Second
Prof S Das Gupta Memorial Lecture
(28th April 1969)

HIGHER EDUCATION AND NATIONAL DEVELOPMENT

Prof D S Kothari
Chairman, University Grant Commission, India

DELHI LIBRARY ASSOCIATION
1969
To perpetuate the sweet memory of its Founder Director Professor Sachidulal Das Gupta, the School of Library Science of the Delhi Library Association instituted a Memorial Lecture Series way back in 1957. The inaugural lecture in the series was delivered by Shri B S Kesavan.
LIBRARY HERALD  
April & July 1969  
Vol 11 No 1 & 2  

(Lecture)  

HIGHER EDUCATION AND NATIONAL DEVELOPMENT  
Second Das Gupta Memorial Lecture (April 28, 1969)  

PROF D S KOTHARI  
Chairman, University Grants Commission, New Delhi  

Mr. Chairman and Friends,  

I thank you and your colleagues for asking me to share with you some thoughts about the subject of higher education and national development. I agreed to your kind invitation readily not because I have anything really new to present to you. I recognise that there would be many here who know more and could present more effectively than I do, about the various aspects of the subject which I am going to dwell upon. But I agreed to your invitation because it gives me an opportunity to express my respects and regards and to pay my warm homage to the memory of one who was a dear friend of many of us here, and who was a most generous and warm-hearted person. Das Gupta was a great librarian, and one of those few persons in our country who laid the foundation for library movement. His impact will be enduring for a long time to come and his example and work will continue to inspire many of us and especially those who are engaged in the field of library science. I remember the day when Shri Nishi Kant Sen, Registrar of the University at that time and generally called Nishi Babu, invited me and Das Gupta to his house when he told Das Gupta that it would be a good thing if he accepted to be the Librarian of the Delhi University and it would give him a great scope for his special abilities and initiative. I think Das Gupta, after some persuasion agreed to this proposal. It turned out to be a good thing not only for the Delhi University Library, but also for the library movement in India generally. I feel honoured and happy that you have given me this opportunity to speak to you this evening, all the more that
the first distinguished memorial lecturer—Shri Kesavan, a great friend of mine is also here presiding over this function.

The University Grants Commission attaches very great importance to the strengthening of libraries in the universities and the colleges. In fact, the UGC recognises that if we were to single out one item which should receive the highest priority, that would be the strengthening of the libraries not only in terms of provision of books, journals and other reading material, but also in making the libraries to be more attractive and convenient places for study and contemplation. In fact, a library should be really the most attractive place in the university and if there is to be priority, as often there is, regarding such facilities as air-conditioners and so on, I think the first claimant should be the library. One of the few meaningful indices regarding the relative values that determine the policy of a university or college would be to check up where you find the air-conditioners whether in the office or in the library.

Many of you, I am sure, would know that there was recently a Committee appointed by the UGC in the United Kingdom to review the situation regarding university libraries in that country. This is the well known Parry Report, I am reminded that in that report it has been pointed out that for a well-established library, say of 50,000 volumes and with a student population of about 3,000 undergraduates 1,000 research students and 500 teaching staff (the ratio of students to teachers is roughly 1:8), the expenditure on library every year should be of the order of £ 100,000 (or about Rs. 15 lakhs) and this amount is exclusive of expenditure on the library staff. Usually the expenditure on the staff and on books and periodicals and other items is roughly half to half, which would mean that a total expenditure of about £ 200,000 would be the requirement of a typical university library in the UK. I do not have to emphasise that whether in the UK or in India books are equally important and they are the basic tools for study and we cannot, at any rate, so far as formal education is concerned, do without them. Books are of the same importance and significance whether a student is studying here or studying in any other country. In other words, an Indian student cannot manage with one-tenth the number of books that a student in the UK studies and yet attain the same standard or level of education. Hence, so far as the recurring expenditure on libraries is concerned—I am not at the moment thinking of buildings. Even if you leave aside the salary part
HIGHER EDUCATION AND NATIONAL DEVELOPMENT

which will bear relation to the situation prevailing generally in a country, the expenditure in India on books and journals, must be nearly of the same order as in the UK, because we cannot do with less books and less journals. Now, in the UK the average expenditure on books and journals per year per student is made up of two parts. They are grant to an individual student and provision made through libraries. Almost every student in the UK receives a grant for books and stationary which is about £30 a year. And again, if we divide the total expenditure on libraries in the UK universities by the population of students, we get a figure of about £15 per student per year. So it makes altogether something like £40 to £50 per student per year towards expenditure on libraries and books. This is more than the total expenditure per student per year in higher education in our country. The total expenditure on higher education includes salaries of academic and other staff, laboratory equipment and so many other things. The total expenditure in India per student per year in higher education is less than what the UK spends per student per year on books and libraries.

