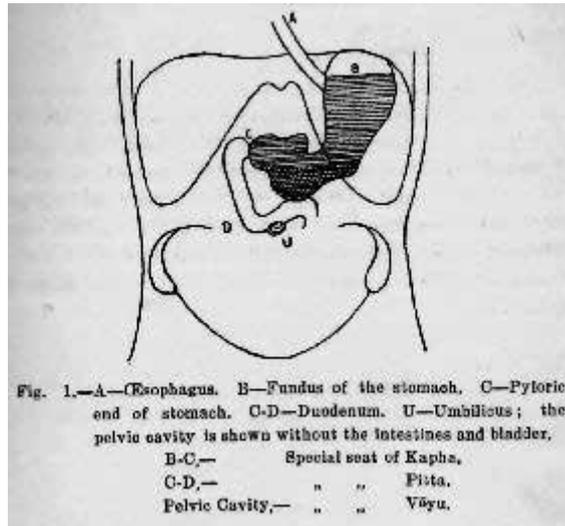
Vāyu, *Pitta* et *Kapha* pervade the whole body (cf C.S.I.20.10). Their general seats being the lower, middle and upper portions of the body, as we have already said. Caraka and Susruta have also mentioned the particular parts of the body where the normal *Dosha* generally accumulate.

According to Caraka (C.S.I.20.9), the seats of *Vāyu* are-

1. *Basti* (urinary bladder)
2. *Purisadhana* (intestines; *purisadhanah Pakvasayah-Cakrapani*)
3. *Kati* (pelvis)
4. The two thighs
5. The two legs
6. The bones

Of these, the *Pakvāsaya* is the special seat of *Vāyu*.

We shall see that when describing the five kinds of *Vāyu*, Caraka mentions different locations for them. Cakrapani explains that the above are the special seats of *Vāyu*, because it is at these places that diseases due to *Vāyu* generally take root. The intestines have been mentioned as the special seat of *Vāyu* because *Vāyu* is generated there and when this *Vāyu* remains normal, the *Vāyu* at other places also remains normal. By bringing down the aggravated *Vāyu* of this place, the *Vāyu* in other parts of the body also are calmed down.



The seats of *Pitta* are

Sveda (Sweat)

Rasa (chyle)

Lasika (the scum of the body- water- *Lāsikodasya picchābhāgah*, - the watery part of muscles and skin)

Blood

Âmāsaya

Of these *âmāsaya* is the special seat of *Pitta*.

The seats of *Kapha* are-

Uras (Thorax)

Siras (head)

Griva (neck)

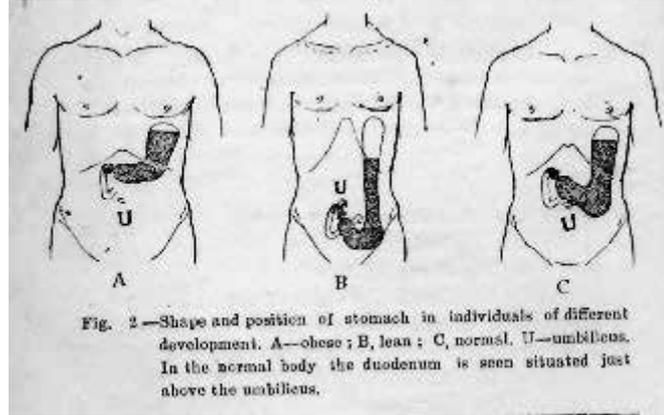
The joints

Âmāsaya

Medas (fat)

Of these, *Uras* is the special seat of *Sleshman*.

Susruta has first briefly stated the special seats of *Vāyu*, *Pitta* and *Kapha*, (S.S.I.21.6). "Vāyu", he says, "resides between the *Sroni* and *Guda*. The *Pakvāsaya* is situated above this region and below the umbilicus. The seat of *Pitta* is between the *Pakvāsaya* and *Âmāsaya*. The seat of *Kapha* is the *Âmāsaya*".



We see, therefore, that *Amāsaya* has been mentioned by *Caraka* as the seat of both *Pitta* and *Kapha*. *Susruta*, however, mentions *Amāsaya* as the seat of *Kapha* only. Now, *Caraka* has described *Amāsaya* as being situated between the umbilicus and the nipples, (*Nābhi-stanānataram jantorāmāsaya iti smrtah - C S. III. 2.23.* (See Fig.2.). *Caraka*'s *Âmāsaya* is that part of the alimentary canal where the digestion of food primarily takes place, (*Asitam khāditam pitam lidham yatra vipacyate – ibid*). So this *Âmāsaya* is the stomach together with the first part of the intestines, - the duodenum, - which is situated just above the umbilicus. When *Caraka* says that the seat of *pitta* is *Âmāsaya*, he means the lower portion of it, the duodenum. The seat of *Kapha* is the upper portion of *Âmāsaya*, the stomach. *Cakrapāni* also says "*Pittasthāne amāsaya iti amāsayādhobhāgah, slesmasthānesvāmāsaya amāsayordhabhāgaha* (C. S. I. 20. 9). *Susruta*'s *Âmāsaya* is the stomach alone, and when he says that the seat of *Pitta* is between the *Âmāsaya* and the *Pakvāsaya*, he means the duodenum.

As regards the term '*Pakvāsaya*' there is some confusion. *Caraka* has first used the term '*purīsādhāna*' and has then mentioned '*pakvāsaya*' as the special seat of *Vāyu*. *Susruta* says, - *Vāyu* is '*Sroni-guda-samsrayah*'. *Sroni* is the hipbone and *Guda* is the anus or the anal bone (coccyx). The region between these two is the

pelvic cavity. It contains in the recent subject, the sigmoid colon, rectum, urinary bladder and some of the organs of generation. *Purīsādhāna* means the receptacle for faeces. So by *Pakvāsaya* as the special seat of *Vāyu*, we should take the rectum and the sigmoid colon, that is to say, the last portion of the large intestines. This is also in conformity with *Susruta*, when again he says in *Nidāna-sthāna*, "the 'residence' of *Vāyu* is *Pakvādhāna*, add *Guda*, -*pakvādhana-gudālayah* – S. S. II. 1. 9." *Pakvādhāna* literally means receptacle for the fully digested food. *Guda* here means the *guda-nādi* i. e. the rectum. *Arunadatta* in his commentary on *Vāgbhata* also says that because the fully digested food i. e. the faeces collects there, it is called *pakvādhāna* or *pakvāsaya* (A. H.I. 12). The term '*Pakvāsaya*' however is generally used for the portion of the intestines below the umbilicus. "*Pakvāsayo hyadho nāveh*" – *Rāja Nighantu*.

During the digestion of food fresh *Vāyu* is produced largely in the intestines, *Pitta* in the duodenum and *Kapha* in the stomach. So these places have been called the special seats of *Vāyu*. *Pitta* and *Kapha*.

CHAPTER IX Classification of the three *Doshas*

1. Fivefold Divisions of *Vāyu*, *Pitta* and *Kapha*

In *Ayurveda*, we find mention of five kinds of *Vāyu*, *Pitha* and *Kapha*. There are five *Vāyus*, five *Pithas* and five *Kaphas*. The question may now arise: Are the five *vāyus* different from one another, - each distinct from the other? We have said that the body-*Vāyu* is of the nature of a gas. Are the five *Vāyus* five different gases, having different physical properties? From the evidence at our disposal, we cannot definitely answer this question. We can only infer that there is one *Vāyu*, but that it is called by different names according as it performs different functions at different parts of the body. Just as the same individual is called the Viceroy, Governor-General or Chancellor, according to the different functions he performs, - (he has his headquarters at the capital, but travels all over the country; he may be in distinctive garbs to perform distinctive functions, but all the time, he is the same man), so also the *Vāyu* of the body has its special seat at the intestines, that is the place where it is mainly generated, but from this place it goes in different directions all over the body, and according as the particular place where it travels and where it performs particular functions, it is called by particular names. In this way, we get five *Vāyus*, - *Prāna*, *Apāna*, *Samāna*, *Udāna* and *Vyāna*.

Similar also is the case with *Pitta* and *Kapha*.

The above facts become quite clear when we find that *Susrutha*, after describing the special seats of *Vāyu*, *Pitta* and *Kapha*, says- *atah param pancadhā vibhajante* etc. i.e. after this, - after being generated in the above special places viz. in the stomach, duodenum and the intestines, - each of the three *Dosas* divide into five ways. The seats of *Vāyu* have been mentioned in the *Vātavyādhinidana* (S S. II. I). The seats of *Pitha* are

1. The liver and spleen
2. The heart
3. *Drsti* (eyes)
4. The skin, and
5. The above mentioned place, i.e. *Pakvāmāsāyamadhya* or duodenum.

The seats of *Kapha* are

1. *Uras* (thorax)
2. *Siras* (head)
3. *Kantha* (throat)
4. The joints, and
5. The above mentioned place i.e., *Āmāsaya*

These are the seats of normal *Dosas*. (S.S. I. 21.7)

The five *Pithas* are the *Pācaka*, *Ranjaka*, *Sādhaka*, *Ālocaka* and *Bhrājaka*. The five *Kaphas* are the *Kledaka*, *Avalambaka*, *Tarpaka*, *Bhodhaka* and *Slesaka*.

Caraka has nowhere mentioned the five *Pithas* or *Kaphas*. He has only described the five *Vāyus*. Cakrapāni explains (C.S. VI. 28) that because *Vāyu* is the most important and because the five divisions of *Vāyu* are necessary for the proper treatment of diseases, *Caraka* has dealt fully with them. The five divisions of *Pitha* and *Kapha*, being not so very important for purposes of treatment, these have been omitted or ignored by *Caraka*.

Susruta, on the other hand, has described the five *Vāyus* and *Pithas*; but when describing the functions of the five *Kaphas* (S.S.I. 21), he has not directly called them by their specific names, as found in *Vāgbhata* and the later Ayurvedic works.

There is not much confusion regarding the seats of *Vāyu* and *Kapha*. But there is an apparent difference of opinion between *Caraka* and *Susruta*, with regard to the seats of *Pitha*. We have seen that (1) *Sveda*, (2) *Rasa*, (3) *Lasika*, (4) Blood and (5) *Āmāsaya* (duodenum) have been mentioned as the general seats of *Pitha* by *Caraka*, corresponding to (1) the eyes, (2) the heart, (3) the skin, (4) the liver and spleen and (5) the duodenum of *Susruta*. Both have described the duodenum as the particularly special seat of *Pitha* (because it is at this place that fresh *Pitha* is generated within the body).

Here we see that whereas *Caraka* mentions *Rasa* as the seat of *Pitha*, *Susruta* mentions the heart, which has been described as the receptacle for *Rasa*. So the *Pitha* which resides in *Rasa* must also reside in the heart. In the same way, we have *Lasika* corresponding to the skin where *Lasika* is largely found, and blood corresponding to the liver and spleen which are the receptacles for blood.

As regards the term '*Sveda*', it ordinarily means the sweat; it also means a vapour, that is to say water in combination with *Tejas* or heat. *Susruta* has mentioned *Drsti* as one of the seats of *Pitha*. In a general sense *Drsti* is the eye; in a specific sense, it is the pupil. Now there are four *Patalas* or protecting covers of the pupil. Of these "the outer one consists of a luminous fluid and the next one of flesh. The third is made of fat and beyond it, there is one consisting of bones" (S.S. VI. 1.18). So according to *Susruta*, the outer cover of the pupil is, *Tejojalāsrita* ' i.e. consisting of *Tejas-mixed* Water. This is the aqueous humour. When *Caraka* mentions *Sveda* as one of the seats of *Pitta*, he means this *tejojala* or aqueous humour. There is no discrepancy, therefore, between *Caraka* and *Susruta* regarding this particular seat of *Pitta*.

Chapter X General Functions of the normal *Vāyu*, *Pitha* and *Kapha*

1. Normal Functions of *Vāyu*

Of the three *Dōsha*, *Vāyu* is the most predominant. It is omnipotent, has movement in all direction, is the quickest of all and controls every action of the body.

That is why Sârngadhara says, “*Pitha* is impotent, *Kapha* is impotent, the *Malas* and *Dhâtu* are also impotent, it is the *Vâyû*, which drives them all; just as a cloud is driven by the wind, so also these go to whatever part of the body they are brought by *Vâyû*” (Sârangadhara Purva A.5).

We have previously mentioned that *Vâyû*, *Pitha* and *Kapha* have independent actions of their own. So when we say that *Pitha* and *Kapha* are impotent, we do not mean that they are impotent or inactive in the same sense as the *Mala* and *Dhâtu* are. *Pitha* and *Kapha* have their own particular seats within the body. Remaining in these places, they can act, they can vitiate the *Dhâtu*, but they have not the power of independently moving from one place to another. It is *Vâyû* which has the power of imparting motion to other bodies; and it is due to the action of *Vâyû* that the normal *Pitha* and *Kapha* circulate throughout the body along with the *Vâyû*. The circulation of blood and chyle is also due to the action of *Vâyû*.

2. Functions of Normal *Vâyû*

The principal function of *Vâyû* is to sustain the body. According to Caraka, the general functions of *Vâyû* which flows within the body are (CS.I.12.9):

It is ‘*Tantra-yantra-dhara*’; Cakrapâni in his commentary says, “*Tantram sarinam, tadeva yantram*’; so ‘*tantram yantram*’; means the human machinery. *Vâyû* maintains this machinery and keeps it in good order.

It is the originator (*pravartaka*) of every kind of action of the body.

It regulates and guides the mind, i.e. it restrains the mind from indulging in undesirable objects and guides it to desirable objects.

It directs senses to their respective objects.

It carries the sensation of sound, touch, etc.

It is the means of the building of the particular structures (*vyuhakara*) of the different *Dhâtu* of the body.

It connects up (*sandhâna-kara*) the different *Dhâtu* of the body.

It is the generator of speech.

It is the cause of sound and touch.

Gangâdhara explains that the cause of sound and touch within the body is *Vâyû* and not *Âkâsa*, the full manifestation of sound is not, however, due to it. It is the *Vâyû*, intimately associated with we can hear.

It is the root cause of the senses of hearing and touch.

It is the cause of manifestations of desire and pleasure.

It inflames the body-fire.

It dries up any excess of moisture accumulated in the body.

It is the cause of evacuation of urine, feces and other waste matter of the body.

It is due to *Vâyû* that every kind of channels fine and coarse, are formed within the body.

It is the supreme agent to which is due the deformation of different structures of the foetal body.

Sârngadhara also says that it is the *Vâyû* which is the cause of segmentation of the body, *Vibhâgakaranânmatah*,

Caraka has described the special functions of *Vâyû* as (C.S.I.18.55):

Effort

Inhalation and exhalation,

Proper actions of speech, mind and body,

Proper direction or flow of one *Dhātu* to the next nourishing *Dhātu*

Proper evacuation of excretory matter.

This is in striking agreement with Sushruta, when he says that *Vāyu* sustains the body by performing the following five-fold functions (S.S.I.14.4):

Breathing and other rhythmic movements of the body, '*Praspandans*',

Carrying of the *Dhātu*, *Mala*, etc, to their proper places, '*Udvahana*,,

Carrying of the products of digestion to their proper places, '*Purava*'

Proper evacuation of excreta, '*Viveka*'

Proper maintenance of the body, '*Dharana*'

These five functions can also be interpreted as those of the five *Vāyu* of the body.

3. Normal functions of *Pitha*

The principal function of *Pitha* is to maintain the body by supplying heat to it. The special features of *Pitha* according to Caraka (C.S.I.18.56) are the proper functioning of,

Sight,

Digestion,

Heat,

Hunger, thirst and softness of the body,

Radiance of the body, cheerfulness and intelligence.

According to Sushruta (S.S.I.15.4), these are,

Coloration or pigmentation ,

Digestion (and production of the *Ojas Dhātu*, the ultimate product of digestion),

Sight,

Intelligence,

Heat.

As in the case of *Vāyu*, these can be interpreted as the respective functions of the five *Pitha*. We can see, therefore, that although Caraka has not made the usual five divisions of *Pitha*, he has nevertheless enumerated the different functions which are specially attributed to the five *Pitha*. This also the case with *Kapha*.

4. Normal function of *Kapha*

The principal function of *Kapha* is to preserve the body by acting as the watery substance within the body.

According to Caraka (C.S.I.18.57), its special function are,

Viscosity,

Blinding up of the joints,

Solidarity of the body,

Keeping up of sexual vigour,

Fortitude, forbearance or patience and abstinence.

According to Sushruta (S.S.I. 15.4), these are,

Blinding up the joints of the body,

Viscosity,

Strengthening of the body,
Nourishment,
Solidarity
Now we come to the respective *Vâyu*, *Pitha* et *Kapha*.

The five *Vâyu*

1. The *Prâna Vâyu*

We have already said that the same *Vâyu* is called by five different names, according to the different functions it performs in different parts of the body. Of the five *Vâyu*, the *Prâna Vâyu* is that which flows through the nose and mouth and with the help of the tongue holds the food in the mouth and sends it down to the stomach, and by annihilation of which life becomes extinct. According to Caraka (C.S.VI), the seats of the *Prâna Vâyu* are,

The head,
The *Uras* (i.e. thorax including the heart and lungs),
The ears,
The tongue,
The nose.

According to Sushruta (S.S.II.), the *Prâna Vâyu* flows in the mouth (*Vaktra-sancarî*). Dalhana in his commentary says that by mouth, the head, thorax, throat and the nose are also implied. According to Vagbhata (A.S.I.20;A.H.I.12), the *Prâna Vâyu* stays in the head and from this place it courses down to the throat and thorax. The *Prâna Vâyu*, as a rule, is always spoken of as being associated with the heart. So we shall say that the special seat of the *Prâna Vâyu* is the heart. This is in conformity with the well-known couplet of Saragadhara: That is, the *Prâna Vâyu* resides in the heart, the *Apâna* in the rectum, the *Samâna* in the umbilicus and *Udâna* in the throat, while the *Vyâna Vâyu* flows throughout the whole body.

The normal function of the *Prâna Vâyu* are,

Spitting out,
Sneezing,
Eructation
Breathing (respiration)
Pushing the food down the gullet.

Vâghata adds another function, namely to maintain the action of the heart, the mind, the senses, the intellect and of the *Dhamanis* (i.e. veins, arteries, lymph ties and nerves). This function of the *Prâna Vâyu* is due to its '*Prabhâva*' or special power.

Sarangadhara has described a very particular function of the *Prâna Vâyu*. He says, "The *Prâna Vâyu* after coursing through the interior of the lotus-like heart, goes out through the throat to drink of the outside air; after taking up the nectar of the air (we may take it to be the oxygen of the atmospheres), it enters the body again to nourish the whole body and to keep up the digestive fire." We have already said that the *Vâyu* which is freshly produced in the intestines during the process of digestion combines with the *Vâyu* that we breathe in and the two together nourish the entire system of body – *Vâyu*.

2. The *Udâna Vâyu*

That *Vāyu* which has special tendency to move upwards and which by vibrating the vocal cords produces sound, is called the *Udāna Vāyu*. The seats of the *Udāna Vāyu* are

The umbilicus
The Uras
The throat.

Vâgbhata says that the *Udāna Vāyu* stays in the thorax and thence flows upwards to the throat and nose and downwards to the umbilical region. Although Sushruta has not mentioned *Nâbhi*. i.e. the region just behind the umbilicus as one of the places where the *Udāna Vāyu* flows, yet it must be taken as one of the seats of *Udāna Vāyu*, because the latter has been described as one of the causes of generating hiccough, of the '*Gambhira*' variety, which originates from the *Nâbhi*.

The special seat of *Udāna Vāyu* are,

The production of sound, speech, and songs, etc.
Effort,
Effecting of the strength of the body.
And Vâgbhata adds

Rousing of the mind, memory and intellect. This is the special power of the *Udāna Vāyu*.

3. The *Samāna Vāyu*

The special seat of the *Samāna Vāyu* is the umbilical region. It is described as being placed near the internal or digestive fire. The seat of the digestive fire is between the *Âmāshaya* (stomach) and *Pakvāshaya* (intestines) i.e. in the duodenum, which is said to be situated at a distance of half the width of a finger to the left of the umbilicus. From the umbilical region, the *Samāna Vāyu* flows to the stomach and the intestines and also through the channels which carry the sweat, urine, semen, menstrual blood and other watery substances of the body.

