

THE ROLE OF THE UNIVERSITY IN MODERN SRI LANKA

Madam Chancellor and Learned Faculty of the University of Sri Jayewardenepura, I am deeply honoured by the decision that your University has taken to confer on me an honorary doctorate of Science. I am humbled by this gracious gesture on the part of the Senate of your University, in the light of the old adage, that no man is a prophet in his own land. You have given me great satisfaction by recognizing the modest contributions I have made to Science. In addition, I am particularly gratified to have been asked to give this convocation address today. It is a double privilege that I enjoy on this occasion.

Hallowed Ground

The noted educationist James Bryant Conant giving the baccalaureate address at the Harvard College in June 1934, expressed a profound reverence for the University when he said "He who enters a university walks on hallowed ground." Benjamin Disraeli, Earl of Beaconsfield, in a speech before the House of Commons in 1873, described a university as a place of light, of liberty and of learning. The university is like a beacon in a darkening world. It has drawn young men and women all around the world, to cultivate the mind and prepare for the vicissitudes of life.

History

Historically, we may go back to the early Greek thinkers. In the groves of Academe, the students followed close on the trails of the Philosophers. Aristotle discoursed as he walked along. It was here that the special bond which should exist at every university between a student and teacher, was forged through the ages. From Greece and Rome, we move in the medieval period, to the scholars of Paris, of Bologna, of Oxford, of Cambridge, which set the style for the university system that we have today. The very garments we wear at this august ceremony date back to those early days when the scholars cluttered the cloisters in cloaks and hoods and gowns. Oxford and Cambridge, the Sorbonne, Heidelberg, Salamanca, became over the years, the places to which scholars flocked in search of learned teachers. Although today when we are bothered by the question of language in the university system, a common language - Latin, enabled the medieval student to make his way from Bologna in Italy, to Salamanca in Spain, to Coimbra in Portugal, to the Sorbonne in France, to Heidelberg in Germany and to Oxford in England without difficulty in understanding since he was able to follow the lectures delivered in the common university tongue: the Latin language.

In the New World

In the new world, we see a different approach to the University System. The American example is a classic departure from the European. Here the University is required to make a contribution to the development of the State. The concept of the land-grant college emerged. Many of the great State universities, of California, Wisconsin, Illinois, Maryland, for example, started off as Agricultural colleges dedicated to help the farmer develop the land and tend his cattle. It is only today, after perhaps a 150 years of involvement in the life around it, that a university such as California, has emerged as the Mecca and Medina of Atomic Physics and Nuclear Chemistry.

In the developing world, there have been other forces at work. Perhaps there is an opportunity here to take the best of the old world and the new world, where the ancient tradition of the European school and the modern thrust of an American university, could be combined for the development of the country.

Sri Jayewardenepura

In the case of Sri Jayewardenepura, we have a very interesting situation where in the short span of 26 years, it has moved from the status of a Pirivena to a modern seat of learning. The Pirivena of 26 years ago could be likened to the early medieval schools around which the students clustered. The modern university whose convocation we are holding right now, is identical in structure and form to the great universities that exist today in Europe, in Asia, or in America. In the short span of 26 years, the evolutionary process which in other instances has lasted over several hundred years, has now been telescoped to barely quarter of a century. Such a rapid transformation has associated with it, advantages and disadvantages. It is for us to see that the advantages outweigh the disadvantages.

Knowledge for its own sake

The University has a special role in the development of a nation. Such an idea has not always been held. Cicero, the Roman orator, enumerating the various kinds of mental excellence, lays down the pursuit of knowledge for its own sake. According to him "this pertains most of all to human nature, for we are all of us drawn to the pursuit of knowledge, in which to excell, we consider excellent, whereas to mistake, to err, to be ignorant, to be deceived, is more than an evil and a disgrace." Cicero considers knowledge the very first object to which we are attracted after the supply of our physical wants. After the calls and duties of our animal existence, as regards ourselves, our family, our neighbour, follows, he tells us, "the search for truth." "As soon as we escape from the pressures of necessary

cares, forthwith, we desire to see, to hear and to learn, and consider the knowledge of what is hidden or is wonderful, a condition of our happiness.”

According to the golden tongue of Rome, so far from dreaming of the cultivation of knowledge directly, and mainly in order to provide our physical comfort and enjoyment, for the sake of life and person, it is only after physical and political needs are supplied and when we are free from necessary duties and cares, that we are in a condition for desiring to see, to hear and to learn. Here we see the pursuit of knowledge in its most pure form. Knowledge is its own end.

