scientists. I used to meet him almost everyday, often in his house at lunch time. I spent many enjoyable hours in the company of Sivaraj and Kausalya those days. They were an ideal couple; warm, friendly and full of life. I can never forget those days at IISc when there was little social life, but we had a small group of like-minded close friends. Dhawans and Ramaseshans were the natural hosts to a young faculty member like myself. We discussed issues, shared our vision and commiserated together. We also shared many a meal and lots of laughter.

Sivaraj was a shy person in many respects, although one would not think so when listening to his excellent lectures. I remember talking to him for hours about matters where he had to categorically state his views to certain persons. Eventually, he would agree but often end up making a mild statement, filled with pleasantries. Sivaraj did not want to hurt anyone and avoided saying anything that may be unpleasant. Basically, he enjoyed knowing people and talking to them.

I recollect many interesting occasions and incidents from our years of association. I still remember the days when he wrote the article for the *Handbuch der Physik* with G. N. Ramachandran. A particularly enjoyable trip we took together was to Shillong in 1961, to participate in a symposium on organic chemistry. The long train journey from Bangalore to Kolkata and the road trip from Guwahati to Shillong were memorable. When visiting a host in Assam, Sivaraj ate raw areca nuts offered by the host and became giddy. Fortunately, he recovered soon. We had a long talk afterwards on the unusual alkaloids in areca nuts. We spent hours talking about the folklore of Kamakshi temple. Another occasion I often recollect is the Sadashivnagar session of the Indian National Congress held next to IISc. We went to see the procession and there was Pandit Nehru standing on the roadside along with the crowds. Pandit Nehru later visited the RRI along with Indira Gandhi. Raman was in great form, lamenting in a loud voice about the ills of Indian science.

On one occasion, when my family and I visited the Ramaseshans in IIT Madras on our way from Kanpur to Bangalore, there was an amusing episode. Sivaraj came home from the department to be with us, but we had the nagging fear that the Director of the Institute would call up Sivaraj to enquire why he had gone home during working hours. The Director had the reputation of being a strict headmaster, who kept a note of the whereabouts of professors and about their hours of arrival and departure from the departments.

I did collaborate with Sivaraj on one or two problems, but we have no joint papers. We solved the structure of a heterocyclic compound in 1960, but someone else published it by the time we completed the work. We did high-pressure work on phase transitions of some crystals, but did not publish it together. Over the years, I have spent hours and days discussing journals, elections, annual meetings and other activities of the Academy with Sivaraj. We worked in unison and there was not a single occasion for discord.

In recalling the colourful and interesting life of Sivaraj, one cannot forget to mention the important role played by Kausalya. She has been a fine companion to Sivaraj and a great source of strength. My wife and I have always enjoyed her company and her positive outlook. She took care of Sivaraj during the last few months like nobody else could. It is so difficult for me to think of Kausalya without Sivaraj, but that is to be. I am sure that all of us would pray to the almighty to bless her and the children with the strength to bear this great loss.

Before ending, I would like to recall the many fine qualities of Sivaraj. He stood for excellence without being arrogant. He carried his accomplishments and recognitions lightly. He was a good communicator without being pompous. He loved people because it was his nature. He loved life and laughed easily. Wherever he is, he is probably reading a book, with music in the background, and planning a new science journal.

So long Sivaraj, we will miss you. Good bye, my dear friend.

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Ramaseshan and the Raman legacy

Sivaraj Ramaseshan's influence on the Indian scientific community was enormous and far-reaching. Perhaps his most important contributions were to the three institutions in the campus of the Raman Research Institute: the Institute, the Indian Academy of Sciences and the Current Science Association. The first two were started by C. V. Raman and the third nurtured by him from the time he came to Bangalore in 1933 till his death in 1970. Ramaseshan was greatly influenced by Raman. It was therefore natural that his loyalty to these three institutions was almost sacred.

The Raman Research Institute

The genesis of the institute was a proposal made by Raman to the Council of the Indian Academy of Sciences that a research institute might be set up in the campus of the Academy. In an extraordinary meeting of the Council in February 1943, a formal agreement was executed between Raman and the Academy concerning the founding of such an institute, which was to be an independent entity and not part of the Academy. By the time Raman retired from the Indian Institute of Science, in 1948, a building was partly ready, and Raman moved into the new institute named after him.