The functions of the *Samāna Vāyu* are,

To inflame and excite the digestive fire i.e. the *Pâchaka Pitha*.
This is its most important function.
To sustain above-mentioned channels of sweat, urine, etc.
To digest food with the help of *Pâchaka Pitha*.
To separate the products of digestion, from the other.
To send the waste-products down-wards.

4. The *Vyâna Vāyu*

The *Vāyu* which pervades the whole body and carries the chyle, blood etc. throughout the body is called the *Vyâna Vāyu*. Vâgbhata says that it resides in the heart and thence flows all over the body.

The function of the *Vyâna Vāyu* are,

The *Vyâna Vāyu* is the quickest of all. So its most important function is to effect the quick circulation of chyle, lymph, blood, etc.
To effect the five kinds of action, viz, movements upwards and downwards, contraction, expansions and movement in general,
To effect the closing and opening of the eye-lids,
Yawning,

To bring the semen (spermatozoon) inside the vaginal cavity and help it to combine with the ovum.

5. The *Apâna Vâyu*

That *Vâyu* which has a special tendency to move downwards and also a natural tendency to go out of the body is called the *Apâna Vâyu*. The special seat of the *Apâna Vâyu* is the *Guda* or the rectum. According to Caraka (C.S.VI.28.8), the seats of *Apâna Vâyu* are the two testicles, the penis, the two hip-joints, the bladder, the thighs and the womb, Sushruta says (S.S.II.1.19), the *Apâna Vâyu* resides in the *Pakvâdhâna*, which we have already interpreted as the rectum together with the sigmoid colon. We may consider that from this place it flows to bladder, the organs of generation, the thigh's and to umbilicus.

The functions of the *Apâna Vâyu* are,

To bear down foetus.

To bring down the urine, faeces, semen and menstrual blood.

All the five *Vâyu* are of the nature of a gas and so they are ordinarily called by the comprehensive term *Vâyu*. As none has got any definite shape, we cannot distinguish one from the other except by their respective functions. We must conceive them as flowing through different channels of their own, somewhat like the different nervous systems, in order that one may not get mixed up with the other. It is also to be noted that most of the functions of the five *Vâyu* are those of the modern 'nerves'.

The five *Pitha*

1. The *Pâchaka Pitha*

That *Pitha* which, being situated between the *Âmâsaya* and *Pakvâshaya*, digests the food is called the *Pâchaka* (lit. that which digests). It is a transparent and very strong hot liquid, secreted into the duodenum during the digestion of food. Vâgbhatta the Elder says, " Of the five *Pitha*, that which is situated intermediately between the *Âmâshaya* and *Pakvâshaya* has, though composed of the five *Bhûta*, the quality of *Tejas* in a very predominant degree. Due to extreme heat, it is deprived of any cooling property. So it is devoid of the general viscid nature of a liquid and being by the associating *Vâyu*, etc. performs the functions of digestion and combustion and thus gets the appellation of 'fire'. It digests food and then divides it into a fine and a waste part and from its own place it helps all other *Pitha* of the body. This internal fire is called the *Pâchaka Pitha* (A.S.I.20).

This is in conformity with the general nature of *Pitha*, which we have already described as being of the nature of an acid. An acid is a liquid, but a very strong acid has not the least cooling property of a liquid like water. It burns up anything. If a quantity of salt is put in water, it is dissolved. We can make a pulp of flour by adding water to it. But if we pour some acid on salt or on flour, there will be an immediate chemical reaction. The *Pâchaka Pitha* is of the nature of a very strong acid.

The special seat of the *Pâchaka Pitha* is described as situate between the stomach and the intestines, i.e. in the duodenum. There is another term in *Âyurveda*, the '*Agnyashaya*' or the receptacle for *Agni* or fire, situated to the left of the *Nâbhi*. I have taken this to mean the pancreas. The pancreatic juice is secreted into the duodenum, where the bile also is poured from gall-bladder. These two together digest the food. The duodenum in the middle with the gall-bladder on the right and the pancreas on the left, together with the connecting ducts, may be looked upon as a single organ intimately concerned with the process of digestion. Its position is

intermediate between the *Âmâshaya* (stomach) and the *Pakvâshaya* (intestines). I have this region to be the seat of *Pâchaka Pitha* .

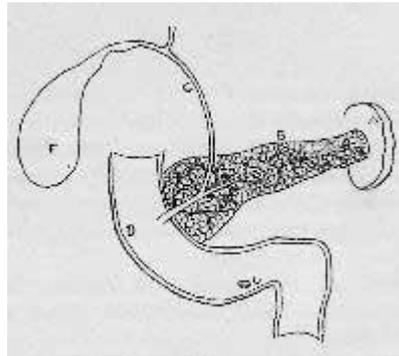


Fig.3 The seat of *Pâchaka Pitha*

Spleen. B. Pancreas. C. Bile-duct. D. Duodenum. F. Gall-bladder. U. Umbilicus.

The functions of the *Pâchaka Pitha* are:

To digest the food,

To reduce the food to a fine part, the *Rasa* or Chyle, and a waste part, the urine, faeces and sweat,

To supplement the other four *Pitha*, (but still remaining in its own position).

Just as the sun, although situated in space and at a great distance from the earth, preserves the animal and the vegetable kingdoms by supplying heat and radiation, so also the *Pâchaka Pitha*, even though situated in the middle of the body, preserves the heat of all the *Dhâtu* of the body, including the other *Pitha*, by its own intense thermal properties and thus helps to preserve life.

2. The *Ranjaka Pitha*

When the *Rasa* goes to the liver and the spleen, it begins to be digested by its own heat. That which imparts colour to it, in order that it may be turned into red-coloured blood, is called the *Ranjaka Pitha* (lit. that which colour). This *Pitha* is situated in the liver and spleen and is bright red in colour. That the seat of *Ranjaka Pitha* is the 'liver-spleen' and that imparts red colour to *Rasa* is a firmly established fact in *Âyurveda*. But curiously enough, the two *Vâgbhatta* mention the *Âmâshaya* as the seat of *Ranjaka Pitha*. This view can never be supported if by *Âmâshaya* here is meant the stomach.

The liver and the spleen are described in *Âyurveda* as receptacles for blood. Like every other *Dhâtu*, the blood throughout the body is always being digested by its own heat, producing a fine and a waste part. The waste part produced out of the digestion of blood contained in the liver and spleens specially nourishes the *Ranjaka Pitha*. We shall speak more fully about this in the section on the physiology of digestion.

The one and only function of the *Ranjaka Pitha* is to impart red colour to *Rasa*;

3. The *Sâdhaka Pitha*

The *Pitha* which is situated in the heart and which by special power drives away *Thamas* is called *Sâdhaka* (lit. that which helps). It is the finest of all the *Pitha*.

The *Sâdhaka Pitha* is instrumental in the proper functioning of the intellect and memory and in the fulfilment of one's desires.

4. The *Âlochaka Pitha*

The *Pitha* that is situated in the pupil of the eye is called the *Âlochaka Pitha* (lit. that which gives vision). Its function is to keep up the normal vision of man. (we have already said that one of the seats of *Pitha* is the aqueous humour.)

5. The *Bhrâjaka Pitha*

The *Pitha* which resides in the skin is called the *Bhrâjaka Pitha* (lit. that which shines). It is called the *Bhrâjaka* because it imparts a natural glow to the skin. The functions of the *Bhrâjaka Pitha* are:

To digest any unguent, any oily or other substances rubbed or anointed over the body.

To irradiate the glow of one's complexion and to show up the colour of the skin.

Unlike *Vâyû*, *Pitha* has a definite shape. But like every form of matter, it may be present in a very fine (*Sukshma*) state as well as in a *Mahat* or comparatively gross state. All the five *Pitha* must possess the general properties of *Pitha*, viz, hotness, liquidity and activeness. But I would say that each of them has its own definite *Âkrti* or form, one form being different from the other. The *Sâdhaka* and *Âlochaka*, for example, are in a very fine state and so the distinctive qualities of *Pitha* in them may remain unmanifested or so very finely that they may not be ordinarily perceived. The *Pâchaka* and *Ranjaka* on the other hand, are gross forms of *Pitha*. The *Pâchaka* is a clear transparent liquid; it is a secretion having the properties of a strong acid. The *Ranjaka* is red-coloured, active liquid. The *Pitha* contained in every cell of the body must necessarily be a fine state (the cell itself being microscopic in size), but even then it must be of the nature of a strong, hot liquid.

The same argument holds good for *Kapha* also.

The five *Kapha*

1. The *Kledaka Kapha*

That *Kapha* which, being situated in the stomach moistens the food and then breaks it up is called the *Kledaka* (lit. that which moistens). It is generated in the stomach as a foamy secretion when any food reaches there. Remaining at this place, it nourishes the *Kapha* of all other parts of the body by its special humid properties.

2. The *Avalambaka Kapha*

That *Shleshma* which, being situated in the thorax, protects the heart from any excessive heat by its cooling influence and gives it special strength is called the *Avalambaka* (lit. that which supports).

The fine part that is produced as a result of the digestion of food in the duodenum is called the food-*Rasa*. This is further digested by its own heat, producing a finer *Rasa*, the *Rasa-Dhâtu*, which goes to the heart. This *Rasa-Dhâtu* again is digested by its own heat. The waste product of this latter digestive process specially nourishes the *Avalambaka Shleshma*. It is first generated in the heart and thence is carried by *Vâyû* to the lungs.

The functions of the *Avalambaka Kapha* are as follows:

1. To sustain the heart with the help of *Rasa-Dhātu*.

There is a difference of opinion between Sushruta and Vâgbhata about this point. While Sushruta says that the *Kledaka Kapha* nourishes all other *Kapha*, Vâgbhata is of opinion that it is the *Avalambaka* which from its place in the heart, nourishes all other places of *Shleshma* by its humid properties. This view, however, is not supported by any other authority. Considering the fact that it is in the stomach, the seat of *Kledaka Kapha*, that a profuse *Kapha*-secretion takes place, and considering also the fact that if the deranged *Kapha* in *Âmâshaya* is ejected out of the stomach by emetic, all other *Kapha* in the body are appeased (C.S.I.20.23), Sushruta's view that *Kledaka Kapha* in the stomach is the root of all other *Kapha*, seems to be the correct one. Similarly in the case of *Pitha* also, it is the *Pâchaka Pitha* i.e. the profuse *Pitha* secretion in the duodenum, which is the root of all other *Pitha*.

The second function of the *Avalambaka Shleshma* is to support the '*Trika* ', '*Trikasndharanam* (S.S.I.21.14).

According to Dhalhana, *Trika* is the place of union between the head and the arms. So Dhalhana's explanation is wrong. Cakrapâni however, in his commentary on Sushruta says, *Trika* is the junction between the shoulder-blades and the two arms, *Trika* literally means triple or three-fold; it also means triangular. So by *Trika* here we should take the joint between the scapula, the clavicle and the humerus. We may, however, simply say that the *Avalambaka Shleshma* supports the triangular bone, scapula, in position.

3. The *Bhodaka Kapha*

That *Shleshma* which moistens any substance, when it comes in contact with the tongue and thus helps the sense of taste to perceive the particular kind of taste the substance has, is called the *Bhodaka* (lit. that which causes perception).

Its seats are the roots of the tongue and the throat. The saliva that is secreted into the cavity of the mouth when we take any food, mainly consists of the *Bhodaka Kapha*. It is nourished by waste part produced out of the digestion of the *Rasa-Dhātu* that flows round about the mouth.

4. The *Tarpaka Kapha*

That which appeases or cools the organs of senses (such as the sense of sight, of hearing, of smell, etc.) is called the *Tarpaka* (lit. that which satisfies). Its seat is the skull. It is nourished by the waste part produced out of the digestion of *Rasa Dhātu* which is found near about the brain-matter. Due to its association with the brain-matter, this particular *Kapha* has a special soothing effect by virtue of which it maintains the *Indriya* or organs of sense in proper order.

That *Kapha* which, being situated at the joints, keeps them firm is called the *Shleshaka* (lit. that which joins). Due to the friction of the bones at the joints, there is production of heat; the *Shleshaka Kapha*, by its viscid property, prevents the generation of any excessive heat in the joints, thereby protecting the bones from undue waste. It lubricates the different articulations of the body and thus helps them to remain firm and allows the free movement of the bones.

The waste-matter that is produced out of the digestion of the *Rasa Dhātu* which circulates throughout the body nourishes the *Shleshaka Kapha*. It accumulates specially in the joints.

The respective seats and normal functions of the five *Vâyû*, *Pitha* and *Kapha* are given below in a tabular form:

The five *Vâyû*, *Pitha* and *Kapha*

Name	Locations	Normal fonctions
<i>Prâna Vayu</i>	Heart (special seat) Head: <i>Uras</i> (Heart and lungs, Ears, Nose and Tongue	Respiration Pushing the food down the esophagus Eructation, sneezing, spitting
<i>Udâna Vâyû</i>	<i>Kanta</i> (larynx) – special seat Umbilicus, <i>Uras</i> , Throat	Production of sound, speech and songs, Effort, Effecting of the strength of the body
<i>Samâna Vâyû</i>	Umbilical region (special seat) Stomach, Intestines Channels carrying sweat, urine, etc.	To excite the digestive fire, To help digesting the food, To separate the products of digestion To send the waste-products downwards
<i>Vyâna Vâyû</i>	Throughout the body	To effect the quick circulation of the chyle, lymph, blood etc. To effect the movement of the body and the outflow of sweat and blood from the body, Yawning, winking of the eyes
<i>Apâna Vâyû</i>	Rectum (special seat) Large intestines, Bladder Organs of generation Thighs Umbilicus	To bear down the foetus, To bring down urine, faeces, semen and menstrual blood, To exert a downward pull upon the body- <i>Vâyû</i>
<i>Pâchaka Pitha</i>	Between <i>Âmâshaya</i> and <i>Pakvâshaya</i> (duodenum)	To digest food, To reduce the food to <i>Rasa</i> and to the excreta, To supplement the other four <i>Pithas</i> and thus to keep up the heat of the body, Yawning, winking of the eyes.
<i>Ranjaka Pitha</i>	Liver and Spleen	To impart red colour to <i>Rasa</i> and to turn it to red.
<i>Sâdhaka Pitha</i>	Heart	To help realising one's desires,

		To maintain the intellect and memory
<i>Ālochaka Pitha</i>	Pupil of the eyes	To keep up normal vision
<i>Bhrâjaka Pitha</i>	Skin	To digest an unguent, To irradiate the glow of one's complexion
<i>Kledaka Kapha</i>	<i>Āmashaya</i> (stomach)	To moisten the food and to break it up
<i>Avalambaka Kapha</i>	<i>Uras</i> (thoraci cavity – heart and lungs)	To protect the heart from any excessive heat, thus enabling it to perform its functions properly, To support the shoulder-blades into their proper positions.
<i>Bodhaka Kapha</i>	Root of the tongue, Throat	To help the perception of taste by maintaining the moist character of the tongue.
<i>Tarpaka Kapha</i>	Skull	To cool the different sense organs
<i>Shleshaka Kapha</i>	Joints	To keep the joints firmly united, To lubricate and protect the different articulations.

The *Hrudaya* and the *Nâbhi*

We see here that the same place '*Uras*', i.e. the thoracic cavity (which includes the heart and the lungs) has been mentioned as the seat of both the *Prâna* and the *Udâna Vâyû*. Cakrapâni suggests (C.S.VI.28) that it is like a florist and a potter working in the same room. Just as both these men can go out on business to different places and then come back to the same room without obstructing each other, so also the *Prâna* and the *Udâna Vâyû* reside in the same place without the one hindering the work of the other. The *Uras* again is the seat of *Avalambaka Shleshma* and the heart (included in *Uras*) is the seat of the *Prâna Vâyû* and of the *Sâdhaka Pitha*. This is like a man, a dog and a cat living in the same room. These different creatures may live together peacefully in the same room, each minding his own business; but if any one of them is disturbed, the disturbance is certain to be transmitted to the others.

There is another place - the umbilical region - which is also of great importance, specially with regard to the *Vâyû*. It is the special seat of the *Samâna Vâyû* and may also be called a seat of the *Vyâna Vâyû* because the latter is located throughout the body. The *Prâna* and the *Udâna Vâyû* flows down to the umbilicus, while the *Āpâna Vâyû* courses up to that place. The seat of the *Pâchaka Pitha* is the duodenum, which may be taken as the *Nâbhi*, or at least the place nearest to the umbilicus. The *Nâbhi* has been described as the place from which all the channels of the body take their origin.

But, in my opinion, we should give more importance to *Hrudaya* or the heart, it being the seat of the *Prâna Vâyû*, of *Sâdhaka Pitha* and of the *Avalambaka Kapha*. It

is the seat of *Rasa Dhātu* - S.S.I.14.3. It is also the seat of *Ojas*, the essence of the seven *Dhātu* and by the loss of which the body itself is destroyed (C.S.I.17.74)¹. The *Hrudaya*, again, has been described by Srikantha Datta as the site of all the *Sirās* or blood vessels of the body. (commentary on the *Vidradhi-Nidānam*). From the modern stand-point, this, of course, seems to be correct view.

CHAPTER XI A COMPARATIVE STUDY WITH MODERN SCIENCE

1. The identification of *Vāyu* and *Pitha*

It is not always profitable to try to conform ancient ideas with modern views. Sometimes it is positively misleading. But one thing we must state here. We have shown (Chap. VIII) that the three *Dôsha* are matter, matter in the modern physical sense of the term. Now, if they are material bodies, the question is, which of the substances found in the human body is *Vāyu*, which is *Pitha* and which is *Kapha*? Is it possible for us to actually see and feel them in the body?

The modern physiologists have extracted gastric secretions and intestinal secretions from living animals and have examined them both physically and chemically. Practically every part of the body and every kind of internal secretion have been chemically examined. If we try, I think we can, to a great extent, also do the same for *Vāyu*, *Pitha* and *Kapha*. This, however, requires independent experiments. Sushruta had advised us (S.S.III.5.47) to dissect the human body and examine the minute structures of the body with our own eyes if we wish to have correct knowledge about them? It is long since the Ayurvedists have ceased to handle a dead body. But it is my firm belief they even if they did not actually see the *Tri dhātu*, that Ayurvedists of old could mentally visualize them. By minute observation and clear reasoning and by thorough examination of the body, both living and dead, they had formed a very clear and definite conception about nature of *Vāyu*, *Pitha* and *Kapha*, how otherwise, would it have been possible for them to indicate by quite definite terms the physical and chemical properties (e.g. color, smell, activity and potency, etc. and even quantity) of the *Tri dhātu*.

The highly advanced modern science is at our disposal; and it is our duty now to take help of it wherever necessary and also to revive the methods of the mysteries of *Tridosha*. In the meantime, we can try to identify *Vāyu*, *Pitha* and *Kapha* with some substances in the body known to moderns physiologists. But *Vāyu*, *Pitha* or *Kapha* can never be identical with any known modern substance, because the method of examination of the ancient Hindu physicians was quite different from that of the modern scientists. Moreover, in addition to the material properties, something else, something of a higher quality, may be attributed to the three *Dôsha*, because of their association with the three *Sâmkhya Guna*, *Sathva*, *Rajas* et *Thamas*. I shall, however, try here to find out some known substances in the body which have the nearest approach to the nature of *Vāyu*, *Pitha* and *Kapha*.

According to modern physiology, the body is composed of five proximate principles, proteins (C,O,H,N,S), carbohydrates (C,O,H), fats (C,O,H), water (H₂O) and mineral salts (mainly Ca, K, Na, Mg, Fe, Cu, also P, Cl, I, Mn) together with a store of energy derived primarily from solar energy, *Âyurveda* tells us that the body is *Panchabautika*, i.e. composed of the five *Bhûta*: Earth, Water, Fire, Air and Ether. The *Vāyu-dhātu* is *Vâyaviya*, *Pitha* is *tejas* and *Kapha* is *Âpya*. Then again, modern science tells us that the body is made up of cells and cells arise from cells. According to *Âyurveda*, the body is made up of *Dôsha*, *Dhātu* and *Mala*; and *Dhātu* are formed

from *Dhātu*, (the *Dôsha*, the *Dhātu* and *Mala* may all be termed *Dhātu* when they keep the body in proper order).

