

DR C. V. RAMAN DEAD

The Most Vital Inspiration, Says Sarabhai

BANGALORE, Nov 21.—Dr C. V. Raman, scientist and Nobel Prize winner died here this morning, reports PTI. He was 82.

The cremation took place at 5-30 p.m. on the grounds of the Raman institute, where he lived and worked.

The funeral was simple, as the man himself, devoid of any rites for he did not attach any importance to any type of religious ceremonies, his religion being "science and pursuit of truth".

The body was carried on a stretcher from his house, some 100 yards away in the same compound, by students, members of the staff and friends and placed on the pyre. To the recitation of Ramdhun his second son, Mr V. Radhakrishnan, lit the pyre.

The Mysore Chief Minister, Mr Veerendra Patil, was among the large number of men, women and children present.

Dr Raman had been in indifferent health after a heart attack recently.

He had suffered three similar attacks in the last few months and was in hospital for nearly a week earlier this month.

Dr Raman who left hospital after undergoing treatment had made a remarkable recovery. He even started sitting on his bed and reading books, much against the wishes of his relatives. His condition suddenly deteriorated yesterday morning, but he recovered in the evening.

Mrs Lokasundari Raman and his son, Mr Radhakrishnan a research scientist in astrophysics in Sydney, Australia, were at his bedside when he died.

The end came suddenly, according to one of his former students who was present at his bedside.

His discovery of a property of light, known as the Raman Effect, brought him world fame, and the Nobel Prize for Physics in 1930. The Bharat Ratna was conferred on him in 1954.

As news of Dr Raman's death spread in the city, scientists, administrators, politicians and pro-

minent citizens came to his residence to pay homage.

"Not open to visitors; please do not disturb us" said the sign-board at the entrance of the Institute. For twenty years few had disregarded this request, but

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DR C. V. RAMAN

By A Staff Reporter

"We can remember Dr Raman best by constantly examining our contemporary actions and initiatives in the field of science and technology in terms of his values." Dr Vikram Sarabhai, Chairman of the Atomic Energy Commission, said in a condolence message in New Delhi on Saturday.

Dr Sarabhai said: "India has lost its greatest scientist in the passing away of Dr Raman. He provided the most vital inspiration to me as to countless others who had the good fortune to come in contact with him as students and colleagues.

"His child-like curiosity for nature and a great sympathy for all those who shared his love distinguished him from many other great scientists. The Nobel Prize awarded to him was in recognition of his outstanding discoveries in the scattering of light."

Dr Sarabhai said "physics is one of the few disciplines in which we have reached an international level of excellence. This is largely through the untiring dedication of Dr Raman to the maintenance of the highest standards, and the ex-

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Inestimable Contribution To Science

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ample which he set of independence, self-reliance, and originality. "In founding and nurturing the Indian Academy of Sciences, he added a new dimension to the quality of scientific life in the country."

Dr D. S. Kothari, Chairman of the University Grants Commission and an eminent physicist, said that Dr Raman was a "living and dynamic" part of the Indian scientific scene for over 50 years. His discovery of what came to be called the Raman Effect was an original and epoch-making discovery which would remain a shining chapter of 20th century physics.

His work had ingenuity and was carried out with simple equipment which he used in his investigations. He had boundless energy, zest and robust faith "and above all single-minded devotion to Physics."

The greatest homage which could be paid to him "is to reaffirm our dedication to science and the values of scientific standards."

In the capital scientists gathered in the campus of the Council of Scientific and Industrial Research and mourned the death of Dr Raman. The CSIR Office was closed as a mark of respect to Prof Raman.

PIONEERING WORK

The Director-General of the CSIR, Dr Atma Ram, in his condolence message said Dr Raman brought glory to India and to Indian science in an era when the world had not heard much of Indian science.

He recalled that Dr Raman gave wholehearted encouragement and support to the efforts of the late Dr S. S. Bhatnagar in establishing the chain of national laboratories. "His interest in the national laboratories was so intense that he attended the inauguration of several of them," Dr Atma Ram remarked.

