

CHAPTER VI

PHYSIO-PSYCHOLOGICAL PRINCIPLES AND OTHER ASPECTS

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6.1. INTRODUCTORY

'There is not the least doubt that when sympathetic Endocrinology, which is in its infancy in the west, will fully develop, it will closely follow the footsteps of the Ayurvedic theory, though differing here and there in some details.'¹

Though this may be a future possibility, there can be little comparison between Ayurvedic physiology and modern physiology as being developed in the West today. The

¹Ashutosh Roy. Pulse in Ayurveda. Journal of Ayurveda, 1929, p. (iii).

approaches of the two are so divergent, the fundamentals of each are so different and their background are so unlike that there are few common factors between them except that both of them have to deal with physiological subjects like circulation, metabolism, respiration etc. So comparison cannot be of any utility in such a case and any forced comparison would be not ^{be} only/useless but misleading. 'It is not always profitable to try to confirm ancient ideas with modern views. Sometimes it is positively misleading.'² Still however, sometimes some attempts are made to equate certain aspects, and such a temptation to compare common factors is unavoidable but it cannot proceed further as diversity becomes more apparent than before and the comparison breaks down. 'Hence while we may attempt, as stated before, some sort of equating at the level of physical matter known to both Ayurveda and Western physiology, there is nothing as yet in the latter with which things at the levels of vitality and psychic principles of Ayurveda could be equated. We frequently find that Vata is equated to nervous system or Nerve-force, Pitta to digestive and other enzymes and hormones and heat regulating mechanism and so on. At least, such equating may work at the physical level in a number of

²Dhirendranath Ray. The Principle of Tridosha in Ayurveda, Calcutta, p.85.

cases, but it breaks down at other levels and in certain cases, even at the physical level.³ This is specially true in a science like medicine and a subject like physiology as both are experimental in nature and new facts and truths are revealed by constant and progressive research of the human body. 'Medicine can never be a perfect science like Mathematics. It is an experimental science and so will always be partly empirical.'⁴

When judged from the modern scientific approach, Ayurvedic physiology can stand the test and can come out successful in any examination of its basic concepts and theory. There can be found some crudities in factual details as far as some physiological aspects are concerned. In ancient times, due to lack of certain instrumental conveniences, physiological analytical knowledge was bound to be rudimentary. 'Much of their knowledge is of course rudimentary but in some cases it is very profound and remarkably correct in its broadest outlines, as in the case of their views on digestion, metabolism, excretion and blood.'⁵ There seems to be some gross crudities in physiological knowledge depicted in Ayurveda on one hand, and on the other hand there are excellent practical concepts too. Pointing out the crudities Zimmer says: 'Nor is the insignificance of the lungs in Hindu medicine an isolated

³ Srinivas Murti. The Science and Art of Indian Medicine. (Adyar: Theosophical Publishing House), p.96

⁴ Ibid., p.6 Preface.

⁵ Kutumbiah. Ancient Indian Medicine. (Orient Longmans, 1962), p.34.

fact. A similar misconception prevailed with respect to the brain. Nothing was taught about its functions. There are chapters on head, dealing with the diseases of the mouth and the sense organs, a chapter on different kinds of headaches caused by heat, cold, smoke or sun but no notion seemed to exist of diseases of the brain. Functions which modern psychology and anatomy attribute to the brain are said to reside in the heart.⁶ But there is the bright side of the picture too. Humoral theory and its methodic derivation from philosophic concepts is excellent and it gives an integral physiological theory working out successfully in empirical application. 'The supremacy of Ayurveda is due not to any potent indigenous drug but to the application of that drug in conformity with the principle of Vayu, Pitta and Kapha.'⁷

But this principle of Tridosha is not purely a physiological principle but a physio-psychological principle, affecting both body and mind. But before, we pass on to the details of this and other physio-psychological aspects, it would be first necessary to examine a tentative definition of physio-psychology. 'We may briefly define physiological psychology as the study of relationships between bodily

⁶ Henry R. Zimmer. Hindu Medicine. John Hopkins Press, 1948, p.162.

⁷ D. Ray. The Principle of Tridosha in Ayurveda. Calcutta University, p.6, Preface.

process and behaviour.⁸ In short, it is a branch of the science of psychology which deals with relationship between physical processes and mental activity. With this concept in view, it is necessary now, to deal with physio-psychological aspects depicted in Ayurveda.

6.2. ANALYSIS OF THE SUBJECT

The analysis of the main topics to be treated can be in short as follows:

- (1) Configurational approach to life as a whole.
- (2) Derivation of tridhatu principle.
- (3) The psycho-physical correlation.
- (4) The Tridhatu Principle discussed and explained with its significance for psycho-physical continuum.
- (5) The nervous system and its implications; resemblance between vayus and nervous force.
- (6) Constitution or Prakriti of each man formed in accordance with the predominance of either of the three Doshas.
- (7) Food, Tastes and Their relations with Dhatus.
- (8) Rasa to Ojas (Halo).

