

D. Krishnamurti

Dharmaraja Krishnamurti was born on 30 March 1929 as the eldest son in a family of eight children. He had his early education at St. Joseph's High School in Cuddalore and then did his B Sc (Honours) course in physics at the St. Joseph's College in Tiruchirapalli. He did his MA from the University of Madras in 1950. After working for a few months as a lecturer in physics in Hyslop College, Nagpur, he joined the Raman Research Institute (RRI) as a research scholar in December 1950. The present writer also joined the institute at about the same time.

In its initial stages, RRI had no laboratory or electricity. C. V. Raman carried out his experiments in optics using sunlight reflected through a mirror. Perhaps, the first paper of Krishnamurti was theoretical, on the evaluation of the elastic constants of diamond in terms of its force constants, using a force field that took into account interaction of each carbon atom with its first, second and third neighbours, by the so-called static or deformation energy method. Later, he derived the same by the 'dynamic' or long wave method, but found that the two expressions were different. Raman asked the present writer to look into this. Using a general force system, he found that the deformation energy contains 45 independent constants, which appeared in different combinations in the two methods. Later, Raman and the present writer proposed a forty-five elastic constant theory for crystals, but this theory, though it attracted much attention, did not stand the test of time for lack of experimental support.

RRI had a large collection of minerals like feldspar, moonstone, labradorite, jade, limestone, tourmaline and opal, that exhibited beautiful optical effects. Raman published dozens of papers on these. Krishnamurti made several contributions to the optics of stratified media, their birefringence, the iridescence of potassium chlorate crystals and generally, the reflection

colours of minerals. The passage of light through a mineral brings to light the optical heterogeneities, local fluctuations in its composition as well as in its birefringence. Raman and Krishnamurti found that light falling on the rear surface of pearl does not travel through it but around it, following the laminations of its structure. A pearl owes its beauty and brilliance to this effect.



Krishnamurti obtained his PhD in physics from University of Madras in 1955 for his work in optics; later he worked on infrared and Raman spectroscopy of crystals and obtained the DSc degree from the same university in this subject in 1961. The writer remembers seeing him at midnight walking to the spectroscopy laboratory to adjust the equipment and crystals, since in those days with mercury arc irradiation, it required long exposures to obtain higher-order Raman spectra. Lasers came in as a tool for Raman effect studies only later. Raman was happy about the emergence of laser Raman spectroscopy. Asked about it, he said in a low tone 'yes, yes. You know, Raman is an adjective'.

Krishnamurti joined the physics department of the University of Mysore in 1961 as a reader in physics and made

significant contributions to this newly started department in its teaching programmes as well as in organizing the laboratory. Several old students from Manasagangotri were appreciative of his teaching skills, lucid exposition of basic principles as well as his dedicated work in conducting practical classes. In Mysore, his interests shifted to liquid crystals. His investigations on the birefringence of liquid crystals and their molecular orientational order were published in international journals such as *Molecular Crystals* and *Liquid Crystals*. The group led by Sivaramakrishna Chandrasekhar and Krishnamurti made contributions to this subject that won international recognition. The writer remembers Krishnamurti talking about his visit to the US to participate in an international conference on liquid crystals, and his subsequent stay with Gopinath Kartha (who collaborated with G. N. Ramachandran on the triple helix structure of collagen). He retired as professor of physics from the Mysore University in March 1989.

He was elected a Fellow of the Indian Academy of Sciences in 1957. He was also a recipient of the Raman centenary medal in 1988.

Krishnamurti led a simple life, without much luxuries. After retirement, he lived with his son as a joint family. He kept a low profile in a scientific world, wherein pushing oneself up is the way to reach the top.

During the first week of May 2003, he was hospitalized with colon cancer. Though a surgery was performed, it could not save his life. He passed away on 14 May 2003 at the age of 74. He is survived by his wife and three children.

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