Now what is the cell composed of ? It is composed of protoplasm a very complex substance. "To manifest life, protoplasm must be wet with (*Kapha* ?), in contact with oxygen (*Vâyu* ?) and warmed by the sun's heat to a certain temperature (*Pitha* ?)." Cells are found everywhere in the body, and also are *Vâyu*, *Pitha* and *Kapha*. So we must look for *Vâyu*, *Pitha* and *Kapha* in the cell, i.e. in the protoplasm . "The chemical structure of the molecule of living protoplasm is hidden from us, for the moment protoplasm is subjected to analysis it ceases to live, crumbling into simpler substances". Dead protoplasm yields protein.

"Proteins are essential in protoplasm, and they are more intimately associated with the phenomena of life than any other proximate principle, in the sense that we never find vital phenomena without them, and that vital phenomena are never manifested by carbohydrates, saline matter or water, either alone or in combination". Proteins are usually colloidal.

"A colloid does not form a true solution, but in a fluid it forms a kind of emulsion consisting of minute particles or globules suspended in the fluid. Such an emulsion-solution is termed a 'gel', but there are colloids having much finer particles, and which have different properties. Such are called 'Sols'. Protoplasm, alive, is probably of the nature of a sol".

I think that in the protein element of the living protoplasm is to be found what in *Âyurveda* we call *Kapha*.

"Enzymes are found in cells. Cells may be frozen and pounded into a paste. Enzymes are thus set free, and at the proper temperature they will manifest their usual activities. There can be no doubt that almost all cells contain enzymes, they take part in nutritional process, by mediating changes in protoplasm of the cell or possibly in the substances stored in the cell. They may thus carry on metabolic changes during the life of the cell".

Is *Pitha* then the enzyme-forming substance of the cell ?

"Every cell in this marvelous cellular agglomeration is the seat of complicated chemical reactions; its substance, semi-liquid and colloid in nature, is constantly breaking down and being built up again, probably by process and according to law purely physical-chemical; and with these reactions the general processes of reproduction and special adaptive movements are in some way correlated". Then again, "the cell is the theater of activities, of physical (*shlaismika* ?), chemical (*Paittika* ?) and vital (*Vatika* ?) nature, and all the essential phenomena of life may be manifested by the cell. These activities are more or less controlled and regulated by the nucleus. If a cell be divided artificially so that one portion of the protoplasm contains the nucleus, while the other portion has no nucleus, the latter portion soon dies, but the other portion remains alive, and may grow and perform its functions as before".

It seems certain, therefore, that the nucleus of a cell must contain something of the nature of the *Vâyu-Dhātu* of *Âyurveda*. It is the *Vâyu* in the nucleus of a cell must contain something of the nature of the *Vâyu-Dhātu* of *Âyurveda*. It is the *Vâyu* in the nucleus which breaks up the cell and helps it in its division. It is the nuclear *Vâyu* which is the cause of protoplasmic movements. It is this *Vâyu* again, which controls and regulates the actions of the nerve cells.

With the advent of very high power microscopes, it is now possible to minutely examine living cells for days and months together. With this rapid advance of

cytology, more and more knowledge about the innermost activities and the constituent parts of a cell being revealed to us. It might be that in course of time this knowledge may at last throw some definite light upon the true nature of the *Vāyu*, *Pitha* and *Kapha* of *Āyurveda*.

The power of Science, however, is limited. As Sir Oliver Lodge says, “when we come to ultimate origins, Science is dumb; we are confronted with the problems of existence, and if there is to be any solution of that, it is to philosophy and religion we must look and not to Science”. That mere physical perception is not at all sufficient for elucidation of the mysteries of life had long been recognized by *Āyurvedists*. That is why in the *Charaka-Samhitha*, we find the concepts of philosophy being discussed side by side with the problems of life, which has been defined in *Āyurveda* as union of the body, mind and soul.

PART FIVE Physiology of digestion

CHAPTER XII Agni and Digestion

1. Different Agni

Wherever there is fire, there is combustion. The principal function of *Agni* or fire is to digest (with the help of *Vāyu*). The Hindus philosophers have recognized four kinds of *Agni*, (1) Terrestrial, such as ordinary fire of coal or wood; (2) celestial, such as lightning; (3) Abdominal, that which digests food within the body; and (4) Mineral, such as the *Tejas* of gold. In *Āyurveda* we are concerned only with the abdominal fire.

The *Āyurvedists* have recognized 13 kinds of *Agni*,

7 *Dhâtvâgni*, i.e. *Agni* of the seven *Dhātu* of the body.

5 *Bhutâgni*, pertaining to the five *Bhuta* composing the body, and

1 *Jâtarâgni*, the digestive fire found in the abdomen.

Of these, the abdominal fire is the most important. It digests food. After the main digestion of food by the internal fire, a further finer digestion of the five *Bhuta*-qualities (i.e. of the Earth, Water, etc.) contained in the food is effected by the respective *Bhuta-Agni* (cf. C.S.S.VI.15.10.12). Cakrâpani clearly says that after the *Jâtarâgni* first breaks up the compactness of food (as the action of this *Agni* is to break up the complex pentabhautika food-stuffs into simpler substances), the five *Bhutâgni* act upon and digest the respective *Bhuta*-parts of the food. The seven *Dhātu-Agni* digest the respective *Dhātu*. An objection may be raised that the *Dhātu* themselves being *Pânchabhautika*, they contain the *Bhuta-Agni*. Quite so; but for convenience, the *Bhutagni* have been called by comprehensive names with reference to the different *Dhātu*. So the *Agni* of the *Rasa Dhātu* is called *Rasâgni*, that of blood is called *Raktâgni*, and so on.

Sushruta has raised the question: Is there any *Agni* in the body other than *Pitha*, or is the *Pitha* itself *Agni*? (S.S.I.21.9). He himself answers, - We do not perceive any *Agni* other than *Pitha*. But *Pitha* is not *Agni* itself, it is *Āgneya*. The heat of *Pitha* is *Agni* (the liquidity of *Pitha* is due to something else). Due to its heat, *Pitha* brings about combustion (*Dahana*) and digestion (*Pachana*), and so it is called *Agni* in a secondary sense.

The *Jathara-Agni* contained in the *Pâchaka Pitha* is the root of all other *Agni* of the body. It is the *Pâchaka Pitha* which by its intense heat, keeps up the heat of the whole body. Caraka says that it is due to the internal fire that life is preserved and the body is kept in good health, development and strength, the energy is increased and the body gets a healthy luster. When the *Agni* is deranged, man gets disease; so *Agni* has been described as the root of health as well as of disease (C.S.VI.15.1.2).

2. Food and Digestion

Agni in the form of *Pitha* is present everywhere in the body and in consequence a constant process of digestion is going on in every part of the body. Due to the constant digestion of the *Dhâtu*, there is a corresponding waste of the body. This waste is ordinarily made up by food. It is the food which serves as fuel for body-fire. So Caraka advises us to keep up this fire burning by a regular and adequate supply of the fuel in the form of food-stuffs (C.S.I.27.339). And Sushruta calls food, the root of our strength and vitality (S.S.I.1.28). The spermatozoon and the ovum, which by their union produce a living being, are themselves produced ultimately from food. So it is food which may be called the cause of production and preservation of life. But cannot nourish the body because, as Caraka says, undigested food is useless for the purpose of nourishment (C.S.IV.6.14).

The main purpose of digestion is to so alter the food-stuffs as to be fit for absorption into the body.

The proper digestion of food is effected by the following:

Heat (of the *Pâchaka Pitha*)

Vâyû (*Samâna Vâyû*)

Moisture and Viscidity (these two belong to *Kledaka Kapha*)

Time

Proper combination of the above five.

Of these, the heat digests. *Vâyû* pulls the food down to the stomach and brings the food near *Agni* and also inflames the latter. The moisture breaks up the compactness of the food-stuffs. Viscidity softens them. Time is required for completion of the process of digestion. And the proper combination of all these is necessary for the due production of the ultimate fruits of digestion which by nourishing the different *Dhâtu* keep up their normal proportion in the body (C.S.IV.6.15).

Food is four kinds:

Ashita, the main food like rice, bread, etc,

Pîta, the liquid food, such as water, milk, etc

Lîdha, the semi-solid food like curry, etc

Khâdita, the solid food like fruits, etc

These various kinds of food (all *Panchabhautica*) are, as we have already said, primarily digested by the internal or abdominal fire and then further by the different *Bhuta Agni*, the earthy or solid part being digested by *Parthiva Agni*, the Watery or liquid part by *Âpya Agni*, the Firey or hot part by *Tajasa Agni*, the Airy or gaseous part by *Vâyavya Agni* and the ethereal part by *Nâbhasa Agni*. The *Pârthiva* parts of the food are utilized for nourishing the muscles, bones and other solid parts of the body, the *Âpya* part nourishes chyle, lymph, blood and other liquid parts of the body and so on (C.S.VI.15.10.12. Cf S.S.I.46.524). (The different parts of the body which are *Pârthiva*, *Âpya*, etc. have been described in the Chapter on Panchabhautika Theory of Matter).

When the food having the proper qualities of smell, taste, color, etc, is thus thoroughly digested by the different *Bhuta Agni*, it nourishes this respective *Bhuta* qualities of the body including the *Dhātu*, the five *Vāyu*, *Pitha* and *Kapha*, the *Malas* and also the five senses. (We should remember, as Cakrapâni says, that according to *Âyurveda* the five senses or *Indriya* are *Panchabhautika*).

3. The place where the food is digested

Let us now see in which part of the body does the food undergo digestion. Caraka says that the region between the umbilicus and the nipples is called the *Amāvâsya*; it is here that the four kinds of foods-stuffs are digested. (C.S.III.2.23). We have seen (Chapter on Location of *Tridosha*) that Caraka's *Âmâshaya* includes the stomach as well as the duodenum. Susrutha's *Âmâshaya* is the stomach only. He says that *Amâshaya* is situated just above the *Pithashaya*; it is the receptacle for the four kinds of food and it is at this place that the food is moistened by virtue of the humid qualities of *Kapha*, is broken up into pieces and becomes fit for easy digestion by *Agni* (S.S.I.21.12).

The second part of Caraka's *Amâshaya* is the duodenum. It is called the *Pithashaya* (lit. receptacle for *Pitha*) by Sushruta; it is also called *Grâhani* and *Pitha dhara kalâ*. It is here that the food is completely digested by internal fire.

Although it is the stomach and the duodenum where the digestion of food primarily takes place, the digestive process is continued, as we shall see, in the intestines also. In fact, it is the *Maha Shrota* or the Great Channel (alimentary canal) where the food is digested. The first stage of digestion takes place in the mouth and in the stomach; the second stage in the duodenum and the third and final stage in the intestines.

4. General Process of Digestion

The *Prâna Vāyu* first holds the food in the mouth and does not allow it to fall out. It then pushes the bolus of food down the gullet. The food is thus brought into the stomach where it collects. There it is moistened and broken up by the action of *Kledaka Kapha* and becomes a soft pulp which gradually goes into the duodenum. The *Samâna Vāyu* situated at the umbilicus now stirs up and excites the neighboring abdominal fire which in due time properly digests the food (C.S.VI.15.4.5).

In this way, the internal fire, after cooking the food within the body, reduces it to a fine part, the *Rasa Dhātu*, and a waste part, the urine and feces.

CHAPTER XIII The production of Vāyu, Pitha and Kapha in the body

1. Production of Kapha

Food contains six *Rasa*, sweet, sour, salt, bitter, pungent and astringent. The moment the food is taken into the mouth, the digestion of the six *Rasa* begins. There is a rapid secretion of saliva from the salivary glands. The saliva is the sort of *Kapha*. We have seen (See Normal Functions of the *Tridosha*) that the *Bôdhaka Kapha* keeps the tongue moist and softens the food. Now *Kapha* is predominantly sweet; so even though food reaches the stomach, which is the principal seat of *Kapha*, a foamy substance is generated out of this sweet reaction. It is *Kapha*.

Charaka's description of the first stage of digestion is as follows, "As soon as the food is taken, the six *Rasa* (contained in the food) begin to be digested. Due to this digestion, a sweet reaction sets in, and due to this sweet condition again is produced a foamy *Kapha*" (C.S.VI.15.7). Sushruta also says, "Due to transformation of the food in the stomach into a sweet, slimy and soft substance, the sweet and cold *Kapha* is produced there" (S.S.I.21.13).

We see, therefore, that over and above the permanent *Kapha* of the body, afresh *Kapha* is produced in the stomach during the digestion of food.

It is to be noted here, that when we take food we should, as advised by Caraka, keep a portion of the *Kukshi* (stomach) empty for the free movements of *Vâyu*, *Pitha* and *Kapha*, so that they may thoroughly combine with the food for its proper digestion (Cf. C.S.III.23). The air-cap in the fundus of the stomach is, of course, there for the free play of *Vâyu* both internal and external.

The exact advise of Caraka is, when taking our meals, to imagine the space of the stomach divided into three parts, one part to be filled up with solid food, the second part with liquid food and the third part left empty for *Vâyu*, *Pitha* and *Kapha*. Cakrapâni in his commentary on this says that the three divisions should not be taken to be equal. The solid food should given more space. The elder Vâgbhata asks us to consider the stomach divided into four parts, two parts to be filled up with *solid* food and the remaining portion to be kept empty for *Vâyu*, *Pitha* and *Kapha* (A.S.I.10). We may take these parts to be equal, so that the space to be left empty for *Vâyu*, *Pitha* and *Kapha* would be just one-fourth of the total of the stomach.

2. The production of *Pitha*

The second stage of digestion has been described by Caraka thus : "At the time when the half-digested food leaves the stomach to drop into intestines, a clear liquid *Pitha* is evolved in the duodenum out of the acid condition of the partly digested food" (C.S.VI.15.8).

The half-digested food or chyme comes gradually into the *Grâhani* or duodenum, which is the seat of *Agni*. Caraka says, "the *Grâhani* (lit. that which receives), so called because it receives the food, is situated above the umbilicus and is the seat of *Agni*. It holds the partially digested food and sends the digested food downwards. When this *Agni* is weak, the food, even in the undigested or ill-digested condition, passes out as such into intestines" (C.S.VI.15.53.54).

The *Grâhani Nâdi* (lit. the receiving tube), situated as if at the door of the *Pakvâshaya*, acts as a bolt and thus checks any sudden on-flow of food from the duodenum to the intestines. (C.S.VI.15.53-54).

Sushruta has called the *Grâhani Nâdi*, the *Pitha Dhara Kalâ* . "that which holds the *Pitha* and is situated between the *Pakvâshaya* and *Âmâshaya* is called *Grâhani*" (S.S.VI.40.161). The *Pitha Dhara Kalâ* again "holds the four kinds of food which pass from the stomach for the purpose of going to the *Pakvâshaya* (S.S.III.4.18). But for the holding power of the *Grâhani* and the bolt-like arrangement, the food would have gone out to the intestines too quickly for the *Pâchaka Pitha* in the duodenum to digest it properly.

The elder Vâgbhatta has described this very clearly. He says: "The *Pitha Dhara* is situated between the *Pakvâshaya* and the *Âmâshaya* . Being the seat of the internal fire, it holds by force the food that comes out of the stomach on its way to the intestines, desiccates and digests the food by means of the heat of *Pitha* and ejects out the digested food. When it becomes weak by being affected by any *Dosha*, the

undigested food as such passes out of it. So, because it holds the food, it is called *Grâhani* (A.S.II.).

The *Grâhani* is the special seat of *Pitha* which is of character of a strong acid. For this reason and also for the fact that heat is evolved out of the intense digestive process going on in the duodenum when food comes into it, there is production here of a fresh fine liquid substance. It is *Pitha*.

That the result of any digestive process is production of heat is clearly indicated by *Indu* when in explaining the normal functions of *Pitha*, he says (A.A.I.19). As the production of this heat is maximum in the duodenum, i.e. the seat of *Pâchaka Pitha* which is described as the root of all other *Pitha*, the former can keep up the heat of the latter and thus maintain the normal heat of the body.

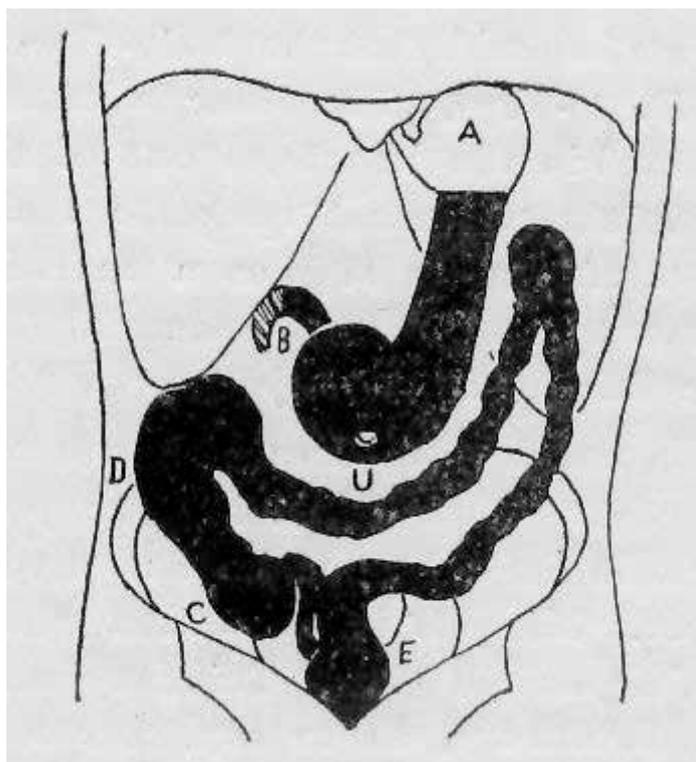


Fig 4 Skiagram to show normal position of colon in man, and the position attained by its contents at different periods after a meal containing Bismuth (Hurdt)

A - Air-cap in fundus of the stomach, B - Duodenum, U - Umbilicus,
C,D - Ascending colon

Time of arrival of food at C. 4 ½ hrs after meal, at D 5 ½ hrs after meal, at E, just above rectum 18 hrs after meal.

Production of *Kapha* begins immediately after meal

Production of *Pitha* begins about half an hour after meal

Production of *Vâyû* begins about two hours after meal

3. The Production of *Vâyû*

By the action of *Pitha* in the duodenum, the digested food is converted into two parts, a fine and a coarse part. The coarse part is driven slowly into the intestines (by the action of *Samâna* and *Vyâna Vâyû*) where the third and last stage of digestion takes place. Caraka's description of it is, "When at last the digested food comes into the intestines, it begins to be dried up by *Agni* and is converted into a compact solid mass. During this process, a bitter and astringent reaction sets in ; due to this reaction *Vâyû* is generated" (C.S.VI.15.9).

Now Sushruta has said that the body-*Vāyu* is evolved out of the *Bhuta-Vāyu*. Then, how is it that this fresh *Vāyu* is generated in the intestines out of the digested food ? To explain, we must remember that the *Panchabhautika* food-stuffs contain *Vāyu* as a matter of course. This *Vāyu* is set free in the intestines by successive actions of the different digestive juices.

It may be noted that Caraka has here used the simple word 'Syât' when describing the production of fresh *Vāyu* within the body, but he has used the more expressive word 'Udirgate' in connection with the fresh production of *Kapha* and *Pitha*. This may mean that the new *Kapha* and *Pitha* are, so to say, forced out of the *Panchabhautika* food-stuffs by action of the strong digestive juices which are secreted into the stomach and the duodenum and which themselves also contain pure *Kapha* and *Pitha*.

From the watery portion of food is produced urine and the hard portion is turned into feces. And when the food is completely and properly digested, an extremely fine substance is produced. This is called *Rasa*; its place is the heart (cf. S.S.I.14.3).

4. The production of Food-*Rasa*

We have already said that the digestive process begins in the stomach and is practically completed in the duodenum. This is clearly indicated by Caraka in *Vimāna Sthāna*, Chapter 2, when in answer to the question of Agnivesha as to where the four kinds of food are digested, Purāna Vasu says that the food is digested in the *Āmāshaya* which is situated between the umbilicus and the nipples. And then he goes on. (C.S.III.2.24)

That is, the food having reached the first part of *Āmāshaya* (stomach), received digestion; in other words the digestion begins. Later on, when the food goes to the second part of *Āmāshaya* i.e. the *Pacayamānāshaya* (the place where the food is being digested, i.e. the duodenum, which also a part of *Āmāshaya* according to Caraka), it gets complete digestion. After this, the digested food (after being turned into the essential part *Rasa* and separated from waste parts viz, urine and feces) goes all over the body through the *Dhamani* (tubular vessels carrying chyle, blood, etc.)

