

C.V.RAMAN

Sir C.V. Raman was born on 8 November 1888 in a village near Tiruchirapalli. His father was R. Chandrasekhara Iyer, a lecturer in Mrs. AVN College, Vishakapatnam, where he taught Physics, Mathematics and Physical Geography. Sir C.V. Raman was not an athlete and sportsman like his father, but he was very intelligent and preferred to read books and attend to his academic work. Raman was a studious reader and went through his father's collection of books on a variety of subjects. The three books that greatly influenced him were Edwin Arnold's "Light of Asia" which is the story of Gautama Buddha, "The Elements of Euclid", a treatise on classical geometry and "The Sensations of Tone" by German scientist, Helmholtz. The reflections of these three great minds could be seen on the work of Raman.

Raman was a precocious child. He completed his school education when he was just eleven years old and spent two years studying in his father's college. At the age of thirteen he joined the B.A. course in Presidency College, Madras. As the youngest student of the class, he also looked quite unimpressive. His English Professor, E.H. Elliot, asked him if he really belonged to that class. However, everyone was astonished when he stood first in B.A. examinations.

Raman's teachers asked him to prepare for Indian Civil Services examination, but the Civil Surgeon of Madras declared that he was medically unfit to travel to England for the ICS examination. However, Raman joined the M.A. Physics class in Presidency College, Madras. He made the best use of the freedom available in the course and sharpened his original thinking. There was a topic for discussion in the text book on how the light that fell on a screen placed in its path would get deflected or diffracted when entering a narrow slit. But Raman wondered what would happen if the light shone straight, not from an angle. The results of his study were published in a British Journal, "Philosophical Magazine". He was in his teens then, and he was the first student of Presidency College to publish a research paper.

Raman passed the M.A. examination in January, 1907 coming first in the University. Since research was not possible in India, he sat for Civil Services (FCS) examination and topped the list. He was posted to Calcutta as the Assistant Accountant General.

Around 1917 C.V. Raman got a chance to move into a full-fledged career in Physics. Sir Ashutosh Mukerjee, the Vice Chancellor of Calcutta University offered him the position of Professor of Physics at the University. Leaving the prestigious position in the government and

his higher income, Raman decided to join the new post. But there was a pre-condition that he must have worked in a foreign country. Raman was prepared to reject the offer. Raman was asked to go abroad and stay overseas for a short while. But he knew that he had the ability to train foreigners. Happily, the rule was waived and he was appointed Professor. He was only required to manage the laboratory and guide research, but he preferred to teach courses. Because of his presence at the University, a number of students from all over India were attracted to Calcutta and rose to great heights. In 1921 the University of Calcutta conferred an honorary doctorate on him. As the representative of the University, he attended the University Congress at Oxford. On his way back to India, he spent many hours on the deck of the ship watching the blue colour of the sea. It was nothing but the reflection of the blue sky. He observed the blue colour from his optical tools and published his findings in the journal, "Nature." Raman discovered that water molecules could scatter light just like air molecules. In 1922, he wrote a brilliant essay on the Molecular Diffraction of Light. He believed that light may exist in quanta, that is, as mass less particles of energy. This discovery has since been accepted.

Raman felt that light did not exist as particles or quanta, scattering experiments would show only a change in the light intensity and not in its frequency or colour. On the other hand, the light existed as particles or quanta, a scattering of the light could change its frequency and also intensity. He intensified his research to find evidence for this theory of light through scattering experiment. His theory was proved correct with the discovery of the Compton Effect in 1923. Now Raman set his research team members to work on his ideas on light scattering. This was first spotted in 1923 and his team members were able to reproduce it and called it feeble fluorescence. After four more years of continuous experimentation, Raman's team confidently announced that it was not fluorescence but a modified scattering of light. This led to the discovery made on 28 February that light can undergo a scattering through a liquid resulting in a change in its frequency. This is known as Raman Effect. It is a historic event, so 28th February is now celebrated as National Science Day.

CV Raman was in mid-thirties when he made his famous discovery and he hoped to get the Nobel Prize for this. He was awarded the Nobel Prize for Physics in 1930. However, he was sad that he received the Nobel Prize not as a citizen of free India, but as a representative of a British Colony.

CV Raman was fascinated by waves and sound. He seems to have carried the memory of reading Helmholtz's book "The Sensations of Tone" in his school days. While working at Calcutta as Assistant Accountant General, Raman had an opportunity to study and experiment in the Indian Association for the Cultivation of Science. He chose to study musical instruments

first. Using the idea of Helmholtz, Raman explained the working of the ektara which was a small resonant box with a string. On the basis of the ektara, Raman developed several ideas which he called ‘Remarkable Resonances’. He also studied the equality of the violin from a scientific point of view. Raman published a book on the violin entitled, “On the Mechanical Theory of Vibrations of Musical Instruments of the Violin Family with Experimental Results: Part-I”. as a scientist he assembled a violin from parts bought from a cycle shop and other available things in the laboratory. It did not look like a violin but it had all the essential features of the violin. Until 1920 his focus was on acoustics. He studied instruments such as veena, tambura, mridangam and tabla in addition to the violin. Then he turned his attention to optics.

From the University of Calcutta, Raman moved to Indian Institute of Science, Bangalore, as Director. He retired in 1948. He took care of both research and organizational work. His stay at IISC was not smooth sailing, but he never thought of leaving the country for a better life. From 1946 to 1970, CV Raman looked after his Raman Research Institute and the Indian Academy of Science. He also edited the Journals, “Current science” and the “Proceedings of the Academy”. Raman died on 21 November 1970. By a special arrangement his body was cremated in the institute camp only without religious ceremonies. Now only a solitary tree marks the spot where he was cremated in the campus of the Raman Research Institute. Raman would be remembered for his contributions to science and for winning the Nobel Prize for Physics as an Indian Scientist.