Our libraries are very poor. In fact as many of us would know, the situation in terms of the books that are necessary for a student’s work and for his research as compared to the books that are actually accessible to him, that is the ratio of need to accessibility, is worse today than it was, say 10 or 20 years ago. The reason has been that the number of students has increased and the demand has increased but the libraries have not expanded anything at the rate at which it should expand in relation to the expansion in student population. Further the number of books in any particular subject has increased at a very rapid rate because of the explosion of knowledge, so that the number of books that one needs, has increased rapidly whereas the availability of books, I am talking of the situation in India, has remained more or less static with the result that the situation today is almost near desperate. And the highest priority therefore, has to be given in our policies and plans for education towards strengthening the libraries.

If, for a moment, we turn to the books published in India, (roughly 25,000 titles a year) the number has remained the same for the last ten years or so. We publish about the same number of titles as some of the very advanced countries do. For instance, it will be comparable to what the USA publishes every year which is of the order of 25,000 titles a year.
KOTHARI

But in our case, the number of books on science and technology and professional subjects is almost negligible. Though we have 25,000 titles, these will include only a very small proportion of books which would be suitable from professional point of view or from the point of view of serious study. Again, the number of copies per title in India is very small. If it is a book in Hindi, perhaps the edition would be a few thousands or so! If it is an edition, say in Bengali, or in some other languages it may be still less. The number of copies per title is very small compared to what it is in the advanced countries. If you want to examine this problem from an overall point of view, then we can take the figure for the consumption of paper in the country. Now the consumption of paper in India is about 1 kg per person per year against more than 50 kg in Japan, 100 Kg in the U K and 250 Kg in the U S A. And it is this fact which is closely related to and in some sense explains also why India is an illiterate country, and why 70 per cent of its population is illiterate, and why there is a great scarcity of books and so on. If we want books we must have paper. The huge expansion in literacy would depend very much upon big explosion in our paper industry. But if we look at the Planning Commission’s Draft Fourth Plan, the total production of paper in India in 1961 including hard board, was about 350 thousand tonnes. Then in 1968-69 i.e. last year it rose up to 650 thousand tonnes. From 350 thousand tonnes it became 650 thousand tonnes. And the Fourth Plan envisages that at the end of the Plan period i.e. 1973 the production of paper will be somewhat less than a million tonnes of paper. Now, if we divide this quantity by India’s population of about 500 million, you will get a figure of 2 Kg. So it will become about 2 kg per person per year in 1973-74. Even, then, it will be say 1/100th of what it is in the UK and with no comparison at all with the USA. Why I am mentioning this is that the growth in the paper industry envisaged in our Plan implies doubling in a period of 10 years (1960-70) i.e. from 350 thousand tonnes to about a million tonnes. This doubling in production of paper is about the same growth rate for almost for every other commodity envisaged in our Plan. Generally speaking the targets are usually aimed at doubling in a period of about 10 years. For instance when we come to the number of bicycles in 1960 there were one million bicycles made in India and in 1973 it will be about 3 million. The same would apply to steel and so on. The point is that paper is receiving no higher priority than other commodities. The expansion in the student population at the university and
HIGHER EDUCATION AND NATIONAL DEVELOPMENT

college stages from 1960 to 1973 would be four-fold. Against four-fold increase in the student from 1960 to 1973, the paper production would only be doubled so that the availability of paper per student in higher education will be less than what it was 10 or 15 years ago.

But let us not be surprised at that. In fact even the amount of money for the development of higher education per student is less today than what it was ten years ago. The UGC grant has increased but it is increasing at a lower rate than the enrolment in universities, so that the amount of money available per student even in terms of current value is less than what it was when I joined the Commission. I think it was about Rs. 100/- per student per year 7 years ago. Now it is Rs. 75/-. And if you take into account the fall in the value of money, then the amount of money available today for higher education per student per year is less than half of what it was 10 years ago. It points out to the great difficulty in India of resources availability. It also brings to our mind that we could not have increased productivity unless we have improved education. Now here we are concerned with not a cause and effect relationship but a close coupling or a close interaction. But it is a very complicated process and one does not quite know how to build up this spiral of knowledge, technology and productivity. This has to be a continually rising spiral. That is, more knowledge gives us more technology. More technology gives us more production and more production will allow us to feed far more money in the universities and laboratories for giving us further new knowledge which will again give new technology, increased productivity and so on, so that the modern world, at any rate the developing part of the world, is characterised by the close interaction between three elements, knowledge, technology and productivity. By knowledge, I mean scientific knowledge which also includes under it social sciences, management, economics and so on. So we have the STP spiralscience, science, technology and productivity.