Members of the Department of Physics and Astrophysics and other science departments of Delhi University mourned the death of Dr Raman.

Delhi's Chief Executive Councillor, Mr V. K. Malhotra, said that India had lost an illustrious son and a great scientist of international repute.

In Calcutta, National Professor Satyen Bose said he had known Dr Raman from 1914 when he had come to Calcutta as a young officer of the Government's Finance Department. Dr Raman was so enamoured of science that he utilized the modest resources of the Indian Association for the Cultivation of Science for his studies and investigations. He lived near 110, Bowbazar Street, where the Association was then housed.

There he spent his mornings and evenings and the time when he could get away from his office work, devoting to original investigations.

A spokesman of the Indian Association for Cultivation of Science said Dr Raman had "placed the Association prominently on the map of world science".

It was interesting to learn that Dr Raman had dissociated himself from the Indian Association merely because it shifted from the original house on Bowbazar

Street to Jadavpore. That was in 1950, and since then, the spokesman said, Dr Raman had persistently refused to have anything to do with the Association.

Perhaps Dr Raman's conduct would seem less strange if one considered that it was in the Bowbazar Street house that he worked on what came to be later known as the Raman Effect and brought him international recognition and the Nobel Prize, the spokesman added.

PTI adds: Professor R. S. Krishnan, head of the Physics Department of the Indian Institute of Science, said in Bangalore that the world had lost a great scientist.

Dr S. R. Ranganathan, National Research Professor in Library Science, said "the morning star of renaissance India" had gone.

Dr Hari Narain, Director, National Geophysical Research Institute, Hyderabad, said "Dr Raman achieved so much with so little that his life will ever remain a challenge to determined scientists all over the world"

SIMPLE FUNERAL CEREMONY

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today people from all walks of life poured in to pay homage to "the grand old man of science" as the President remembered him.

All Mysore Government offices, courts and educational institutions were closed for the day.

Celebrations connected with the National Pharmaceutical Week beginning here today were postponed by a day.

The office of the Council of Scientific and Industrial Research in Delhi was closed today as a mark of respect to Dr Raman. Scientists in CSIR held a condolence meeting.

Dr Raman was associated with CSIR for several years.

Lucknow University was also closed for the day.

Members of the staff and students of the Physics Department of the university held a condolence meeting and adopted a resolution expressing sorrow over Dr Raman's death

SCIENTIST TO THE LAST

FROM OUR SPECIAL REPRESENTATIVE

BOMBAY, Nov 21.—Mr H. N. Sethna, Director of the Bhabha Atomic Research Centre, said here today that Dr C. V. Raman remained a scientist till the end of his life. His single-minded devotion to research would continue to inspire scientists.

Mr Sethna said Dr Raman was an outstanding scientist who had made the epoch making discovery in 1928 of molecular scattering of light enabling the determination of molecular structure which was till then obtained by the extremely difficult and involved techniques of infrared spectroscopy. "The effect has since been named after him and at present forms an extensive and important branch of physics"

Dr Raman worked on the structure and properties of the diamond, the optical behaviour of numerous iridescent materials like feldspar, opal and pearls. His recent work had been in the physiology of human vision and floral colours.

Dr Raman was a brilliant scientist and a very dynamic research worker. He developed active schools of research, first at the University of Calcutta, later at the Indian Institute of Science, and finally at the Raman Research Institute in Bangalore. Mr Sethna said he "remained a scientist till the end of his life"

Professor M.G.K. Menon of the Tata Institute of Fundamental Research said with the passing of Dr Raman, a legendary figure of Indian science had moved into the pages of history—and all of us are so much the poorer for it"

Professor Menon said "there was much more to Dr Raman than just the Raman Effect. There were outstanding qualities behind his greatness"

The first quality one noticed about him, Professor Menon said was his single-minded devotion to science, a devotion which lasted throughout his life, and from which he would not be swayed by any other inducements or blandishments. "How many scientists are there in this country or the world who can claim this characteristic?"

