

**Amrita Vishwa Vidyapeetham - Convocation 2005 address
by
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Respected Chancellor Mata Amritanandamayi who is not here, Swami Ramakrishnanda Puri, Vice Chancellor Venkat Rangan, Swami Abhayamrita Chaitanya, distinguished visitors, members of this organization, graduating class, ladies and gentlemen,

I am very glad to be here this morning. This is a bit unusual for me because most of institutions I have gone to, the convocation addresses are much more formal in a different way, Of course this is also formal, but formal in a unique way. Most convocations are ceremonial and here I do find a little bit of an extra element of spirituality superimposed on a formal occasion. There is this atmosphere of people who are dedicated to a cause, people who want to do something for the community, people who want to serve humanity. That is very rare in convocation. That spirit is something very unusual and it is because of this I do not know what exactly I must say this morning. How ever it is natural for me to say something about science what I do myself in this area.

Let me say one or two things about what I have been doing for the last so many years. I have been doing research in science for exactly 55 years. I have been a professor for about 46 years, writing papers after papers as some body said. That is not important, what is interesting is science has been so absorbing, so absorbing because it really requires all the creative urges a man has. If you are absorbed in doing science, genuinely speaking, you have no time for doing anything else, you have no time for mischief, you have no time to talk bad of others, you have no time to pull down your colleagues,. Of course, there are some scientists who do that. Obviously, they are not busy with their science. If you are really interested in science, you know, you do not want to waste time on little things. Little things you brush aside. In fact , life by and large, is a bunch of little things. A few important things come. If you get completely absorbed in little things, you have no time for big things when they come, you see. That is why 99% of this humanity is always trying to solve little problems and facing little things in life- they never face the big things, because they have no time. So it is very important not to be like that.

Fortunately with me, with this preoccupation with science I have had no time to worry about most small things in life. It is wonderful. I have never worried about money in my life (you can ask my wife, she is sitting there), never worried any time whether we had money or we don't have money. It was never an item in my life. You may say, why..don't you want money?. I guess we do, every body needs something. But I have never worried as I said...God almighty has given me enough to eat. I eat roughly what I ate when I was young. I still eat roughly the same , may be a little less than that. So you don't need too much for that. Really I have been very very happy with what ever I had.

Science has been a wonderful occupation, more than anything when you create new things, when you create ideas, when you create new materials you train a large number of young research students, I have had a large number of students. It has been a very very great pleasure. But this absorption in life also gives you a very philosophical attitude in life. I wanted to know that. One is , in a way it is very similar to the spiritual quest that the Swamiji talked about. Even though it is similar, I will mention that similarity in a minute. Science cannot answer everything you see. For example, science cannot tell me what is love, what is faith, why is it that I have faith in something. What is the scientific explanation of faith, what is the explanation of beauty. See, unfortunately there are some scientists, very good friends of mine, some of them even feel one day science will explain what faith is in terms of some molecules that gives you faith or some atoms. You see atoms cannot explain everything , as the famous Santayana wrote in his famous book : " It is true that the world is made of atoms, our body is also made of atoms, but those atoms cannot explain why I have pain". See, this is a point. So science has this problem of not being able to explain everything. That is what I believe, even though I work on the of modern science everyone talks about I also have this doubt about science that is very important. This is where, even though it is true, there is some similarity between science and spirituality. Your quest to understand the secret of life , your quest to understand why we live and what life is all about. The so called 'each person' wants to have his own idea of moksha, going to what ever higher level of learning, higher level of understanding ...if that has to be done it also requires sacrifice, the same dedication , same oneness of mind everything.

Science and spirituality , the quests are similar. You can't be very absent minded about your science, you can't be careless about your science, you can't waste your time when you are doing science. The

same is true in your quest for spirituality. You will be completely dedicated. Only the completely dedicated scientist is the one who makes a good name. That is why India has very few good scientists. They are incapable of being really dedicated...the price of the vegetables. These are the things that take most of their time or some neighbor calling, as the swamiji said, ...some body talking bad of you , they will be thinking this for the next 2 months. You know 'he told me something, somebody called me something..'. So what? In fact, one thing you have to get used to is to have a very good sense of humour. It is very important to ignore everything, most things. So this is very important. So spirituality and science, are therefore, very similar. There is no difference, complete dedication and sacrifice is the only thing that makes you a great scientist.

I keep telling this all the time because my mother always used to tell me. She was my first teacher. She taught me up to middle school, I did not go to school. I learnt everything at home, my mother used to teach me. She always used to say that 'only through learning you should become what ever you are in life. What ever you are is through your learning, your education'. That learning is also very interesting.