Although this was an institute of a man in retirement, he continued to attract brilliant young students, and most of them were to become distinguished scientists in their own right. During the last ten years or so, he chose not to have any more students for this required raising of additional funds. By this time, he had become a recluse, disillusioned with the strings attached to government funding. In 1970, Raman's health deteriorated and he became increasingly concerned about the future of the institute and the Academy.

Till then he was the common factor between these two institutions and had been managing them almost single-handedly. Raman knew that a formal separation between these two institutions was essential for their survival after him. Already in 1968 he had set up a Management Committee for assisting him in running the institute, and he expanded this just two days before his death. Ramaseshan was a member of this expanded Management Committee. As the end approached, he conducted several meetings from his bed to formalize the separation and define their respective roles.

Within weeks after Raman's death on 21 November 1970, the Council of the Academy presided over by T. S. Sadasivan honoured Raman's last wishes by forming the Raman Research Institute (RRI) Trust. Ramaseshan was appointed as the Secretary of the Trust, and he held this responsibility until a few months ago. As Secretary of the Trust, he had to assume the principal responsibility of rebuilding the institute. The personal character of the institute had to change. Raman had wished the institute to blossom as a 'great centre of learning, embracing many branches of science'. A successor to Raman had to be identified. The theme of research had to be defined and outstanding people had to be attracted. Adequate funding had to be secured. Ramaseshan pursued these goals vigorously with the support of Satish Dhawan and M. G. K. Menon. Within a year an outstanding radio astronomer was identified to head the institute. Astronomy and astrophysics was to become one of the major themes of research in the second chapter of the institute. This would have pleased Raman since through the pages of *Current Science* he had repeatedly made pleas for astronomical research in India. Nearly a hundred years after their discovery, liquid crystals were emerging as a major branch of physics. To Ramaseshan one must credit the decision to take suitable steps to set up a comprehensive and distinguished group to pursue research in liquid crystals.

Clearly, there was no attempt to relive moments of past glory. But the new institute had to be grown around an initial set of people. Ramaseshan was personally responsible for attracting most of the outstanding young scientists who were to serve as the nuclei for further growth of the institute. And, it was equally important to have an enlightened administration and supporting staff. Ramaseshan saw to this also!

And thus he lit a new fire in the institute. No, the institute did not die after Raman. As desired by its founder, it became a centre of excellence with a unique character. Years later, one of the world's leading physicist acclaimed it as a 'jewel in the crown of Indian science'.

The Indian Academy of Sciences

Like the institute, the Academy also needed restructuring and nurturing. Till Raman died, the Academy was essentially a one-man show. As mentioned above, soon after Raman's death, the Council of the Academy created the RRI Trust. All the movable and immovable personal property of Raman was transferred to the Trust, as was most of the land given by the Government of Mysore to Raman for setting up the Academy. The Academy retained only a small corner of the campus, where it is currently housed.

Ramaseshan was appointed to the Council of the Academy in 1968. In 1971, he was elected as a Vice-President. Having ensured that the institute was in good hands, he next turned his attention to the restructuring of the Academy. The role of the Academy had to be better defined, and the 'Statutes' properly formulated. More formal procedures had to be put in place for electing new Fellows to the Academy. Ramaseshan, Satish Dhawan and Menon provided the inspiration and leadership that was needed to bring about these important changes. Much of this was accomplished during the period 1974–76. The 'Role of the Academy' and the 'Statutes' as given in the *Year Book* of the Academy were drafted and approved by the Fellowship during this period. The Sectional Committees were instituted to assist the Council in the election of new Fellows.

Ramaseshan's most important contribution to the Academy was perhaps in revitalizing its journals. Raman had clearly defined the primary objective of the Indian Academy of Sciences. In a series of editorials in *Current Science* written before the Academy was founded, Raman had forcefully argued that the main function of the Academy would be to publish journals in which the more important results of our scientists would appear. He argued that unless we have our own journals scientific tradition will not take root in our country, and we will remain in a position of semi-dependence. It is therefore not surprising that his last instructions from his death-bed were 'don't let the journals die'. And he said this to Ramaseshan who was closest to him during his last years.

At that time, the Academy was publishing two *Proceedings*. Part A was devoted to the Physical and Mathematical Sciences and Part B to the Biological Sciences. In 1973, the Academy decided to start a specialized physics journal, *Pramana*, in collaboration with the Indian National Science Academy and the Indian Physics Association. Ramaseshan was the founding Editor of this new journal. In a major innovation, Ramaseshan introduced peer review, thus making *Pramana* the first refereed journal in India.

