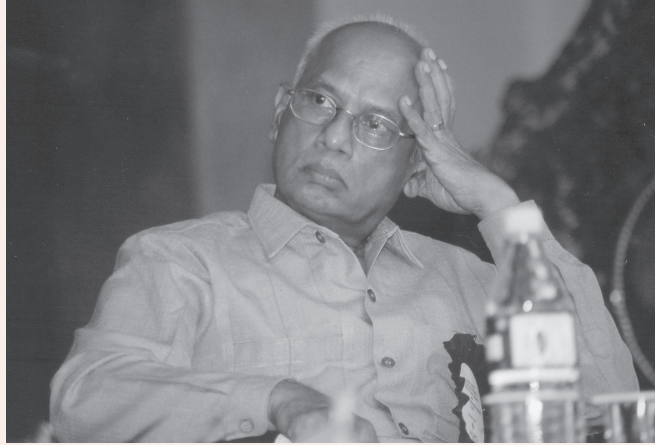




## Dr. M.S. Valiathan – The extraordinary legacy that lives on

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Dr. M.S. Valiathan (1934-2024)

*Keywords:* Dr. M.S. Valiathan, Brhatrayee, Ayurvedic Research, ASIIA, Ayurvedic Biology

Dr. M.S. Valiathan, the versatile and multifarious professional with varied achievements to his credit, has left from our midst on the 17<sup>th</sup> of July at Manipal at the age of 90. He remained professionally active until his health started failing just a couple of months ago. This author happened to be in frequent contact with him on phone during all through the last February and March, taking instructions from him in the final phase of a research project which, apparently, was the last one he mentored. In his death, the world of modern medicine has lost an accomplished innovator and the *ayurveda* domain has lost a wise counsellor and mentor.

As far as the ayurvedic academic scene is concerned, the vacuum created by his absence, sadly, is not very likely to be filled in the near future. Viewing the academic brilliance and innovative achievements of this visionary in

perspective will, indeed, be an inspiring experience for all those who are interested in the growth of medical science and its benign application. His celebrated efforts in bringing the *brhatrayee* to the attention of the international readers are fairly well known to the *ayurveda* fraternity. But, his equally, if not more, significant achievements in initiating and fructifying major research projects in different arms of *ayurveda* do not seem to have been brought to the public eye sufficiently. An attempt is made here to present a comprehensive view on his contributions towards strengthening the knowledge base of *ayurveda*.

### The initial phase

Dr. Valiathan's initial phase of education started with his schooling in a Government School in his home village of Mavelikkara and ended by becoming a medical graduate in 1956 as a student of the very first batch of the Government Medical College, Trivandrum. He received his Master's Degree from the University of Liverpool and

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became a Fellow of the Royal Academies of England, Edinburgh and Canada. He received higher training in thoracic surgery from three Medical Schools of US, where he had the rare opportunity to train under the reputed Dr. C.A. Hufnagel, the inventor of the first artificial heart valve. With all these accomplishments, he chose to return to India in 1972 after spending eight years in the US.<sup>[1]</sup>

### **The Sree Chitra phase**

In India, he took up medical and teaching assignments in Chandigarh and Chennai. After two years, in 1974, he was invited by Shri C. Achutha Menon, the then Chief Minister of Kerala, to take up the responsibility of conceiving and setting up Sree Chitra Tirunal Institute of Medical Science and Technology (SCTIMST) at Trivandrum. He became its first Director and continued in that position until 1994. During this period, he conducted hundreds of open heart surgeries, and he spearheaded studies on Endomyocardial Fibrosis, the unique heart condition prevalent in Kerala. His major breakthrough at SCTIMST was the highly acclaimed innovative development of the Chitra-TTK heart valve after very arduous trials lasting seven long years. This innovation has now come to be recognised as a major step in advancing the sector of Indian medical technology. Thousands of patients benefited from this advancement and SCTIMST was accredited as an Institution of National Importance by the then Prime Minister, Shri Morarji Desai. Similar was the development of disposable blood bags. Valiathan contributed significantly to the establishment and stabilisation of SCTIMST so as to enable it to receive global recognition.