See, Saraswati is a very difficult goddess to please, Lakshmi is the easiest...you get a management degree here, you can make money. You worship her for five minutes, you can get more, right? In fact there are lot of friends of mine in the Indian Institute of Science, Cambridge University, University of California where I am still a professor...all of them, they all worship. They get a few dollars , a few rupees ..worship more... one prize also you will get, you can get a crore rupees. Saraswati doesn't even look at you if you if you worship like that. If she has to say that you are a good man , my God...you have to completely sacrifice, forget about everything , Just do your aspiration to learn, your aspiration to be scholar , your aspiration to be scientist, aspiration to be the very best, aspiration to climb this limitless ladder of excellence that I always talk about all the time. That limitless ladder of excellence, that is what I urge you to take up, what ever you do. Money will come, Saraswati will give a few rupees here and there, doesn't matter. But, main thing is if you go through that limitless ladder of excellence in any profession, that is what is more important. The quest of spirituality, the quest for knowledge, the quest for excellence are all the same, very similar in effort and that is what I urge you to do. Here there are two qualities that are important, I do not know some how people do not mention this – 'Generosity'. Generosity is the most important quality in a human being. I think AMMA is what she is because of her generosity. Suppose she kept

everything to herself, then she will be something else. Giving to others...making more people rich, making more people scholars, making the world great, making the country great, making the large number of students shine. This kind of generosity is very important. Science is the same thing.

I have guided a large number of students in my research. In fact as I was telling this morning, about 150 people have got Ph.Ds working with me directly. In my life I have had several hundred people working with me. But I have learnt one thing. Where ever we as senior people, as teachers and scientists are generous to young people, then the subject shines, institution shines and you yourself shine. It is only the reflected glory, the teacher reflects the glory of the student most of the time. It is very very important. In fact, indirectly we reflect the glory of some one or the other , of even god and so we have to be very generous.

Second most important thing in everything we do is tradition. Swamiji refereed that, I will put it in a different language. You come from this great institution, if you want to make it a still greater institution, you maintain the traditions, you improve the traditions and also every where propagate this tradition. In India we have miserably failed in doing this in the last few years. Traditions of institutions are going, best of institutions are decaying mainly because people do not respect our tradition. Traditions of institutions, traditions that we have in our country, there are very important.

Let me give you one story, purely an academic story. It has nothing do to with traditions, culture or spirituality. There is a very famous university- University of Cambridge, where I had been a professor. It was such a great university, it is still a great university - not as great as it used to be, but it is still not bad, pretty good. There was a very famous professor of Physics called Lord Rutherford. For those who do not know any physics, let me give a 2 minute Physics lesson. The electron was discovered many years ago by J J Thomson.

After the electron was discovered, a young man from New Zealand went to do PhD under Professor Thompson; Professor Thompson had already got the Nobel Prize. The young man, his name was Rutherford, wrote a famous letter to the girl whom he was going to marry a bit later. The letter said, "I met this professor with whom I'm going to work; he looks quite intelligent. In the evening he invited me for tea and I met his son who seems to be quite an intelligent boy". He was writing about J.P. Thompson who also got a Nobel Prize later.

Rutherford got his PhD and later made his famous discovery- the structure of the atom. Atom has a nucleus. A nucleus is surrounded by electrons. Nucleus is very fundamental to everything on earth. He went somewhere and eventually became head of a laboratory- he replaced J.J.Thompson as head of the Cavendish laboratory. Then he said, "Of course I can go on doing research, but I won't do that. I am going to get the brightest young people from all over the world and make them work here".

He picked up one after the other. Korkroft and Walton, they discovered the Van de Graff generator, got the Nobel Prize. Chadwick was running around doing nothing somewhere; after the Second World War he was jobless. Rutherford told Chadwick, "You are bright .Do some work here". Chadwick discovered the neutron and won the Nobel Prize. Brackett was doing some war work; Rutherford brings him and he discovers the positron. Brackett won the Nobel Prize. Russians were hanging around in the snow somewhere. He brought Kapitza who discovered low temperature Helium, the experiment you may not know; Kapitza got the Nobel Prize. In fact the joke became so much that the taxi drivers when they asked them in Cambridge that I want to go to the Cavendish lab, they would say that I won't take you there because if we go too close to that Rutherford will get us there and they will make us get a Nobel Prize. So the taxi drivers refused to go there. The reason that I am mentioning this is because there are many such examples-his is the greatest example in history of science where one man created history in science by doing great discovery and created a whole battalion of scientists who became famous through that Cavendish laboratory.

