SEVEN LAMPS OF MATHEMATICAL ARCHITECTURE*

I felt it a pleasant duty to accept the kind invitation of the sponsors of this High School to participate in this important function when we wish to pay our fervent homage to the imaginative Founder, Pennathur Subramania Iyer. I also wish to express my gratitude for the flattering reception I had on arrival at the school today.

There is a very familiar adage that a person who grows two blades of grass where one grew before, does more benefit to mankind than kings and bishops, statesmen and administrators. That this is true even today is obvious from the award of the Nobel prize to Borlaug for his discovery of new and profuse strains of wheat. Of course, we would not dare to extend this in the realm of population especially when we are trying to control its growth through wise and planned parenthood! However, the adage is valid in the world of education and the Founder of a school can be considered a benefactor to mankind for we are able to educate more persons who can play an effective role in the economic and social development of our country.

You must pardon me for my rambling thoughts since my mind is charged with emotion and sentiment as it travels back thirty-five years to the period when I was a student in this school. A third of a century is a very long time in the life of a human being, equally so in that of an institution. But it has turned out to be a long period even

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in human history since during these three decades more changes have been wrought than in the three thousand years since the birth of human civilisation! We have seen a world war. the like of which the world cannot endure or even survive if it were to visit us again. We have watched the birth of new India, the dawn of freedom on the dark continent of a billion African people, the rise of America to unparalleled affluence, the establishment of a new and complementary culture, that of the Soviet Union. the harnessing of atomic energy and man's journey through interplanetary space. Considering these events the period when I studied in this school the years 1931-38 must be described as dull, uneventful and uninteresting. The period was characterised by a total lack of scientific ambition when educated persons aspired only for clerical and white-collared jobs under the British Raj. A few aspired to become affluent lawyers, judges and civil servants, but the might and prestige of British power obsessed our minds. That obsession still haunts us and stifles our activities to this day. In vain we have struggled to shake it off; it has proved too strong for us!

I remember clearly the day when we sneaked away from our classes to attend the meeting on the Madras beach to watch with wonder the living symbol of resurgent India, Jawaharlal Nehru and share the excitement when he stamped his foot as he referred to 'the iron heel of British imperialism'. How fortunate compared to us are these young children of freedom who are spared the dreary lifeless tutelage under a foreign power. The productive part of their lives will be spent in the twenty-first century when they will look back on the twentieth century even as we do with indifferent interest at the events of the Victorian era. But it is a remarkable fact, that those who spent the school days in such uninteresting

times have played a very important role in the evolution of our country after the advent of freedom. All of you are taught that the battle of Waterloo was won on the playgrounds of Eton. In the same spirit it may be claimed that the primary sponsors of the leading newspapers like the Hindu which transmit the tides of public opinion today had a sportsman's training on the spacious playgrounds of P.S. High School. One of the most gratifying features of this school has been the pride with which its illustrious alumni remember their education here - diplomats. U. N. Officials, captains of industry, administrators, scientists, mathematicians, engineers and ace pilots of our national airlines.

Looking around the familiar buildings and at my old teachers who are present today, I do wish to recollect some fond and pleasant memories of my stay here. I joined the school in the Fifth Class which was conducted in a thatched shed at a place where you are seated now. The image of Sarangapani Iyengar springs to my mind. He was very proud of the quality of his cane and the manner in which he used it as a believer in the age-old proverb 'If you spare the rod. you spoil the child'. I was one of those unspoiled children who were chastened by his cane though I seem to have forgotten the crimes for which I was punished. In the First Form, it was Lakshmana Iyer whom I remember vividly. That smile has not left his face even today as I see him before me now. He looks so cheerful and pleasant that I wonder why he is now using a hand-stick to support himself. In the Second Form, there was a teacher who imparted discipline through the ear—by twisting it whenever one misspelt or mispronounced an easy word. In the Third Form we had the privilege of studying under one of the most devoted teachers of all time, G. Srinivasachari, who insisted by example and precept that the reading of a poem

should carry the spirit of the poet and the music of the rhyme. With dramatic action, he would describe how Lady Clare showed her annoyance at her lover by pulling off the brooch of gold and flinging the diamond necklace by—even though diamonds are a girl's best friend. Poetry reminds me of the silvertongued Satyagodavari Sarma, one of the handsomest men I have ever seen, who instilled in me a veneration for the immortal epics which has led me to enjoy the divine music of Theagaraja and Dikshitar with keener zest and deeper thrill. As I entered the Fourth Form my first interest in scientific subjects was aroused and the start was made in Chemistry and Botany under Ramakrishna Iyer whom I remember as an immaculately dressed teacher with a predilection towards well-ironed brown suits – a taste for which I have obviously imbibed. In the Fifth Form the concentration shifted to the English language, since Balasundaram Iyer or TAB as he was popularly called, placed emphasis on facility and fluency of speech. The last year of my school career was the most significant from the point of view of my academic career. My interest in geometry was roused to the point of passion by R. Narasimhachariar, one of the most inspiring teachers I have ever met – judging even from the standards of a hundred and odd institutions I have visited in Europe and America and which are listed in the brochure which your Secretary omitted to read in an introductory speech for obvious reasons. A. K. Sitarama Iyer's handwriting was so good that he made factorisation look beautiful on the blackboard. We cultivated a taste for algebra, usually a pet aversion for all boys. Our class teacher Shamanna impressed on us that simple and elegant English was the product of long evolution. A century had to elapse before Johnson's formal prose yielded place to Hazlitt's familiar style. Shamanna once drew my attention to the homely phrase: 'Toasting one's feet before the winter

fire'—the meaning of which I understood twenty years later when I stayed during the cold December days in the suburbs of Manchester.

I also remember the vivid lectures of our physics teacher, Ramamurthi Iyer, a person as erect in physical stature as in his moral standards. His punctilious insistence on correct definitions of physical quantities suited my palate which in later years grew into a desire for mathematical consistency in the formulation of physical problems.

On the whole it would not be an exaggeration to say that my academic ambitions were stirred by the instruction I had in my early days in my old school ambitions, which have now found a haven in the centre for advanced learning called Matscience.

The Founder's Day is really a day of dedication. Therefore to rambling recollections, I should add a few serious remarks on the role of mathematical thought in human life. The intellectual training of an educated man can be illumined by the seven lamps of mathematical architecture. The first is the lamp of *sacrifice* which means dedication to the pursuit of an ideal, putting your heart and soul into such a pursuit without regard to distractions of favour or reward. The second and third are the lamps of *truth and beauty* which are almost indistinguishable from each other. The fourth and fifth lamps are *life and power*. What could be more lively and powerful than mathematical concepts imbedded in hyperbolic functions, the Cayley-Hamilton theorem and the Cauchy-Reimann equations which are the primitive sources of such 'organic' theories as relativity, quantum mechanics and fluid dynamics. The whole history of mankind and the course of human civilisation have been altered by the validity of the simple quadratic relation formulated by Einstein ;

The sixth and seventh lamps are *memory and obedience* which imply how we should pay heed to established work and existing literature. The intellectual titan of the twentieth century, Einstein, stood on the shoulders of Newton to get a unified view of space and time.

It is my earnest desire that these lamps should illumine the lives of these fortunate young children who will emerge into manhood at the dawn of the new century. I am sure that among those with prize-winning smiles will be some who aspire for flying careers on a Trans Planetary Airways linking human shores with Martian ports.