6.3. CONFIGURATIONAL APPROACH

The mainstay of Ayurveda physiology is Tridosha theory of Vata, Pitta and Kapha. In formulation of this

⁸M.A.Wenger, F.N.Jones, M.H.Jones. Physiological Psychology, Henry H. & Co., 1956, p.5.

theory, Ayurveda had taken resort to philosophical ideas and configurational approach. From such an approach they established the triumvirate of Vata, Pitta and Kapha as the governing principle of human body. The Kapha, Pitta as well as Vata, the three factors of the triumvirate that govern the psycho-somatic organism, are apportioned each its pentad of foci in the body.⁹ This principle is the pivot on which the whole of Ayurvedic physiology revolves. The doctrine of the Tridosha plays an important role in ancient Indian medicine.¹⁰ This is so because there is a thorough configurational approach behind its formation. Once again it is useful to glance back to the philosophical concepts propounded by Charaka to understand the configurational approach of Ayurveda. Man is not a mere body nor a mere phenomenon without a purpose. Charaka brushes aside the concept of mechanical phenomena in the case of human being thus: 'Phenomena are never the same but are continually in a state of flux; whenever they are of a similar nature, they are said to be the same, although in fact, they are produced anew. The soulless conglomeration of phenomenon is, by some said to constitute the organism. They do not believe in a self which is the doer and the employer.'¹¹ After rejecting

⁹Charaka-Samhitā. Part I, p.537.

¹⁰Kutumbiah. Ancient Indian Medicine. Orient Longmans, 1962, p.57.

¹¹Charaka-Samhitā. Vol. III, Sh.A.I, Sl.46-47, p.982.

the mere mechanical view-point of human organism Charaka at once postulated his thesis. 'Man is said to be the sum of the six elements namely ether and the four other proto-elements, the sixth being the element of consciousness. By some the conscious element alone is said to constitute Man.'¹² Here is seen the direct influence of Nyaya-Vaisheshika system. He also propounds Sankhya concepts of the human organism. 'Again in consequence of the elemental modifications, man is said to be composed of twenty-four elements viz. the mind, the ten organs, the five sense objects and the eight-fold prakriti or evolutes of nature.'¹³ From whatever view point human organism is seen, it is a psychosomatic conscient organism. Charaka's concept of human organism, thus is configurational and integral. 'In a word this presupposes a comprehensive or integrated concept of physiology - the doctrine of vitalism as against that of mechanism. For man is more than a machine, and over and above the psychosomatic organization, there subsists a presiding principle which is instinct with awareness and a wisdom beyond the conscious mind.'¹⁴ In modern medicine also there are definite trends which do not consider man as a mere machine. Man is more and greater

¹²Ibid. Sh. A.I,Sl.16,p.974

¹³Ibid. Sh. A.I.Sl.17,p.975

¹⁴Ibid. Part I.p.534

than a mere sum total of his body-organisation or cells. 'Medicine is now in a transitional phase. The ineptitude of regarding man as a mere collection of interesting organs is becoming increasingly clear. The personality of their possessing is more important than his organs, no matter what fascinating pathological condition or secretary versatility they may disclose.'¹⁵

The configurational and integral approach of Ayurveda becomes much more clear when seen in all its aspects. Its primary stand is that the whole cannot be known by merely knowing its parts. So the elements of ether, water etc. are to Ayurveda not mere elements in the present scientific forms, but they are entities even though they may be compounds from modern view of physical science. Water is a compound and is H_2O . But it is an entity and is more than H_2O and quite different from its constituents. As in the case of water so in the case of human organism. It is more than its constituents and is also something different from them. 'We all know a cart is more than the sum of its parts. To say that water is H_2O is a great mistake of science. It is much more than that. Real knowledge is when we can see what a cart or vehicle means to the whole society or what water means in the wider framework of life. When we talk of light or water or mind or spirit, we tend to separate them

¹⁵ Ibid. p. 534.

in our thought processes as something which can be defined chemically like water. But life itself is not lived by chemical definitions and when we talk of these separate roles which 'spirit' or 'matter' plays in life we are falling into the same error as the man who thinks water is only H_2O instead of a vehicle.¹⁶ Ayurvedic approach to all things, from the elements like water etc. to human organism, is such an integral, comprehensive and configurational. Such an approach to all things is not only logical but is also true. The same author says: 'To insist that the whole is more than the sum of its parts is not logical but it is still true. This happens not only in art, in painting, in beauty but also in common science of physics or in biology when dealing with a simple thing such as water or light, while in religion the wholeness of 'light' is identical with 'spirit' which creates and breathes life into the water.'¹⁷ Christopher Hills hesitated in stating the configurational approach as logical. But as a matter of fact the Gestalt theory in modern psychology is fully based on configuration and that is not at all illogical. On the contrary configurational approach is not only logical but is scientific too. The

¹⁶ Christopher Hills. Photosynthesis in Science and Sprituality in 'Psychic International,' Aug.No.2,1963,p.77.