### **The MAHE phase**

After superannuating from Sree Chitra, Valiathan moved to Manipal in Karnataka in 1994 as the founding Vice Chancellor of Manipal Academy of Higher Education (MAHE). During his tenure

there, MAHE ensured high academic standards and advanced in its research front. He initiated inter-disciplinary collaborations and international partnerships, thus enhancing its global reputation. Even after retiring as the VC in 1999, he continued at MAHE as the National Research Professor and was awarded the Homi Bhabha Fellowship which enabled him to formally commence his long cherished plan to study *ayurveda* treatises thoroughly. And he continued in Manipal until his end. His substantial contributions in *ayurveda* were made during this quarter century period.

### **The Legacies phase**

It was during the decade starting from 1999 that Valiathan made extensive studies of the great *ayurveda* treatises viz. the *Carakasamhita*, *Susrutasamhita* and the *Ashtangahrdaya*, one after the other. And, when he was 65 years old, he underwent a classical tutelage on *Carakasamhita* under the venerated scholar, Vaidyabhushanam Raghavan Thirumulpad lasting for almost three years, by visiting him periodically, spending time with him in discussions, and corresponding with him regularly. Valiathan once reminisced about his Master thus : “*He was in his Eighties, but was gracious to me and generous with his time. I was honoured when he told me that I would not need similar help in the study of Susruta and Vagbhata.*”<sup>[2]</sup> It was in 2003 that his “The Legacy of Caraka” came out.<sup>[3]</sup> The academic world in India and abroad was pleasantly surprised to see that a celebrated thoracic surgeon and an accomplished medical technologist should take such a drastic deviation in his publicly acclaimed professional career. It received positive reviews. One reviewer commented : “*Valiathan’s digests are made with great care; he never sacrifices the underlying logics and principles prevailing in these portions; in fact, they shine through a bit more clearly than in the original text precisely because of his condensations. The Legacy of*

*Caraka will prove useful as a reference book, and I can imagine assigning sections of it for use in general introductory courses in South Asian cultures and civilizations as well as in more specialised courses on medical anthropology and history of medicine.*"<sup>[4]</sup> The next in the series, "The Legacy of Suśruta", came out in 2007.<sup>[5]</sup> The readers were expecting this sequel to the first in the series and it was received by professionals across the country and specialists abroad with equal enthusiasm. One reviewer observed thus : "This is one of the two great virtues of Valiathan's Legacy of Suśruta; on every page, on every topic, it remains very close indeed to the Sanskrit text. The other virtue lies in Valiathan's thoughtful rearrangement of the topics of the Suśrutasaṃhita. Valiathan has tightened and reorganised the topics of the Suśrutasaṃhita and thus provided a treatise that makes sense from one chapter to the next."<sup>[6]</sup> There was a prevailing sense of anticipation in the minds of the academicians when the third in the series, "The Legacy of Vagbhata" was published in 2009.<sup>[7]</sup> It also received favourable reviews. One review commented thus : "In the Legacy of Vagbhata, Valiathan dissects and reassembles Aṣṭaṅgahṛdaya with the precision and skill of the great surgeon that he is."<sup>[8]</sup>

Valiathan's decade long meditative studies on *brhatṭrayee*, thus, fructified in the form of three major volumes which have turned out to be treated as a collective milestone in the modern documentation of classical knowledge and wisdom. It is rather obvious that these three volumes are not really addressing the *ayurveda* practitioners *per se*. Because, they get to learn the classical treatises in their original versions as part of their University syllabus. And moreover, these Legacies are not just verbatim translations into English from their original Sanskrit. What he has actually done is to restructure the whole text

in a topic-wise order, while at the same time remaining absolutely faithful to its innate content and spirit and maintaining intact its contextual fidelity and intent. By doing so, Valiathan has made these foundational treatises of *ayurveda* more accessible and comprehensible to interested experts of parallel knowledge streams, thus rendering them more amenable to modern academic contemplation. His seminal work on *brhatṭrayee* has eminently succeeded in placing the fundamental concepts and procedures of *ayurveda* on a global platform facilitating wider academic discourses on them.

