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## *Tryst with Integrated System of Medicine*

*Synergy, Synthesis and Symbiosis*

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### **Preamble :**

In 1991, as a member of the Planning Commission, Government of India, I was provided a unique opportunity of being involved in the project of *interdisciplinary study of the History of Indian Science, Philosophy and Culture (1) from the earliest times to the present day* which was included in the 8th Five-Year Plan (1992-97). Indian Council of Philosophical Research was the nodal agency for the project under the chairmanship of Prof. D.P. Chattopadhyaya. It was during deliberations and discussions that a view was emerging regarding traditional systems of medicine as a part of scientific thought of ancient history of science in India. After several meetings and brainstorming sessions, the discussions were held at the International Symposium on Indian Studies (ISIS) at Kovalam, Kerala (November 28 – December 2, 1994) (2). In my lecture : *'The Spectre and Spectrum of Science and Technology in India : Antiquity and Continuity'*, at this symposium, I had extensively explored the state of development of biomedical

sciences in the context of ancient Indian Medicine. Rather than compartmentalizing the knowledge of science through the possible origin into mathematics, astronomy, physics, chemistry and biology, I employed a problem-based approach, thus demolishing the barriers which effectively block our view of the functionality of science at different points of time in the history of mankind.

I am of the view that the problems of health and disease, life and death, pleasure and pain, preservation of self and the species, etc., posed serious intellectual challenge to man who first walked on this planet. All this confronted his intellectual abilities. He tried to seek answers through his attempts to comprehend the structure and function of human body either directly or through an understanding of the plants and animals which constituted his immediate environment. This seems to be a logical reason why out of 7,108 documents listed in Sanskrit from the eighth to the nineteenth century, 4,256, i.e. about 60 per cent cover biological sciences. Most importantly, of the latter, **96.5 per cent** pertain to **medicine**, and

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only 3.5 per cent to other areas of biology. This must be so because self survival took precedence over everything else. The present day scientific literature shows a complete reversal of the trend with publications in the field of medicine occupying the lowest rung of the scientific ladder both in terms of quantity as well quality'.

'The view that I am propounding, perhaps for the first time, relates to the prioritization of life's problems and seeking relevant solutions through acquisition and application of knowledge. This is in direct contrast to the prevailing view propounded by pure scientists who consider an intelligent rational man at the dawn of history asking questions pertaining to the nature of the non-living material such as water, soil, minerals and even air, thus laying the foundations for the development of science of chemistry (3). Subsequently, the questions may have related to the physical phenomena that occur at periodic intervals; these include heat, sound and light as exemplified by thunder and lightning. The attempts to seek their answers contributed to the development of physics. Similarly, fascinated by the periodicity and regularity of the rising of the sun and the moon, interest in astronomy was aroused. Lastly, and only lastly, the questions may have related to the living objects, contributing to the development of biology. This makes good didactic sense but defies the rationale of prioritizing the most basic need, namely survival of self and of the species. As health and diseases are important for self-

survival, so is the process of reproduction for the survival of the species. It is only with such a perspective that we can understand a basic interest in sexual reproduction and availability of comprehensive treatises dealing with sexual behavior.'

'Conventionally, the pre-Vedic period (10,000 BC to 1,500 BC) which combines the pre-historic and proto-historic periods, is described as the age of ignorance or darkness where disease processes were ascribed to demons and evil spirits and remedial action consisted of offerings to Gods, incantations, magic and exorcism. The dawn of reason during the *Vedic period* (1,500 BC to 500 BC) provided rational approaches to the understanding of internal causes of disease, relating these to the humoural theory of *tridosha* including *vatta*, *kapha* and *pitta*. This period also witnessed the early development of rudimentary knowledge of human anatomy and physiology. The most progressive development during this period was the recognition of certain plants which had medicinal value, and therefore could be used for the treatment of disease processes. Athurvaveda has 114 hymns which deal with the treatment of diseases.'

Athurvaveda of the Vedic period directly led to the development of Ayurveda in the *post-Vedic period* (500 BC to 600 AD). The fundamental doctrines underlying Ayurveda are known as *Darshanas* and include all sciences such as physical, chemical, biological and even spiritual. There are eight well

defined specialized branches under two major schools, the School of Physicians (*Atreya sampradaya*) and the School of Surgeons (*Dhanvantri sampradaya*). The constituents specialties include the : (1) Internal Medicine (*kayachikitsa*); (2) Paediatrics (*balachikitsa / kaumarabritya*); (3) Psychological medicine (*grahachikitsa*); (4) Otorhinolaryngology and ophthalmology (*urdwangechikitsa / shalakyatantra*); (5) Surgery (both general and special) (*shalyatantra*); (6) Toxicology (*damshtalachikitsa / agadatantra*); (7) Geriatrics (*jarachikitsa / rasayanatantra*); and (8) Science of eugenics and aphrodisiacs (*vrishyachikitsa/vajikaranatantra*). (4)

