

Visit of Prof. Y.T. Lee, a Nobel Laureate, to the NGRI

July 9, 2010 was a momentous day for the National Geophysical Research Institute (NGRI-CSIR), Hyderabad, when it had the rare opportunity of hosting Prof. Y.T. Lee, a Nobel Laureate in chemistry. Addressing a large gathering of scientists and staff of NGRI and about 60 bright school children from different schools in the twin cities, Prof. Lee delivered a fascinating lecture entitled '**My Personal Experiences of Being a Scientist**'. Following this, he responded to an array of questions from the school children in a prolonged interaction meet organized under the 'INSPIRE' program of the Department of Science and Technology, New Delhi. The following is a brief summary of Prof. Lee's views and advice rendered through his fascinating talk and the interaction meet.

Prof. Y.T. Lee's lecture

Prof. Lee's talk was very inspirational with a clear message to the young students and budding researchers. At the same time, his narration was quite lively as it included interesting anecdotes punctuating his profound and thought provoking analysis of many issues pertinent to the present education system, the societal expectations from scientists and the challenge of staying focused and creative in one's scientific pursuit.

Prof. Lee recalled and vividly depicted the conditions at home and at his village school at a time when Taiwan was under Japanese occupation, which disrupted his early school education. However, he converted even such adversities into advantage as the absence of school brought him close to nature, which he observed curiously and learnt many things that he would have missed otherwise. Once Taiwan was returned to China, he had a memorable and eventful school education that was quite holistic as he not only excelled in his lessons but also in sports like baseball and numerous other activities.



Prof. Lee stressed the importance of 'thinking' rather than mechanically accumulating knowledge. To begin with, one has to think himself to be different and to approach things differently. Prof. Lee opined that creativity is not innate; rather it is related to one's cultural upbringing. Creativity could be developed at an early age through education and it feeds on success. One tends to be more creative when one becomes increasingly more accomplished and productive.

Prof. Lee aspired for an environment where intellectual curiosity is promoted and ample opportunity exists to probe and explore the unknown. He ascribed his success to his secondary school days where he was always challenged by his mother and teachers to do new things and find different ways to solve problems. This encouraged him to self-learning and gain dexterity for many technical jobs. The *mantra* "learn to learn yourself" that he adopted in his early days eventually

paid-off as he was an unusually self-reliant and innovative researcher who had the diverse skills to handle many cumbersome jobs peripheral to his research, such as glass blowing, machining, basic electrical and electronic necessities.

Prof. Lee emphasized that one should be strong in basic science and mathematics, the fundamental requirements of a good scientist. He remarked that the young scientists today are under tremendous pressure of writing research proposals and papers, which according to him is improper. Creativity is stifled where intellectual superficiality and dogmatism persist and where penalty for failure is high. By growing up in a supportive environment, qualities such as independence, self reliance and willingness to take-up challenging tasks develop. Children should be taught to become good students, rather than being mere machines and examination performers. Elementary school should be the place to make a child learn the laws of nature and to build confidence. Prof. Lee summarized that he had just two goals in life; firstly, to be an excellent scientist not limited by the environment of family, school and society, and secondly, to work idealistically to make the world a better place to live in and serve humanity. The latter is amply evidenced by the fact that Prof. Lee is among a minority of Nobel Laureates who returned to his home country at the crest of a glorious career and has rededicated himself to serve his country in many ways, both to address scientific issues and societal upheaval. An admirer of Mahatma Gandhi, Prof. Lee concluded with a quote from Einstein 'I do not know everything, but if I want to know, I can find it'.

Interaction with the school children

Prof. Lee responded to a wide range of questions from school children, some very simple and innocent and some quite serious and thought provoking. Nevertheless, the questions reflected the deep-curiosity of young minds even as they were overwhelmed by their proximity to a Nobel Laureate, but bewildered by his utter simplicity, warmth and the cheerful conduct. The questions ranged from a career in basic sciences, the prevailing education system, globalization of education, to many issues that are generally deemed non-scientific such as faith in God.

In the opinion of Prof. Lee, the Asian education system could not deliver the expected level of excellence in science because, culturally, the Asians show too much obedience and adhere to the trodden path. To excel in science, one has to be a rebel of sorts, thinking and working differently than the majority. This is not easily accepted in our society unlike the western world, where students and professors interact and exchange ideas at the same level.

With regard to the increasing reluctance in students to take science as profession, Prof. Lee assured the school children that nothing is more rewarding than experiencing the joy of discovering. The necessity of pursuing science has to be appreciated in terms of the fact that accumulation of basic knowledge is a slow but essential step leading to the development of tangible societal benefits by way of useful technologies.

Responding to an issue on universal fraternity and globalization of education, Prof. Lee remarked that diversity is the best environment for education and development of creativity in a child. He cited the example of Okinawa Institute of Science and Technology in Japan, which is striving to establish a world-class international graduate university with a large number of international faculty and students.

When asked for his opinion on science in India, Prof. Lee felt that the quality of Indian research is improving and advancing with time and he was optimistic of a very bright future for Indian science. Replying to a query on time management, Prof. Lee's advice was to set priority for what is important and have the decisiveness on what to do and what not. He advised to have two hours of solitude for thinking each day, which could promote creativity and excellence.

A student inquired if Prof. Lee wished for a second Nobel Prize. He honestly stated that he never planned to get prizes and honours. He advocated that one should aspire and be committed to do good science and not bother about accolades. Responding to another query, he stated that the Nobel Prize bestowed on him also presented a responsibility to work for the betterment of science in general. Lastly, to be an excellent and successful scientist, Prof. Lee advised the audience to be young at heart and mind, no matter what the age was.

The audience was charmed by the Nobel Laureate's simplicity and clarity of thought. His very inspiring lecture and answers to the questions would be fondly remembered and cherished by one and all for a long time.



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