In the stomach, the digestion begins (*Prapacyate*); in the duodenum, there is special digestion (*vipacyate*) and in the last stage of digestion in the intestines, only the water contained in the food is dried up (absorbed). During the first stage of digestion in the stomach, the food becomes thoroughly mixed up with the *Kledaka Kapha*. When this semi-liquid food comes into the duodenum, the *Pāchaka Pitha* combines with it. *Vāyu* is all along present. So the substance that is being digested by *Agni* in the *Grāhani* is food together with *Vāyu*, *Pitha* and *Kapha*. When this substance is completely digested we get an essential part, the *Rasa*, and the waste part, the urine and feces. We see, therefore, that as soon as the food (i.e. the six *Rasa*) comes in contact with the *Dosha* in the alimentary canal, the *Rasa* lose their character as such and become a *Vipāka* or a combination of *Dosha* and *Rasa*. The food-*Rasa*, therefore, which must come out of the *Vipāka* may be regarded as a 'loaded' form of the *Tridosha*. In the urine and feces also, there is an admixture of *Vāyu*, *Pitha* and *Kapha* in addition to waste matter from food.

If at the time of taking, a particular *Rasa* is taken in excessive quantity, then the *Dosha* which is of a similar character to that *Rasa* (e.g. *Kapha* corresponding to the sweet taste) is greatly increased. So Caraka says -

“ When *Rasa* and *Dosha* combine, that *Rasa* which has similar properties to a particular *Dosha*, augments that *Dosha*” (C.S.III.1.7).

CHAPTER XIV

Production of *Dhātu* in the body

1. The circulation of *Rasa Dhātu*

That the essential and waste parts of food become separated in the *Grāhani* is evident from the lines of Charaka (C.S.III.2.24) quoted in the last chapter. Sushruta also is of the same opinion, for, in connection with the description of *Dhamani* which go downwards, he says : “The *Dhamani* of the lower extremity carry *Vāta*, urine, feces, semen, menstrual blood, etc. The food-*Rasa* is produced out of the complete digestion of food in the *Pittāshaya* and is separated by *Agni*. The *Dhamani* emerging from the *Pittāshaya* carry this food-*Rasa* to different parts of the lower extremity and send it to the *Dhamani* going upwards and lateralwards; they thus indirectly serve to supply the heart, the seat of *Rasa Dhātu*, with its quota of healthy *Rasa*. They also discharge the urine, feces and sweat” (S.S.III.9.7).

The *Dhamani* are said to have their sources at the *Nābhi*. A portion of food-*Rasa* is carried by the down-coursing *Dhamani*'s (i.e. *Dhamani* below the *Nābhi*) to the lower part of the body, another portion enters the lateral *Dhamani* and the remaining portion goes upwards and collects specially in the heart. (As the food-*Rasa* is being separated below the *Nābhi*, it is the down-coursing *Dhamani* that have to send it to the lateral and up-coursing *Dhamani*. The *Rasa* cannot directly enter these latter channels without first traversing a portion of the sub-naval *Dhamani*). In this way, the food-*Rasa* is carried all over the body, upwards, downwards and lateral wards. It is thus instrumental in the proper nourishment (at all periods of life), growth and development (in childhood), preservation (of the fully developed body) and maintenance (during the natural waste in old age) of the body (S.S.I.14.3). It is for this reason that Sushruta says, (S.S.I.14.12), the body is produced from food-*Rasa*. See appendix for description of the different *Dhātu* of the body.

2. The production of *Dhātu*

From *Rasa* is produced blood flesh and then from flesh is produced fat, from fat the bones and then from the bones is produces marrow and from marrow is generated the semen. (S.S.I.14.10; also cf C.S.VI.15.14).

The digestion of the Dhātu

When the food-*Rasa*, i.e. the fine *Rasa* produced out of thorough digestion of food, is separated from the excretory matter, it goes upwards to the heart, and on its way there begins to be digested by different *Bhuthāgni* contained in it. At the heart, the food-*Rasa* supplements the permanent *Rasa-Dhātu* there. We must note here, as both Cakrapāni and Sivadāsa say, that there is only one variety of *Rasa-Dhātu*. The term “*Āhāra-Rasa*” (as used by Charaka) or “*Annapāna-Rasa*” (as used by Sushruta) has been used to distinguish the freshly generated *Rasa* from the permanent or *Sthāyi Rasa-Dhātu* of the body, the one is the ‘*Poshaka*’ or nourisher, the other, the other is the *Poshya* or that which is to be nourished. The place of the ‘*Poshaka-Rasa*’

is in the *Dhamani*, whereas the special seat of the permanent or Poshya *Rasa-Dhātu* is the heart.

The digestion of *Rasa Dhātu*

In the heart, the digestion of the *Rasa Dhātu* by its own *Agni*, the *Rasāgni*, is going on. As a result of this digestion, the above *Rasa* (i.e. the *Poshaka Rasa Dhātu*) is divided into three parts, a waste part, a fine part and a still finer essential part. Of the waste part, we shall speak later on. The clear fine part mixes with the permanent *Rasa Dhātu* and is driven all over the body by the *Vyana Vāyu* through the *Dhamani*. The remaining finest part goes to the liver and the spleen, the principal seats of blood. Here, this finest essence of *Rasa Dhātu* is reddened by the *Ranjaka Pitta* and is thereby transformed into blood (C.S.VI.15.22 and S.S.I.14.5). Although Charaka and Sushruta simply say that it is by the heat of *Pitta* that *Rasa* is colored, we must remember that the liver and spleen are the seats of the *Ranjaka Pitta* and it is the red-coloring matter of this *Pitta* which imparts the red color to *Rasa*. Sushruta has clearly indicated this when, in describing the different kinds of *Pitta*, he says, ‘ the function of that *Pitta*, which has its seat in the liver and the spleen, consists in imparting its characteristic pigment to *Rasa* and hence is known as *Ranjaka Agni* ‘ (S.S.I.21.10).²

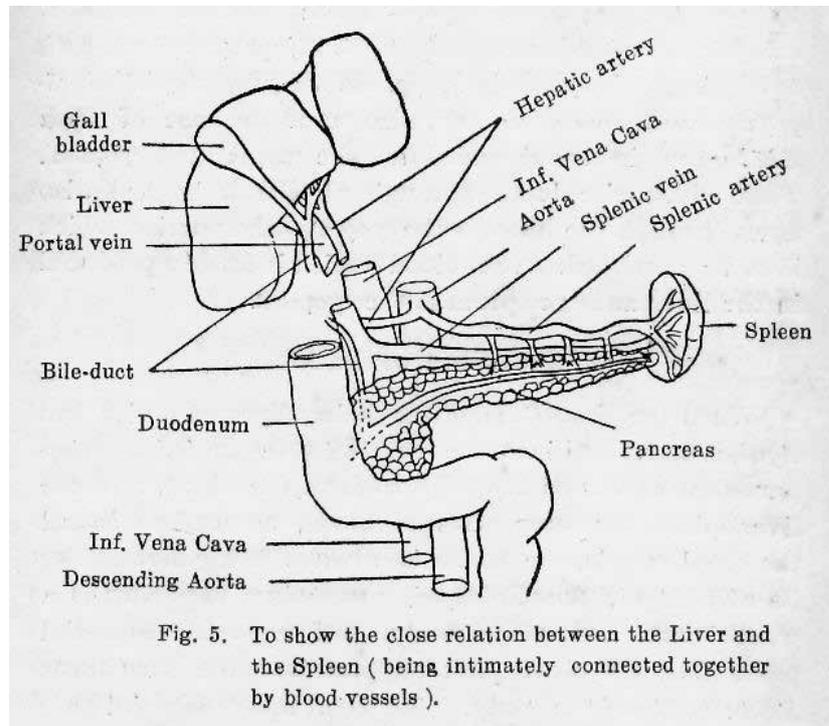
This change of color, however, from white of <<<*Rasa* to red of blood is gradual and takes place by stages. According to Hārīta, this occupies a maximum of six days; there is a change of color every day, the successive colors being white, grey, green, yellow, lotus-red (light red), bright red, and lac-red (dark red). (C.S.I.28.3)

The liver and the spleen

Liver and spleen

In this connection, we want to say something about the liver and the spleen. In *Āyurveda*, the liver and the spleen have been described as the special seats of blood (S.S.I.21.16). Sushruta is even of opinion that the liver and the spleen of the embryo are also derived from blood, (S.S.III.4.25). The liver and the spleen are situated below the heart, to its right and left side respectively (S.S.III.4.21); yet in *Āyurveda*, practically everywhere, we find these two coupled together. Whenever the liver is mentioned, the spleen is also implied. Their functions are similar. If one is deranged the other also is deranged. What deranges one, deranges the other also. That is why Charaka prescribes similar medicines for derangement of both the liver and the spleen (C.S.VI.13).

The liver may well be called the principal receptacle for blood, because it is here that about one-fourth of the total blood of the body is to be found. The importance of the spleen, as a reservoir of red blood corpuscles, is also not insignificant as has been shown by Barcroft (Lancet, fev, 14.1925). It is because fresh blood is generated at these two organs, that the liver-spleen have been called the principal places of blood and the roots of all blood-vessels: (C.S.III.5.12; cf S.S.III.9.12 and C.S.VI.4.8.2. By *Raktashaya* or reservoir of blood, the liver and the spleen only meant. That the liver and the spleen are intimately connected together by blood-vessels will be evident from Fig 5 below



It is the heart which pumps out blood, but it is the liver-spleen which are the places of origin of the same. Although, accorded to Āyurveda, the heart is the special seat of *Rasa-Dhātu* (and also of *Ojas*), we must remember that, as Srikantha Datta says, it is also the site of all the *sirās* (see p 84). That a portion of the blood flows through the heart is also mentioned by Cakrapani when dealing with the method of nourishment of the body by the *Dhātu*; for he says, (C.S.I.28.3). So here, as in the case of the *Rasa Dhātu*, the blood is classified as the *poshya* and *poshaka*. That which circulates throughout the body and also flows through the heart is the *poshya*, the portion which is to be nourished. The blood which is freshly produced in the liver and the spleen is the *Poshaka*.

Digestion of blood

When the food-*Rasa*, after being digested by its own *Agni*, is converted into the next *Dhātu*, it is its *Tejas* part that substantially helps to form the blood. In the liver-spleen, the receptacles of blood, as well as in all the blood-vessels, the blood is always being digested by its own *Agni*, the *Raktāgni*. As before, the result is a waste part, and a fine and a still more fine essential part. The fine clear part supplements the permanent *Rakta Dhātu* of the body. The clear-most essential part enters the very fine blood-vessels or capillaries within the muscles and stays there for 5 days and 11/2 *Danda* (one *Danda* is equal to 1/60 part of a day i.e. of 24 hours, i.e. $24 \times 60 / 60$ or 24 minutes). As a result of digestion during this period, the above clear most part of blood is converted into flesh by combination with *Vāyu* and the heat of *Agni* and is then mixed up with the permanent *Māmsa Dhātu* of the body. *Vāyu* and *Agni* have the power of drying up a thing. So by association with these two, the liquid blood is converted into the comparatively solid flesh. It is the Earthy part of the food-*Rasa* that substantially helps in the formation of the *Māmsa Dhātu*.

The digestion of the muscular tissues

The food-*Rasa*, after being transformed into blood and then into flesh, stays in the muscular tissues for 5 days and 36 minutes and a result of digestion by *Māmsāgni* is divided into three parts. Of these, the fine part augments the permanent *Māmsa Dhātu* of the body. The finer essential part enters the very fine muscular

tissues in touch with fat. Here as a result of above digestion, it combines with *vāyu* and *Agni* under a substratum of *Shleshma* (water-quality) and is converted into the white substance, the *Medas* or the fat. The Earthy and Watery parts of food-*Rasa* specially help to form the fat.

The digestion of *Medas Dhātu*

The food-*Rasa*, transformed into *Medas*, stays in that *Dhātu* for 5 days and 36 minutes and after being digested by the *Medas-Agni* is divided into three parts. The fine part supplements the permanent *Medas Dhātu* of the body; and by the action of the above digestive process, the Earthy, Airy and Fiery parts of the food-*Rasa*, are combined together under a substratum of *Shleshma*. As a result of this compact, the finer essential part of fat is converted into hard mass, the *Asthi*. It is *Vāyu* which produces pores within the bones (cf C.S.VI.15.24).

Digestion of *Asthi Dhātu*

The food-*Rasa*, thus transformed into *Asthi*, remains in that *Dhātu* for 5 days and 36 minutes and after being digested by the *Asthi-Agni* is divided into three parts. Of these, the fine part supplements the permanent *Asthi Dhātu* of the body and the finer essential part, after being converted into *Majja* or marrow by the action of the digestive process, is driven by *Vyana Vāyu* into the pores of the bones, where it replenishes the existing marrow.

Digestion of *Majja Dhātu*

The food-*Rasa*, as transformed into marrow, stays in the *Dhātu* for 5 days and 36 minutes and being digested by the *Majjāgni* is divided into three parts. The fine part supplements the permanent *Majja Dhātu* of the body and the finer essential part is converted into semen.

Digestion of *Shukra Dhātu*

The food-*Rasa*, transformed into *Shukra*, is further digested by *Shukrāgni*. Just as no dross part comes out of the gold which has been burnt a thousand times, so also when semen, which is generated as a result of a repeated digestion of *Rasa*, is again digested by its own *Agni*, it produces no waste part. It is divided into two parts only, instead of three. The fine part supplements the permanent *Shukra Dhātu* of the body; the finer essential part is called the “*Ojas*”. As the seat of *Shukra* is throughout the body, this *Ojas* is also produced in every part of the body; but it collects specially in the heart.

Thus, it is the same food-*Rasa* which coming out of the heart, is converted into successive *Dhātu* in every five days, the total time taken for the *Rasa* to be turned into semen being one complete month; for the female instead of semen, the *Artava* is generated (S.S.I.14.14).

This is the general rule, but the semen-producing (*Vīrya*) substance like milk, butter, etc. nourish the *Dhātu* more quickly because of their inherent power. Some are of opinion that these substances are turned into semen in 6 days and nights i.e; on the 7th day after taking meal, (C.S.VI.15.32). According to Parāshara (quoted by Cakrapāni), the essential part of such food is turned into *Rasa* on the 2nd day, it is turned into blood on the 3rd day, flesh on the 4th day, fat on the 5th, bone on the 6th, marrow on the 7th and semen on the 8th day, counting the day of taking meal as the first day. It must also be remembered that the *Rasa* will ordinarily be turned into semen in one month provided that the digestive power is normal and the different *shrota* or channels of the body are not blocked in any way. Otherwise the *Rasa* would take more time to be turned into semen.

Circulation of *Rasa Dhātu*

The *Rasa*, is going out of the heart, circulates throughout the body and after nourishing the succeeding *Dhātu* again returns to the heart in the form of *Ojas*. The nourishment of all the *Dhātu* thus goes on continuously in a cycle. (C.S.VI.15.33; also A.H.II.3.68). *Santatyā* means without break. According to Arunadatta '*bhoga-Dhātu*' means that *Dhātu* which is the food for another *Dhātu*. The preceding *Dhātu* is food the succeeding one.

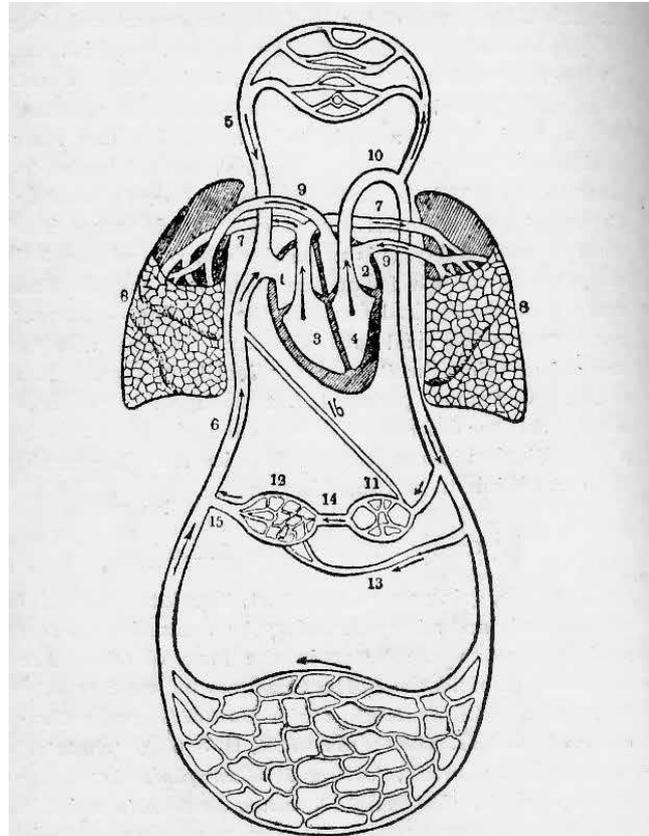
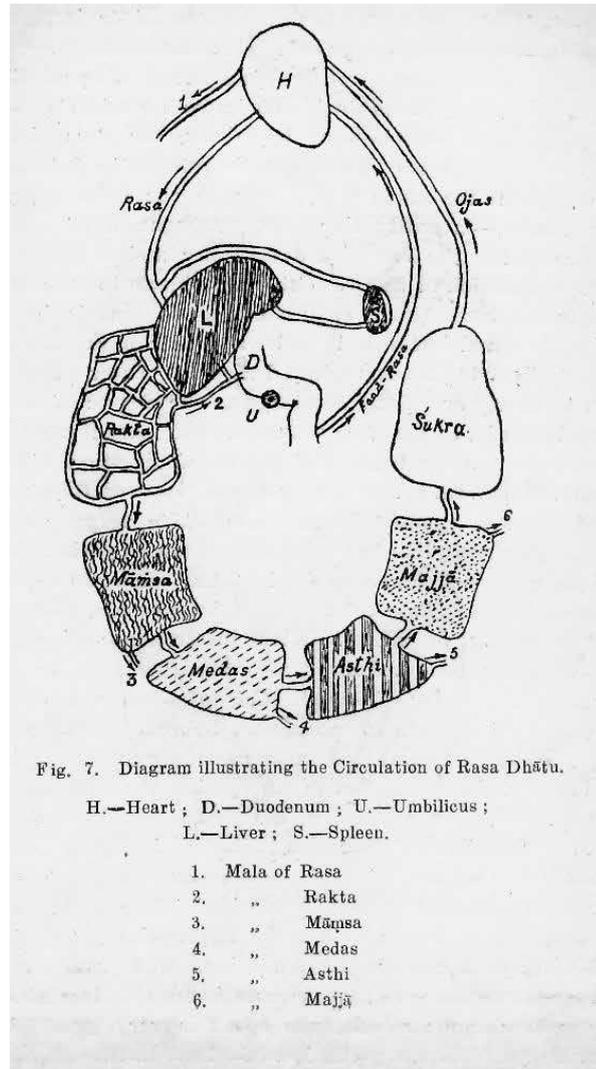


Fig. 6.—Diagram illustrating the Circulation of Blood.
(modern view)

1. Right auricle; 2. Left auricle; 3. Right ventricle; 4. Left ventricle; 5. Superior Vena Cava; 6. Inferior Vena Cava; 7. Pulmonary arteries; 8. Lungs; 9. Pulmonary veins; 10. Aorta; 11. Alimentary canal; 12. Liver; 13. Hepatic artery; 14. Portal vein; 15. Hepatic vein; 16. Thoracic duct.



Nature of circulation

Regarding the way in which the *Rasa Dhātu* circulates throughout the body, Sushruta gives an analogy - (S.S.I.14.16) that is to say, the *Rasa* circulates throughout the whole body, even to the most minute structures, laterally like the propagation of sound, upwards like the flow of flames of fire and downwards like the motion of water. Chakrapani objects to the above explanation on the ground that sound travels in all directions and not merely side ways. He says (C.S.VI 15.32.33) that just as a wheel draws out water (from a well) slowly or quickly according as the degree of force applied at it, so the *Rasa* is turned into semen more or less quickly according to the power of digestion of the individual. With a very strong digestive power the semen is produced from *Rasa Dhātu* very quickly (in eight days) like the quick flow of flames; with low digestive power (*mandagni*), it takes more time (one month) for the *Rasa* to be turned into semen, like the slow motion of water. With intermediate digestive power, the time taken is also intermediate like the moderate velocity of sound. Chakrapagni has taken this passage of Sushruta to mean the different times taken by *Rasa* to be turned into semen according to the varying powers of digestion. But in our opinion, that should not be the correct view, for in that case the force of the word '*anudhavati*' becomes nil. It is quite clear that by the use of this particular word, Sushruta referred to the circulation of *Rasa* in the body. So the first explanation. The passage may also refer to the velocity of circulation of the *Rasa Dhātu*. In some of the channels, the speed is very great like the flow of flames, e.g. the flow of blood in the arteries; in some, as in the case of circulation of blood in the veins, the speed is moderate like that of sound; and in some, as in the case of

capillary circulation, the speed is very slow like the ordinary flow of water. This is the view of some modern writers.