Now the difference between a developed country and a country which is developing is that in a developing country there is very little interaction between science, technology and productivity. Science may be cultivated, but in isolation from technology. There may be technology but isolated from productivity. This has been the feature of the world till the rise of the scientific and industrial revolution. The scientific and industrial revolution generated in the industrialised countries
had brought about close interaction between science, technology and productivity and generated a rising STP spiral and a repeatedly rising STP spiral. Now what we have to do in our country is to develop a close interaction between these three elements and an interaction which will carry the spiral up. If we are not careful, it will also carry the spiral down. Science in education is a very powerful instrument for change and development. If it is given the wrong direction that is, if education and science be of a kind that will have no impact on technology and on productivity than by feeding more money into science we would be feeding less money into technology and productivity. The total resources are limited and if education is directed in the wrong direction it will mean no impact or even sometimes negative impact on technology, then the productivity will go down and the whole spiral will move in the negative direction rather than in the positive direction. In the modern world when we go in for large scale education and invest a large amount of national resources in education, it is extremely important that education is closely connected with national needs and demands of industry and productivity. It is against this background we should try to understand what Gandhiji said about his scheme of basic education. He said that he would regard only that education as worthwhile education which is self-sufficient, and self-supporting. It is an extreme statement. But it underscores all the same that there must be direct connection between education and productivity and in some form, education must make a contribution to increase the national wealth.

I was referring to the question of the expansion in the student enrolment, the rate of growth of various commodities and so on. Now there is a feature of science and also of technology which is the special characteristic of the interaction between science and technology. This feature is such that once a country attains a take-off stage in science which means that once a positive interaction between science and technology and productivity is established, then science and things connected with science in the country begin to double themselves in a period of about 10 years or so. This is called the doubling period of science. If we take the total stock of world science, then 10 years from now the new knowledge that will be gained by men will be largely utilised in the advanced countries. India makes less than one per cent, perhaps a fraction of one percent contribution to new knowledge and new technology. The USA makes about 60 per cent contribution, the Soviet Union about 30 percent and all the other countries including the UK make about less than 10 per cent. But the point is that
HIGHER EDUCATION AND NATIONAL DEVELOPMENT

the new knowledge which is being gained by mankind witnesses a doubling period in about 10 years. So 10 years from now, knowledge that will be available to us would be equal in extent to the knowledge mankind had gained in the preceding several centuries. What does it mean in terms of the library? Ten years from now, the size of the library must be double of what it is today because knowledge also doubles in 10 years. If libraries double in a period of 10 years then in 20 years libraries would become four times of what they are now. If this process continues for a few decades then perhaps there will be no room for anything else except the libraries!

A period of ten years is the average doubling period in science, but there would be some sectors of science and technology which may have much more rapid growth rate than the average growth rate. The Physical Review is an example of having the doubling period of less than 5 years. At the end of a century from now, the Physical Review would be, if it continues to expand at this rate of doubling every five years, 15 million volumes of 1000 pages. Fifteen million! Even our big libraries have got less than a million books altogether. But Physical Review alone, a hundred years from now, will have 15 millions volumes of 1000 pages each! Now, this is the growth of science.

The reason why I am referring to this is that when knowledge is doubling the people who generate knowledge must also be doubling in number. We find in western countries which have attained the take-off stage, the number of scientists, has been doubling in a period about 10 or 15 years over the last three hundred years. How do we get scientists? We get scientists from the universities and the colleges. They must first get the degree and then start doing research. So it is expected that the number of students in the university or a college, that is the enrolment in higher education would also have a doubling period. For instance during the last 100 years or so, the enrolment in higher education in the USA has increased 100 times. The point is that science and students enrolment have to be connected. Science doubles in about 10 to 15 years. The number of scientists has the same doubling period. Therefore, the enrolment in higher education should also have the same doubling period. It is striking that over the last 100 years or so this doubling in about 15 years has been going on. In the case of India, the doubling period is something less than 15 years. In fact it is about 10 years. At the begin-
KOTHARI