It may, incidentally, be mentioned here that, even though Valiathan formally started his in-depth studies in *ayurveda* in 1999, he had actually forayed into ayurvedic domain still earlier as is evident in a talk on *Suśruta*, which he delivered at Kottakkal in 1993 when Arya Vaidya Sala (AVS) invited him to speak at its annual Seminar. He had, by then, already made a professional study of the philosophical basis of traditional Indian healthcare system. He stated then : "The long habit of looking at medical science through the separate windows of anatomy, physiology, pharmacology, medicine, hygiene and other disciplines ill-disposes us to an unrestricted view of things. Nothing could be farther from the outlook of Suśruta who dealt with life in health and life in disease. For Suśruta, human life was a Note in the Symphony of the Universe and a discordant Note called out for corrections in so far as it restores the grandeur of the Symphony." This lecture has later been published in the form of an article by AVS.<sup>[9]</sup> The cordial relationship that AVS started with Valiathan in 1993 continued all through the remainder of his life. And the support he received from Dr. P.K. Warriar and other experts of AVS during his decade long endeavour of writing the three Legacies has been recorded by him in those volumes.



Speaking on Susruta at Kottakkal in 1993

A reference may also be made to the academic expertise that he acquired in the functional aspects of *ayurveda* by the time he concluded his Legacies saga. His studies enabled him to come out with very interesting and historically significant findings on the status of disease profiles of the Indian Society during the *Samhita* period.<sup>[10]</sup> And he held a comprehensive view on *ayurveda*, its philosophy, its concepts and its procedures, medicines, application and tutelage. He kept talking to specialist groups on these topics; an example being a lecture he delivered in Delhi in 2009 under the auspices of the Thrombosis Research Institute.<sup>[11]</sup>

### The research phase

The ayurvedic research phase of Valiathan has two segments. The first was in the 1990s and the other a decade later. Even before he embarked on his ambitious journey through the *brhatrayee*, he had an occasion to act as an intermediary between the Council of Scientific and Industrial Research (CSIR) and AVS. CSIR, through the good offices of Valiathan, approached AVS with a proposal to take up joint research on a select list of ayurvedic herbs. AVS took the view that

contemporary *ayurveda* practice was more conversant with the use of processed poly-herbal formulations rather than single herbs. Valiathan intervened and said that *ayurveda* certainly transcended beyond the use of herbs. But, he also made a vehement statement that, even though India boasted of traditional health practices going back in centuries, it could not yet present even a single medical formula on a global scale. He argued for modern research and urged AVS to join hands with CSIR. That resulted in setting up the CSIR-AVS Co-ordinated Programme on Bioactives. Dr. R.A. Mashelkar, the then DG of CSIR, accompanied by senior Scientists like Dr. S.S. Handa, Dr. K.V. Raghavan and Dr. O.P. Agarwal visited Kottakkal along with Valiathan for discussions and Dr. Mashelkar and Dr. P.K. Warriar, the then Managing Trustee of AVS, signed an Agreement. AVS, thus, got an opportunity to associate with National Laboratories like IICT-Hyderabad, CDRI-Lucknow, CLRI-Chennai, etc and it resulted in some important findings including new active molecules from formulations, with activities in cancer, memory enhancement, etc and an anti-ulcer formulation. Several international patents were obtained under joint ownership of CSIR and AVS. More importantly, the association succeeded in formulating a new model of collaborative research in *ayurveda* with both the experts of Science and *ayurveda* being separately responsible for respective components of the project and yet taking a favourable, appreciative and mutually sharing position with regard to the other's component. Valiathan remained as advisor all through the course of the project lasting for almost a decade. One would venture to presume that his inherent interest in experimental Ayurveda was rekindled during this period. Soon after, Dr. Warriar, accompanied by this author visited MAHE to request him to chair a Research Advisory Board at AVS.