What is remarkable is the teaching and training based on precise instructional modules! The classics of Ayurveda prescribe two types of examinations – examination of the patient (*rogi pariksha*) and examination of the disease (*roga pariksha*). In the examination of the patient one or more of the following methods are employed : Pulse examination (*nadi pariksha*). This is undertaken to determine the state of disturbed doshas (*vata, pitta and kapha*), vital phenomena indicative of particular disease (*roga*), and prognosis with reference to a particular sick person (*rogi*); Urine examination (*mutra pariksha*); Examination of the faeces (*pureesha pariksha*); Examination of the tongue (*jihwa pariksha*); Examination of the eye (*netra pariksha*); Examination of sounds (*sabda pariksha*); Examination of tactile sparsh (*sparsha pariksha*); and

Examination of body structures (*akriti pariksha*) (4).

Qualities of a physician and principles of ethics are well defined in *Charaka Samhita*. The physician must be compassionate and must exhibit deep interest in the art and science of healing. Treatment of disease consists in eliminating the factors underlying its causation : in prescribing medicines; providing suitable diet, activity and regimen which will restore the balanced state of the body, or in surgical procedures. ***It requires the combined effort of the physician, nurse, patient and medicine. A remarkable example of a health care delivery team!***

The role of diet has been considered most prominent in the management of the disease. Emphasis has been placed on regulation of diet and other regimens as part of the treatment (*pathya-apathya*). All therapeutic measures can be classified under *vipareeta chikitsa* and *vipareetathakari*. In *vipareeta chikitsa*, the therapeutic measures, i.e., medicine, diet and activity, antagonize the disease.

Let me illustrate this with an example from my own life-long specialty of Diabetes Mellitus. The contribution of the ancient physicians is recognized by the western scholars as indicated by the following paragraph from Joslin Diabetes Manual published in the USA (5) :

*The first actual description of diabetes dates back some 1500 years before Christ. In the centuries near the*

*beginning of Christianity, the appearance of diabetes is succeeding generations was described. The famous works of Sushruta (400 B.C.), of India, and his disciple, Charak (6 A.D.), noted many of the symptoms and even the types of diabetes..... Although the Indian name for diabetes, "madhumeha" or "honey-urine", was used in the sixth century A.D, the Latin word "mellitus" (honey) was applied much later.'*

The above description is essentially correct except that the historical chronology of Sushruta and Charak is not in line with the thinking of the Indian scholars.

A fairly accurate analysis of the causes of the common type of diabetes (non-insulin-dependent diabetes mellitus) is provided by Sushruta who noted its occurrence "in very indolent persons who indulge in siesta, are averse to exercise and are in the habit of consuming cool, fatty, sweet food and drinks which promote overweight". It seems that the ancient physicians knew the two types of diabetes as classified by the World Health Organization (6)\*. Indeed Sushruta has also provided the description of the second type (insulin-dependent type) by mentioning its occurrence 'in those with lean constitution' and its presentation with symptoms "such as loss of appetite and increased thirst, with the flesh melting away and producing extreme emaciation

and weakness."

Finally diet, exercise and certain drugs were recommended in the treatment of diabetes mellitus. Particular emphasis was placed on diet in the context of the type of disease as discussed above. If the diabetic was emaciated and underweight, emphasis was placed on prescribing nourishing diet in adequate amounts. In contrast, in the obese (overweight) diabetic, fasting was recommended. There were also pertinent recommendations regarding the qualitative aspect of diet; cereals, especially rice, products of sugarcane such as jaggery and molasses, alcoholic drinks such as beer, sweet fruits, and large amounts of oils, butter and flesh of domestic animals were to be avoided.

The role of physical activity and exercise is highlighted especially in those who are overweight. While making a choice of physical activities, due consideration as given to the socio-economic status of the patient. Sushruta recommended sports, wrestling, riding and long walks for the affluent while digging wells was recommended for the poor who were nonetheless overweight. As is the modern day practice, the thin diabetic (insulin-dependent type) was forbidden heavy exercise.

In essence, it was concluded that a diabetic "who takes food which is balanced and only for the need of the body

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*\* The author was the Vice-Chairman of the WHO Expert Committee on Diabetes Mellitus which recommended the new classification in 1979.*

and observes the rules of health, enjoys happy life". It is also mentioned that *sine qua non* for recovery from the disease was the change in the taste of the urine with loss of sweetness.