We see, therefore, that the ancient Hindus had some definite idea about circulation. Whereas, in modern physiology, we have the blood circulating throughout the body and nourishing all other *Dhātu*, its special seat being the heart. The *Rasa* is driven from the heart to all parts of the body and after performing its beneficial functions it comes back to the heart. All the *Dhātus*, including *Rasa*, are *Panchabhautika*; they are composed of the five *Bhūtas* in different proportions. Each *Dhātu* takes up its own requirements from the circulating *Panchabhautika* food-stuffs. When we remember that blood is nothing but the transformed *Rasa* and when we also remember that this idea about the *Rasa*-circulation was established more than two thousand years ago, we are struck with the evident similarity between the ancient and the modern views. Even with regard to the fetal circulation, while the modern physiologists say that the fetus is nourished by the blood of the mother, the Ayurvedists say that the *Garbha* or fetus is nourished by the food-*Rasa* of the mother.

The above should not be taken to mean that the Ayurvedists did not know at all about the circulation of blood. In fact, there are passages in Charaka and Sushruta which clearly refer, in unambiguous terms, to blood-circulation. For example, when describing *Sirās* carrying blood, Sushruta says (S.S.III.7.14) i.e. the blood circulates through the *sirās*. Charaka also says in connection with *Vātaraktha* (C.S.VI.29.11) that is to say, the *Vāyu* and the blood, owing to their penetrativeness and fluidity, travel in all directions in the body through the *siras*. In the passage quoted above, Sushruta also mentions as the first function of the blood-carrying *siras*, i.e. the replenishment of the other (wasting) *Dhātu*. Here we must consider this blood to be the *Poshaka* one (the *Rasa* transformed into blood).

The production of Upa-Dhātu

Upa dhātu

How one *Dhātu* is produced from another has been described above. Out of the essential part of the first four *Dhātu* are produced, as by-products, some sub-*Dhātu*. Charaka has enumerated these (C.S.VI.15.)¹: At the time of digestion of the *Rasa Dhātu*, out of its essential part are generated the mother's milk and the menstrual blood of females. Out of the essential part of blood are generated in addition to flesh, the *Kandara* (thick ligaments) and the *Siras*. From flesh is produced *Vasa* (fatty exudation) and the six layers of skin and from the fourth *Dhātu Medas* are produced the *snāyus* ligaments.

Sāragadhara has mentioned (book I, Ch 5) mother's milk, menstrual blood, *Vasa*, sweat, teeth, hair and *Ojas* as the *Upa Dhātu* respectively of the seven *Dhātu*, viz, of chyle, blood, flesh, fat, bones, marrow and semen. This view is, however, not supported by any other authorities. The sweat, at least, is always recognized as a *Mala* or waste product. The teeth are included in the bones. The first two *Upa Dhātu*, viz, the mother's milk and menstrual blood are generated and stopped at their proper times. The first is generated when a female becomes pregnant and stops at the end of the lactation period; the second is generated when she attains puberty, but stops permanently at the time of menopause. The oily substance found inside the fully formed muscles is *Vasa*.

Although these are produced from *Dhātu*, yet they are themselves barren, that is to say, they do not produce any other *Dhātu*. They are called *Upa-Dhātu* simply because they are produced out of *Dhātus*.

Both Charaka and Bhoja have included *Raja* or menstrual blood in the *Upa Dhātu*. We have seen, however, that according to Sushruta, *Ārtava* is generated as the seventh *Dhātu* instead of semen in the case of females. So this *Ārtava* cannot be taken as the menstrual blood. There is a difference of opinion amongst ancient authorities regarding the existence of semen of females, (We find some discussions about this point in Vātsayana's *Kāma Sutra*, book VI, ch 1). Sushruta maintains that females also have got semen. This is evident when he says (S.S.III.2.47) that when two females conjugate together and as a result their semen are discharged, a fetus, which will be devoid of any hard bones, may be produced. So by *Ārtava* in that particular passage (S.S.I.14.14), I think, he means the semen of females. We may consider this as *Ārtava* as the ova of females.

The production of Mala

As a rule, any digestive process must yield a *Mala* or waste part. That is why during the digestion of each *Dhātu*, a dross part is produced along with an essential part. The only exception is in the case of the seventh and last *Dhātu*, the semen.

The Mala

The waste matters produced out of the digestion of food are urine and feces. Let us now see what are the respective *Mala* of the six *Dhātu*. These have been enumerated by Charaka and Sushruta (C.S.VI.15.30; S.S.I.46.527).

<i>Dhātu</i>	<i>Mala</i>
Chyle (<i>Rasa</i>)	<i>Kapha</i> (Vagbhata- A.S.II.6 –adds 'Lasika')
Blood	<i>Pitta</i>
Flesh	Waste products in the apertures of the human body, e.g. dirt of the ears, eyes, nostrils, of pores of the body and of genital organs
Fat	Sweat
Bones	Hair and nails
Marrow	waste matter in the eyes and oiliness of the skin
Semen	No <i>Mala</i> .

Sarangadhara has enumerated the respective *Mala* of the seven *Dhātu* as follows -

- 1) The watery (akin to *Kapha*) matter in the tongue, eyes and cheek;
- 2) The *Ranjaka Pitta*;
- 3) The dirt of the ears;
- 4) The dirt of the tongue, teeth, armpits and of the genital organs
- 5) The nails
- 6) The dirt of the eyes and the oiliness of the face
- 7) The juvenile eruptions (Book I Ch5)

Ādhamalla in his commentar has arranged the Mala as above. He also says that the word 'tatha' after *pindikā* in the text means that the beard is also the *Mala* of semen. But Dalhana in his commentary on Sushruta says that Gayi does not accept this view. Chakrakani also is of the same opinion (C.S.VI.15.14). In fact, Charaka and Sushruta do not recognize any *mala* of *Shukra*. The most noticeable fact about this passage of Sarngadhara is that he specifically mentions the *Ranjaka* variety of *Pitta* as the *Mala* of blood.

Vagbhata has mentioned *Ojas* as the *Mala* of semen (A.H.II.3.64; also A.S.II.6.). This is really surprising, because everywhere *Ojas* has been described as the finest essence of all the *Dhātus*. The elder Vagbhata first says that *Ojas* is the essence of semen and then definitely says that because of the extreme purity of the latter *Dhātu*, it has no *Mala*, (A.S.II.6.). But curiously enough, at the end of the same chapter we find the identical verse as in the Ashtānga Hrudaya.

Prasāda and mala or Kitta

1. Prasāda and Mala

So we see that out of the proper digestion of the *dhātus* two kinds of substances are produced, one *Prasāda* or pure part and another *Mala* or *Kitta* i.e. dross part. But the Mala part is not entirely useless. Some portion of the very fine essential part of the *Prasāda* is present in the *Kitta* and, on the other hand, some fine part of *Kitta* also is present in the *Prasāda*; and thus mutually helping one another, they support the body.

It is because the *Dosha*, *Dhātu* and *Mala* support the body, by being mutually related with one another, that they can all be called *Dhātu*. When they are present in the body in normal quantities, they each conduce to the general welfare of the body. But when, for example, a *Dosha* becomes less than or is in excess of its normal quantity or becomes deranged it becomes harmful. Similarly, when a *Mala* is produced in an abnormal quantity, it becomes harmful and tends to go out of the body and finally thrown off. The fully digested *Dhātu* also (e.g. a dead cell) becomes *Mala-Bhūta* i.e turned into a *Mala*. Charaka has made this very clear in the following beautiful passage:

“The body-*Dhātu* may briefly be said to be of two kinds - *Malabhuta* and *Prasādabhāta*. Of these, the '*Malabhuta*' is that which hinders in the proper functioning of the body; as for example, (1) substances generated separately as additional products within the apertures of the body, such as sweat, mucus, etc. which were not originally the constituent parts of the body like the *Dosha* and *Dhātu*; (2) the outgoing fully digested *Dhātu* i.e. the dead cells; (3) the *Vāyu*, *Pitta* and *Kapha* when in abnormal quantities and (4) any other substance which becomes injurious to the body; all these may be called *Mala*. Substances other than these are *prasāda* (C.S.VI.6.17).

It is to be noted that Charaka here has used the term *Malabhuta* i.e. that which has been turned into *Mala*, instead of simply calling it *Mala*, because the latter is not always a hindrance to the body. It is only when something tends to obstruct and damage the body that it is called *Malabhuta*. On the other hand, when the Mala are in proper quantities and support the body in the same way as the *Dhātu*, they may be called *Prasāda Bhuta*.

It is only in connection with the digestive process that Charaka has used the term *Kitta*. The term *Mala* however, is more common. Charaka says that from the food is produced (1) *Rasa* which is called *Mala*, (C.S.I.28.3). That is to say, the food, after digestion, is divided into two parts, one *sāra* or essential part and the other *asāra* or non-essential part. The non-essential part i.e. the *Kitta* are not entirely

useless, because by these are nourished the sweat, urine, feces, *Vātha*, *Pitha*, *Kapha*, *Shleshma*, hair, nails etc. Chakrapani has clearly said that the *Kitta* part of food produces urine and feces as also *Vāyu*; the *Rasa*, after digestion, produces *Kapha* as a *Mala*; *Pitta* produces *Kapha* as a *Mala*; *Pitta* is produced as a *Mala* of Blood, which latter may be considered, as we have shown, as transformed food-*Rasa*. The *Kitta* therefore, is very useful part of the body. It is only when it is produced in an abnormal quantity that it becomes a *mala-Bhuta* i.e., *Mala* proper.

CHAPTER XV

The nourishment of the body

The *Dosha*, *Dhātu* and *Mala* are the roots of the body. These together support the body. A constant digestion of all these substances is going on with a corresponding waste of the body. This waste is primarily made up by food.

As regular meals preserve the general equilibrium of the body, so also one *Dhātu*, by serving the purpose of food for the next succeeding *Dhātu* maintains the normal condition of the latter. As food is the cause of growth of the body, so also one *Dhātu* is the cause of growth of another *Dhātu*. As the different eatables are food for the animals, so one *Dhātu* is food for the succeeding *Dhātu*. (A.S.I.1) Thus the *Rasa Dhātu*, derived from the digested food, serves as a food for blood, blood is food for flesh and so on; and in this way the normal condition of the body is being continually kept up. (C.S.I.28.3) For instance, we may say that had not freshly generated blood acted as the food for flesh, the latter *Dhātu* would have been diminished in quantity of blood, thus disturbing the normal equilibrium of the body.

We shall now see how the different *Dosha*, *Dhātu* and *Mala* are nourished.

The nourishment of the *Dosha*.

Vāyu is nourished in two ways.

(1) The outside air that we breathe in mixes up directly with the *Prāna* and *Udāna Vāyu* within the body and then nourishes all other *Vāyus* of the body. The *Uras* has been mentioned as the seat of both the *Prāna* and the *Udāna Vāyu*. We have already explained (p.72) that by *Uras* here is meant the lungs.

(2) The *Vāyu* that is generated in the *Pakvāshaya* at the last stage of digestion also nourishes the body-*Vāyu*. This *Vāyu* may be called *Mala-Vāyu* because it is produced in association with the *Mala* of food.

Pitta is also nourished in two ways.

(1) The fresh, clear *Pitta* that is generated in the duodenum during the second stage of digestion directly nourishes the *Pāchaka Pitta*. It is the *Pāchaka Pitta*, again, which from its own seat at the duodenum nourishes all other *Pittas* by its own heat.

(2) *Pitta* is produced as a *Mala* during the digestion of blood. Whenever this *Mala-Pitta* is produced, it nourishes the original *Pitta* of that place.

Similarly, *Kapha* is nourished in two ways, - one a fresh, pure *Kapha* and another by a *Mala-Kapha*, thus,

(1) The foamy *Kapha* that is produced in the stomach during the first stage of digestion directly nourishes the *Kledaka Kapha*. The latter, by its own special humid properties, then nourishes all other *Kaphas* of the body.

(2) *Kapha* is produced as a *Mala* during the digestion of *Rasa Dhātu*. As *Rasa* is circulating throughout the body, this *Mala-Kapha* also is being generated in every part of the body and nourishes the original *Kapha* everywhere.

Nourishment of the Dhātu

The *Rasa Dhātu* is nourished by food-*Rasa*.

The *Rakta Dhātu* is nourished by the clear most essential part of *Rasa Dhātu*

The *Māmsa Dhātu* is nourished by the clear most essential part of *Rakta Dhātu*

The *Medas Dhātu* is nourished by the clear most essential part of *Māmsa Dhātu*

The *Asthi Dhātu* is nourished by the clear most essential part of *Medas Dhātu*

The *Majja Dhātu* is nourished by the clear most essential part of *Asthi Dhātu*

The *Shukra Dhātu* is nourished by the clear most essential part of *Majja Dhātu*

The *Ojas Dhātu* is nourished by the clear most essential part of *Shukra Dhātu*

There are three hypotheses regarding the method of nourishment of the *Dhātu*.

1. The milk and the curd analogy

According to this, the whole *Rasa Dhātu* is turned into blood by the process of digestion, the blood is turned into flesh as a whole and so on, just like a quantity of milk which is wholly turned into curd (and not by parts), and the curd is turned into butter as a whole and similarly the butter into ghee.

2. The irrigation- chinned System

According to this hypothesis, it is the *Rasa* which first goes to the *Rakta Dhātu* and being associated with the latter nourishes it by qualities similar to blood. After supplying the blood with its necessary requirements, the *Rasa* goes to the *Māmsa Dhātu* and in the same way nourishes it. In this way, just as a stream of water goes to successive fields, flooding one field after another through the intervening channels between the fields, so also the same *Rasa* goes to successive *Dhātu* and nourishes them by turns. (see fig .7)

3. The pigeons-in-the-Snare Analogy

According to this, the food-*Rasa* goes to the different *Dhātu* by different channels and nourishes them by its different *Dhātu*-nourishing qualities. As pigeons of different places, coming by different paths, fall into a snare at different times, so the food-*Rasa* goes to the different channels at different times; and because the *Rasa Dhātu* is the nearest, the food-*Rasa* nourishes it first. The blood, flesh and other *Dhātu* being situated deeper and deeper into the body, the food-*Rasa* has to go by longer and longer paths to these *Dhātu*, so taking longer and still longer times, nourishing the *Shukra Dhātu* last of all.

Of these three views, we have adopted the second one. It has preference also of Chakradatta (C.S.VI.15.15).¹ and of Sivadasa. The third view is difficult to follow, as Chakrapani says.

The nourishment of the Upa-Dhātu

Kandaras and *Siras* are nourished by the essential part of blood.

Skin and *Vasā* are nourished by the essential part of flesh

Snāyu is nourished by the essential part of *Medas*,

Menstrual blood is nourished by the essential part of food-*Rasa*.

In the case of the pregnant female, a portion of the *Rasa-Dhātu* nourishes the blood in the usual course, a second portion nourishes the fetus, and a third portion produces milk in the breast.

[Regarding the production of mother's milk, Sushruta says (S.S.II.10.18) that when the sweet essential part of *Rasa*, which is itself produced out of digestion of food, comes from all parts of the body and accumulates in the breasts, it is called mother's milk. In the case of nullipara, the outlets of the milk-carrying *Dhamani* or ducts remain closed and in consequence there no production of breast-milk. It is only when a woman becomes pregnant that these outlets are opened up by nature and the duct also expands. Sushruta has drawn an analogy between the semen and the breast-milk (S.S.II.10.19.22). As in the case of semen, although the milk is produced throughout the body, yet it remains invisible and cannot be seen when any part of the body is cut open. Just as the semen oozes out at the sight, thought or touch of a beloved woman, so also the milk is secreted from the breast of the mother at the touch, sight or recollection of her dear child or when she takes the child in her lap.]

As a result of the digestive processes, besides nourishing the above *Dhātu* and *Upa-Dhātu*, the very fine *Panchabhautika* parts of food-*Rasa* also nourish the five senses which, according to *Āyurveda*, are originated from the five *Bhūtas*. So we see that it is, after all, the food-*Rasa* which is at the root of all these nourishments (C.S.I.28.3)¹

The nourishment of the Mala

Urine - is nourished by non-viscid, liquid part of food-*Kitta* (waste products of food).

Feces is nourished by the non-liquid portion of blood-*Kitta*.

Sweat is nourished by the viscid, liquid part of food-*Kitta* and by the *Mala* and *Medas*.

Lāsika is nourished by *Mala* of *Rasa*.

Waste-matter in the eyes is nourished by *Mala* of *Māmsa* and *Mala* of *Majja*.

Waste-matter in ears, pores and genital organs is nourished by *Mala* of *Māmsa*

Hair and nails are nourished by *Mala* of *Asthi*

Grease of the skin is nourished by *Mala* of *Majja*

In this way, the *Dhātu* which are called *Prasāda* and the *Dhātu* which are called *Mala* (*Malākhyā*) are nourished respectively by *Rasa* and by the *Mala*. And thus the normal proportions of the *Dhātu*, proper for the particular age of the subject, are preserved and equilibrium of all the *Dhātu* is maintained (C.S.I.28.3)

Normal quantities of Dhātu

The normal measures of the different liquid and semi-liquid parts of the body have been mentioned by Caraka (C.S.IV.7.14) and Vagbhata (A.S II.5 and A.H.II.3.85.86). It was Vagbhata who added the two *Upa-Dhātu* viz, breast-milk and menstrual blood to Charaka's list ;

Normal Quantities of the <i>Dhātus</i> , etc. (by volume)	By 'Añjalis' of the subject's own measure.
Water ...	10 <i>Añjalis</i>
<i>Rasa</i> ...	9 "
Blood ...	8 "
Fæces ...	7 "
<i>Śleṣman</i> ...	6 "
<i>Pitta</i> ...	5 "
Urine ...	4 "
<i>Vasā</i> ...	3 "
<i>Medas</i> ...	2 "
<i>Majjā</i> ...	1 "
Brain-matter ...	$\frac{1}{2}$ "
Semen ...	$\frac{1}{2}$ "
<i>Ojah</i> ...	$\frac{1}{2}$ "
Breast-milk ...	2 "
Menstrual blood ...	4 "

Vāyu has no compact form; so its quantity cannot be determined.

The period from birth up to the 16th year is regarded as childhood; during this period, all the parts of the body are not fully developed. The period from the 16th up to the 30th year is the period of growth; during this time, the fully developed *Dhātu*, nourished by food-*Rasa* grow in quantity. After that up to 60th year, the quantities of the different *Dhātu* in the body remain practically constant; during this period there is neither growth nor decay of the body. After the 60th year up to 70th, the natural decay of the *Dhātu* sets in and so after the 70th year man reaches the old age. It is food which keeps up the normal proportion of the *Dhātu* and *Mala*, proper for the particular age of the individual.

According to Sushruta, the *Dhātus* attain their full development at the 25th year for the male and 16th year in the case of the female (S.S.I.35.13). Charaka also has advised abstinence from sexual intercourse before the age of 16 and after the age of 70. Because in the case of the too old, the semen should not be wasted and in the case of the too young, the semen is not fully developed (C.S.VI.24/40.42).

As the semen or the menstrual blood is not perceived during childhood, the question may arise as to whether these two are not produced at all as a result of the digestion of food-*Rasa* during this period. Sushruta has answered this:

“Since the perfume in a flower-bud is imperceptible to the organ of sense, it may as well be asked whether there is at all any perfume in it or not. But what does not exist in a thing, cannot be evolved in the subsequent course of its development. As the perfume in a flower-bud lies latent in its early stage of development, but becomes manifest with the full bloom of the flower, so the semen or the menstrual blood lies in a potential state on a male or female child, but makes its appearance with attainment of puberty, along with the growth of beard and moustache in the case of males and of uterus in the case of females”. (S.S.I.14.18.19 ; C.S.VI.2.4/39).