Commencing CSIR-AVS Programme - Dr. M.S. Valiathan, Prof. S. Kumar (IISc), Dr. R.A. Mashelkar (DG-CSIR), Dr. P.K. Warriar

### The ASIIA phase

Immediately after the Legacies phase, Valiathan's most fertile intellect had already started ruminating about the need and possibilities of subjecting some core aspects of *ayurveda* to experimental studies. In fact, even while he was busy with his Legacy work, he had written a Guest Editorial for Current Science in 2006 raising almost all the research questions which he later took up under his major scheme.<sup>[12]</sup> He was not happy to see that research in *ayurveda* got identified exclusively with herbal products at the cost of many other valuable aspects. In that Editorial, he also put forth an ambitious list of research objectives and he called them as part of his "ayurvedic mission".<sup>[12]</sup> It was in 2004 that he had an opportunity to give an invited talk at a meeting of the Indian Science Academy (ISA). He referred to the historical interactions between Science and *ayurveda* and he mentioned the term "Ayurvedic Biology" (AB). At the request of ISA, Valiathan wrote a Monograph on the subject, which was published by ISA as a "Decadal Vision Document".<sup>[13]</sup>

Based on the Vision Document, Valiathan gave a series of lectures in twelve National Institutes and two *ayurveda* Institutions. In spite of the general enthusiasm, specific proposals and the required

funding possibilities did not come forth. A gleam of support appeared later from a rather unexpected corner. In Valiathan's own words, "*The breakthrough came when Dr. R. Chidambaram, the Principal Scientific Advisor to the Government and renowned neutron physicist, read the Vision Document and offered support for a few pilot studies on the projects outlined in the Document. Had it not*



Dr. M.S. Valiathan, Dr. P.K. Warriar, Dr. Ashok B. Vaidya, Dr. R. Chidambaram

*been for his farsighted decision, Ayurveda Biology would have been dead on arrival.*"<sup>[14]</sup>

Once he got assurance of financial support, he started giving shape to the specific research projects and named the total programme, most appropriately, "A Science Initiative In Ayurveda" (ASIIA). In an article he wrote in 2010, he presented his concerns and hopes.<sup>[15]</sup> His objective was "*to apply basic sciences to study important concepts, practices and chosen products.*" While he was quite aware of the difficulty in converting ancient concepts and procedures into questions which could be tested in a laboratory, he was absolutely certain that inter-disciplinary studies alone would establish that *ayurveda* was not just a herbal therapy as defined by the Walton Committee of UK.<sup>[15]</sup>

Valiathan succeeded in bringing some leading National Institutes and Ayurveda Institutions together for the purpose. Research Institutes like IISc-Bangalore, BHU-Varanasi, MAHE-Manipal, CCMB-Hyderabad, JNTU-Hyderabad, BARC-Trombay, IIT-Kharagpur, RGCB-Trivandrum, and others became partners in the programme. AVS-Kottakkal, FRLHT-Bangalore, Sinhgad College-

Pune, SDM College - Udupi and Podar College-Mumbai, were the *ayurveda* partners.

There were four arms to the ASIIA programme and each one of them produced very significant results which got published in international journals of high standing. Some of the important findings were :

- a] The fundamental ayurvedic concept of *doshaprakrti* was correlated with genomic variations in humans.<sup>[16,17]</sup> It was seen that the phenotype classification of *vaata*, *pitta* and *kapha* had a genetic basis and the traditional *prakrti*-based classification did resonate with personalised medicine.<sup>[14]</sup>
- b] The classical *rasaayana* concept and its practice were tested by using *Amalakirasayana* and the results demonstrated that (i) life-span, fecundity, starvation tolerance, temperature tolerance, and other bio-markers improved in *Drosophila melanogaster* flies;<sup>[18]</sup> (ii) DNA damage was reduced significantly and genomic stability was maintained in mouse model;<sup>[19]</sup> (iii) cardiac functions were improved in rats;<sup>[20]</sup> and (iv) the natural process of DNA repair was maintained and quality of ageing was improved by modulating telomerase activity in human model.<sup>[21,22]</sup>
- c] The mercury containing traditional drug *Rasasindur* was tested by using advanced technology and it was shown that its structure had undergone nano-transformation and there was no presence of the toxic chemical forms of mercury.<sup>[18,23,24]</sup>
- d] The immunological and metabolic responses of *basti*, a *pancakarma* procedure, were assessed on obese humans and it was shown that the procedure reduced body weight and modulated immune responses.<sup>[25]</sup>