It can be rightly surmised from the above description of diabetes as well as its classification and recommendations regarding diet and physical exercise that the Ayurvedic physicians were far ahead of the others in their diagnostic and management skills. They also seem to be fully conversant with the possible causes of diabetes, such as eating large amounts of foods rich in carbohydrates and fats, and lack of physical activity.

The post-vedic period showed remarkable resurgence in elucidating the role of basic sciences as applied to Medicine. Thus, there is considerable evidence to show that the Vedic Indians accumulated adequate knowledge of pharmacognosy, dealing with the morphology, physiology and therapeutic uses of a large number of plants. The *Agnipurana*, the *Arthasastra* and the *Brahatsamhita* have sections generally devoted to plant science, dealing with seeds, sowing, planting, germination, grafting and cutting. In addition, there was information regarding the characteristics and selection of proper soil, its manuring and the climatic conditions which favour the growth of plants. This knowledge provided a complementarity to the medical compendia of Charak, Sushruta, and Vagbhata which laid emphasis on the use of herbals for the treatment and cure of

diseases.

Charak recognized a comprehensive knowledge of plants and their therapeutic uses as an essential part for the training of a physician. He observes that '*an expert physician is one who knows the herbs botanically, pharmacologically and in every other respect; in contrast a pharmacologist may know the use and action of herbs though he may not know their morphological characteristics*'. The term *bhesajavidya* is used in a work ascribed to Dhanvantari where the role and place of a separate science devoted to the study of plants and plant life with special reference to their medicinal properties is highlighted.

What is of considerable interest to the modern scientist is the fact that Vedic Indians made adequate reference to several characteristics of plant life such as growth, movement, sleep, waking, and disease including transmission of certain characters. It was thus recognized that the plants pass through stages of infancy, youth and age. They have periods of growth. They have cycles of sleep and waking, and they respond to touch, light and sound. An extreme example of sensitivity to touch is demonstrated by the plant *Mimosa pudica*, referred to as *lajjavati lata*. In essence, the plants were recognized as living organisms.

### **Scientific Validity :**

Was the mind of Pre-Vedic or Vedic Indian scientific? Was he rational? To answer this, we must define the yardstick with which we want to measure

this attribute. Dealing with this basic question on a universal plane, Bertrand Russell responds : “The question of the objectivity of fact has been rendered difficult by the obfuscations of philosophers..... For the present I shall assume that there are facts, that some facts can be known, and that in regards to certain others a degree of probability can be ascertained in relation to facts which can be known. Our beliefs are, however, often contrary to fact; even when we only hold that something is probable on the evidence, it may be that we ought to hold it to be improbable on the same evidence. The theoretical part of rationality, then, will consist in basing our beliefs as regards matters of fact upon evidence rather than upon wishes, prejudices, or traditions. According to the subject-matter, a rational man will be the same as one who is judicial or one who is scientific” (7).

With this perspective, the Vedic Indian was perhaps rational, or was being probably initiated into rationality, and was thus laying the foundations of what is generally recognized today as the scientific temper. If it is accepted that the Harappan civilization preceded the Aryans, then considerable evidence can be cited to support scientific approach to town planning, house and city drainage, development of tools and devices for agricultural production and transportation, and possibly an organized system of governance. Undoubtedly, there were also widespread cobwebs of superstition and supernatural, but a path of observation, analysis and inference was

already being developed at that time. These basic traits of science were recognized as means for acquiring knowledge. *Pramana*, or valid knowledge, has been referred to in *Rig Veda*.

The Nyaya school is realistic and pragmatic and demands that cognitive experience must be definite, must correspond with objective details, and must be capable of resulting in successful activity. *Utility*, i.e. *pragatti-samarthya* is an important test of true knowledge. Thus it is implied that *knowledge to be valid must find its successful application*.

The Nyaya school accepts four *pramanas*, viz. perception, inference, analogical reasoning and verbal testimony : verbal testimony involves the employment of verbal knowledge as a means of correctly knowing an object. The idea or reliability proceeds on the assumption that the person who has direct and correct knowledge about the thing in question has also the desire and competence to communicate this knowledge to another. The three conditions necessary to make him a reliable authority are : knowledge of truth, communication that is truthful, and the desire to guide other (*tarkika-raksha*). I was fortunate in having the association of two such persons : Dr. S.S. Ajgaonkar and Prof. N.K. Bhide. While Dr. Ajgaonkar stimulated my interest in *Ayurveda* with regard to the treatment of *diabetes*, Prof. N.K. Bhide, Professor of Pharmacology at the All-India Institute of Medical Sciences, New Delhi, was a great *scholar*

of Sanskrit and translated the Sanskrit Shalokas dealing with the subject.