Let us finally see what is the exact relation between the *Dosha* and *Dhātu*. The *Dosha*, *Dhātu* and *Mala* are the main supports of the body, (S.S.I.15.3; A.S.I.19 and A.H.I.2; also S.S.VI.66.6). Indu in his commentary explains it differently. He says that “the body may be considered to be composed of *Dosha*, *Dhātu* and *Mala*. Of these three, the *Dosha* are the most important, because from these are derived the *Dhātu*. The *Rasa* which nourishes the other *Dhātus* gets its motion or power of circulation (*vāhana*), its chemical activities (*pāka*), viscosity (*Sneha*), hardness (*katina*), etc from the *Doshas*” (A.S.I.1). The *Dhātus*, as we have seen, become fixed in quantity after a certain age. They are, so to speak, stationary (*dharana*). The *Doshas*, on the other hand, are in-coming and the *Malas* are out-going (*Bahirmukha*) matter, the proportion between them, of course remaining constant.

The seven *Dhātus* constituting the body are the lymph chyle, blood, muscles, fat, bones, marrow and semen. In general, we may consider the modern tissues as corresponding to the *Dhātus* of *Āyurveda*. *Vāyu*, *Pitta* and *Kapha* are not generally visible to naked eye. As Chakrapani says in his commentary on Sushruta (S.S.I.15.3/1), the nature of *Vāyu*, *Pitta* and *Kapha* are to be inferred from their actions. This is the crux of the whole situation, it is because the *Tridosha* cannot be directly handled, that we have all this controversy regarding their nature.

Now the *Doshas* pervade the whole body, whereas the *Dhātus* are fixed; that is to say, the *Dhātus* must remain in their proper places and have their fixed *Shrotas* or channels. The veins, the arteries and the lymphatic are, from the modern point of view, the main channels through which the nutrient matter for the tissues as well as the waste product from them are carried. We may consider the three *Dosha* to be carried all over the body with the substances flowing through the above channels.

This view is strikingly confirmed by Sushruta and Charaka also. Sushruta has described four kinds of *Siras*, (S.S.III.7) (1) Those carrying *Vāyu*, (2) those carrying *Pitta*, (3) those carrying *Kapha* and (4) those carrying blood. But at the same time he has told us (S.S.III.7.16) that there is no *siras* which carries only *Vāyu*, or only *Pitta* or only *Kapha*, so these *siras* may be considered as carriers of all. Charaka when describing the *shrotas* says that as the *Vāyu*, *Pitta* and *Kapha* have to circulate throughout the body, all the *shrotas* are so many paths for them to travel. (C.S.III.5.6). By all the *shrota*, Charaka means the *Shrotas* carrying the *Prāna Vāyu*, water and food, those appertaining to the seven *Dhātus* and to the three *Mala* namely urine, feces and sweat. The word *Prāna* in the text has been interpreted by Chakrapani as meaning the *Prāna Vāyu*. The general *Vāyu*, however, is everywhere in every *Shrotas*, as also are *Pitta* and *Kapha*. Of all the *Shrotas*, it is the blood-vessels which are found practically in every part of the body: in the muscles as well as in the hardest of bones, as every cell has to be nourished by blood. As we have already noted (p.118.) we have direct evidence in Charaka Samhita of the circulation of *Vāyu* and blood. So it is quite proper to conceive the *Vāyu*, *Pitta* and *Kapha* to travel throughout the body along with the blood stream.

There is yet another set of very important channels in the body. There are the nerves, through which we may conceive some kind of *Vāyu* to travel. It is by the

action of these nerves that every kind of action of the body is controlled. The nerve-cells are specialized seats so to say, of *Vāyu*.

If the *Dhātus* are fixed in their respective positions, how then are these affected for good or evil? Charaka answers, “when bad *Doshas* touch the *Dhātus*, they derange the latter” (C.S.IV.6.18). And conversely when good i.e normal *Doshas* touch the *Dhātus*, they bring about good results. So long as the *Dosha* are in actual touch with the *Dhātus*, just for that length of time only can they affect the latter. And because the *Dosha* are always in contact with the *Dhātus* – there being a certain proportion of *Doshas* in every *Dhātu*, - the body would be in perfect health only when the *Doshas* are kept normal.

The normal healthy *Dosha* bring about good results, only by properly nourishing the *Dhātus*. So, after all, it is the *Tridosha* (food-*Rasa*, as we have seen, may be considered as a ‘loaded’ form of *Dosha*) and *Tridosha* alone that nourish the *Dhātus*. It is the *tridosha* which are part and parcel of the *Dhātus*; and it is finally in the *Dhātus* that they are continually merging. It is the *Tridosha* which component parts and nutrients of the *Dhātu*-cells and it is through the *Dhātus* that the *Tridosha* function.

PART SIX HEREDITY AND TEMPERAMENT

CHAPTER XVI The *Prakrithi*

At the time of conception, i.e at the time of conjunction of the *Shukra*, *Sonita* and *Jīva*, according as one or the other of the *Doshas* predominates in the semen and *Ārtava*, the child acquires its own peculiar temperament or *Prakrithi*, that is to say its constitutional nature both physical and mental.

We have said that the *Tridoshas* are part and parcel of every *Dhātu*. So *Vāyu*, *Pitha* and *Kapha* are present in the spermatozoon; they are also present in the ovum. When these two unite to form the fertilized ovum, one or the other of the *Doshas* may be in preponderance. Sushruta Says, (S.S.III.4.36), at the time of conjunction of the semen (spermatozoon) and blood (ovum), that *Dosha* which happens to be the most dominant determines the temperament; and thus the child becomes of *Vāthaja*, *Pithaja* or of *Kaphaja Prakrithi*.

1. Heredity

It is important to notice here that this question of *Prakrithi* brings in the question of heredity. Before discussing this question from the *Āyurvedic* point of view, it will be profitable, I think, to mention here the up-to-date modern explanation regarding the mechanism of inheritance. (The quotations below are from Prof. Carr-Saunders' *Eugenics*).

The method of sexual reproduction among higher animals consists in the fusion of a cell given off by the male parent with the cell given off by the female parent. The bodies of the parents are built up of millions of cells and the cells which are given off are merely cells of a somewhat peculiar nature, on which account they are often called germ cells or gametes. Every cell consists of a drop of living matter which at the edge of the drop is more dense than elsewhere and forms the wall of the cell. Within each cell there is a central body of nucleus. Male germ cells and female germ cells are single cells each with a nucleus. Male germ cell, or eggs, and the

much smaller than female germ cells, or eggs, and the process of fusion, which is essential feature of the nucleus of sexual reproduction, consists in the penetration of a sperm into an egg and in the fusion of the nucleus of the sperm with that of the egg. The single cell resulting from the fusion of two gametes is known as zygote.

“These facts have been known for a number of years. It has long been apparent that somehow or another this physical continuity of parent with offspring just described explains the tendency of like to produce like. The more detailed and accurate our observations can be made as to structure of the gametes and as to what occurs during fusion, the more likely are we to be able to understand the phenomena of inheritance. Within recent years more refined methods of observation have enabled us to make further advances in our knowledge of this process.”

“It can now be seen that every nucleus contains within it a number of rods called chromosomes, with the important exception of the germ cells, to which reference is made later, there is normally the same number of rods in every cell of every member of a species. The rods or chromosomes are normally in pairs, and the total number of chromosomes is thus normally an even number. The chromosomes are not always visible; they sometimes seem to go into solution. Before division of the cell takes place, the chromosome divides lengthways into two and each of the cells resulting from the division receives half of each split chromosome. It thus results that every cell in the body, since they are all formed by division from previously existing cells, contains the same number of pairs of chromosomes. It thus results that every cell in the body, since they are all formed by division from previously existing cells, contains the same number of pairs of chromosomes. The chromosomes do not continually diminish in size owing to this process, because the halves into which the chromosomes split subsequently grow to the size of the original chromosome.”

“The germ cells, however, differ from the other cells in that they have only half that number of chromosomes which is characteristic of species. Thus while the ordinary body cell of man has twenty-four pairs of chromosomes, forty-eight in all, the eggs and sperm have twenty-four in all. But these twenty-four are not in pairs. They represent one chromosome of each pair. When a human sperm fuses with a human egg the resulting zygote contains forty-eight chromosomes or twenty-four pairs, one member of each pair having been introduced by each parent. Thus sexual reproduction does not result in the doubling of the number of chromosomes because the gametes which fuse only contain one member of each pair.”

“This is as far as direct observation will carry us. There is here a mechanism as the result of working of which every new member of the species receives one chromosome of each pair from each parent, and every cell in the body of the new individual receives the same number of pairs. The chromosomes are clearly very important; otherwise there would not be this remarkable mechanism for their exact distribution. They are the only contributions made equally by both parents. The facts so far disclosed thus suggest that the chromosomes are the bearers of inherited qualities. This supposition is confirmed by deductions drawn from the result of breeding experiments”.

From these breeding experiments, “the picture that we are led to construct is as follows. The chromosomes contain a large number of particles called genes. These genes are arranged in a single row. We might picture the chromosomes as cord and the genes as knots in the cord. There is reason to think that the genes are the actual bearers of the inherited qualities which may be regarded as somehow embedded in the chromosomes.”

The important fact deduced from the above breeding experiments is “that all characters, mental and physical, are controlled by genes in pairs, one member of

each of which is provided by the father and the other by the mother,” It may be that one of the genes in a particular pair may be different from the other and in that case is wholly governed by one of the two genes. The governing gene is said to be “dominant” over the other gene, which is said to be “recessive”.

To the above picture of the chromosomes the Āyurvedist may add another factor, that of *Vāyu*, *Pitha* and *Kapha*. When a sperm unites with an egg, we may conceive that along with the chromosomes, the *Vāyu*, *Pitha* and *Kapha* embedded in them also fuse together. The fusion of the two gametes, the division of the chromosomes, their subsequent growth to full size in every cell, all these are controlled by the action of the nuclear *Vāyu* and with this latter is always associated *Pitha* and *Kapha*. But it is *Vāyu* which is the dynamic principle within the cell. We may further conceive that every gene contains a definite proportion of the *Tridhātu*. The characters inherited by a child may depend upon the genes embedded in the chromosomes, but the ultimate factors controlling the mechanism of inherence are the *Vāyu*, *Pitha* and *Kapha* impregnated in each of the gene itself.

Remembering the above picture, it becomes easy to follow Ātreya’s reply to the question as to why, if like produces like, it is that a cretin, or dumb, or blind or a leper does not beget a like issue. According to Ātreya, *bija* (lit. the seed, i.e. the fertilized ovum consists of portions) ‘*bijabhaga*’ which may be considered as the executing agents for manifestation of the different parts of the body. The *bijabhagas* hers may well correspond to the modern genes. Now Ātreya says, “in the the *bija*, it is only those *bijabhagas* which are adversely affected that become morbid in the course of development. But those portions which remain unaffected are developed normally” (C.S.IV.3.25). That is why a leper may or may not beget another leper. It is only when a parent becomes so very virulent that it affects the germ cells also, that the child is also similarly affected. In the case the leprosy, cited by Cakrapani, the poison is in the water-carrying channels. When the disease becomes so very advanced in a person that ultimately it affects the particular genes which have control over the skin, etc., then the child will also inherit the leprous poison. (cf. Cakrapani, C.S.IV.3.25). But the affections of the body including those of the germ cells only be effected through the agency of *Tridosha*. So we come to the conclusion, as stated before, that the final controlling agents in the mechanism of inheritance are *Vāyu*, *Pitha* and *Kapha*.

2. The Temperaments

We will now revert to the question of temperaments. Remembering the above picture of *Vāyu*, *Pitha* and *Kapha* intermixed in the chromosomes of the germ cells, it will be easy to see how the temperaments are formed. When the two opposite gametes unite together; the *Tridhātu* in the one merge into the *Tridhātu* of the other. It is easily conceivable that after this process of fusion, there is a chance of uniform proportionality of the *Vāyu*, *Pitha* and *Kapha* in the resulting zygote; and thus we get *Sama prakrithi*, meaning thereby that there would not be any undue predominance of the characteristics of a particular *Dosha*. The child in this case will perfectly normal in every respect, physically and mentally. The condition, however, is extremely rare. What generally happens is that in the fertilized ovum; one or the other of the *Dosha* becomes more predominant than the others; and so the child acquires some definite characteristics peculiar to that particular *Dosha*. The picture of *Vāyu*, *Pitha* and *Kapha* in the chromosomes takes up a definite and fixed pattern so to say, for a particular zygote. This pattern is the same in each and every gene. Now let us suppose that a pair of genes controls the color of the skin; one member of the pair corresponds to the male gamete, the other corresponds to the female gamete, the other corresponds to the female gamete. Let us also suppose that the male gene is

dominant: so the child will acquire the color of the father's skin. But the nature of the skin will depend upon the particular pattern of the *Tridosha* in the genes. If *Vāyu* is predominant, the skin will be rough, if *Kapha* it will be smooth and cool, and if *Pitha* is dominant, the skin will be hot in touch.

Some say that there is no such thing as *sama-prakrithi*, because men are generally accustomed to diverse food of diverse qualities and in unregulated quantities; and so one of the other of the *Dosha* becomes predominant in them. Ātreya refutes this and persists in saying that there are men of *sama-prakrithi* (C.S.III.6.14), because *prakrithi* is normality. *Vātha*, *Pitha* or *Shleshma-Prakrithi* is a misnomer, because whenever one of the *Dosha* is predominant it should be considered as a case of abnormality. So a man having, say *Vāyu*, predominant in his constitution from the very birth should not be considered as of *Vātha prakrithi* but rather as *Vātala* i.e susceptible to *Vāyu*. It is best to interpret *Prakrithi*, as Cakrapani has done, not as a normality but as a nature or character (C.S.III.8.14/7/4). Cf Indu and Arunadatta *Prakrithi Shārira Svarupa* (A.S.I.1; A.H.I.1.10). Gangadhara also says that the term *Prakrithi* should be taken to mean *svabhāva* and not *upādāna* or material cause (C.S.I.4.40).

The *Tridosha* pattern of the fertilized ovum remains fixed throughout the process of cell-division when the embryo is being developed into the full grown child. The pattern remains in the same in every cell of the body. It remains unalterable throughout life (cf. S.S.III.478). During life a *Vātha Prakrithi* can never be changed into a *Pitha* or *Shleshma-Prakrithi* and vice versa. Similarly a *sama prakrithi* can never become a *Vātha* or any other *Prakrithi* (cf Cakrapani, C.I 7.40).

Here we must always remember that the body is *panchabhautika*, the *Vāyu*, *Pitha* and *Kapha* of the body corresponding to the *Vāyu*, *Tejas* and *Jala Bhuta* respectively. That is why Susruta has described the *Tridosha* as the material causes of the body. (see p.47), and when describing the *Prakrithis* has hinted that these may also be said to correspond to the five *Bhuta* (S.S.III.480).

Considered as an *Upādāna* or material cause of the body, a *Dosha* is liable to be deranged, but considered as a contributing factor in the formation of the constitutional nature of the body, a *Dosha* remains the same throughout life. After birth, when the child has separate and independent existence and begins to take food, his *Dosha* may be deranged by extraneous causes; there may be an aggravation or warning of a particular disease. Medicines are used to bring the deranged *Dosha* back to its original normal proportion in the body. But the increase or decrease in the proportion of a *Dosha*, subsequent to the birth of a child, has got nothing to do with the *Dosha-prakrithi*, the *Tridosha* pattern as we have called it-formed at the time of conception. When, for example, *Vāyu* is decreased due to some extraneous cause in a subject with *Vāta prakrithi*, it does not mean that the constitutional preponderance of *Vāyu* in him is diminished thereby, thus tending to turn a *Vāta prakrithi* into a *sama prakrithi*. It only means that the subject manifests symptoms due to waning of *Vāyu*; or in other words, he gets a disease. The only way in which a *Dosha* as material cause is related to a *Dosha prakrithi* is that a *Dosha* is likely to be easily aggravated in a system in which a corresponding *Dosha* is constitutionally predominant. Thus a predisposing cause, say coldness, which aggravates *Vāyu* can very easily affect a person with *Vātha prakrithi*, but not so easily one with *Pitha prakrithi*.

We now finally come to the question brought in by Sushruta. How, if the spermatozoon and the ovum are affected by a *Dosha*, one of the *Dosha* being predominant over the others, is it possible for the ovum to be fertilized at all? Why is it that the preponderance of one or the other of the *Dosha* does not destroy the

embryo? Sushruta answers that just as a worm produced and bred in a poisonous medium is not affected by poison, so also a *Dosha prakrithi* does not greatly affect the body. (S.S. III, 4.79). cf A.S.I.1; A.H.I.1.10. The poison inside a venomous snake does not affect the snake, although it has the power to kill others; because the snake and its poison are '*sahajata*, - born or produced simultaneously together. Similarly although the three *Dosha* are mutually opposite in character, *Vāyu*, say, being cold and *Pitha* hot, the coldness of the one does not neutralize the hotness of the other.

So we see that those things in the body which are 'born' simultaneously together (*ekejanmāna*), and not separately at a time subsequent as *prakrithi* or natural; they do not normally constitute a morbid condition.

Gayī (quoted by Dalhana S.S.III.4.65) gives a very clear explanation of the above question of Sushruta. He says that it has been said that it is only when semen and the 'blood' are pure that the conception may take place; but that when these are affected by any *Dosha*, there would not be any conception. Then how is it that even when a *Dosha* become dominant it can produce normality? Gayi then goes on to explain that is the case the *bīja* (a gamete) is not affected in its entirety but in some parts. As a person born blind or dumb is seen to beget a child (who is not even defective in any respect), so it is evident that the affections of a part of the *Bīja* are no bar to conception. When those parts of the gamete which correspond to the *Dosha* are affected, the characteristics associated with the particular *Dosha* affected become more prominent in the child than would be the case, had it been of *sama-prakrithi*; the predominance of the *Dosha* at the time of conception does not mean that there would be no *garbha* at all.

Chapter XVII

The different *Prakrithi*

Charaka, Sushruta, Bhela and others have described in detail the peculiarities of the respective temperaments (C.S.III.8; S.S.III.4)

1. *Vātaja* temperament

A man who is of *Vātaja Prakrithi* is wakeful due to the dry quality of *Vāyu*, lean, devoid of much fat, short in stature, has a rough skin and a rough low-pitched and indistinct voice.

Due to the lightness, fluidity and quickness of *Vāyu* is restless, incoherent in his habit and vacillating in temper. He is a fast walker and dreams of scaling the skies. His eyes always seem to move. He talks incoherently and talks much. He makes few friends and is incapable of accumulating money. He can grasp any ideas very quickly but is unable to retain it in memory for any length of time. He is unshapely and his body is marked by a large number of prominent *sirās*.

These are due to the lightness, fluidity and quickness of *Vāyu*.

Due to the cold property of *Vāyu*, he cannot bear any cold substance and is averse to cold contact.

Due to the roughness and transparency of *Vāyu*, the soles of his feet and palms of his hands are much fissured. He has often a rough beard and moustaches, rough nails and scanty hair. He is hot-tempered and grinds his teeth when asleep.

Morally he tends to be dishonest, jealous and thievish. He is impulsive, ungrateful and unsteady in his friendship. He is fond of music.

Due to the characteristic qualities of *Vāyu*, he is short-lived, has low vitality and has few children.

According to Sushruta, his nature seems to resemble those goats, jackals, hares, rats, camels, dogs, vultures, crows and asses.

2. *Pitha* temperament

A man of *Pitha* temperament cannot bear any hot substance and is averse to warmth. His limbs are loosely shaped and yellowish in color. The nails, eyes, tongue, lips, soles and palms of such a person are copper-colored. His body is covered with pimples and moles and he looks ugly with wrinkles, baldness and premature grey hair.

He perspires copiously, emitting a fetid smell.

He is irritable in temper, though he cools down very soon. He is intelligent and possesses a good retentive memory and loves to monopolize any conversation. He dreams in his sleep of such things as meteors, lightning flashes, fire and red flowers.

He is vigorous and irresistible in battle. He is never overpowered with fear, nor bends before a powerful antagonist. He protects the suppliant.

He is a man of middling strength and lives up to middle age. His nature resembles those of a serpent, an owl, a *Gandharva* (heavenly musician), *Yaksha*, a cat, monkey, tiger, bear or a mongoose.