MOTHER TERESA

One of the great servants of humanity, Mother Theresa was born on August 26, 1910. Her actual name was Agnes Gonxhe Bojaxhiu. She was an Albanian Roman Catholic nun, who subsequently acquired Indian Citizenship. She was the youngest of the children of the family from Shkoder, Albania, born to Nikolle and Drana Bojaxhiu. Her father was involved in Albanian politics. Her father died when Agnes was only eight years old. After her father's death, her mother raised her as a Roman Catholic. Since her early years, Agnes was attracted by stories of the lives of missionaries and their service, and by age 12 was convinced that she should commit herself to a religious life. She left home at age 18 to join the Sisters of Loreto as a missionary. She never again saw her mother or sister.

Agnes initially went to the Loreto Abbey in Rathfarnham, Ireland, to learn English, the language the Sisters of Loreto used to teach school children in India. She arrived in India in 1929, and began her work in Darjeeling, near the Himalayan Mountains. She took her first religious vows as a nun on May 24th, 1931. At that time she chose the name Teresa after Teresa de Lisieux, the patron saint of missionaries. She started serving as a teacher at the Loreto convent school in eastern Calcutta. Though Teresa enjoyed teaching at the school, she was much disturbed by the poverty surrounding her in Calcutta. A famine in 1943 brought misery and death to the city; and the outbreak of communal violence in August 1946 plunged the city into despair and horror.

On September 10th, 1946, Teresa experienced what she later described as 'the call within the call' while travelling to Loreto convent in Darjeeling from Calcutta for her annual retreat. She was to leave the convent and help the poor while living among them. It was an order. To fail would have been to break the faith. She began serving to the poor in 1948, changing her traditional loreto habit with a simple white cotton sari decorated with a blue border adopted Indian citizenship and stepped out into the slums. Firstly, she started a school in motijhil; soon she started attending to the needs of the destitute and starving. With her wholehearted dedication she served humanity.

Mother Teresa in her twelve years old, she decided to become a nun and serve God. She learned English and came to India in 1929. Later on, in 1946 she felt “the call within the call” and decided to leave the convent and help the poor while living among them. She realized that the poor must be aching in body and soul looking for a home, food and health.

Teresa started Missionaries of Charity, its aim is to care of the hungry, the naked, the homeless, the crippled, the blind, the lepers all those people who are aparted, uncared, unloved throughout the society. This charity began with 13 members in Calcutta; today it has more than 4,000 nuns running orphanages. AIDS, Hospices and charity centers worldwide, and caring for refugees, the blind, disabled, aged, alcoholics, the poor and homeless, victims of floods, epidemics and famine.

In 1952, Mother Teresa opened the first Home for the Dying in space made available by the city of Calcutta. With the help of Indian officials she converted an abandoned structure into the Kalighat Home for the Dying, a free hospice for the poor. She renamed it Kalighat, the Home of the Pure Heart (Nirmal Hriday). Those brought to the home received medical attention and were afforded the opportunity to die with dignity, according to the rituals of their faith; Muslims were read the Quran, Hindus received water from the Ganges, and Catholics received the Last Rites. “A Beautiful Death”. She said ‘is for people who lived like animals to die like angels – loved and wanted’.

Mother Teresa soon opened a home for those suffered from leprosy, and called the hospice Shanti Nagar (city of peace). The Missionaries of Charity further established several leprosy outreach clinics throughout Calcutta, providing medication, bandages and food.

In 1955 she started the Nirmala Shishu Bhavan, the Children’s Home of the Immaculate Heart, as a heaven for orphans and homeless youth. Sooner, Mother Teresa expanded her chartable missionaries throughout India as she received charitable donations. Mother Teresa had become internationally famous as a humanitarian and an advocate for the poor and homeless, due in part to a documentary, and book, Something Beautiful for God by Malcolm Muggeridge. She won the Nobel Peace Prize in 1979 and India’s highest civilian honour, the Bharat Ratna, in 1980 for her humanitarian work. Lay Catholics and non-Catholics were enrolled in the co-workers of Mother Teresa, the sick and suffering co-workers, and the Lay Missionaries of Charity.

Mother Teresa started the Missionaries of Charity Brothers in 1963 and a branch of the Sisters in 1976. For the poor, the homeless, the hopeless, the diseased, the dying, the unloved, the uncared for, the unfed, the unlettered and orphans, she was the mother. Mother Teresa also started the Corpus Christi Movement for Priests in 1981 and the Missionaries of Charity Fathers in 1984. Mother Teresa's Missionaries of Charity continues to expand with an ever-growing number of services. By 2007 it had 450 brothers and 5000 nuns' worldwide operating 610 services centers in 130 countries.

No wonder, for all her humanitarian services, Mother Teresa was awarded the Nobel Prize for Peace in 1979, and India's highest civilian honour, the Bharat Ratna, in 1980.

After 1983, Teresa had suffered from heart attack, pneumonia, malaria, and failure of the left heart ventricle. She had heart surgery, but it was clear that her health was declining. On March 13th, 1997, she stepped down from the head of Missionaries of Charity and died on September 5th, 1997, just 9 days after her 87th birthday. The process is on to declare her a saint. Meanwhile she was beatified by Pope John Paul II on 19 October