There has, however, been a transition from the pursuit of knowledge as its own end. Few of us can enjoy such a luxury. But perhaps the ultimate objective of improving the quality of life is to provide a situation that we can enjoy the beauty of nature, contemplate the grandeur of the heavens, listen to the music of the ages, without any major worry of minimum needs.

Brains, A National Resource

In considering the role of a university, we might consider the obligation of the governing body, the commitment of the student, and the responsibility of the faculty. It is a shocking revelation that in a country of 15 million people, only 19,000 of our young people can attend the University at any one time - less than 0.13% of the population. The brains of the next generation are our biggest resource. It is a terrible thing to waste a mind. Young minds can be trained at the University. There are large numbers of young men and women in the country who are capable of benefiting from a university education and are unable to do so.

Even the best and most productive of men according to Alexis Carell in his book "Man the Unknown", do not use more than 25 percent of their potential. What a tremendous reservoir of talent is available in the nation ready to be tapped. By a curious quirk of history, we are wedded to an ancient system where the proportion of teacher to pupil is around 1 to 6. In other countries where the university has a major role in national life, the figures range from one teacher for 25 students, to one teacher for 40 students. With the minimum resources, our university system can almost overnight cater for four times the number of students. This is still a small number for a country poised to move into the 21st century.

Role of the Faculty

In discussing the history of the University we have already alluded to the paramount role which the Faculty of an University has to play in the dissemination and generation of knowledge. We have seen how scholars have flocked to the master. A reputed teacher attracted students from far and wide. The presence of one scholar attracted others. Knowledge and the teaching advanced in leaps and bounds. University activity mushroomed in favourable locations. What was true in medieval times is true to this day. A good teacher's lecture halls are crowded, a reputed researcher's laboratory has a waiting list of students. In the modern age where we turn especially to the field of science, the role of the researcher and teacher becomes even more imperative.

A Presidential Clarion Call

Last year at the convocation of the University, on this very stage the President of the nation issued a clarion call to the scientific community to 'leap frog' into the 21st century. 'Leap frogging' requires arduous concentration on scientific research. University research is of paramount importance especially in developing countries.

Lord Blackett, in the first Jawaharlal Nehru lecture in India, in 1967 issued a warning that science is no magic wand to wave over a poor country to make it a rich one. Science is necessary, but the process of implantation cannot be instantaneous technology transfer. The science must become part of the very fibre of life. The University Faculty has to play a prominent role in this process and the research is at the heart of this endeavour. It is not only teaching that is required but the development and creation of knowledge.

Need for Research

It was once said that without research there would be no science. The research in which we are involved especially when it comes close to answering the basic questions has a lot in common with crime detection. The research worker may be compared to the detective not to the man who writes the detective story. The writer finds out his plot and then produces the facts to form it. He is like the classic theorists who dominated natural philosophy for thousands of years.

To continue our analogy, the detective moves from the bullet to the theory of the crime. Thus the experimental chemist places his theories before the jury of his critical colleagues.

In research perhaps we could follow the advice of Claude Bernard, the French dramatist, who became one of the world's greatest physiologists. "When you enter your laboratory, put off your imagination as you take off your coat: but put it on again, with your overcoat, when you leave. Before an experiment and between whiles let your imagination wrap you around, put it right away from you during the experiment, lest it hamper you and your power of observation." An observation made is the basis for the imagination's creative activity, to be followed by an experiment in the laboratory in search of solid fact.

The Method, the Man, and the Moment

In making a scientific discovery it is not only the method, the man, someone with a great gift of acute observation, but also the moment, the climate which is necessary for the breakthrough. There are periods when the advance of science practically stands still. This was the case in the Dark Ages. This was because the philosophy of the time was hostile to progress. There are other periods when science stagnates because the atmosphere is too complacent.

Sri Lanka Today

In Sri Lanka today there is a refreshing and reassuring upsurge in the sciences. There are special circumstances under which science thrives and advances under proper leadership and inspiration.

“There is a tide in the affairs of men

Which, taken at the flood, leads on to fortune :

Omitted, all the voyage of their life

Is bound in shallows and in miseries.”

There is a give and take between science and social conditions. Social conditions recharge the accumulators of science. To try to isolate them and imply that science is somehow immune to social and economic forces makes no sense. But neither is it justifiable to say that all developments of science are dictated by this interplay of forces. There is a general climate in which science as a whole will flourish and in which certain general trends will emerge. The history of science is full of such examples. Be that as it may, great discoveries need the method, the man, the moment. But great discoveries are never accidents. Some may be called intuitive, that in the flash of a clear thinking mind, something which others have missed has become plain. What is commonly called accidents are usually, as Pasteur said, “the impact of an observed fact on a

prepared mind." But a precondition is that a mind should be prepared, that, either by education or experience, the observer should acquire the capacity for logical thought and mental discipline.

