Dr Venki Ramakrishnan's lecture on the discovery of structure of ribosomes

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Public lectures have a long history. The Royal Institution has been holding a Christmas lecture every year since 1825. The lectures are meant for the general public. Michael Faraday had initiated this lecture series and presented 19 lectures overall.[1] Over the years these Christmas lectures have been presented by prominent experts in various fields. The lectures by Sir Humphry Davy were so popular that the traffic of carriages transformed Albemarle Street into a one-way road. In 2020, nearly two centuries later, such lectures are a common phenomenon all over the world.

Public lectures have been one of the best ways to popularize science, not only among the masses, but also among the scientists from different fields. Some of the most famous and prestigious lecture series include Charles Eliot Norton series at Harvard, Reith lectures on BBC, NITI lecture series and Watts lecture series in Toronto. The Nobel Laureate Professor Venki Ramakrishnan was invited to the All India Institute of Medical Sciences (AIIMS), New Delhi as part of a lecture series organized by TNQ (a publishing technology and services company), and we, as undergraduate students at AIIMS, were keen on attending a lecture where the topic was easy and the focus was on a wide variety of people.

The TNQ Distinguished Lectures in the Life Sciences Series was started in 2008. The broad objective of this lecture series is to showcase current and path-breaking research in the life sciences and facilitate interaction between the speakers and the Indian scientific community. Professor David Baltimore was invited for the inaugural edition. The last lecture in 2020 was the 10th edition for which Professor Venki was invited. He gave a talk on his adventures with ribosomes.

Dr Venki's lecture was an excellent amalgamation of science, scientific process and his life's journey. The content was exactly what was needed to hold the audience to their chairs. Professor Venki began his talk with some interesting anecdotes from his childhood and college days. Then, he talked about how he discovered the 30s subunit of the ribosome. As a team led by Dr Thomas Steitz was already trying to determine the structure of the 50s subunit, Dr Venki decided to pursue the structure of the 30s subunit. The 30s subunits were first crystallized by Dr Ada Yonath. He used X-ray crystallography for his work. Dr Venki gave us an overview of newer techniques such as cryo-electron microscopy and the role of artificial intelligence in the determination of three-dimensional structure of macromolecules.

He shared his non-academic experiences too. What captivated us was the dedication and focus that Professor Venki had towards his career, right from his childhood. He showed a picture in which he was reading Dr Feynman's book when he was a school-goer. One thing which was extraordinary in his talk was how he explained his shift from physics to biology, the hard work behind adjusting to different fields and the long distances travelled to continue his work. His work on ribosomes, his professional relationships with colleagues and perseverance towards the goal and ability to adapt to all circumstances are aspects worthy of emulation.

With many teams working on it simultaneously, the search for ribosome's structure eventually turned into a race. Professor Venki showed us the human part of scientists in general—having ego tussles, ambition and jealousy. He mentioned how people tend to worship Nobel laureates, and he introduced two terms: Pre- and Post-Nobelitis. Some scientists hanker after the Nobel Prize so much so that their behaviour is changed, and they grow frustrated and unhappy and yet they fail to get one. He called this disease pre-Nobelitis. On the other hand, after getting the prize, some are asked for their opinion on anything, even things that are out of their field of expertise, due to which they become arrogant. This condition he termed as post-Nobelitis. At the end, he answered some questions from the audience. Though mostly the audience asked interesting questions, some questions were not completely relevant and some were even out of his field of work. These could have been avoided.

There are several instances where such lectures have given or affected the direction of research in the career of many great scientists, the best example of this being Alan Guth. After spending many years on seemingly useless research paths and giving a thought to suicide more than once, he finally got inspired to do some serious research after attending such a lecture by Robert Dicke on the flatness problem of the universe.[2] Alan Guth decided to work in this field and came up with his 'inflationary universe' theory.

In conclusion, such lectures provide an enriching experience for all, more so for science students. Especially, in India where research temperament among students is still not what it ought to be, these events help in arousing interest towards the basic sciences. Such lectures could also be held in rural areas. This would ensure that students of rural areas are not entirely ignorant of ongoing progress in science. This would also increase the curiosity in young and talented minds present in economically backward areas. Such events are one of the ways to motivate bright students towards a career in science.

REFERENCES

1 Available at *https://en.wikipedia.org/wiki/Public_lecture* (accessed on 8 Jun 2020).
2 Available at *https://en.wikipedia.org/wiki/Alan_Guth* (accessed on 8 Jun 2020).

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