¹⁷ Ibid.p.79.

proof of this statement is in the increasing popularity of Gestalt theory and research in the field of modern psychology. The firm establishment of Gestalt theory is an irresistible argument in favour of the logic of the configurational approach in general. Christopher Hills says that this approach is accepted unchallenged in the fields of art, beauty, painting etc. Ayurveda is considered to be an art also. Sri Srinivas Murti has named his book 'The Science and Art of Indian Medicine' and he has merely echoed the generally accepted notion about Ayurveda. From this point of view also, the configurational approach in Ayurveda stands justified. Charaka states its configurational approach succinctly thus: 'A full conception of the science will never be attained by the knowledge of only a part of it.'^{17A} He has expressed this idea of configurational knowledge in the context of Ayurveda, but it is the view he has taken with regard to everything he views and reviews. 'The authors of Ayurveda, ' The science of life, intended by Ayurveda much more than mere skill of treatment or diagnosis of a diseased condition. It meant for them the total concept of life which includes both man and his environment. The well-being of man, the aggregate of body, mind and soul cannot be confined to mere physical health but extends to that

^{17A} Charaka-Samhita. V.A.4,Sl.5,p.798

total sense of enjoyment of physical, mental and spiritual satisfaction and enrichment born as a result of wholesome and mutually beneficial interaction between the individual and his environment - social, physical and spiritual.¹⁸

6.4. DERIVATION OF TRIDHATU PRINCIPLE

As this complex organism of man is mainly dependent upon the triumvirate of Vata, Pitta and Kapha, the tridhatu principle becomes the mainstay and basic support of Ayurvedic physio-psychology. It must be made clear here that Tridhatu principle is known as Tridosha principle also.

Charaka says the same thing in his own style: 'To be correct, it is all the three Vata, Pitta and Kapha in their normal condition that combine to make a man whole of his senses, possessed of strength, good complexion and ease and assured of great longevity even as the triad of Dharma, Artha, Kama when properly cherished secure for him the highest good both here and in the other world. (The same three) if rendered morbid bring upon the man great tribulation.'¹⁹ Charaka intends to suggest that the triumvirate of Vata, Pitta and Kapha have as much importance physically and mentally as Dharma, Artha and Kāma have on man generally in all states of life. But Sushruta definitely derives the triad from the triad of the qualities i.e. Sattva, Rajas and Tamas. 'Moreover in

18. Ibid. Vol. I, p. 525-26.

19. Ibid. S.A.12, S1.13(2), p. 196.

addition to material properties, something else - something of a higher quality - may be attributed to the three Doshas because of their association with the three Sankhya gunas - Sattva, Rajas and Tamas.²⁰ Here the specific influence of Sankhya system of philosophy is clearly identified and the three doshas theory is seen derived from the three guna theory.

It is interesting to know how this derivation of the triad of the three doshas from the three gunas takes place. According to the Sankhya system all this that exists in the world is the result of the interaction of the 'Gunas and Bhutas.' By interaction of 'Guna' and 'Bhuta' (force and matter) all secondary and tertiary and other combinations of substances in the world living and non-living, are formed or evolved, including the human body which being combination of five 'Bhutas' in varying proportions are guided and influenced by the three forces or 'Triguna.'²¹ The correspondence of the three Gunas to the triad of Dosha is equally interesting and gives the clue to their derivation. 'The three forces (Triguna) are represented by the Hindu Trinity. The force of Katabolism presided over the Mahadeva, the dominant influence being Sattva corresponds to Pitta of Ayurveda, the force of preservation presided over

²⁰D.Ray. The Principle of Tridosha in Ayurveda. Calcutta. p.86.

Pulse in Ayurveda, J. of Ayurveda, 1929, p.2.

²¹Ashutosh Roy. Rajas, Sattva, and Tamas, a tripiety

by Visnu, the dominant influence being Rajas, corresponds to the Vayu of Ayurveda and the force anabolism presided over by Brahma, the dominant influence being Tamas, corresponds to the Kapha of Ayurveda. We thus see how the Tridosha of Ayurveda corresponds to the Triguna of Hindu metaphysics.²² Sri Srinivas Murti also points out this correspondance of the Triguna and Tridosha thus: 'It is all of one life - all is spirit - matter' (purusha - prakriti). In the light of this teaching we can understand why the Ayurvedists hold that the life of the human being like life in any other kingdom of nature, must necessarily exhibit a primal and fundamental triplicity viz. Rajas, Sattva and Tamas, a triplicity a triplicity which in the living human being is shown in life, mind and matter or Vata, Pitta and Kapha respectively.²³ The principle of Triguna envelopes the whole universe and is seen reflected at all levels of manifestation in Nature. The same seems to be reflected in physiology as Vata, Pitta and Kapha. Though this Tradosha principle is mainly a biological and physiological principle it is the reflection of the Triguna principle.²⁴

Psycho-physical Correlation :