### ***Traditional Medicine : Contemporary Resonance***

It is therefore obvious that rich heritage over the millennia needs to be internalized into the modern thought process dealing with principles and practice of medicine as it exists today. The University Education Commission, constituted in 1948 under the chairmanship of Dr. S. Radhakrishnan and including amongst its members such men of distinction and erudition as Dr. Zakir Husain, Dr. A. Lakshmanaswami Mudaliar and Dr. Meghnad Saha, referred to the need of imparting knowledge about history of medicine specially with reference to the traditional systems.

In its report submitted in 1949, the Commission observed : “Our modern medical schools would do well to incorporate a course on the History, Methods, Philosophy and content of indigenous medicine. This would help to preserve the values existing in these systems.” The operative recommendation was that “history of Medicine with special reference to Indian systems be taught, in the first degree course in medicine”. Even 65 years after the submission of this report such a vital recommendation remains unimplemented, with the result that a wide hiatus continues to grow between the practitioners of modern system of medicine and those of the Indian systems. Let alone its wider acceptance and implementation by all medical

institutions, even the All-India Institute of Medical Sciences charged with the responsibility of developing patterns of undergraduate and postgraduate medical education in the country, has neither developed the curricular framework for imparting knowledge about history of medicine, nor has the faculty been motivated to develop requisite expertise for the education and instruction of students in this important branch of medicine.

The extreme resistance of some senior health professionals to such an idea of synergy of different systems of medicine can only be relieved by '***catching them young***'. In my Address delivered at the First Annual Convocation of the University of Health Sciences, Vijaywada on February 03, 1997, I had stated (8) :

*'It is being increasingly recognized that health is not just a medical or biological responsibility, but is a social and developmental entity. The model of multiprofessional education would therefore require that students enrolled for education programmes in medicine, dentistry, nursing, nutrition and dietetics along with those enrolled in sociology and psychology must not confine themselves to a vertically compartmentalized vocational curriculum.....I would also recommend that in this model of multi-professional education students of Ayurveda, Unani, Homeopathy, Naturopathy and Yoga are also involved along with others to foster a sense of comradeship and mutual respect*



*between different systems of medicine. This can be achieved only here as all such professional institutions are affiliated to a single Health University. The artificial divide between the modern system of medicine and the traditional or Indian systems needs to be progressively demolished so that all traditional systems constitute a unified Faculty of Complementary medicine interacting closely with the conventional Faculty of Mainstream medicine. Finally multiprofessional education would also assist in demolishing the fossilized caste system in medicine : with its horizontal divisions between medical and nonmedical health scientists and between the practitioners of modern and Indian systems of medicine and the vertical hierarchical stratification wherein the upper crust is the doctor as the supreme being, the nurses rank next, and other allied health professionals such as radiographers and laboratory technicians constitute the lower strata to keep the system functional. Such a prevailing system is manifestly outmoded, outdated, obscurantist and therefore neither viable nor functional to achieve national health objectives. Obviously, therefore, neither the denominational dogma of different systems of medicine nor the sequestered existence of a large number of health care providers can be a part of any model of multiprofessional education and health care in the 21<sup>st</sup> century'.*

### ***Indian Medicine : Futuristic Perception***

Such a knowledge is of extreme relevance for nurturing the minds of young students as I foresee a renaissance of Indian system of medicine and Yoga. Just as the communicable diseases dominated the scene in the twentieth century, and the modern system of medicine provided the two magic bullets of *vaccination* and *antibiotics*, epidemiological evolution is leading us to an era of non-communicable diseases related to altered life-style and social pathology. As the muscle is being replaced by machine, we are witnessing a major increase in the prevalence of diseases such as diabetes mellitus, hypertension, coronary artery disease, cerebrovascular diseases, etc.

Unfortunately, there are no magic bullets as yet invented by modern medicine for these diseases. Therefore, the essential approach to the prevention and management of these diseases lies in a balanced nutrition with a major emphasis on vegetarian diet and less refined, high fibre, complex carbohydrates, regular physical exercise and activity, and the practice of mental relaxation and stress reduction (9).

These therapeutic principles are fairly well enshrined in our traditional systems. *Dhyana Yoga* for meditation and *Hatha Yoga* for physical activity are much more acceptable to our culture and ethos than the bio-feedback alpha rhythms generated through amplifiers, and the imported treadmills for physical exercise. The preferential cost-effectiveness of

traditional approaches is obvious.

Having been deeply committed to the scientific pursuit of Indian Systems of Medicine, our laboratory was the first to demonstrate the existence of insulin-like peptides in plants. As early in 1960, extracts of the plant *Momordica charantia linn* (bitter gourd) were shown to elicit a hypoglycemic response (10). A polypeptide was subsequently partially purified (11). After labeling with I<sup>125</sup> and further purification, this peptide was subjected to additional immunological studies in our laboratory. It was found that the material did not cross-react with anti-insulin serum. In addition, application of wick chromatography, a technique that we had earlier found to be of value in identifying basic and acidic polypeptides (12), seemed to suggest that the hypoglycemic plant extract was an acidic polypeptide, with behavior similar to that of the A-chain of insulin.