3. *Kapha* temperament

The skin of a person of *Kapha* temperament is smooth and very cool and the complexion is bluish in color. He is of stately appearance; the limbs are proportionate and symmetrically developed with a cool effulgence radiating from them.

He is specially fond of sweet taste.

He is self-controlled, grateful, forbearing, unselfish and strong. He does not hastily form any opinion. He is fast in his enmity, but also unflinching and unchanging in his friendship.

He is prosperous in life. He dreams in his sleep of large lakes decked with myriads of full-blown lotus flowers, swans and geese.

His eyes are white with a slight red tinge in the corners, and hair curly, profuse and raven black. His voice resembles the rambling of a rain-cloud or the roar of a lion or of a drum (*Mridanga*).

He is of a sedate nature, capable of sustaining pain and fatigue and respectful towards his superiors. He has faith in his own religion, is true to his word and is always obedient to his preceptors. He suffers no vicissitudes of fortune and makes large gifts after long deliberation.

Due to the characteristics qualities of *Kapha*, he is of a very strong physique and has long life.

His nature is similar to those of the gods, of a lion, a horse, an elephant, or of a cow, bull, an eagle or a swan.

Of the three, the *Kapha* temperament is the best.

4. Mixed Temperaments.

Due to the preponderance of the two *Dosha*, there may be an admixture of the temperaments.

We have said that the temperaments can also be classified according to the five *Bhuta*. The temperaments corresponding to the *Vāyu*, *Tejas* and *Ap Bhûta* are similar to *Vātha*, *Pitha* and *Kapha Prakrithi*. A man of *Pārthiva* temperament is solidly built and has a large stature. He is of a forgiving nature. One of *Nābhasa* temperament is pious and long-lived. The apertures of his ears, noses, etc, are rather big (S.S.III.4.80).

As Sushruta has always brought in the three *Sāmkhya Guna* of *Sathva*, *Rajas* and *Thamas* in his discussions, so he has also classified the temperaments according to these three *Guna* (S.S.III.4.81.93; cf A.S.II.8). These temperaments refer principally to the mental and spiritual nature of man.

The elder *Vāghata* has classified the temperaments in still another way (A.A.II.8) – according to (1) caste; (2) family; (3) country; (4) time and season; (5) age; (6) strength and (7) individuality (personal eccentricity).

As we have already said, these temperaments persist up to the time of death and can never be altered. The Ayurvedists had gone so far with this view as to say that any change in the temperament of an individual should be considered as a symptom of imminent death. So all one can do to counteract the evils of one's temperament is to be habituated in things opposite in qualities to those of the particular *Dosha* predominating in one's nature.

Part VII The pathology of Vāyu, Pitha and Kapha

CHAPTER XVIII The abnormal Vāyu, Pitha and Kapha

In enunciating the principle of the *tridosha*, we have said (p.46) that when the three *Dosha* are in equilibrium, they keep the body in good health, but that when the *Dosha*, is either jointly or severally, are deranged, they produce a disease.

What is a disease?

Now, what really is a disease? Charaka says, - disease is but non-equilibrium of the *Dhātu* (C.S.I.9.4). It brings in pain and discomfort. The equilibrium of the *Dhātu*, on the other hand, means health; it may also be called joy and comfort. Sushruta also says that anything which produces pain and discomfort in man may be called a disease (S.S.I.1.23).

1. What constitutes a disease?

Let us next see that Charaka means by the term *dhātu vaishamyam*. He has himself explained this very lucidly in *Sharīra Sthāna*, Chapter 6. He says, "The body is a conscious being; it is a conglomeration of the five *Bhûta* in different modified forms and it works properly so long as these *Panchabhautika* parts are in proper proportions. When in this body the *Dhātus* get out of the balanced proportions, then it suffers pain or even destruction. The increase or decrease in the proper quantity of a *Dhātu*, either in its entirety or in portions constitutes a disturbance of the equilibrium of the *Dhātu*." (C.S.IV.6.4). Cakrapani in his commentary here says that the modifications of the five *Bhuta* which go to form the body are chyle, etc. When these *Dhātus* are in combination in 'sama' or 'ucita-pramāna' i.e in proper quantities, there

is proper functioning of the body. When this proper combination is unbalanced due to one or the other of the *Dhātu* becoming less than or in excess of its normal quantity, then there is improper functioning of the body. According to the degree of inequilibrium of the *Dhātu*, there may only be the production of a disease bringing pain and discomfort to the body or, in the extreme case, even death. We must remember here, as already explained (p. 47), that broadly speaking, the term '*Dhātu*' includes the *dosha* and *mala* also when these latter are in proper proportions and so sustain the body. The natural unbalanced condition of the *dhātu* due to temporary excess or waning of some of them at particular hours of the day and night, e.g. during and after meals, should not be regarded as a disease or *Dhātu Vaishamyā*, because the degree of inequilibrium is so very slight that it can safely be included in the healthy condition of *Dhātu Sāmyā*.

2. Classification of diseases

Diseases are classified primarily as (1) bodily (*śarīra*) and (2) mental (*manas*); and then again as (1) those due to internal cause (*nija*) and (2) those due to extraneous causes (*āgantuka*). Besides these, there are various other ways of classification, according as the disease is curable or not, or according to the degree of aggravation of the *Dosha*, etc. We give below Sushruta's classification which is quite exhaustive (S.S.I.24.3.7).

Sushruta's treatise being mainly one on surgery, he first classifies diseases into the two broad groups of (1) surgical and (2) medical. He then recalls his statement (of Chap. 1) that anything which afflicts the body including the mind is a disease and then goes on to explain that this affliction or pain may be of three kinds,

I. *Ādhyatmika*, i.e., physical. Cakrapāni says that the word '*atman*' here means the body,

II. *Ādhibhautika*, i.e., due to any disturbance in the physical environment of a man.

III. *Ādhidaivika*, i.e., due to any act of God or Nature.

These three kinds of afflictions again ultimately fall within the seven categories of diseases mentioned below.

1. *Ādi-bala-pravṛtta*, i.e., originated from any primary inherent cause. These diseases, such as leprosy, piles, etc., are due to an inherent defect in the spermatozoon or ovum of the respective parents. This type naturally falls into two sub-divisions according as the original defect had been (a) in the father or (b) in the mother. These diseases are what we call hereditary.

2. *Janma-bala-pravṛtta*, or congenital. These are due to any improper conduct on the part of the mother regarding food and hygiene during the period of gestation. In such cases, the child may be a cripple or a cretin. There are also two sub-divisions in this type according as the disease is (a) due to *Rasa*, that is to say due to any improper food, or (b) due to unmindfulness on one's part to the hygienic principles during gestation. These diseases happen in spite of the fact that there had been no defect in the germ cells of either of the parents.

3. *Dosha-bala-pravṛthi*: are those that are originated directly by the derangement of any of the *Dosha* due to improper diet or unhealthy habit or due to one disease being produced by another (such as consumption produced ultimately from cough). This type also is classified under two heads, - those which have their origin (a) in the stomach or (b) in the intestines. These are also subdivided as (a)

bodily, produced by the three *Dosha*, - *Vāyu*, *Pitha* and *Kapha* and (b) mental, produced by the mental *Dosha*, - *Rajas* and *Thamas*.

The above three varieties of diseases are *Ādhyatmika*.

4. *Samghāta-bala-parivritthi*: are those that are caused by any extraneous cause. These are of two kinds, - injuries caused by (a) an implement, or (b) by any ferocious or poisonous animal. These diseases are *Ādhibhautika*.

5. *Kāla-bala-parivritthi*: or the seasonal type. These are produced by successive changes of the six seasons in the year or by any variation in the atmospheric temperature or humidity. This type is subdivided into two heads, according as a season exhibits its normal features or the contrary.

6. *Daiva-bala-parivritthi*: the providential type. These diseases include those that are produced by any curse or divine wrath or brought about by any mystic charm or spell or by infection. These are of two varieties, (a) those produced by such things as lightning and (b) those produced by any malignant influence. They may also be classified as those produced by (i) association or (ii) by accident.

7. *Svabhāva-bala-parivritthi*: the natural type, - such as hunger, thirst, old age, death, sleep, etc. These may be classified as (a) timely and (b) untimely. The first variety comes on in due course of time even when one strictly observes the rules of health. The second variety is due to one's negligence of these rules. The last three varieties of diseases are *Ādhidaivika*.

All diseases are included in the above seven categories.

3. *Tridosha* are the sole agents for producing a disease.

But whatsoever the disease may be, it can never be produced without the association of *Vāyu*, *Pitha* or *Kapha*. Sushruta, following the Sāmkhya view, here gives the analogy that just as all the manifested phenomena of the universe are but modifications of the three *guna* – *sathva*, *rajas* and *thamas*, so also the three *Dosha* are at the root of all the varieties of diseases (S.S.I.24.8). Charaka also says that all kinds of *Nija* diseases are produced by *Vāyu*, *Pitha* and *Kapha* and by nothing else. (The term *Nija* is used here to exclude the *Āgantū* variety in which there is pain first due to any extraneous cause and then affection of the *Tridosha* afterwards.). Just as a vulture, however much it may try, cannot overstep its own shadow, so also a disease which is produced by the unbalancing of the *Dhātu*, can never be dissociated from *Vāyu*, *Pitha* and *Kapha* (C.S.I.19.16).

When Charaka and Sushruta say all kinds of diseases, they mean diseases whether mentioned by them in their respective treatises or not. Charaka has made this very clear when he says (C.S.I.18.50) that nobody need be ashamed if he cannot give a name to a particular disease, because it is impossible to give a name to every disease. It is only the more prominent and common diseases that are given individual names. The only thing to remember is that it is deranged *Dosha* which produce the different diseases according to the particular causes of derangement and the particular places of the body affected. Cakrapāni says that the knowledge of the different names of diseases is for practical usefulness only; it is not essential for any course of treatment, (C.S.I.18.50). Sushruta also says (S.S.I.35.19) that as no disease can be produced without the association of the *Dosha*, so diseases which are not mentioned by name should also be treated according to the particular symptoms characterizing the particular *Dosha* affected.

It is the combination of the deranged *Dosha* with the different *Dhātu* and *Mala* of the body or the particular locations in the body affected or the particular causes

aggravating the *Dosha* that give rise to the different varieties of diseases. When *Dhātu* is very severely affected by a *Dosha*, the disease thus produced is named after the particular *Dhātu* affected. So we say that the disease is *Rasaja*, or *Sonitaja* or *Māmsaja* and so on (S.S.I.24.8). Dalhana here says that we must remember that when, for example, we say that a disease is *Rasaja* we mean it is a disease produced by the deranged *Dosha* contained in the *Rasa Dhātu*, just as when we say that a thing has been burnt by ghee or oil or by iron or comer, we mean that it was burnt by fire contained in those substances.

4. *Dosha* and diseases as cause and effect.

Sushruta has raised a very pertinent question (S.S.I.24.11): Is the relation between the three *Dosha* on the one hand and the diseases, such as fever, etc. on the other, a constant and inseparable one (like that of the sun and its rays or the moon and moon-light or fire and heat) or have they separate existences (like a cloth and its weaver or a pot and the potter or an ornament and the jeweler)? If the former, then all human beings should be considered as constantly ill, because there is constant existence of the three *Doshas* in their bodies. If the latter, i.e. if the *Doshas* and diseases have separate existence, then there should be separate manifestations of the symptoms of deranged *Dosha* and of the respective diseases, instead of their simultaneous manifestation as is actually the case; and in that case the proposition that the three *Dosha* are at the root of all diseases will also fall to the ground.

To clarify the issue, Sushruta says that diseases are not produced without the association of the three *Dosha* and still there no constant and inseparable relation between them. And he cites two fine examples to make his meaning quite clear. He says that just as lightning, storm, thunder and rain cannot happen independently of the sky (i.e. cloud); and yet they sometimes do or do not occur even with the presence of a cloud; and just as a wave or a bubble in water is nothing but water in some particular form, - they cannot be produced independently of water but are not formed at all times even if there is water present, they can only be produced in the water when there is any predisposing cause, - so also the *Dosha* and diseases are neither constantly related nor perpetually separated; the production of a disease by *Dosha* depends upon some predisposing cause.

Charaka has also told us when to expect a disease and when not. He says (C.S.II.4.4.5) that when the *Nidāna* (the predisposing causes which vitiate a *Dosha*), the *Dosha* (the three vitiators, -*Vāyu*, *Pitha* and *Kapha*) and the *Dushya* (the *Dhātu* and *Upa-Dhātu* which are vitiated by the *Dosha*) are mutually connected together, there is production of a disease. When there is no successive connection between the three, there is no disease. And when the connection is not thorough or complete or the causes are weak, there is production of disease of a mild type, all the symptoms being not manifested. Here we notice the interesting fact that the *Nidāna* cannot directly vitiate the *Dhātu*; they must first vitiate the *Dosha* and it is these the latter which then affect the *Dhātu* and thus bring about a disease, the *Nidāna* may be the indirect causes of a disease, but it is the *Dosha* which are the direct and ultimate cause of a disease.

CHAPTER XIX Causes and derangement of *Doshas*

We now come to the causes of derangement of the *Dosha*. Sushruta has enumerated the specific causes which aggravate the respective *Dosha* – *Vāyu*, *Pitha*

and *Kapha* (S.S.I.21.19.24). Charaka, however, has first described the general causes which produce a disease and then in *Nidāna Sthāna*, he has enumerated in details the specific causes which aggravate a particular *Dosha* to produce a particular kind of disease. We shall first take up these general causes, remembering that anything which produces a disease must first of all has to derange the *Dosha*. I think that in brevity and in simplicity, Charaka's exposition in this respect is unrivalled by anything in medical science.

General Causes Which Produce A Disease

1. General causes of disease

Charaka says that the causes of disease – both bodily and mental - may be briefly stated to be of three kinds, - excessive and wrongful conjunction or total lack of conjunction or use (1) of weather characteristics, (2) of actions or of intelligence and (3) of the sense-objects (C.S.I.1.53; C.S.I.11.37). Later on, he says (C.S.III.6.6; cf C.S.II.1.3) that the causes of derangement of the two kinds of *Dosha* (bodily and mental) are of three varieties.-

1. *Asātmyendriyārtha samyoga*, i.e. improper and harmful conjunction of the five sense-objects with the respective senses;

2. *Prajnāparādha*, or misuse of intelligence (as Dr. Das Gupta says); and

3. *Parināma*, or the improper functioning or manifestation of the climatic changes brought about the different seasons.

After thus briefly enumerating the above three causes of disease, Charaka next goes on to explain them in details (C.S.II.37.44; Cf. C.S.IV.1.96.127).

Asātmyendriyārtha samyoga

Sound, touch, color, taste and smell, - these are the five sense-objects corresponding to the five senses. Whenever there is an '*asātmya*' or harmful conjunction between a sense and its object, there is a potential cause of disease. Harmful conjunction means either excessive or wrongful conjunction or no conjunction at all.

1. Excessive use of sense-objects

– Too much hearing of very loud sounds such as that of the roaring of thunder or the beating of drums are examples of '*Atiyoga*' or the excessive use of the sense of hearing. Similarly, too much use or handling of very cold or very hot things or too much bathing or massage, too much seeing of very bright objects or of powerful light, too much use of the six *Rasa* and too much smelling very strong or pungent or putrid substances are examples respectively of the excessive association of the senses of touch, sight, taste and smell.

2. Non-use of sense-objects,

–'Not to hear at all any kind sound, not to touch anything either hot or cold, not to have a sight of any kind of object, not to have a taste of any of the six *Rasa* and not to smell anything at all are '*Ayoga*' or non-use of the five senses.

3. Wrongful use of the sense-objects

– (1) Hearing of harsh or disagreeable or fearful sounds or of mournful news, (2) to have touch of poisonous air or stormy winds or to be exposed to any untimely advent of hot or cold weather or to be struck by anything, (3) to see extremely fine and small objects or objects very near to the eye or at a very great distance or to see any loathsome, dreadful or hostile object or any distorted vision, (4) to have recourse to only one kind of taste in excess or to exclude in one's diet articles of food whose combination is harmful, (5) to smell putrid, poisonous, nauseating things, - are examples of ' *Mithyāyoga* ' or wrongful conjunction of the five senses with their respective objects.

Prajnāparādha

Prajnāparādha has been described as the *ayoga*, *atiyoga* and *mithyāyoga* of Karma or Action which has been defined as any effort of the body, mind or speech, (C.S.1.11.39). Later on, Charaka has defined "*prajnāparādha*" as any harmful or undesirable action perpetrated by anybody who has lost his understanding, intellect or memory (C.S.IV.1.100).

Excessive activities of speech, mind and body are '*atiyoga*' and their non-activities are '*ayoga*' of these three.

Suppression of the desires of nature, trying to pass urine, etc. when there is no desire for them, excessive sexual indulgence, holding up one's breath, excessive massage or any undue physical exertion are examples of '*mithyāyoga*' of the body.

Speaking anything harsh or unkind or false, quarrelling, abusing, etc. are examples of wrongful activities of speech.

Fear, grief, anger, avarice, hallucination, jealousy, etc. are examples of the wrongful activities of the mind.

Parināma

Parināma is another name for *Kāla* or time, (C.S.I.12.42). The whole year divided into different seasons is *Kāla*. The main climatic characteristics of these seasons are recognized by cold, heat or rains. When a particular season manifests its own characteristic of cold, heat or rains in an excessive degree, we have '*atiyoga*' of *Kāla*; and when a season manifests symptoms which are opposite to its own special to its own special characteristics, we have '*mithyāyoga*' of *Kāla*.

Whatever may be the cause of any possible disease, it must fall under one or the other of the above three heads.

CAUSES OF DERANGEMENT OF DOSHA

1. Causes derangement of *Vāyu*.

The specific causes which aggravate *Vāyu*, *Pitha* and *Kapha* have been enumerated by Sushruta and the two Vāgbhatta (S.S.I.21.19.24; A.S. & A.H.III.1). *Vāyu* is aggravated by the following amongst other causes, (1) wrestling with one of superior strength or with fierce animals, (2) excessive fighting, (3) excessive gymnastics or manual labor, (4) excessive sexual indulgence or waste of any body *dhātu*, (5) excessive study, (6) speaking or reading in a very high-pitched voice, (7) excessive mental exercise, (8) fear or grief or anxiety, (9) falling from a great height,

(10) excessive running, (11) great pressure or squeeze, (12) violent blows, (13) high jumps and vaults, (14) leaping gait, (15) excessive swimming or swimming against current, (16) keeping of late hours, (17) carrying of heavy loads, (18) excessive riding on horses, elephants, etc, or excessive use of carriages or walking very long distances, (19) excessive fasting or excessive eating or eating irregularly and (20) suppressing the calls of nature, e.g. the passing of wind or urine or feces or semen or eructation or the forceful stopping of the desire to vomit or to sneeze or of the outflow of tears.

Vāyu is also aggravated by the partaking of too much bitter, pungent, astringent or dry substances, by very light food, by dry meat and by the continued use of some particular kind of pulses and rice (*mudga*, *masûra*, *ādhakī*, *harenu*, etc., mentioned by Susrutha).

Vāyu is naturally aggravated in the cold and rainy seasons, specially on cloudy and stormy days, in the early morning, in the evening and at the completion of digestive process.

2. Causes of Derangement of *Pitha*

Pitta is aggravated by (1) anger, (2) grief, (3) fear, (4) physical exertion, (5) ill-digestion or acid-formation in the body and (6) unnatural sexual intercourse. *Pitha* is also aggravated by partaking of too much bitter, acid, salty and dry substances and by the too much use of mustard, sesame and linseed oils, fish, mutton, some of the green leafy vegetables, wines, curd, whey, etc. and by excessive exposure to the sun. *Pitha* is naturally aggravated in the summer and in the autumn, at noon, at midnight and during the process of digestion.

3. Causes of Derangement of *Kapha*

Kapha is aggravated by (1) total lack of physical exercise, (2) sedentary habits, (3) sleeping in day time and (4) the partaking if too much sweet, acid, salty, cooling and oily substances. It is also aggravated by heavy food and by the too much use of milk, curd sugar, fats, wheat, cakes, sweet fruits, meat of aquatic animals, etc. *Kapha* is naturally aggravated in the winter and in the spring, in the forenoon and in the evening just after taking a meal.