Though Tridosha principle is mainly biological still

22. Ibid. p.97

23. Srinivas Murti. The Science and Art of Indian Medicine.
The Theosophical Publishing House, 1945, p.95.

24. Ibid. p.97.

however, it affects the mental phenomenon of the human being. It is an extension of the same original correlation or correspondence of the universal Triguna principle. Orthodox western physiology dealt with the human body as only a material entity while to Ayurvedist the living person is really a Jiva or spiritual entity animating and functioning for a time through material bodies or koshas such as the mental, the emotional and the physical. Under Ayurvedic view, Jiva functions in and through all Koshas and Vata, pitta and Kapha are responsible not only for certain physical functions but also for certain mental and emotional functions classifiable under the heads of Rajas, Sattva and Tamas. 'The physical and mental functions of Vata come, quite logically and understandably, under Rajas, those of Pitta under Sattva and those of Kapha under Tamas.'²⁵

Dasgupta calls this correspondence psycho-physical parallelism. Though the phrase is different, the meaning is the same already seen. He too says that Tridoshas not only act on the physical plane but on the mental plane too.

Moreover, Vata, Pitta and Kapha are found to perform not only physical operations but also intellectual operations of

²⁵Ibid. p.99-100

various kinds. All intellectual operations belong properly to mind. 'What is meant by attributing intellectual functions to Vayu, Pitta and Kapha seems to be a sort of psychophysical parallelism, mind corresponding to body and body corresponding to Karma.'²⁶ But this psycho-physical correspondance is not a stray reference to Charamasamhita but it is a basic concept therein.

Explaining this fact Dasgupta further elucidates: 'The psycho-physical parallelism is suggested throughout Charaka's system. Charaka, in trying to formulate it says, 'Shariram api sattvam anuvidhiyate sattvam cha - shariram.' (The mind corresponds to the body and body to the mind). It may be remembered in this connection that the ultimate cause of all Dhatu-Vaishamya or Abhighata(bodily injuries through accidents, as fall and the life) is foolish action(Prajnaparadha).²⁷

Modern psychology also accepts some sort of correspondence between the physical and the mental phenomenon in human organism. The modern concept of such correspondence and psychophysical parallelism is quite different and is explained in terms of energy or nervous action or brain - action on the physical side and the

²⁶ S.Dasgupta. A History of Indian Philosophy. Cambridge University, Vol.II,p.339

²⁷ Ibid.p.339.

behavioural¹ on the psychic side. Sherrington talks of such psycho-physical parallelism in such terms as: 'One fact remains. Mind providing as with time and space, there is no mystery about one relation between energy and mind. Between the individual human mind and the individual human forebrain considered in time and space there is a 100 percent correlation... Pragmatic judgment here, as often ranges itself beside Nature's practice. Pragmatic judgment accepts ourselves as compounds of energy and mind.'²⁸ But there cannot be any more comparison between the ancient idea of psychophysical interrelation and modern concept of correlation between energy and mind.

Medical experts are now turning to such views and some of them by their research tend to consider not only the psycho-physical correspondance but their metaphysical origin. 'Leonard William says that to reveal the intricacies and esoteric mysteries of the glands of internal secretion, which deals with the secret of life itself, there is a danger of drifting into meta-physical study.'²⁹ The very method of experimentation is bending towards metaphysical considerations. It leads to the medical considerations. It drives the medical research into deeper waters where

²⁸ Sir Charles Sherrington. Man on His Nature. Cambridge University Press, 1942, p.316

²⁹ Ashutosh Roy. Pulse in Ayurveda. p.(iii) Journal of Ayurveda, 1929.

science fears to tread. Bodley Scot says: 'When we come to the consideration of the glands of internal secretion we are on different grounds altogether, almost on hody grounds, for here we are dealing with the secrets of life itself.'³⁰

6.5. THE TRIDOSHA PRINCIPLE

It is pertinent now to turn to the Tridosha principle itself and find out its nature. Charaka describes the same as follows: 'Vata is dry, cold, light, subtle,unstable, clear and rough... Pitta is slightly unctuous, hot,acute, fluid, acid, mobile and pungent...Kapha, heavy cold, soft, unctuouss ,sweet,stable and viscid.'³¹ Tridosha are called Dhatus also because they are the supports of life. If normal, they bestow normal health, if provoked they cause disease or abnormalities. 'Vata, Pitta and Kapha moving in the whole body produce good or ill effects on the entire system, accordingly as they are normal or provoked.'³² The good and evil effects are described by Charaka in great detail in the exposition of this principle but they are in nutshell stated by him, ' When normal, they produce good effects viz. plumpness,vitality, complexion,cheerfulness, etc. when they become discordant they produce evil effects

³⁰Ibid.