ning of the century, the number of students in higher education was 16,000. Today it is 100 times more. Incidentally the number of girl students in 1900 was only 250, less than the number that you find now even in a small college. The doubling period in India of enrolment in higher education over the last 70 years has been 10 years. And this period is less than the average period of the USA and the reason is quite apparent. A country which starts later in science and research would generally have a doubling period less than the countries which had started earlier in the race because as time goes by there is increasing general recognition about the importance of science, knowledge and so on. There is a greater incentive to put in resources by the new countries who want to make up the time lost in not having started earlier. So we have in India, in the field of higher education, a doubling period of about 10 years. The point to recognise here would be that it would be wrong to think that this expansion we are having in higher education today is a new phenomenon. In fact this has been going on as I said at any rate for the last 70 years, if not more, and with nearly the same doubling period as we have today. There may be occasionally a little slowing down, then a little acceleration again, but if we take the average, doubling period remains very nearly the same over a fairly long period of time, say a century or so. Then why is that today we talk of this explosion. When I was a student, people did not talk of this explosion of numbers and so on. The reason is simple. Whether it be the volume of scientific knowledge, whether it be the number of scientists or whether it be the number of students, when the number is small, say very nearly zero, then if we double it, it is still very nearly zero. Zero × 2 is zero and so on. So, when the number is very small, though it is doubling every ten years, it would still remain inconspicuous, say one per cent. Starting from a small number it will take many many decades to reach an appreciable proportion. It will take a long period to attain a value of one per cent. But once it is one per cent, then in 10 years it will become 2 per cent, in 20 years 4 per cent, in 30 years 8 percent, in 40 years 16 per cent, in 50 years 32 percent, in 60 years 64 per cent, and if I calculate for 70 years time there will be more students in higher education than the total population! So, once the doubling process has proceeded far enough the number of students becomes appreciable in relation to the total population. Then explosion becomes a conspicuous characteristic of the whole situation. But some decades ago the whole thing was so small that you would have to look very hard even to see a student. This is a characteristic feature of the compound growth rate.

We talk of knowledge explosion and we talk of explosion in students
HIGHER EDUCATION AND NATIONAL DEVELOPMENT

enrolment. This is a subject of great interest and importance to us but in talking of this we must remind us that so far as the rate of growth is concerned it has a very long history. We are becoming conscious of it now because it has grown so big that most aspects of our life, student enrolment and so on are now influenced by science. Now this would not be the occasion for me to go into the question of the growth rate and students dissatisfaction or unrest. One could ask the question at what rate unrest grows? At what rate crime grows? For instance, statistics in the USA shows that crime, that the number of people who commit crime and the number of people who go to jail and so on, has also a growth rate very nearly comparable to the growth rate of science. It has a doubling period of about 10 years or so. Not only the libraries have to expand, but the jails have also to expand! And one could ask the question “Is there any connection between the two?” But I would not pursue this point here except to show that we find another case of doubling period comparable to the doubling period of science and that perhaps there is a deeper connection between the two growth rates.