The causes which bring about the derangement of *Dosha* and the abnormal symptoms of *Dosha* are tabulated below:

<i>Dosha</i>	Causes of Derangement	Abnormal Symptoms
<i>Vāyu</i>	Heavy exercise, fasting, falling from a height, fracture, wakefulness, suppressing the calls of nature, excessive cold and fear, habituation in pungent, bitter, astringent and dry things (Natural aggravation at the clouding of the skies, after meals in the afternoon)	Tympanites, stiffness, roughness of the skin, eruption, excitement, shivering, pain, hoarseness, fatigue, deafness, melancholia, yawning, horripilation, dryness, thirst.

<i>Pitha</i>	Habituation in salts, and in bitter, sour, acrid and very hot things, excessive anger and cohabitation, indulgence in drinks. (Natural aggravation during meals, in autumn, in the middle of the night, at noon)	Acidity, delirium, swooning, perspiration, restlessness, thirst, desire for cold, paleness of the skin.
<i>Kapha</i>	Indulgence in cold, heavy and sweet things, excessive use of milk, ghee and such like articles, sleeping during the day time. (Natural aggravation in the beginning of a meal, at the fall of snow, in the morning, in spring)	

CHAPTER XX Functions of Deranged *Doshas*

1. Functions and Symptoms of Abnormal *Vāyu*.

When the *Doshas* are deranged, they manifest some abnormal symptoms due to their functioning abnormally within the body.

After describing the normal characteristics of *Vāyu* as dryness, lightness, clearness, motility and invisibility (see P.50), Charaka goes on to say that when *Vāyu* affects particular parts of the body, it shows the following actions, - swerving from its own position, diffusion and the production of fatigue, thirst, shaking, dryness and roughness of the body, ruddiness of the skin (*aruna* color), pungent taste in the mouth and various kinds of pain. When these symptoms are manifested in the body, we shall have to infer that they are due to the functioning of abnormal *Vāyu* (C.S.I.20.14).

Vāyu, when aggravated, produces headache and pain all over the body specially in the backbone, lameless, sleeplessness, etc. It may then destroy the foetus or the semen or the menstrual blood, bring confusion to the senses and even cause death.

The aggravated *Prāna Vāyu* produces hiccough, asthma, cough, etc.

The aggravated *Udāna Vāyu* produces diseases of the ear, nose, throat, etc.

The aggravated *Samāna Vāyu* produces tumor, diarrhea, loss of appetite, etc.

The aggravated *Apāna Vāyu* produces diseases of the urinary tract and of the colon.

The aggravated *Vyāna Vāyu* produces diseases all over the body.

When both the *Apāna* and *Vyāna Vāyu* are aggravated, they affect the semen and produce *Prameha*, diseases of the kidneys, etc. When all the *Vāyus* are simultaneously vitiated, they destroy life.

2. Functions of Abnormal *Pitha*

Deranged *Pitha* gives rise to burning sensation and excessive heat in the body, perspiration, acidity, thirst, irritation and pimples in the skin, redness of the eyes and of the body or any color in the body other than white and *aruna* or orange-brown, putrid smell, decomposition, languor, hysteria, etc. (C.S.I.20.18; A.S.I.20; A.H.I.12.48).

The deranged *Pāchaka Pitha* produces indigestion, acidity, burning sensation in the heart, throat and stomach, thirst, etc.

The deranged *Ranjaka Pitha* produces *Rakta Pitha* and affects the liver and spleen.

The deranged *Sādhaka Pitha* destroys the thinking power and produces stupor, apoplexy, etc.

The deranged *Alochaka Pitha* destroys sight.

The deranged *Bhrājaka Pitha* produces diseases of the skin and changes its color.

3. Functions of abnormal *Kapha*

Vitiated *Kapha* produces heaviness of the body, drowsiness, numbness, whiteness of the skin, itching, a feeling of the coldness and rigidity, sweet taste in the mouth, nausea and aversion to food (C.S.I.20.22; A.S.I.20; A.H.I.12.49.50).

The deranged *Kledaka Kapha* produces indigestion, loss of appetite, whiteness of feces, urine, etc.

The deranged *Bodhaka Kapha* produces affects the sense of taste.

The deranged *Tarpaka Kapha* produces loss of memory and vitiates the senses.

The deranged *Avalambaka Kapha* produces sloth.

The deranged *Sleshaka Kapha* produces heaviness of joints.

Waning, Aggravation And Expansion of *Dosha*.

The equilibrium of the three *Dosha* may be disturbed in three different ways. There may be (1) *Kshaya* i.e. the waning of one or the other of the three *Dosha*, (2) *Vruddhi*, or aggravation, which again may be brought about in two ways, - (a) *Prakopa*, or acceleration of the *Dosha* and (b) *Chaya*, i.e. accumulation; and lastly there may be (3) *Prasāra*, that is to say, one *Dosha* may leave its own special seat and go over to the locality of either of the other two *Dosha*; or one of the *Dosha* may be covered by another.

Particular symptoms become manifested when a particular *Dosha* is thus disturbed by waning, aggravation or expansion (C.S.I.17; S.S.I.15& 1.21).

The waste of the body-*Vāyu* is followed by a state of languor, uneasiness and loss of consciousness. Waste or deficiency of *Pitha* is marked by dullness of

complexion and diminution of body-heat; that of *Kapha* is marked by dryness, sensation of internal burning, a feeling of emptiness in the stomach and other cavities of the body, looseness of the joints, thirst, weakness and insomnia.

Excess of *Vāyu* is marked by roughness of voice, thinness of the body, darker complexion, desire for heat, throbbing sensation, hard stool, insomnia and weakness. That of *Pitha* is marked by a burning sensation in the body, desire for coolness, yellowish skin, eyes, feces and urine, insufficient sleep, fainting fits and weakness of the sense-organs. A highly aggravated *Kapha* is characterized by a whiteness of complexion, heaviness of the limbs, a feeling of coldness, drowsiness, excessive sleep and looseness of the joints.

The deranged *Dosha*, being vitiated by various causes would expand and overflow the limits of their respective localities. The *Vāyu* which is of an extremely mobile character should be looked upon as the main instrument of this expansion.

The *Vāyu*, thus aggravated and expanded, tends to deviate from its right path and normal direction and gives rise to swelling or distention of the abdomen, accompanied by rumbling sound in the intestines. The *Pitha* would give rise to heat. The *Kapha* would produce a complete aversion to food, inertness of the limbs, vomiting and impaired digestion.

When the deranged *Dosha* are slightly aggravated, they lie inoperative in the internal passages of the body; but they may bring about a fresh disease, rather of a malignant type, if subsequently agitated by any disturbing element.

Accumulation Of *Dosha*

We shall now see when and why the *Dosha* accumulate in the body (C.S.III.8; S.S.I.6).

1. Accumulation of the *Dosha*

In the rainy season, plants sprout fresh leaves and water becomes turbid. One has to take as food new-grown vegetables of feeble potency and to drink the soiled water. This causes the accumulation of *Pitha* in the human body, because of the acid reaction of the food. The *Pitha*, thus accumulated in the rainy season, becomes manifested in the autumn, in which season we find a preponderance of *Pithaja* diseases.

In early winter (Hemanta), the plants are matured, the water becomes cold, clear and heavy and sun's rays are mild. The water and vegetables partaken of in Hemanta, give rise to an accumulation of *Kapha* in the body on account of their heaviness and cold character. This accumulated *Kapha* finds expression in the spring season and so brings about *Kaphaja* diseases.

The plants and vegetables again lose their moisture and nutritive elements in summer and become dry and light. That is the reason why *Vāyu* is accumulated in summer, the most characteristic property of *Vāyu* being dryness. The *Vāyu* thus accumulated in summer is disturbed by the cold winds in the rainy season and gives rise to *Vātaja* diseases.

The natural accumulation aggravation and mitigation of the *Dosha* during the six seasons of the year is shown below (C.S.I.17.112; Cf. S.S.I.6).

Doshas in relation to the six seasons

Dosha	Accumulation	Aggravation	Mitigation
<i>Vāyu</i>	In summer	In rains	In autumn
<i>Pitha</i>	In rains	In autumn	In early winter
<i>Kapha</i>	In early winter	In Spring	In summer

Part Eight General principles of treatment

Chapter XXI First principle of medical treatment.

We finally come to the general methods of treatment. We shall deal with them very briefly. As has been said (P.33), the scope of Āyurveda is twofold. First, to preserve the health of the healthy; secondly, to restore health to the diseased. According to Sushruta, a man may be called healthy when his *Dosha* are in equilibrium, the *Agni* or the digestive power remains uniform, the *Dhātu* and *Mala* function properly and the body and mind with the senses remain serene and undisturbed (S.S.I.15.44). If the first condition is satisfied, the others will follow as a matter of course; and conversely when these latter conditions are fulfilled, we have to infer that the *Dosha* are in equilibrium. This is the more easy way to ascertaining whether the *Dosha* are in equilibrium or not. For, although Charaka has mentioned the normal quantities of *Pitha*, *Kapha* and several *Dhātu* of the body (see P. 130), it is not always easy to know when these *dhātus* and *upa-dhātus* are increased or decreased in quantity within the body. Sushruta says that due to varying and ever-changing age of individuals, the quantities of *Dosha*, *Dhātu* and *Mala* cannot be definitely fixed in every case (S.S.I.15.40). Sushruta's advice, therefore, is that physicians should observe whether the *Dosha* etc. are in equilibrium. And whether this is the case can only be ascertained by minutely knowing the normal characteristics of a healthy man given above and by no other method (S.S.I.15.41.42)

As has already been explained (P.154), it is the *tridosha* and the *tridosha* alone which ultimately bring about a disease. Here also, from Sushruta's description of a perfectly healthy man, we see that the primary factor in the preservation of health is the maintenance of the equilibrium of the *Dosha*. The aim of Āyurveda, therefore, is to keep up the equilibrium and medical treatment means the process by which we bring the disturbed *Dosha* and *Dhātu* back to their normal state of equilibrium (C.S.I.6.5. & I.16.34; Cf. C.S.I.1.52 & III. 8.14.4).

1. Fundamental principle of treatment

The fundamental principle underlying the treatment of diseases is contained in the following passage of Charaka: (C.S.I.1.43), that is the cause of increase of substances, qualities and actions at all times is *Sāmānya* or similarity, the cause of decrease is *Visheshā* or dissimilarity (see P.23). So it follows that *Vāyu*, *Pitha* and *Kapha* will be aggravated by substances having qualities similar to their own and they will be mitigated by substances having opposite qualities. In the case of the *Dhātu* also (C.S.IV.6.9). That is why the use of blood will increase the blood of the body in a more marked degree than will do any other *Dhātu*. Similarly, flesh, fat, soft bone,

marrow and semen will particularly increase the respective *Dhātu* in the body and an 'immature' fetus (e.g. an egg) will greatly nourish the fetus in the womb (C.S.IV.6.10). It is not, however, always possible to use blood, flesh, fat, semen, etc, in their raw state. In such cases, Charaka advises us to use food-stuffs having qualities similar to the particular *Dhātu* to be increased.

The general principle of Āyurvedic treatment, therefore, is that when any *Dosha* or *Dhātu* is aggravated or increased, we should use some substance which has properties opposite to its own, so that the *Dosha* or the *Dhātu* will be reduced and brought to its normal state. On the other hand, when a *Dosha* or *Dhātu* becomes deficient in the body, it should be augmented by some substance having properties similar to the particular *Dosha* or *Dhātu* concerned. So Sushruta definitely lays down that a waning *Dosha* is to be nourished and increased, an aggravated one is to be calmed down, a highly increased *Dosha* is to be extirpated of its excess and when the *Dosha* are in equilibrium that condition is to be maintained (S.S.IV.33.3).

It is obvious that to maintain the equilibrium of the *Dosha*, *Dhātu* and *Mala*, we have to use to a large extent some drugs and plants and vegetables and as we have said (P.34), there is no substance in this universe which cannot be used as a medicine. Now there are six kinds of *Rasa* or tastes found in matter, and as a close connection exists between these *Rasa* and the three *Dosha*, it is best to explain the relation here.

Chapter XXII Relation between *Doshas* and *Rasas*

1. *Rasas* and *Bhūtas*

We have previously that *Rasa* or taste is the special quality of *Ap Bhuta*. So Sushruta calls it *Āpya* or Watery (S.S.I.42.3). But in the *panchabhautika* matter that we have to deal with every day, there are different proportions of the five *Bhūtas*. For in the *panchabhautika* matter that we have to deal with everyday, there are different proportions of the five *Bhuta*. For this reason, the one fundamental unmanifested *Rasa* becomes manifested as the six different kinds of *Rasa*, viz, sweet, sour, salt, pungent, bitter and astringent. The water *Bhuta* is the source of all these *Rasa* (C.S.I.26.9). The different kinds of *panchabhautika* matter are the receptacles of these *Rasa* which are inherent qualities of the different substances. No piece of matter can, therefore, exist without *Rasa*. Even mineral substances and the different *Bhasma* (calcined metals) are said to possess *Rasa*. When we say, for example, take sweet *Rasa*, we mean take some substance which has the quality of sweetness in preponderance.

The six *Rasas* are originated in this way: Due to the Water and the Earth *Bhuta* in a substance, the sweet- *Rasa* is generated. In this way we get (S.S.I.42.3):

Sweet Taste (*Madhura*) – due to Water and Earth.

Sour Taste (*Āmla*) - due to Water and Fire.

Saline Taste (*Lavana*) - due to Earth and Fire.

Pungent Taste (*Katu*) – due to Air and Fire.

Bitter Taste (*Tikta*) - due to Air and Ether.

Astringent Taste (*Kashāya*) –due to Air and earth.

Of the six *Rasas*, the sweet, sour and salt mitigate an aggravated *Vāyu*, the three increasing it. The sweet, bitter and astringent tastes mitigate *Pitha*, the other three aggravating it. The pungent, bitter and astringent tastes mitigate *Kapha*, the sweet, sour and saline tastes aggravating it.

To have some idea as to how this is possible, we see from the above that no one of the three *Rasas* – sweet, sour and salt - has Air as its source. So these three can bring down any excess of *Vāyu*, which is made up primarily of Air *Bhuta*. Of the other three - pungent, bitter and astringent - each has Air as one of the sources; so each of them increases *Vāyu*. Similarly we see that it is only the three *Rasa* - astringent, sweet and bitter - which do not have Fire as one of their sources. So these mitigate *Pitha*, which is *Taijasa*, i.e. preponderating in Fire as one of their sources and therefore aggravates *Pitha*. Also the three *Rasa* - pungent, bitter and astringent - do not have Water as one of their sources. They, therefore, mitigate *Kapha* which is watery.

According to Sushruta (S.S.I.42), *Vāyu* has the same origin as that of the *Kashāya Rasa*. That is why the astringent taste particularly aggravates *Vāyu*. *Pitha* and *Katuka Rasa* have the same origin. So the pungent and the sweet taste particularly aggravate *Pitha* and *Kapha* respectively.

We have seen in the section on the Physiology of Digestion that the process of digestion is nothing but an interaction between the food-stuffs and the three *Doshas*, that is to say, between the three *Doshas* and the six *Rasas*. The bio-chemistry of *Āyurveda*, therefore, is the chemistry of the three material bodies - *Vāyu*, *Pitha* and *Kapha* - and of the six *Rasas*.

Chapter XXIII

Different kinds of treatment.

Normal *Dhātus* are the result of normal causes, i.e. of normal living. The equilibrium of the *Dhātus* including the *Doshas* is not disturbed unless there is some predisposing cause; and when once this disturbed condition prevails in the body, it does not come back to the normal by itself (C.S.IV.1.91; Cf.C.S.I.16.35.37). So the disturbed *Doshas* and *Dhātus* have to be brought back to their normal state by proper treatment.

The first thing to do when there is a disease in the body is to eschew to pathological causes of that disease (S.S.VI.1.25). The next step is to purify and calm down the *Doshas* (Cf. C.S.III.7.99)

1. Mitigators of *Vāyu*, *Pitha* & *Kapha*

Enemas, purgatives and emetics are the main agents for purifying the body of deranged *Doshas*. Of the three, enemas are the best for mitigation of *Vāyu*. Enemas are of two kinds, (1) of any oily substance, and (2) of any decoction. According to Charaka, an enema is the best of all kinds of treatment for getting rid of a highly aggravated *Vāyu* (C.S.I.20.15; C.S.VIII.1.37.39). The intestines are the special seat of *Vāyu* and as we have said (Ch.8), when the aggravated *Vāyu* of this place is brought down, the *Vāyu* in other parts of the body also are calmed down. It is for this reason that enemas are considered to be the best of all methods for the mitigation of *Vāyu*; because when an enema is applied it goes at once to the intestines and destroys the root of any aggravated *Vāyu* (C.S.I.20.15).

Purgative are the best for aggravated *Pitha*, because the purgative goes to the duodenum the special seat of *Pitha* and removes the root of any *Pithaja* disease. Then, just as when the fire within a room is extinguished the whole room becomes automatically cool, so when the *Pitha* in the duodenum is brought under control, the aggravated *Pitha* at all other places of the body will also automatically calm down (C.S.I.20.19).

Emetics are the best for aggravated *Kapha*; for as soon as an emetic is applied, it enters the stomach, the special seat of *Kapha*, and drives out the increased *Kapha* and drives out the increased *Kapha*. When this root of the aggravated *Kapha* is removed, the *Kapha* of all other parts of the body are also calmed down.

Of all the substances, oil is the best for mitigating *Vāyu*, ghee for *Pitha* and honey for *Kapha* (A.H.I.1.25). Hot and oily substances are specially good for *Vāyu*, hot and dry substances for *Kapha* and sweet and cool substances for *Pitha* (S.S.1.46.429).

Appendix The seven Dhātus

In Chapter 14 we have described how the *Dhātsu* are successively produced out of the digestion of food. Sushruta has described the normal functions of these *Dhātus* (S.S.I.15.5; Cf.A.S.I.19; A.H.I.11.5).

The *Rasa Dhātu* has soothing effect upon the whole body and specially nourishes the blood. Arunadatta says that the *Rasa* by circulating through the different channels of the body soothes the senses and brings about a sense of peace and satisfaction to the mind.

The *Rakta Dhātu* keeps up the activities of life, increases the healthful glow of the complexion and nourishes the muscular tissues. According to Arunadatta, '*jivanam*' means the increasing of the *Ojas*. So we may take it that blood increases the vitality of the body.

According to Sushruta (S.S.I.14.22), blood in its normal state is of the color of the red insect '*Indragopa*', is a liquid (*asamhatam*) and its color does not easily fade out (*avirarnam*). Dalhana says that '*asmhata*' means neither very transparent nor very dense. Arunadatta interprets it as '*drava*' or liquid. '*Avivarnam*' means that when a piece of cloth is colored red by blood, the color does not fade even after washing (Dalhana). This does not seem to be a happy interpretation. A more appropriate explanation would be that blood colors a piece of cloth red without suffering any fading of its redness, as Vāghata I says (A.S.I.36), i.e. blood colors clothes, etc. red. Besides the example of *Indra gopa*, Charaka cites gold (molten gold as interpreted by Gangādhara), lotus (red variety), lac and the red Gunjā seeds (*Abrus Precatorius* India or wild liquorice Root) to indicate the color of pure blood, (C.S.I.24.22) Gangādhara says that these different varieties of red are mentioned to indicate that the normal color of the blood of men of different constitutions may be of different shades of red. According to Vāghata (A.S.I.36: A.H.I.27.2), blood is sweet and a little salty.

The *Māmsa Dhātu* covers the bones, contributes to the strength of the body and nourishes the *Medas*.

The *Medas Dhātu* cools the body, is the cause of perspiration and oiliness of the body and contributes towards the firmness and nourishment of the bones.

The *Asthi Dhātu* supports the body and nourishes the marrow.

The *Majja Dhātu* contributes towards the viscosity, amativeness and strength of the body, fills the cavities and pores of the bones and nourishes the semen.

The *Shukra Dhātu* mainly produces amativeness and a sense of satisfaction, is the cause of bodily vigor and of impregnation and possesses the virtue of being ejected out during coition.

Pure semen has been described by Sushruta (S.S.III.2.11; cf A.S.II.2; A.H.II.1.19) as liquid, sweet, viscid, possessing the color of crystal and smelling like honey. Vāgbhata II says that semen is dense and white. The elder Vāgbhata says that it is '*bahala*' i.e. not very dense. Some say that the color of pure semen is like that of honey or of oil.