³¹Charakasamhita. Vol.II, S.A:I, 59-61,p.13-14

³²Ibid. S.A.20,S1.9(1),p.332.

which are designated as disorders.³³

It is needless to go into its historical origin here but it is very useful to find out that this principle has its roots in Ayurvedic physics too. On one side it has correspondance with philosophic and psychic eternal principle of Triguna and on the other hand it is defived from the five primary elements - ether, air, water, earth and light. The physical formula of five elements is coordinated with the biological human organisation in the form of this Tridosha principle. 'But as the physical body forms a part of the biological organism, the physical formula has to be coordinated with and incorporated in this triumvirate of biological organisations to evolve a specific biological formula of the triad of Vata, Pitta and Kapha.'³⁴ Such a coordination and incorporation is done by grouping the - five elements into three basic biological concepts of Vata, Pitta and Kapha. ' The five categories of physical matter are transformed into three by the method of earth and water being grouped into one and air and ether being combined together with the result that all the five physical proto-elements found place in the living organism, being translated into the biological forces of Vata, Pitta and Kapha, i.e. air and ether being combined into Vata, Fire turned into Pitta and water and earth combined into Kapha.³⁵

³⁴ Ibid. Vol.I, p.523

³⁵ Ibid.

This double derivation of the Tridosha principle gives it a unique place in the ancient sciences of medicine. It makes a truly psycho-physiological principle which governs both mind and body. On the one side it establishes its connection with the universal abstract principle of Triguna and at the same time has its roots firmly grounded in five physical proto-elements. Its logical and scientific derivation makes it so firmly established in Ayurveda that Ayurveda and the theory of Tridosha has become one as it were in common understanding. It is an innovation of Ayurveda and it is an outcome of originality of ancient Ayurvedists. 'This conception of the body as being caused by Vayu, Pitta and Kapha is unique and is peculiar to Ayurveda and by this originality Ayurveda stands apart from every other concept of Hindu philosophy.'³⁶ This unique psycho-physical principle has its roots in Rigveda, but it evolved thoroughly during the scientific period of ancient medicine. 'The Tridosha concept of Ayurveda is the earliest constitutional concept. Its germs can be seen even in the Rigveda but it was systematised and evolved as a scientific concept during the golden period of Ayurveda in India.' This principle explains vividly the psychosomatic unity of man and ~~the~~ supplies a sound basis for Ayurvedic psychosomatics. This also supplies

³⁶D.Ray. The Principle of Tridosha. Calcutta, p.33.

the connecting link between the psycho-physical continuum, which is lacking to a certain extent today. So this principle is at once original and a great contribution of Ayurveda.

The specific terms used for the threefold principle of Vata, Pitta and Kapha are also significant. The original roots of the three 'Va', 'TAP' and 'SLIS' (for S'lesma meaning Kapha) respectively and mean 'To move or excite,' 'to heat' and 'to embrace' respectively. 'From this we infer that the natural attributes of Vayu are motion and the power of imparting that motion to other bodies, that of Pitta heat and those of S'lesma or Kapha union and integration.'³⁸ A specific terminology was evolved for this triumvirate of biological categories, which is significant both of static existence as well as dynamic force and their balance. The threefold principle is suggestive of the organisation of the fluid balance, thermal balance and the vital balance of the body.³⁹

This principle works throughout the biological organism. It works in the cell too. Ray tries to interpret it in modern terminology thus: 'Now what is the cell composed of ? It is composed of protoplasm, a very complex

³⁸ Dr. Ray. The Principle of Tridosha in Ayurveda. Calcutta.

³⁹ Charakasamhita. Vol. I, p. 522.

substance. To manifest life, protoplasm must be wet with water (Kapha), in contact with oxygen (Vayu) and warmed by the sun's heat to a certain temperature (Pitta). Cells are found everywhere in the body and so also are Vayu, Pitta 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 causes to live crumbling into simpler substance. Dead protoplasm yields protein.⁴⁰ This is merely an attempt on the part of Ray to interpret the Tridosha principle at the minutest level of living organism. It is a matter of comparative research. But the fact remains that this principle is applicable to all levels of life and is thoroughly comprehensive. 'This triumvirate of Kapha, Pitta and Vata form the general outline of that constitutional pattern of scheme; and all constructive, integrative, assimilative, recuperative, and eliminative processes are to be understood in terms of the nature and working of these three principles as an integrated whole. They are all inclusive and complete in their comprehension of the body, mind processes as a whole.'⁴¹

⁴⁰D. Ray. The Principle of Tridosha in Ayurveda.
Calcutta. p. 87.

⁴¹Charaka-Samhita: Vol. I, p. 539.

Each of three aspects of the tridosha principle is divided and sub-divided in accordance with their workings and functions in the body. Vata is sometime identified with nerve-system. It is the dynamic force in the human organism and therefore it is useful to look its characteristics in some detail. 'Vata is the up-holder of both, structure and function (in the body). It is the very self of the five forms of Vata in the body viz. Prana, Udana, Samana, Vyana and Apana. It is the impeller, controller and conductor of the mind, the inspirator of all the sense stimuli, the conveyor of all the sense stimuli, the marshaller of the body elements, the synthesizing principle in the body, the impeller of speech, the cause of feeling and audition, the source of auditory and tactile senses, the origin of all excitements and animation, the stimulator of the gastric fire, the desiccator of the morbid vitia, the eliminator of excrement, and deobstruent of the gross and subtle body-channels, the modeller of fetal form, the sustaining principle of life - all these are the functions of the normal vata in the body.⁴² This very description shows that there are many characteristics which seem common to both Vata and the present nerve energy but this does not mean that they are identical though they have many common characteristics.