The history of science will never be forgotten. Well today it is not as great as it used to be. But still Cambridge is a great university. A man like Rutherford after he got the Nobel Prize started taking pride in the work of his students. He said, "Look at my student. Look at his this discovery. Look at his that discovery. This bright student that I have..." this is all he used to talk about. He never talked -I am doing this. This wonderful thing, the generosity I talked about, the tradition I talked about-this is the tradition where the student imbibes all the qualities of an institution and of a teacher. And teachers give everything that they have to the student. In fact the teacher what he passes to a student is not a book, not a bunch of words, but is a tradition. For a teacher, classroom is the most useless thing. Actually what we really pass on is a tradition. The student, if he is average intelligent, will read the book and will learn in a classroom any way. To be honest I never learned

much from the classroom, the great men who walked in the corridors, whom I looked at in the laboratories, seminars-they are the ones who inspired me in my life. So we as teachers have a way to behave. We as students have a way to learn. And that tradition is very, very important. Hope you young men and women who are graduating will bear the torch of tradition of this institution in the future. I do not want to talk too long. I want to say one important thing reminded by Swamiji - human beings have become much too arrogant.

That is why spirituality is much too important to me. I believe in God not because of anything because I know I have done all kinds of research, I got all kinds of recognition .But who gave me this courage to face this world. Not just my science, you need something else, you need some extra thing to give the moral courage to face the realities of the world. That is why God is required. Most important reason why we need God is to have strength which is given by an external source, which is not within us to face the realities. Realities are terrible. That is what he said. Unfortunately human beings, because of the scientific age, IT particularly, has made people much too arrogant. It has made them impersonal. If they have some management degrees ,they think they can manage anything. They can't manage a thing. I tell you.

India produces the maximum number of management graduates in the world, but it is the most mismanaged country there is. Japan has no MBA at all. But it is wonderfully managed. So degree isn't going to give you management ability. It is the human ability, the human skill. Most important is the humility that is important in management. Humility is very unusual quality; it doesn't mean you go about like a mouse. It doesn't mean that. Humility is a quality where you don't assume you have everything. You don't assume you have all the knowledge. You believe your neighbor, you believe everybody who works with you, and you believe your colleague. You trust them. You work with them. You know how to manage other people because you have the humility to manage. If you have the arrogance to manage you will not be able to work with them. In that context let me remind you the swamiji was talking about animals, living species, how human beings are very small enough. But let me tell you, human beings have lived a very, very short time in this universe- only a few hundred thousand years.

This universe has been there for 5 billion years roughly , four and a half billion years of which only few hundred thousand years only human life has been there. Living species have been there much longer, so we better know that we are not as great as we think we are.

Second, we are very young species, human species. Even though we are young, we carry the tradition of the universe. Every atom that you have in your body, the iron atom that we have in your blood, the hemoglobin, all those atoms were created 5 billion years ago. So you are as old as 5 billion years at the same time very young as a human being. So remember that gives you a little humility. The origin of life, the origin of human beings is not as we think. It is actually some thing that gives you tradition, 4 or 5 billion years of history, and also a short life as human beings. I do not want to go on lecturing, I can go on like this...but it is not good for you and good for me. What I want to say is you young people...you all do very well, I hope you will do very well. I learnt something, in a convocation address I gave recently at an IIT where I am chairman of IITs now and also of IIT, Kanpur. There the students asked me 'give us in 2 sentences something you can say to us' and I told them: 'The only thing I wish, I told all of them, is each one of you in your chosen profession become famous. That is all I request you to do'. Become famous, become outstanding, not secondary. Whatever you do, be outstanding and through that institution will become outstanding and famous and this country will become outstanding and famous.

Thank you all so much.

About Dr. C N R Rao

Dr. C.N.R Rao is one of the greatest scientists in India and the world. He has more than 1200 research publications in top ranking international journals. He has written 37 books. He is a fellow of more than twenty science academies, which include Royal Society, London, National Academy of Sciences, USA and Russian Academy of sciences. Dr. Rao has received an amazing 37 Honorary doctorates from leading universities in India and abroad. He served the Indian Institute of Science, Bangalore as director for more than a decade. The awards and honors that he has received is numerous, Marlow Medal for outstanding contribution to Physical Chemistry, Royal Society Medal, Hughes Medal, Padma Vibhushan, Chevalier Honor from the French President, a few among them. At the national and international level, he has held various important positions, which include Chairman, Science Advisory Council to the Prime Minister; Member, Atomic Energy Commission; Director, Reserve Bank of India; President, International Union for Pure and Applied Chemistry etc. Recently in a function to felicitate Dr. CNR Rao, Dr. Kalam said that the city of Bangalore is on top of the world because CNR Rao lives in Bangalore.