Now that brings me to some aspects of higher education which are perhaps of more or less immediate relevance to us. I have been trying to make two points. Firstly, knowledge and survival literally go together. We have now reached a stage in the evolution of science and industrialisation. Science started as an inconspicuous stream on such a small scale that it would hardly be perceived. However, the doubling is the feature of the growth of science. We do not quite understand why science should grow at the compound growth rate of doubling every 10 years or so. This is perhaps one of the deep things in the field of social sciences that requires great study and research. With very humble and insignificant beginnings, but doubling every 10 years, science has now swelled to such a large extent that there is hardly any aspect of our life which is not influenced by science and technology. In the years to come this phenomenon is going to be increasingly so. But the expansion may slow down a little and there may be some saturation stage coming in because, as I said earlier, we cannot have in higher education more students than the population. So, at some stage the slowing down in the growth rate must occur. All the same, in the years to come, there will be increasingly more acute impact of knowledge and science on everything connected with man’s life and activity so that today knowledge and survival will literally go together. This makes our civilisation for the first time in man’s history, a knowledge and education based civilisation. When I said “man’s
history", I am not thinking of poetry or literature which have always been important, but only for a very few. They do determine the culture of the times but again the culture of a very few top people. For instance, in Athens which had contributed most to world civilisation, the slaves in the society account for three times more than the number of other citizens and then again out of the total number of citizens it was only a fraction which really had the competence and leisure to understand the works of the great philosophers and of the great people of that time. Society as a whole had not become knowledge and education based. And now, knowledge and survival literally go together. This makes education, for the first time, a great concern of the entire nation. When education becomes a national concern there has to be a national policy about education. Education will consume the resources of the nation to a sizeable degree. For instance, primary education alone now takes about one per cent of the gross national product in nearly all countries. A little arithmetic can tell us why it has to be so in nearly all countries. A school teacher is paid two or three times the per capita GNP. The GNP in our country is about 500 rupees. Primary school teacher is paid about 2 to 3 times the per capita GNP. So, in our country the salary of a school teacher would be about Rs. 1000 to Rs. 1500 varying between different states. In the USA which has the largest GNP in the world today, i.e. $3000, the primary school teachers will be paid about $7000 or $8000 but less than $10,000 and less than three times the GNP. The striking fact is that whatever country we take, primary school teachers everywhere get about two or three times the per capita GNP. When we think of the Vice-Chancellors their salary will not bear any definite relation to the per capita GNP. Because there will be so few of them that the country can afford to pay anything they like. But once the number of professional people in any country reaches a significant proportion of the total population just as the primary school teachers are in any country, the salary scales should have relation to GNP. For instance, India has got two million school teachers. Our total population is 500 million. Something like 0.5 per cent of the total population is made up of school teachers. Once a profession attains a size and constitutes a per cent or so of the total population then the income of people in that profession has to bear some relation to the paying power of the nation. The school teachers cannot get more because their number is more. Whether it is America or India the country cannot afford to pay school teachers well because their number is large. In the USA, such difficulty is also witnessed in the case of engineers. In a highly industrialised society, engineers and technolo-
HIGHER EDUCATION AND NATIONAL DEVELOPMENT

gists have to be in a very large number. They may constitute about 0.5 per cent of the population. The engineers and technologists in the USA may also get more or less the same salary as the primary school teacher. In any industrialised society, the primary school teacher would provide the yardstick. The more and more a society gets industrialised, the salary of people in the country will more and more tend to be the salary of primary school teachers i.e. about two or three times the per capita GNP. Today, the academic staff in our universities are better paid than the primary school teacher because India is not yet as prosperous as the USA. But once we become more prosperous the gap will be narrow. The salary of the primary school teacher, as I said earlier is the bottom yardstick. For instance a professor in the UK will get only about 5 or 6 times the per capita GNP. In India, 5 or 6 times the per capita GNP would mean Rs. 50 per month. If we have the same kind of salary steps as in the UK we would afford many more professors and no question of one professor in a department but number of professors in a department. When people question as to why we do not have a number of professors in a department the points to consider would be that we are not as wealthy as the USA, and our professors are relatively better paid, than the professors in the USA.

So when education becomes a national concern of the people and when education and survival go together, there has to be a policy about education and science. It also means that there will be an increasing pressure on education because education, more than anything else, equalises opportunities. It does not however, completely equalise opportunities. A person born in an influential family may have for the same qualifications as another born in an under-privileged family, better opportunities of getting jobs. But still, education stands to equalise opportunities. Once a man becomes a graduate, he has some chance of competing with others for jobs. Education does not by itself multiply opportunities. Education does not increase opportunities, unless it is linked with technology and productivity and made into an increasing spiral. In other words, education increases the competition for the number of opportunities. In the earlier stages of a country’s development education will not increase opportunities in the same proportion as the increase in the number of people seeking opportunities. It is because education expands at a faster rate as compared to the multiplication of opportunities. There will be more people competing for the same job and the pressure is bound to increase. And this pressure, so far as a developing country like India is
concerned, is going to be increasingly acute in the years to come. Let us take the question of family planning. When it comes to controlling the size of the population we advocate family planning and subscribe to the slogan that a large family is not a good thing. Nationally as well as individually there will always be an urge to have more education. From the individual's point of view it is something that brings within his reach opportunities which otherwise he would not have. Though there can be family planning for population control there cannot be any control in education because education is a powerful equaliser. There will always be an urge at the level of individual to qualify for opportunities and at the level of the nation to equip for international competition. There is always an urge to go in for more and more education of better and better quality. So the demand of education or the pressure of education is going to be a continuing feature. It would become stronger and stronger as years go by, as it is something inherent in the nature of things itself.