⁴² Ibid. p.558-539.

cl. : clerical.

6.6. NERVOUS SYSTEM

The nervous system in Ayurveda is not so fully developed as in Tantras but there is a concept about this system. Both Charaka and Sushruta refer to Manovaha Nadi and Ajnavaha Nadi. Manovaha Nadi is sensory nerves and Ajnavaha Nadi means motor nerves. 'Charaka had some conception of the sensory nerves (Manovaha Nadi) and the motor nerves (Ajnavaha Nadi).'⁴³

There are a few words used to convey the meaning of nerves in Ayurveda and they are Dhamanis, Nadis and Shrotas. But Seal considers Dhamanis as nerves, 'The anatomy of the nervous system in Charaka and Sushruta can be more clearly and confidently restored. The Dhamanis that ascend from the heart divide into thirty cords of which twenty, i.e. ten pairs are cranial nerves and the other ten or five pairs are engaged in conveying vital currents, metabolic fluid, lymph, blood and Chyle.'⁴⁴

There seems to be no clarity in the meanings of these terms Nadis, Shrotas, Dhamanis etc. They have their historical background and should not be confused in interpreting them all to mean nerves. Shri Kutumbiah says that this problem is historically well studied by Dasgupta: 'Thus G.Sen would like to show 'siras' as veins, 'Dhamnis' as arteries and Nadis as nerves. B.Seal is convinced that

⁴³.J.Sinha:Indian Psychology,Part I,p.1.

⁴⁴.Sir B.N.Seal:The Positive Sciences of Ancient Hindus, Motilal Banarasidas,1958,p.217.

siras are arteries and Dhamanias may stand for veins as well as nerves.... But nobody except Dasgupta has approached the problem from the historical and evolutionary aspect.⁴⁵

In this case not even Charaka and Sushruta are of one opinion. Sushruta differs from Charaka. 'Sushruta refers to Charaka's view that siras, shrotas and dhamanis are the same, oppose it and asserts that they are different in appearance, number and functions.'⁴⁶ After a historical study of these terms used both by Charaka and Sushruta, Dasgupta comes to the conclusion that there is a confusion in meaning of these terms due to some similarity of their functions. Siras, Shrotas, Marga, Kha and Dhamanis are the general names used to denote the canals or ducts of the body. It is on account of the similarity of action of all these ducts that their functions are sometimes confused. This means that it is difficult to particularise the exact number of nerves and their functions. There should not be expected a well developed nervous system in those times as it stands today. This does not mean that they had no idea of the nervous forces and its functions. They identified the nerve force and its functions with that of Vata or Vayus. 'In Charaka and Sushruta, the Vayus are regarded as the

⁴⁵ P. Kutumbiah: Ancient Indian Medicine. Orient Longmans, 1962, p. 27.

⁴⁶ Ibid. p. 28.

moving or impelling forces that work the organism and all its automatic and reflex machinery. The Ajnavaha Nadis (efferent nerves) are only channels for the conduction of the commands of the self or the will (Atma Prayatna); the vayus on the other hand, are forces (or currents) that maintain the automatic reflex or instinctive activities of the organism.⁴⁷

It may seem strange but it is a matter of fact as far as the Ayurvedic concept of the nervous system is concerned that the ancient Ayurvedists knew quite well the functions of the system without going much into the details of the anatomy of the nerves. This statement is not based on conjecture or on reasoning but its validity is seen in the description of the functions of the ten vayus. We have already seen above that the anatomy of the nervous system is almost elementary in both Charaka and Sushruta but the functions of the system is well delineated in both of them. This happened because they identified the functions with those of Vayus. It is worth going into details of the functions of the Vayus to be convinced that they well corroborate with functions of the present day nervous system. Seal describes them in short thus: 'The ten chief Vayus with their functions are enumerated thus:

⁴⁷ Sir B.N. Seal: The Positive Sciences of the Hindus, Motilal Banarasidhar, p. 229.