Based on the positive response to this development, the Council of the Academy decided to split the *Proceedings* into several specialized journals. In 1977, Part A of the *Proceedings* split into *Chemical Sciences*, *Mathematical Sciences* and *Earth and Planetary Sciences*. Part B split into *Plant Sciences*, *Animal Sciences* and *Experimental Biology* (later to be renamed as *Biosciences*). Since there were now seven journals, there was a need for an Editor-in-Chief. In 1977 Ramaseshan was appointed as the first Editor of Publications of the Academy, an office that he held till 1982. During those six years he worked tirelessly to improve and promote the Academy's journals.

In 1983, Ramaseshan was elected as the President of the Indian Academy of Sciences. And it was rightly his privilege to preside over the Golden Jubilee celebrations of the Academy, a year later. It is appropriate to mention that in his Golden Jubilee address, Subrahmanyan Chandrasekhar singled out Ramaseshan's role in building up the publications of the

Academy which, by that time, had grown to eleven journals.

Ramaseshan's commitment to the Academy was total. He worried about every aspect of it. Just as he did at the RRI, he took great trouble to ensure that those who were recruited to the Academy office understood the ethos of this Academy, thus preserving its unique character. As the activities of the Academy grew, and as the number of publications increased, there was a need for assured funding for the publications. Ramaseshan, with the active support of S. Varadarajan, secured stable funding for the publications of the Academy from the Department of Science and Technology, Government of India. The persuasive argument used by them was the following. Scientific research is not complete unless the results of the investigations are published. Since the government has been quite generous in funding scientific research in India, it must also support the publication of journals! Although he left the Council in 1988, Ramaseshan continued to be concerned about the welfare of the Academy till the last day.

Current Science Association

The third institution that is housed in the RRI campus and with which Ramaseshan was closely associated, is the Current Science Association. Over the years, *Current Science* had declined from its preeminent position as the leading Indian journal for rapid communications. In 1989, Ramaseshan assumed the Editorship of this journal and transformed it through his indefatigable efforts. He changed its format. An attractive cover was introduced. An Editorial Board was constituted for the first time and young and active scientists were brought in. While all these things helped, what transformed the journal was the dynamism and the sheer energy with which he pursued it. Every single day he would write a dozen or so letters inviting people to write an article for *Current Science*. At every seminar he attended, or a colloquium, or a public lecture, he would wait till the audience had started dispersing, approach the speaker and ask him (or her) to '*write it up for Current Science*'. Given his charm and the disarming smile, he invariably succeeded. So much so that many hesitated to give talks because they knew what was in store for them!

The new-look *Current Science* had many attractive features. In addition to 'Research News' about recent discoveries, and Review Articles on frontier topics, in a major innovation Ramaseshan opened up the pages of *Current Science* for discussion and debate on important issues. This has been a great success.

No editor, of any journal, has functioned with such a passion! Today, *Current Science* has the largest circulation among any Indian journal. More than that, its readers, both in India and abroad, eagerly look forward to the next issue!

Ramaseshan knew that all his efforts would have been in vain if he did not identify and groom his successor. With his characteristic insight, he identified a successor who has done Ramaseshan proud.

I had the privilege of closely interacting with Ramaseshan for nearly thirty years. We worked together on a variety of things: renovating the museum at the institute, setting up the photographic exhibition depicting the life of Raman, bringing out Raman's collected papers, many special publications of the Academy, the Golden Jubilee of the Academy, discussion meetings, etc. He had the remarkable ability to bring out the best in a person. He also had the knack of getting you to do things. Like Anna Mani, Ramaseshan was effective in making you offers that you could not refuse! Knowing this, of course, my policy was to avoid them as much as possible. But Ramaseshan would drop into my office and casually ask (in Tamil) '. . . is everything going fine?'. What this meant was 'you seem to have a lot of time on your hands and you do not know what to do with it . . . I just happen to need some help which only you can give!' He was a great motivator. Having given you a job, he would frequently inquire (in a seemingly casual manner) about the progress. This was intended to encourage, as well as let you know that he expects you to finish the job. Every now and then I would get fed up and express my desire to withdraw from such activities. Invariably, he would admonish me. He would forcefully explain to me that 'Presidents will come and go, Councils will come and go. An Academy of Science by its very nature depends upon an invisible college. And do not forget the organic links between the Academy and the Raman Institute!'

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Edited and published by P. Balaram Current Science Association, Bangalore 560 080.
Typeset by R D Typesetters, Bangalore (Ph: 3405672). Printed by Lotus Printers, Bangalore (Ph: 3209909).