### **Serendipity and Opportunity :**

A major turnabout came in my career when from the laboratories and wards in the All-India Institute of Medical Sciences, I was transported to the corridors of Yojana Bhawan as Member of Planning Commission in August, 1991. The Eighth Five-Year Plan document was to be prepared and presented for approval by the National Development Council and each Member was asked to provide the chapter dealing with their respective assignments within a period of four weeks. Taking advantage of the opportunity, I gave full expression to my firm belief and commitment towards

ISM&H. As a result, the Eighth Five-Year Plan (13) of the Government of India approved by the National Development Council has the following reference to the Indian Systems of Medicine and Homeopathy (ISM&H).

*'There are about 5.25 lakhs institutionally trained practitioners of ISM&H. These practitioners are close to the community not only in geographical proximity but also in terms of cultural and social ethos and as such they can play significant role in primary health care delivery. The strategy for utilization of ISM&H for health care delivery during the Eighth Plan would comprise of the following :*

- i) There are more than 200 colleges of ISM&H. One of the important tasks during the Eighth Plan would be to provide adequate facilities for training in these colleges so that the graduates emerging from these acquire the desired level of knowledge and skill necessary for patient care. Postgraduate training programmes also require strengthening for the purpose of manpower development for teaching and research in ISM&H.*
- ii) To integrate the practitioners of ISM&H in the mainstream of health care delivery system, the graduate curriculum of these systems will be suitably oriented to make them conversant with the national health problems, policies and programmes. Refresher courses will also be organized for the inservice*

*practitioners of ISM&H towards the same objective.*

- iii) *There are more than 5000 pharmaceutical units, engaged in the production of drugs of these systems of medicine. Suitable steps will be taken to enforce the provisions of Drugs & Cosmetics Act to maintain the quality of products of ISM&H produced in the country.*
- iv) *Research and Development for the production and standardization of drugs of ISM&H will be supported during the plan. The existing research institutions will be strengthened for this purpose.*
- v) *The cultivation, conservation and regeneration of medicinal plants will be supported in State/joint sector farms. There is great potential for internal sale and export of these plants, herbs and formulations.*
- vi) *Separate departments, directorates and drug control organizations at the Central and State Government level will be established, wherever they are not existing currently.*
- vii) *Central Councils for Research in ISM&H would continue to receive support during the Plan so that they can discharge their responsibilities efficiently.'*

The most outstanding achievement of this period was the establishment of a separate department of ISM&H. There were thus three

departments in the Ministry of Health & Family Welfare, Government of India : Department of Health; Department of Family Welfare; and Department of ISM&H.

Another opportunity that came in my way was my nomination as Member of the Expert Group constituted by the Planning Commission in March, 1992 with the objective of developing a 'National Policy for Integrated Development in the Himalayas'. Although, development of hilly areas had been in focus since Fifth Five-year Plan, there seemed to be no integrated approach. However, devastating earthquake in Uttarkashi on October 20, 1991 which claimed several hundred human lives and caused widespread destruction, sounded a red alert and perhaps initiated the thought-process which led to the constitution of the Expert Group. The peak ground acceleration recorded at Bhatwari and Uttarkashi accelographs was of the order of 30g. The epicentral area of the earthquake was in the vicinity of the Main Central Thrust in the Uttarkashi district which is known to be a seismically active region. The Expert Group had several meetings. Sectors were allotted to the different Members of the Group for developing integrated policy. Health, Nutrition and Family Welfare sector was assigned to me for making relevant recommendations. In addition to detailed epidemiological narrative provided in the Report, it was emphasized : '*Prevention and treatment of the various diseases in the Himalayan region, the indigenous Systems of*

*Medicine can play a vital role. These systems, besides being popular among the population, have stood the test of time and proved their efficacy over the generations. The development of these systems and their integration with the mainstream of health care delivery is one of the priorities of the Eighth Plan. Particular stress requires to be laid on the collection, cultivation, preservation, and standardization of the medicinal plants for the use by the Ayurveda and Siddha physicians, and the protection of musk deer in farms. The Himalayan region could play an important role because this region is most suitable for efficacious medicinal herbs and the sole source of musk deer in the country. The Ministry of Health and Family Welfare has held some discussions/seminars in this context in Manali (HP), Guwahati (Assam), Nainital (UP) etc. for the quantification of medicinal herbs. The Council of Scientific & Industrial Research (CSIR), Indian Council of Agricultural Research (ICAR) and Indian Council of Medical Research (ICMR) along with the Ministry of Health & Family Welfare have to play vital role in this regard' (14).*