About 30 papers were published in top journals and they were co-authored by modern Scientists and *ayurveda* experts. And that was one of the objectives of Valiathan who wanted to see Science

and Ayurveda moving ahead together. It may incidentally be mentioned that AVS partnered with BHU, MAHE, BARC, IIT and RGCB in the *Amalakirasayana* and *Rasasindur* projects and AVS personnel were co-authors of the respective papers. This author had the privileged opportunity to co-ordinate the AVS component of the project works both in the ASIIA and CSIR-AVS projects.

A decade after Valiathan expressed his concerns and expectations about such joint efforts in an article in 2006,<sup>[12]</sup> he wrote a Guest Editorial in *Current Science* in 2016 reporting the highly encouraging and most enthusing outcomes from the experimental studies under the ASIIA programme which he had piloted with great acumen under the AB scheme.<sup>[26]</sup> It is prudent to think that the ASIIA programme will come to be seen in the future as a watershed point in the modern history of ayurvedic growth and the field of AB will be recognised as a promising new branch of ayurvedic academia. Valiathan had clear vision about this domain and he knew its potential and limitations. He is reported to have stated once : “*I cannot claim that Ayurvedic Biology helps, or will help, Ayurveda or Biology. Neither needs help. However, when new science, new techniques are applied to old science, new sprouts of knowledge would appear. Chemistry emerged from new experiments in ancient rasasaastra as P.C. Ray had shown.*”<sup>[2]</sup>

From a historical perspective, there were six major outcomes from the ASIIA programme; (a) Very significant results came out, which had direct bearing on *ayurveda* knowledge base; (b) These results were published in journals of high standing and thus came to the attention of global experts; (c) It was proven beyond any doubt that methods and tools of science could be advantageously employed to study ayurvedic concepts; (d) Modern scientists came round and started looking at *ayurveda* and its concepts with genuine interest; (e) Ayurvedic experts got equipped to interact with modern science with courage and trust; and (f) A common academic platform was

created where Science and *ayurveda* experts could talk to each other on a *par*. It was the unique combination of wisdom, intelligence, farsightedness and fastidiousness of Valiathan that made this historically significant accomplishment possible.

The ASIIA project was later brought under the purview of DST as the Taskforce on ayurvedic Biology and Valiathan was its first Chairman. Later it was shifted to the Science and Engineering Research Board (SERB) of the Government. The Taskforce supports new research projects addressing core issues of *ayurveda*, undertaken jointly by Research Institutes and *ayurveda* Institutions. MAHE and JNU have now set up Centres of Excellence in AB.

### **Beyond ayurvedic Biology phase**

At the conclusion of the ASIIA programme, Valiathan did not rest on his laurels. He continued his creative activities and kept communicating with professionals and specialists. As the three Legacies got established as authentic reference texts, he received requests from medical and science students for a “smaller and simpler” book which would enable them to get the “big picture of *ayurveda*”. And the result was the compact volume, “An Introduction to Ayurveda”,<sup>[27]</sup> In 2014 he was invited to give a series of open access video lectures on *ayurveda* to students of Engineering as part of the National Programme on Technology Enhanced Learning (NPTEL). Based on these 20 lectures, he wrote a book “Ayurvedic Inheritance – A Reader’s Companion” in 2017.<sup>[28]</sup> It dealt with the eight basic branches of *ayurveda* and talked also about AB and ASIIA. Valiathan was more concerned with *ayurveda* concepts and procedures during his ASIIA days. In the latter years he was vehemently arguing for developing standardised clinical protocols and for devising unique and simpler clinical trial models for *ayurveda* based on the Traditional Medicine specific procedures recommended by WHO. He did not favour a mechanical integration between different systems

of medicine. As recent as in 2022, he presented his views on these matters in an article he wrote for a volume, “Ayurveda – the Expanding Frontiers”, which was edited by this author and published by AVS.<sup>[29]</sup>

