

Museum highlights city's Nobel Prize connection

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A museum in Sadashivanagar, nearly five decades old, proudly keeps alive memories of Bengaluru's tryst with the Nobel prize.

C V Raman was awarded the prize for physics in 1930. The Raman Research Institute continues to function even 49 years after his death.

'The Raman Effect' was a result of years of his fascination with nature, light, sounds and patterns in the world around him. It was the deep blue colour of the Mediterranean that prompted him to study the scattering of light in liquids.

Halwai's contribution

In a quiet corner in the main building of the institution, you find the 'Rai Bahadur Bissessurlal Motilal Halwasiya Science Museum'. There is a story behind it: a 'halwai' who sold sweets collected funds for the museum. In return, he asked that his name be printed on the plaque.

Curious by nature, Raman studied the natural colours of flowers, birds' plumage, rocks and minerals. He collected iridescent substances like rocks, gems, minerals, butterflies and study the effects of light on them. His collection is housed here.

The private museum is run by P S Sasikumar, curator for 40 years. "It is a one-man show," he says.

That is one of the reasons the museum has remained private. At the moment, entry is dependent on his availability. The institute accepts visits at its discretion.

Carpentry supervision

The other more important reason is that it would be a disservice to disturb the artefacts from where Raman wished to keep them. He had hired E K Govindaraj, well-known photographer, to assist him in designing the museum. The physicist oversaw the making of teakwood cases and the glass cases.

Raman spent hours placing the specimens in different positions, so that their beauty could be displayed in full intensity. The five-room gallery is the largest dedicated to the collection of a single man, but it is too small a space to allow large crowds, its curator says.

The display remains true to his vision. But even for those familiar with his work, the collection may come across as slightly odd at first glance.

Fret not, Sasikumar takes you from rock to rock, room to room, narrating anecdotes from Raman's life. Everyone who steps in gets a good dose of Raman trivia.

The museum continues to archive many things, including a cartoon by RK Laxman after Raman was awarded the Nobel Prize.

Veena resonance

Raman's earlier studies focused on the vibrations and sounds of Indian instruments, and his wife's veena in the corner of a room. Amidst the rocks and minerals, it stands out. It was the sound of the veena that inspired his first paper 'Acoustic Knowledge of Ancient Hindus'.

"As a child, Raman would listen to his mother play. When he was four or five years old, he asked his father why the notes from the instrument sounded so close to a human's voice. His father had no answer, but eventually, he decided to find out the answer," he says.

He had to refute the popular theory of his time. "Hermann von Helmholtz, who had never seen Indian instruments, had made the resonance discoveries based on the guitar. He said the sound frequencies from most string instruments are in the ratio 1:3:5, with 2 and 4 always missing. However, he discovered that when his mother played the veena, that wasn't the case. The slight curve on the bridge allowed a different voice," Sasikumar says.

Acoustics achievements

Over the years, Raman came to be seen as an authority on acoustics. He disproved the popular idea that circular stretched membranes of percussion instruments such as the tabla and the mridangam could not produce harmonic overtones.

A section is reserved for butterflies, iridescent shells and nacre. The cases house quartz, calcites and other crystals acquired from all over the globe. The brightest crystals are displayed in a corner room of the museum, while the larger mineral specimens are arranged on shelves against the walls in the long room.

Raman studied the effect of light on various gems and crystals, and even on shells and oysters. "Nature always found Raman. Many people gifted things, but only he knew what he was looking for. He studied why butterflies were colourful, why shells showed different colours when light is reflected and refracted, and how to count the number of days in a year using the layers in a shell," shares Sasikumar.

In a small darkened room, the last in the gallery, he studied the effect of UV light on amethyst and rubies.

Herkimer diamonds, crystals from Russia, opals from Australia, jade, rubies, lapis lazuli, granites, limestone-- the variety of things he collected knows no bounds.

Crystal from Poland

The museum houses the largest rock salt crystal that he collected from a cave in Poland. "He travelled a lot. He was extremely popular, and he kept getting invited, and he used the opportunity to add to his collection," he explains.

Raman is the only Indian to win a Nobel Prize in science. He chose to work in Bengaluru. The British government had invited him to move to London for training, and he declined, says Sasikumar, beaming with pride.

However, the greatest example of Raman's dedication to science is embodied in a carborundum that sits shining bright in one corner of the museum.

Power outage

In 1945, when he was teaching at IISc, a statewide power outage was reported.

"He rushed to Bhadravati, because he knew the iron ore factory would have stopped working. When the furnace was pulled down, a crystal would be formed; and he just had to find it," he says.

MAHARAJA GAVE LAND FOR RAMAN RESEARCH INSTITUTE

In a quiet lane in Sadashivanagar, you find an 11-acre sprawl, once a mango orchard, and now dedicated to science and research. That is where Raman lived and worked.

Raman was appointed the first Indian director of the Indian Institute of Science (IISc) in Bangalore in 1933.

However, his style did not always match those of his colleagues and his British counterparts. Eventually, he stepped down but continued as professor in the physics department, which he had founded.

In 1934, Jayachamarajendra Wadiyar, maharaja of Mysore, gifted him this piece of land to build the research institute of his dreams; a place free of bureaucracy.

That year he founded the Indian Academy of Sciences. He continued to work at IISc till 1948, and on the day of his retirement, he walked into the Raman Research Institute and started working there.

He refused any funds and grants from the government to run the place. He would often ask people for funds, which made people uncomfortable. After his death in November 1970, the academy created a public charitable trust: the Raman Research Institute Trust. However, in 1972,

the centre became an aided autonomous research institute receiving funds from the Department of Science and Technology of the Government of India.