There was a change of Government in 1996 when Sh. H.D. Deve Gowda took over as the Prime Minister of the country. As is the convention, all Members of the Planning Commission including myself submitted their resignation to the Prime Minister. It was extremely gracious of Sh. Deve Gowda to call me on phone and ask me to continue to work as he would like me to continue to serve in the new Planning Commission

which was to be constituted under his chairmanship. Thus, there was a continuity of policies as far as health and medical education were concerned. This was soon reflected in the deliberations of the Fifth Conference of Central Council of Health and Family Welfare under the Chairmanship of Prime Minister Sh. Deve Gowda. In his address delivered on January 08, 1997, the Prime Minister graciously referred to the role of Indian Systems of Medicine and Homeopathy, and made a special mention as follows :

***'We now have a separate Department of Indian Systems of Medicine and Homeopathy, which are based on herbal medicines and drugless therapies, should now get the opportunity to combat diseases for which Allopathy has no cure. We have rich resources and trained medical practitioners in these systems of medicine. We need to exploit these resources fully. India could be a front runner in making the rest of the world aware about the potential of these alternative systems. Many countries in the world have been fascinated by and drawn inspiration from the Indian way of life – yoga, meditation and nature cure have so many practitioners across the globe. I hope the new Department of Indian Systems of Medicine and Homeopathy will carve out a niche for itself and help people to inculcate healthy life styles, simple eating habits and schedules of daily exercise all of which impinge on life and longevity. The Department as well as the practitioners have an opportunity and a responsibility***

*to promote the Indian way to a healthy life.'*

It was thus clear to all participants that the Prime Minister had reposed his full confidence in the policies and programmes which were pursued at the Planning Commission. The message was loud and clear when I addressed the conference as follows :

*'Hon'ble Prime Minister, Hon'ble Union Minister of State for Health & Family Welfare, Hon'ble Ministers of Health & Family Welfare in the States and Union Territories, Hon'ble Members of Parliament, Union Secretaries in the Departments of Health, Family Welfare and ISM, Director General of Health Services, Eminent Professional Colleagues, and Distinguished Ladies and Gentlemen....'*

It was intentional on my part to mention three Departments and three Union Secretaries individually. A Special Working Group at the Conference was constituted to consider Indian Systems of Medicine. The Group was chaired by the Hon'ble Health Minister, West Bengal with the Health Minister, Delhi as the Co-Chairman and Members including Health Minister, Tripura, Health Minister, Jammu & Kashmir, Minister (Ayur) Himachal Pradesh, and Administrator, Dadra & Nagar Haveli. It also had eminent persons from Naturopathy, Ayurveda, Unani and Homeopathy.

As a result of the deliberations of the Working Group, the following Resolution was put to motion and

unanimously resolved at the Central Council of Health (Full Text of the Resolution is available in the **Proceedings and Resolutions of the Fifth Conference of Central Council of Health and Family Welfare (January 8-10, 1997), Bureau of Planning, Directorate General of Health Services, Ministry of Health and Family Welfare, Government of India, New Delhi.** Nevertheless, let me emphasize the following preamble of the Resolution :

• *National Institutes like National Institute of Ayurveda, Jaipur, National Institute of Homeopathy, Calcutta, Institute of Postgraduate Training and Research, Gujarat Ayurveda University, Jamnagar, Faculty of Ayurveda, Banaras Hindu University, Faculty of Unani, Aligarh Muslim University and Hamdard Faculty of Unani be **strengthened as apex teaching institutions in the country.** The National Institutes of Unani Medicines at Bangalore, National Institute of Naturopathy, Pune, should be strengthened. National Institute of Siddha, Chennai and National Institute of Yoga, Delhi should be established in 9th Plan. As a part of the Resolution, far reaching commitments were made as follows :*

*A) Research and Development in Indian Systems of Medicines & Homeopathy :*

a. There is a need to restructure and reorganize the Central Research Councils i.e. CCRAS, CCRUM & CCRH by amalgamating the smaller

units to form larger institutes at least one in each State with adequate staff and resources.

b. R&D is urgently required on national health and family welfare programmes by the Research Councils.

**c. Universities, public and private sector research organizations need to be associated in R&D through extra-mural projects from Research Councils/Departments of ISM&H.**

B) Some of the areas of research were identified :

a. Drug proving (including clinical verifications and Pharmacological basis of therapeutic uses).

b. Drugs standardization / pharmacopoeial standards.

**c. Preventive and curative role of ISM&H in various epidemics.**

d. Pharmacognosy/phyto-chemistry of medicinal plants.