What Good Is It?

A great discovery may be something eminently practical, even though it may not be immediately obvious. The British statesman, Gladstone, asked Michael Faraday what useful purpose magnetic induction would have. Faraday's reply was, "Sir, you may be able to tax it." Another version of this is Benjamin Franklin's reply, when asked what was the value of a new idea. He retorted, "What is the use of a newborn child?" We may bring to mind innumerable examples of discoveries which prompted the bureaucrats of 50 years ago to ask the question, "what good is it?" that today have proved to be beneficial to mankind.

Story of X-Rays

The story of x-rays and radioactivity is a case in point. X-rays have revolutionized medical practice during the last seventyfive years. However, in 1895, Frau Roentgen, the wife of a not-too-well known professor at the University of Wursberg in Bavaria, thought little or nothing of the value of her husband's discovery. William was late for dinner, and had been so for the past few days. He had become very strange, absent-minded, unsociable, and untidy. His wife tried to humor him, and had spent all afternoon in a steaming kitchen making his favourite meal. Not only had he spoiled it by being late, but now he did not even seem to be aware that he was late. So, she was really cross. William was not a bad husband. He explained that he really was worrying about something, and to appease her he took her across to his laboratory, to show her something. Frau Roentgen was the first person, apart from her husband, to see the phenomenon of x-rays. Her reaction is not recorded, but probably she thought it was not too much of a justification for the loss of a meal:

the waste of a meal for something glowing in the pitch darkness of a laboratory! But, to the trained mind of her husband, the moment had come for the man with the method. That glow was profoundly significant.

Alexander Flemming

We may go on and on with discoveries of this type. But let us take one more example, the discovery of penicillin. In September 1928, Alexander Flemming came back from a week's vacation to his laboratory at St. Mary's Hospital in London. Before leaving, he had started some cultures in round shallow dishes. He now examined them to see how they had multiplied. A number of the colonies of germs had bred true to the original strain. Some had been contaminated with other bacteria and he discarded them. He picked up one from the windowsill. It, too, has been spoiled. Just as he was about to toss it aside—it is ironic that the fate of millions of human beings hung upon that instant of hesitation—he looked again, and looked hard. There was a patch of mold about the size of a 50 cent piece, and, around it, was a clear area separating it from the colony of staphylococci. "Interesting," he said, and proceeded to investigate, like Sherlock Holmes and the curious incident of the dog in the night time. "The dog did nothing in the night time, the dog did not bark!" In this case the culture which did not grow gave us penicillin.

Basic and Applied

In spite of the powerful lessons of history in the case of a Rutherford, a Roentgen, a Becquerel, or a Flemming, there is a tendency to separate basic from applied research just as there is a propensity to establish a dicotomy between science and humanism. The terms "basic" and "applied" should not be considered to be opposite. Research is a continuing process involving the recurrent making of contingent choices involving the researcher. Each time

he decides between alternate courses of action, the factors which influence his choice determine the degree to which the research is basic or applied.

If each choice is influenced almost entirely by the conceptual structure of the subject rather than by the objectivity of the result, then the research is generally said to be basic or fundamental, even though the general subject may relate to possible applications and may be supported with this in mind. The fact that research is basic does not mean that the results lack utility. But, rather, immediate applicability, is not the primary factor in the choice of direction for each successive step.

It is often said that universities are engaged in basic research which is not of value to the nation especially in developing countries. There is a tendency to separate basic from applied research. The term basic and applied are not to be considered as widely opposed but rather at the two ends of the same straight line. It is natural that the universities will tend more to the basic end of the research rather than the applied. Applied work will generally be undertaken at the research institutes but there must be a close link between the basic and applied, between the research university and the programmes of the national institutes. In fact it must be an unbroken line.

Science and more Science

Emphasis on research at the University is essentially the burden of the faculty member. The work undertaken is of particular importance in a developing world. Science is at the heart of the programme of development. The thinking has to come from within the university system. There is a statement of profound value made by Nobel Laureate C V Raman considering India's economic programme almost half a century ago, said " there is only one solution

for India's economic problems and that is science, more science, and still more science". This statement could be applied to Sri Lanka as well and the University System has a major responsibility in bringing this solution.