- (1) Prana, which works ideo-motor verbal mechanism and vocal apparatus, the respiratory system the muscles engaged in coughing, sighting etc.
- (2) Apana, which ejects the excretions and wastes, the urine, the faces, the sperm and germ-cells etc.
- (3) Vyana, whose work is extension, contraction and flexion of the muscles, tendons and ligaments, the stored up energy of the muscles.
- (4) Samana, the force which in conjunction with animal heat, works the machinery of metabolism in the maintenance of the organic life. It drives or propels the cycle, blood and every other current (Shrota) or circulating fluid in the body.
- (5) Udana, concerned in maintaining the erect posture of the body.
- (6) Naga, which is concerned in voluntary retching, vomitting.
- (7) Kurma, which works the automatic movement of the eyelids, winking etc.
- (8) Krikara, concerned with the appetites of hunger and thirst.
- (9) Devadatta, which brings about yawning, etc.
- (10) Dhanajaya, which is concerned with coma, swooning trance.⁴⁸

There seems to be a reversion to this sort of humoral transmission of nerve impulses in modern physiology. There is

⁴⁸ Ibid. p.229-230.

a definite statement about such a reversion in Chopra Committee's report. 'Professors of modern physiology have begun to speak of humoral transmission of nerve impulses without the least suggestion of the term 'Humoral,' being unacceptable to them as when the ancient Tridhatu theory was spoken of as the exploded or discarded humoral theory. On the contrary they say that the evidence is now very complete that nerves do not act on the tissues directly but through the agency of chemical or 'Humoral substances' like acetylcholine, adrenaline and the like...Humoral transmission may also occur within the nervous system itself... Their transmission and releases at any point or points being dependent on the humoral transmissions of the stimulated nerve impulse^{is}, equatable with Vata-activity.'⁴⁹

All this discussion means that Ayurveda had a fair knowledge of nervous functions and the humoral activating force behind them even though their anatomical knowledge of the nervous system was very limited. Here too is seen the psycho-physical influence of the Tridhatu principle. Here it seems Swami Vivekanand's statement is being proved true.

'One peculiarity of the Hindu mind is that it always inquires for the last possible generalization, leaving the details to be filled in or worked out afterwards.'⁵⁰

⁴⁹ Chopta Committee's Report on Ayurveda.p.107.

6.7. CONSTITUTION

The word for constitution in Ayurveda is Prakriti. The English word 'Constitution' expresses the word Prakriti only approximately. The concept of constitution is original to Ayurveda. It signifies the totality of make-up of physio-psychological building of human organism. It is peculiar to every organism, that is why it is called prakriti which means a peculiar and distinguishing building up of the organism. It is the sum total of the crystallized results of all the influences of time and space on individual human life.⁵¹

Constitution is the distinguishing feature of each individual. No two persons are equal and that is because their organic constitutions are different. 'It is easy to see that since no two individuals can occupy the same point in this time-space world, no two individuals are identical in all respects. It is now for understanding the various factors that constitute this time-space in order to ascertain and define its variable influences on constitutions, as also the multiple of its type.'⁵²

Constitution is a sort of organisation of body-mind constituents. It shows an order and establishment of the organism signifying its peculiar organisation. 'The term

⁵¹Charaka-Samhita: Vol.I,p.546.

⁵²Ibid.

constitution is used in physiology nearly in the same sense as in sociology wherein it is defined as the fundamental law according to which the Government of a State is organised and the relations of individuals with society as a whole are regulated... Thus it is with integrated physiology...Ayurveda depicts this integrated function in terms of the triumvirate of biological organizations and their mutual interaction.⁵³ There are three main types of constitutions - Vata, Pitta and Kapha. These classifications became the guiding spirit of the clinician and the patient in the maintenance of positive health and in prophylactic as well as curative measures of diseases. It was also the beacon light in the realm of diagnosis and practical therapeutics.⁵⁴ When a person is allergic to increase or decrease of Kapha, Vata or Pitta, he has to take such measures as to get rid of the imbalance of that humour.

This is in short the concept of constitution in Ayurveda. Constitution is related to heredity and this subject will be taken up again in the next chapter in due context.

⁵³Ibid.

⁵⁴Ibid.p.545

6.8. FOOD AND TASTE

Ayurveda has thought of all relevant subjects related to man and his life. In dealing with the physiology it has given due importance to topics like food, digestion, circulation, respiration and healthy living. In certain matters like respiration, it shows crude notions even though it recognizes its great importance. 'Charaka and Sushruta say very little about lungs and their functions. Beyond the mention of their existence there is practically no further reference to them.'⁵⁵ But to us the only topics relevant are those which are related to psychophysiology. So it is important to review rapidly the main functions of the chain action from food to ojas.

Ayurveda has very well thought about food and its functions, its qualities and its regimen. Its chief function is to nourish the body and produce the seven Dhatus which uphold the integrity of the whole body. 'The different kinds of food beneficial to a living creature taken seasonably, on being digested by their respective fires, maintain the growth, strength, complexion, happiness and prolongation of existence of the healthy body in which a development into all the

⁵⁵P. Kuttumbiah. Ancient Indian Medicine. Orient Longmans, 1962, p.50.

upholding ingredients is ceaselessly going on.⁵⁶ The upholding ingredients are Rasa(chyle) - Rakta(Blood) etc. which are dealt with under the next topic.