C) *Standardization of Drugs and Quality Control :*

**a. There is a need to evolve pharmacopoeial standards of ISM&H. Public sector research institutions should be associated in this work on project basis. Efforts be made to complete this work within the 9th Plan period.**

**b. Need to formulate a National Policy on ISM&H drugs.**

c. The Departments may consider introducing a scheme on the pattern of "Agmark". "AYUSH" may be considered for this purpose. Only those products which are manufactured in accordance with the standards laid down and prescribed in the official pharmacopias and formularies be granted permission to use "AYUSH".

D) *Availability of Raw Material :*

**a. Formulation of a National Policy on raw material used in ISM&H products.**

b. Development of agro-techniques of various plants used in ISM&H products.

c. Establishment of "Vanaspati Vans" of bigger areas of a few hundred acres in denuded forests and other areas.

**d. Setting up of germ plasm banks of the medicinal plants used in ISM&H medicines.**

In addition, there were two most significant components of the Resolution dealing with National Programmes & Curative Medicine and Intellectual Property Right Cells. It was emphasized that :

E) *National Programmes & Curative Medicine :*

**a. With a view to utilizing the wealth of knowledge of ISM&H and the six lakh practitioners of these systems, it is necessary to earmark an ISM&H**

*component in all National Health and Family Welfare Programmes. These funds be utilized for R&D and the execution of these programmes through ISM&H personnel.*

F) *Intellectual Property Right :*

a. *Some plant products like Haldi powder, Derivatives of Neem and Brahmi are being patented in United States. The work of applying for patents is highly technical. Scientists working in the field of ISM&H are not conversant with the procedures. Therefore, a "patent cell" be established in the Department which could take care of the country's heritage in this regard.*

b. *Interest has been evinced by various foreign countries regarding education, drugs material and techniques of Ayurveda, Siddha, Unani, Yoga, Homeopathy and Naturopathy etc. There is a need to promote international exchange programmes, increase the export of ISM&H drugs & other materials. It is also suggested that information centres be opened in all embassies for dissemination of information on Indian Systems of Medicine.*

G) *Separate Budget for Organisational set-up :*

a. *All the State Governments/Union Territories should allocate separate budget for the development of ISM&H. In those States where there is no separate Department of ISM&H,*

*the Directorates of ISM&H should be established. The posts of Directors should be filled up by technical personnel.*

With a firm commitment by the Prime Minister Sh. Deve Gowda but somewhat reluctant attitude of the officials of the Ministry of Health, there was a *status quo*. However, once again a sudden change in the Government brought Hon'ble Sh. I.K. Gujral as the Prime Minister in 1998. He was most kind to call me immediately after the swearing-in ceremony at the Rashtrapati Bhawan, conveying that there was no need to submit a resignation as it was a continuation of the same policies especially in health and medical education. With Sh. Madhu Dandavate, as the Dy. Chairman of the Planning Commission, there was a reinforcement of dedication to implement the policies and programmes.

In this sense, I was fortunate in having worked with three Prime Ministers, each one of them with remarkable curtesy and profound regard for the professionals. Equally important were the two persons who were steering the Planning Commission at different periods of time : the Dy. Chairman of the Planning Commission under Prime Minister Sh. P.V. Narasimha Rao, was Sh. Pranab Mukherjee (June 24, 1991 – May 15, 1996), and under Sh. Deve Gowda and Sh. I.K. Gujral, it was Sh. Madhu Dandavate (August 01, 1996 – March 21, 1998). What is perhaps not generally recognized that both were scholars who

came to politics after holding high teaching jobs in their respective areas of specialization. Both are scientists : Sh. Pranab Mukherjee taught Political Science and Sh. Madhu Dandavate taught Physics in the Bombay University for 25 years (1946 – 1971). Both have sharp intellect and intuitive foresight and a common trait of logical analysis and mathematical precision. In addition, Sh. Pranab Mukherjee is endowed with the godly gift of remarkably sharp memory : for places, persons and more importantly for numbers.

This was the scenario when the general elections in 1998 brought Sh. Atal Bihari Vajpayee as the head of the NDA Government. Under his stewardship the national health policy of 2002 was articulated. It essentially reiterated the important role and place of ISM&H under the new name of **AYUSH** (Ayurveda, Yoga, Unani, Siddha, and Homeopathy).

The *National Health Policy of 2002* noted that: “Under the overarching umbrella of the national health frame work, the alternative systems of Medicine – Ayurveda, Unani, Siddha and

Homoeopathy – have a substantial role. Because of inherent advantages, such as diversity, modest cost, low level of technological input and the growing popularity of natural plant-based products, these systems are attractive, particularly in the under-served, remote and tribal areas.”