Dr Raman had a characteristic which every true scientist should possess—that of unbounded curiosity Professor Menon said. His great discoveries in science arose from his attempts to satisfy his curiosity concerning natural phenomena that he found around him. He had a great aesthetic sense; in the Raman Research Institute at Bangalore he surrounded himself with a garden in which he grew beautiful flowers which he both admired and worked on. It was a natural effect, the blue colour of the sky, on which earlier work had been done by Tyndall, Rayleigh and Cabannes, that led him to work on light scattering phenomena in various media.

"In particular as he has observed in his Nobel lecture, it was on a voyage to Europe in the summer of 1921 that he noticed the wonderful blue opalescence of the Mediterranean Sea; this fascinated him and from this he went on to experiments to ascertain the laws of scattering and diffusion of light in liquids. The

ultimate result was the discovery of the "Raman Effect"

Dr Raman often said that a great deal of work done in this country was only a follow-up or amplification of what was being done elsewhere in the world. He felt that Indian scientists should free themselves of these "mental crutches" and feel strength and self-confidence within themselves.

At the meeting of the Indian Academy of Sciences held in Ahmedabad in December 1969, he humorously remarked that he was particularly indebted to a British civil surgeon in Madras who, on medical grounds, advised him not to go to England for his further work; as a result he stayed in India and developed his own interests and his own genius.

3 PAGES OF TITLES AND DEGREES

BANGALORE, Nov 21.—Dr C. V. Raman did not like to append to his name the academic qualifications and other titles and honorary degrees accorded to him practically from every part of the world, reports PTI.

It was physically impossible too, as that would have occupied more than three pages, according to one of his students

Citations and degrees awarded to Dr Raman occupy three printed volumes in his library, Dr Raman's assistant said

'HE BROUGHT LUSTRE TO COUNTRY'

The President has expressed his "deep grief" at the death of Dr C. V. Raman, reports PTI.

In a message to Mrs Raman, he says: "The country has lost the grand old man of science who brought lustre and fame to his country. Till his last he dedicated himself to a relentless pursuit of progress of science and infused in the youth the spirit of research and inquiry"

The Vice-President, Mr G. S. Pathak in a message to Mrs Raman said: "Deeply grieved to learn of the sad demise of Dr Raman, doyen of Indian scientists, kindly accept my heartfelt sympathies and condolences in your bereavement."

Dr S. Radhakrishnan said in a message: "Extremely shocked and grieved to hear of the passing away of my dear, good old friend Raman. It is a personal loss to me. A towering personality, his indomitable spirit in the quest of knowledge, inspired generations of Indian scientists. In his death India and the world have lost a great scientist"

Mrs Gandhi said: Dr Raman's passing away is a great loss to our country. He was active till his last moment. He was an inspiration to countless young people in our country.

"He brought a name in the world to our science. His contribution to physics won for him the highest international recognition. He had a scintillating mind and manner. He was never too busy to talk to young people and explain the various natural phenomena to them.

"I met him first when we were travelling together by ship from Bombay to Marseilles. It was one of the most fascinating trips in my life, for every day he had something new to tell and in such a way that it absorbed our whole interest.

"Mrs Raman stood by him through achievements and difficulties. My condolences to her"

The Union Education Minister, Dr V. K. R. V. Rao, said: "All of us in India felt proud of him because he had his academic training entirely in India and yet became the country's first and only Nobel laureate in science. There is no parallel to such achievement among the scientists of the world"

The Chief Minister of Mysore, Mr Veerendra Patil, said: "Bangaoreans feel anguished at the loss of this great scientist as he made the city his home after he took up the highest assignment with the Indian Institute of Science"

The Kerala Chief Minister, Mr C. Achutha Menon said: "His was a life dedicated to the pursuit of knowledge with single-minded devotion and energy"