Role of the Student

The University is made up of the Faculty, the Students and the Governing body. The student is by the nature of the university, involved in the entire process. The students in the university system also educate each other. When a multitude of young men and women, keen, open-hearted, sympathetic and observant, as young people are, come together and freely mix with each other, they are sure to learn one from another, even if there be no one to teach them; the Conversation of all is a series of lectures to each, and they gain for themselves new ideas and views fresh matter of thought, and distinct principles for judging and acting, day by day. It is seeing the world on a small field with little trouble; for the pupils or students come from very different places, and with widely different notions, and there is much to generalize, much to adjust, much to eliminate, there are interrelations to be defined, and conventional rules to be established, in the process, by which the whole assemblage is moulded together, and gains one tone and one character. I am not saying that, that youthful community will constitute a whole, it will embody a specific idea, it will represent a doctrine, it will administer a code of conduct, and it will furnish principles of thought and action. It will give birth to a living teaching, which in course of time will take the shape of a self-perpetuating tradition, or a *genius loci*, as it is sometimes called; which haunts the home where it has been born, and which imbues and forms, more or less, and one by one, every individual who is successively brought under its shadow. Thus it is that, independent of direct instruction on the part of faculty, there is a sort of self-education in the academic institutions such as Oxford and Cambridge

or Stanford and Berkeley; a characteristic tone of thought, a recognized standard of judgement is found in them, which, as developed in the individual who is submitted to it, becomes a twofold source of strength to him, both from the distinct stamp it impresses on his mind, and from the bond of union which it creates between him and others, - effects which are shared by the authorities of the place, for they themselves have been educated in it, and at all times are exposed to the influence of its ethical atmosphere. Here then is a real teaching, whatever be its standards and principles, true or false; and it at least tends towards cultivation of the intellect; it at least recognizes that knowledge is something more than a sort of passive reception of scraps and details; it is something, and it does a something, which never will issue from the most strenuous efforts of a set of teachers, with no mutual sympathies and no intercommunion, of a set of examiners with no opinions which they dare profess, and with no common principles, who are teaching or questioning a set of youths who do not know them, and do not know each other, on a large number of subjects, different in kind, and connected by no wide philosophy, three years, in chill lecture-rooms or on a pompous anniversary. The student body has a major responsibility in creating, preserving, and perpetuating tradition. It is the intergral part of the university system.

The Purpose of a University

We have meandered from general aspects of the university system required for the growth of a university like Sri Jayewardenepura. The onus rests on the faculty, the student, and the governing body. I would like to conclude with a statement from a blue-print for a University by John Henry Newman, a lecture delivered almost 150 years ago "On Knowledge and Professional Skill."

"If then a practical end must be assigned to a University course, I say it is that of training good members of society. Its art is the art of social life, and its end is fitness for the world. It neither confines

its views to particular professions on the one hand, nor creates heroes or inspires genius on the other. Works indeed of genius fall under no art; heroic minds come under no rule; a University is not a birth-place of poets or of immortal authors, of founders of schools, leaders of colonies, or conquerors of nations. It does not promise generation of Aristotles or Newtons, of Napoleons or Washingtons, of Raphaels or Shakespeares though such miracles of nature it has before now contained within its precincts. Nor is it content on the other hand with forming the critic or the experimentalist, the economist or the engineer, though such too it includes within its scope. But a University training is the great ordinary means to a great but ordinary end; it aims at raising the intellectual tone of society, at cultivating the public mind, at purifying the national taste, at supplying true principles to popular enthusiasm and fixed aims to popular aspiration, at giving enlargement and sobriety to the ideas of the age, at facilitating the exercise of political power, and refining the intercourse of private life. It is the education which gives a man a clear conscious view of his own opinions and judgements, a truth in developing them, an eloquence in expressing them, and a force in urging them. It teaches him to see things as they are, to go right to the point, to disentangle a skein of thought, to detect what is sophistical, and to discard what is irrelevant. It prepares him to fill any post with credit, and to master any subject with facility. It shows him how to accommodate himself to others, how to throw himself into their state of mind, how to bring before them his own, how to influence them, how to come to an understanding with them, how to bear with them. He is at home in any society, he has common ground with every class; he knows when to speak and when to be silent; he is able to converse, he is able to listen; he can ask a question pertinently, and gain a lesson seasonably, when he has nothing to impart himself; he is ever ready, yet never in the way; he is a pleasant companion, and a comrade you can depend

upon; he knows when to be serious and when to trifle, and he has a sure tact which enables him to trifle with gracefulness and to be serious with effect. He has the repose of a mind which lives in itself, while it lives in the world, and which has resources for its happiness at home when it cannot go abroad. He has a gift which serves him in public and supports him in retirement, without which good fortune is but vulgar, and with which failure and disappointment have a charm. The art which tends to make a man all this, is in the object which it pursues as useful as the art of wealth or the art of health, though it is less susceptible of method, and less tangible, less certain, less complete in its result."

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