Following the policy statement as mentioned above, *National Policy on Indian Systems of Medicine & Homeopathy, 2002* declared as its basic objective, inter alia, the “*integration of ISM&H in healthcare delivery system and National Programmes and ensure optimal use of the vast infrastructure of hospitals, dispensaries and physicians*”.

**12th Five-Year Plan (2012-2017):**

A detailed review of the current status was undertaken during the deliberations of Steering Committee on Health constituted by the Planning Commission, Government of India, for formulating the 12th Five-Year Plan (2012-17). The following table, is illustrative of tremendous progress made in the integration of AYUSH in the health care delivery system in the country.

**Integration of AYUSH Healthcare under NRHM**

<b>Facility</b>	<b>Total Units</b>	<b>AYUSH co-location (No.)</b>	<b>AYUSH co-location (%)</b>
PHCs	23391	8366	35.77
CHCs	4510	2945	65.3
DHs	604	424	70.2

**PHCs : Primary Health Centres; CHCs : Community Health Centres; DHs : District Hospitals**



Thus, as per the Steering Committee Report, 2012, AYUSH sector in the country has 7.87 lakh registered practitioners, 3277 hospitals with a bed strength of 62,649. There are 24,289 dispensaries, 489 recognized Graduate and Post Graduate colleges and 8,644 drug-manufacturing units. Achievement of national health goals requires an integrated delivery of health services utilizing the mutual strengths of bio-medical and Indian Systems of Medicine.

There is a major thought block both in the minds of the health administrators as well as specialists in medicine regarding the use of word '**Doctor**' for practitioners of Ayush : this is to the extent that the table shows 'Physicians' and 'Ayush'. Is this to imply that practitioners of Ayurvedic systems of medicine or any other systems are not physicians? If both are physicians, why this artificial divide! One may call physicians 'M' (modern systems of medicine) and physicians 'Ay' (Ayurvedic systems of medicine) and likewise for any other systems of medicine. This will immediately resolve one of the major issues which have been exploited and taken undue advantages by health care industry with the tacit approval of administrators. If both are physicians then the total health manpower itself indicates that by now, in the year 2014, there would be 15 lakhs physicians in a country to serve a population of 1.2 billion plus. The physician population ratio immediately comes to one for 800. By not recognizing this simple fact we go on highlighting the shortage of physicians

and go on building more medical colleges, nearly all in the private sector.

The jinx seems to have been broken for the first time due to persistent efforts of health planners like myself when in the 12th Five-Year Plan as approved at the Meeting of the NDC on December 23, 2012, there is a clear indication that Ayush have been recognized as *Doctors*. This is reflected in the following paragraph of the 12th Five-Year Plan (Health Section).

***'AYUSH doctors, wherever feasible, would be given Skilled Birth Attendants (SBA), RCH and IMNCI training and their services will be used in meeting unmet needs. This will increase the availability of trained human resource for better outreach of child and maternal health services.'***

#### **Ayush and Health Research :**

In addition to the three departments of Health & Family Welfare and Ayush already functioning in the Ministry of Health, a fourth Department of Health Research (DHR) was created on 5th October, 2007 with the vision of promoting and coordinating basic, applied, clinical and operational research in areas related to medicine, health, bio-medicine and medical profession and education through development of infrastructure, human resource and skills in cutting-edge areas.

The potential of departments of health research was discussed during the deliberations of Steering Committee on

Health and it was recommended that the strategies for health research in the 12th Plan would include amongst others the following :

***'Development of joint research protocols with AYUSH systems to establish their comparative and complementary efficacy, and further build on their known strengths in personalized Medicine, prevention and treatment of non-communicable, degenerative and autoimmune diseases, therapies for rejuvenation and geriatric care.'***

Being an optimist by nature and activist by action, I believe that in the autumn of my life I can clearly visualize an integrated system of health care delivery in India, optimally functional with the contributions of *all* health care providers including allied health professionals and physicians from all systems of medicine, at all levels of primary, secondary and tertiary health care. If at the end of the 12<sup>th</sup> Plan a holistic approach of human resources for health delivery integrated systems of medicine, is established, it may yet be the prime success of UPA Government in health sector, irrespective of the view of the cynics and skeptics.

### **Epilogue :**

One finds considerable support for this radical thought from Sir Julian Huxley (1959) who projected his thoughts in his very own inimitable style :

*"In the light of our present knowledge, man's most comprehensive aim is seen not as mere survival, not as numerical increase, not as increased complexity or organization or increased control over his environment, but as greater fulfillment – the fuller realization of more possibilities by the human species collectively and more of its component members individually."*

It is hoped that the physicians of the twenty-first century shall not only imbibe the philosophy propounded by Huxley, but would also contribute to its propagation, thus not only enhancing the quality of life, but also making life more meaningful in its total existence.

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