It was typical of Valiathan that he was actively pursuing new research questions until his last days. In a study completed recently, joining hands with Bio-informatics experts, he had attempted to resolve the authorship issue pertaining to *Ashtaangahrdaya* and *Ashtaangasangraha*, by resorting to linguistic stylometry method with the aid of computer based deep learning tools.

In the last four years he has been mentoring a research project on the “preventive” activity of two *ayurveda* herbs in the *medhya* group in delaying the onset or reducing the severity of Alzheimer’s disease in mouse model. He himself decided on the trial herbs and he regularly monitored the progress of the experimental work. AVS is partnering with MAHE-Manipal and NIMHANS-Bangalore in this project which has generated highly encouraging results. This author had the opportunity to co-ordinate the AVS component of the project work. Valiathan used to sound quite happy in his frequent telephonic conversations during the last February and March, while discussing the final phase of organising the trial results. He was in the process of finalising the manuscript of the paper for submission while the end came.

### **A visionary and an achiever *par excellence***

History will mark Valiathan as a multifaceted genius who excelled in every field that he chose to work in. Many are the Awards and recognitions that came his way, which are too numerous to be accommodated here. He sat in several Governmental and Academic Committees and Boards. He studied, mastered and admirably accomplished in the Western originated modern medicine and technology. At the same time, he had great regard for the Indian heritage and its fundamental knowledge and wisdom. His efforts



in *ayurveda* were based on his genuine and honest yearning to contribute to its overall growth. He was objective in his approach to ayurvedic knowledge system and yet he was not blind to the often esoteric and occasionally cryptic attributes of its wisdom.

One may wonder how an intense professional like him could manage to shift from one domain to an entirely different one in such a seamless manner. He had a reply : “*Far from grudging, I admit that nomadism agrees with me and invigorates me with fresh doses of energy.*”<sup>[30]</sup> But he had regrets too. He said once : “*May be a tinge of regret touches me like a fleeting shadow when I remember that I forfeited a chance to learn the playing of Veena from my mother and gaining of proficiency in Sanskrit from my teacher Rama Sastri in Mavelikkara.*”<sup>[30]</sup>

One may be forgiven for giving in to the temptation to compare the relative impacts of his monumental work on *brhatrayee* and his prodigious work on AB. It can readily be seen that both have equally succeeded in positioning the ayurvedic knowledge base on a global platform. Yet, there is a difference. In the case of the Legacies, what Valiathan masterfully achieved was to present the knowledge contained in the texts rather in an “as is where is” basis, taking the role of a faithful and competent interface. He never attempted to even slightly add to or subtract from the ethos and quintessence of the original. In the case of his work in AB, on the other hand, he did something more than that. He actually added immense new value to the original knowledge of the texts by bringing out tangible and quantifiable new data and descriptions. How did he manage to accomplish so marvelously in both these aspects? The answer could be seen in his innate thirst for new knowledge, in his absolute regard for traditional wisdom, in his conscientious faith in methods of science, in his courage of conviction, in his urge to excel, in his skill to conceive and implement new ideas, and in his ability to motivate and lead colleagues. It is but natural that

outstanding achievers of Valiathan’s class, regrettably, do not appear in our midst more frequently. The *ayurveda* fraternity of the country will always remain indebted to him for the substantial contributions that he made towards strengthening *ayurveda* knowledge base.

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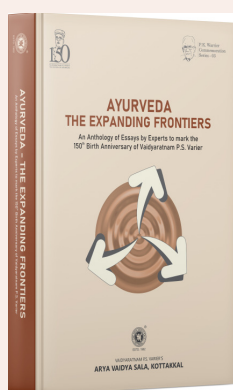
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