Food is related to taste. Tastes are called Rasas in Ayurveda. They are six in number - sweet, saline, bitter, acid, pungent and astringent. These tastes are related to the five proto-elements. All the five elements are present in the tastes but in each taste there is a predominance of one element. 'All the five elements are present in all the Rasas (Tastes), but in different Rasas different elements predominate and the Rasas are differentiated accordingly.⁵⁷ Each taste has a good or a bad effect on the body. So tastes have direct relation with medicine and its administration. With proper administration of the tastes in medicine or medicinal foods, it cures and nourishes the body. 'The six tastes separately or in admixture, taken or administered properly and in due measure, nourish the body.'⁵⁸ Ayurveda has thought about the tastes in very minute details from medicinal point of view and has achieved considerable fruitfulness in this direction. There is

⁵⁶ Ibid.p.35.

⁵⁷ Ibid.p.37

⁵⁸ Ibid.

little of comparison between Ayurvedic notions about tastes and modern physiological research on the subject, because the directions of both are quite different. Modern physiology finds out that there are only four primary tastes and all other tastes are combinations. 'The four primary qualities are sour, salt, sweet and bitter.'⁵⁹ Moreover, there is a scientific analysis of the locations of tastes in the mouth and the tongue. Sweet is sensed on the tip of the tongue, bitter on the base, sour on the sides, and salt is apparently sensed as easily in one area as in another. There is a time order of disappearance of these taste sensations and they disappear serially in this order: bitter, sweet, salt and sour.⁶⁰ Temperature has also direct effect on the taste of various substances.⁶¹

This shows that the field of research of modern physiology and Ayurveda are quite different and both can supplement each other to a certain extent.

6.9. RASA AND OJAS

Returning again to the topic of food and gradual digestion, not in stomach alone but in the whole body, we find that Ayurveda has its own thesis on the subject.

⁵⁹ M.A. Wenger, F.N. Jones: Physiological Psychology. Henry Holt & Co., 1956, p.137

⁶⁰ Ibid. p.138

⁶¹ Ibid. p.141

It says that Rasa(chyle) is produced from food. And then in due sequence Rakta(blood),Mansa(flesh),Meda(fat), Asthi(bone),Majja(marrow) and shukra(semen) are produced. Each of these has its own fire and is digested in this sequence, giving out Mala or waste at each stage. From Rasa is produced blood, from blood flesh and then from flesh is produced fat, from fat the bones and then from bones is produced marrow and from marrow is generated semen.⁶⁷ The origin of all these is Rasa or food-Rasa. That is why Sushruta says the body is produced from food-rasa. On one side of this chain sequence is food-rasa and on the other end is semen but both have their important adjuncts. Food-rasa depends upon the proper type of food, similarly semen produces ojas and depends upon it for its stability. Ojas is the highest outcome of all this sequence.

The term ojas is very important not only in Ayurveda but in Indian Philosophy of Yoga also. It carries a special importance along with its usual meaning of 'Vital Power.' Sushruta has given a good description of ojas. According to him ojas stabilises all Dhatus, and increases them because it is the final essence of these all. It is the giver of all strength. It invigorates all senses and the mind.⁶² He further says that ojas diminishes or decreases

⁶²Sushruta-Samhita: S.A.15,S1.21.

by anger, anxiety, fuss, etc. Charaka says that this supreme vital essence stays in the heart, though it resides everywhere in the body.⁶³ The concept of ojas has no parallel in modern physiology. This topic of ojas has relation with the sublimation of man's sex. It leads us now to the subject of the problem of sex.

6.10. CONCLUSION, CONTRIBUTION AND SUMMARY

Like all other concepts the physiological concept of man in Ayurveda is configurational. Its main contribution in physiology can be its Tridosha principle. It is found to be sound scientifically. It is also very useful psychologically ~~also~~ as it functions as the link between mind and body. Ayurveda, thus, supplies the missing link between body and mind. Modern psychology tries hard to find this missing link in the nervous system but has not found a complete link therein. Here it is that Ayurvedic concept of the unity of human organism and its linking principle can shed some light in the psychosomatic research today.

SUMMARY

The psycho-physiology of Ayurveda rests solely on the Tridhatu principle and that has no parallel in modern psychology. The configurational approach of Ayurveda

⁶³Charaka-Samhita: Vol.II, S.A.30,Sl.7-8,p.588-89.

becomes quite clear here in the matter of derivation and application of this Tridhatu principle. It is derived on one side from Triguna theory and on the other side from the proto-elements and thus it lays the basis of the psycho-somatic continuation. It also explains the psycho-somatic unity and interrelation and correspondence. Its psycho-physiological significance is so immense that it is becoming a sort of master key to understand an Ayurvedic psycho-physiology. There is correspondence of the Tridhatu to Triguna directly.

Ayurveda discusses even dhatus and shows how they culminate into ojas. The concept of ojas is entirely original. Constitution is given due importance in Ayurveda and it is laid down that it depends upon the predominance of one of the Tridhatu in man. Tastes and nervous system though crudely defined in certain ways have their due place in Ayurvedic psychophysiology.