Education is good. Therefore, there must be more demand for education. The first point is that education becomes a national concern and then it becomes the urge of individual and the urge of society. The second point is that education is a ferment. There is restlessness almost everywhere. This is connected with the phenomenon of compound growth rate. Knowledge is doubling in a period of ten years. And again, there is increasing exposure to science and technology. All of us carry a framework, the framework of sense of values and so on. The framework that I am carrying now is different from the framework in which the younger generation is growing. The new generations together will grow in a framework which will be different from the framework in which the older generations have grown. It has to be appreciated that this has not been so 100 years ago. Science and technology is changing the world. When 100 years ago science and technology had an insignificant impact on culture and civilisation, and the coordinate frames remained the same from one generation to other. The father had the same coordinate frame as his child would pick up and it would in turn hand down to its children the same coordinate frame and so on. In fact, the coordinate frame remained essentially static. Everybody carried the same frame, the same sense of values and so on. It was then a stable society. Now, almost everything that is relevant in our life and civilisation is dependent upon science. But the characteristic of science and technology is that it innovates itself, changes at a rapid rate and doubles in 10 years time. Therefore the coordinate frames are changing.
child grows in a new environment not only in the sense of new gadgets and so on but in somewhat deeper sense too. The climate of science itself is changing and it has its impact on the values. The theory of evolution, the theory of relativity and so on all have an increasingly deeper and new impact in our sense of values and pattern of thinking so that the coordinate frame is influencing. In the essential ways, the coordinate frame is altered at a relatively rapid rate. The coordinate frame of the new generation is essentially different from our coordinate frame. This we have to recognise. It is a new feature of science and technology and of the rate at which they expand. I may cite the analogy of the optical glass for explaining the coordinate frame. The world is green when I carry a green glass and look through it. My father who had also carried the green glass, also saw the world the same. My grandfather also did the same and saw the same. Our coordinate frames were the same. But now because of the growth of science and technology and things changing at a rapid rate, the colour of our glasses is changing, as it were if I see green the younger generation may see it red. I am not using the word red in any other sense except as the colour of the spectrum! May be the generation next will carry glasses that may be yellow, orange or something else. The colours are changing. When the colours are changing, even though the world is the same, our view of the world will be different because we look at it through different glasses or through different coordinate frames.

This is peculiarly a new phenomenon of the modern world which is knowledge based world. The characteristic of a knowledge based world is for the first time man is meeting a new situation characterised by the impact of science and technology. This was not so at the height of the Indian civilisation in ancient times or at the height of the Greek civilisation. The world then was not knowledge-based. There were great poetry, great literature and so on, but these were the world of a few great individuals. They could influence the culture of a few individuals only. They did not influence productivity. For example, food productivity was not influenced by knowledge in the olden times. It remained more or less the same for thousands of years. The plough which we find in most of our villages now, is the same which was used in the middle ages and even earlier. But things are now changing. Once science and technology enter the situation, things begin to change at a rapid rate. World becomes knowledge-based. It is characteristic of knowledge that it doubles in a period of 10 years or so. And therefore, the coordinate frames begin to change and we get the situation which can be described in various ways as generation gap and so on. But the essential point is that our coordinate frames are
changing. In my student days, if by chance I saw the Vice-Chancellor, a professor, or a learned teacher, the natural reaction on my part was to pay respects to them by Namaskar or some sort of salutation. Now whether it be at Delhi or Kerala or Calcutta or anywhere, if I am going with the Vice-Chancellor or with some senior member of the university, and if I find somebody wishing I used to ask the Vice-chancellor if that person is on his administration or one of the teachers. The Vice-chancellor surprisingly enquires how I come to know that he is on the staff and I reply that I thought so because he wished you! The point is, not that the students today are less respectable than we were when we were students.

Our way of outward expression has become different because we carried different coordinate frames. But the point is that in such a situation the generations must meet together. There is no better or more effective place than the universities where the two generations could meet. The great strength of the universities is that they are the place where the generations, the seniors and the juniors meet. There must be the closest cooperation and participation of the seniors and the juniors. It is far more important today because they carry different coordinate frames. Therefore, each one of us in a real sense has to learn from the other because the coordinate frames are different. And in bringing these two generations together and if we get a man like Das Gupta in whose memory we are having this lecture today, then such a thing becomes all the easier because of his friendliness not only to his seniors but even to his juniors and of his sense of service and so on. So what we need today in all the students and teachers, is the sense of friendliness towards everybody. Often we feel frightened when we see a crowd. We feel frightened because we feel isolated. The moment I feel isolated I feel frightened. But even it be an enemy crowd which is approaching towards me, if somehow I mistake that it is a crowd of friends, my whole approach would be different and it is likely though not certain that the crowd may also get transformed and become friendly though they originally came with hostile intent. Now, here is a lesson dealing with ordinary situations in life in the examples of men like Das Gupta.