CONVOCATION ADDRESSES

OF

JADAVPUR UNIVERSITY

(1956--1996)

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Editors : Anuradha Chanda * Kunal Chattopadhyay

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FOREWORD

Jadvapur University, set up by an Act of West Bengal State Assembly in 1955, has its roots in the Indian struggle for freedom. It emerged out of the College of Engineering and Technology (CET) which in turn descended from Bengal Technical Institute that was established by the National Council of Education, Bengal, in 1906. Since its estabishment the University has striven hard to keep up to the aspirations of the intellectual horizon of the country. On this historic occasion of the fiftieth anniversary of independence I feel happy to announce the publication of the convocation addresses delivered in this University.

Convocation in an important event in the lifte of a university. For more than four decades distinguished personalities who excelled in different areas of national life were present at the annual convocations as special guests and shared their ideas and thoughts with the university academia. Whie the priorities of University are reflected in the choice of dignitaries invited to initiate the outgoing students to their new phase of life, texts of the address often highlight the contemporary issues political, social, economic and intellectual that engaged the minds of the intellectuals as well as policy-formers. Indeed, in more ways than one convocation addresses are useful archival material and I feel proud to have all the addresses so far delivered in his University published in the collection. I hope this will be of use of the scholars and general readers alike.

7 December, 1997

Subodh Chandra Som
The Vice-chancellor
Jadavpur Universiry

PUBLISHER'S NOTE

Jadavpur University takes legitimate pride in the fact that of the many institutions that emerged out of the nationalist upsurge of 1905–06, it is the only one of its kind to have stood the test of time and have now acquired a status unequalled by most other organisations which had received government patronage during the foreign rule. We firmly believe that our association in the early days with the stalwarts of the Bengal Renaissance has informed our institution with a spirit of a different kind which is the secret of its rapid success. The then College of Engineering & Technology was formalised as a regular university on 24th December, 1955. To commemorate the event, each year the Annual Convocation is held on the Foundation Day, that, the 24th Day of December, when we invite scholars and men of letters to come and deliver the Convocation Address as Chief Guest. They come with their beliefs, thoughts and convictions and disseminate them from the Convocation podium. Since the process of sharing of ideas is a continuous one and should be given as wide a scope as possible, a need was felt in the academic circles to publish a collection of such speeches. It has now become my privilege to publish the collection which I gladly take.

I acknowledge with gratitude the encouragement and assistance received from the Vice-Chancellor, Prof. Dr. S.C. Som and other faculty members. I am particularly indebted to Dr. Anuradha Chanda and Dr. Kunal Chattopadhyay of History Department without whose unsparing efforts this publication would not have been possible.

I am sure the publication will meet with your approval.

BHASKAR BANERJEA
Registrar

EDITORIAL NOTE

Historically speaking Jadavpur University is a progeny of two institutions which emerged out of the Swadeshi movement—the Bengal Technical Institute set up on July 25, 1906 by the Society for the Promotion of Technical Education in Bengal and the Bengal National College founded on August 14,1906 by the National Council of Education. In 1910, the Society merged with the National Council and with the amalgamation the scientific and technical departments of the Bengal National College were transferred to the Bengal Technical Institute. The combined institution was renamed as the Central National Institution in which the literary and scientific side was looked after by the Bengal National College and the technical and applied science side by the Bengal Technical Institute. There were two committees for the two sections which advised the Executive Committee regarding their respective concerns.

Over the years internal problems within the National Council, as well as rise in demand for technical education during the war years accompanied by a sharp fall in the admission to the Bengal National College, led to its closure in 1917. In 1928 the Bengal Technical Institute was renamed as the College of Engineering and Technology. It was directly from this college that Jadavpur University was born through legislative action—the Jadavpur University Act, 1955 (West Bengal Act XXXIII of 1955).

One of the striking features of the educational policy embodied by the National Council was its principle of combining literary with scientific and technical education. Indeed, the conference convened by Sir Ashutosh Chaudhury on November 16, 1905 which mooted the National Council of Education resolved that the task of the Council would be to 'organise a system of education—Literary, Scientific and Technical—on National lines.....' (*Golden Jubilee Volume of National Council of Bengal,* p.3, published by Jadavpur University, 1956). This idea was further developed when, due to the closure of the Bengal National College, the Council appointed a Reconstruction Committee in order to make recommendations on the basis of past experience. It is significant that one of the recommendations of this Committee ran as follows :

> Technical education, removed from humanising and liberalising influences, is sure to degenerate into a mainly bread and butter question, and thoughtful men agree in looking upon it as a doubtful good, particularly when they keep in view the best ideals of Indian Civilisation. To liberalise technical education the Committee suggest that the student should be induced to attend regularly such of the proposed lectures as are of general, humane and enduring interest. (*Golden Jubilee Volume of National Council of Bengal,* p.29, published by Jadavpur University, 1956).

It was this ideal of a more holistic and humane education which found expression in Jadavpur University when it was set up as a unitary teaching institution with three faculties of Arts, Science,

Engineering and Technology under the same aegis and within the same campus. In this sense Jadavpur University is the most important survior of the goal of national education as set by our nationalist leaders.

Since its inception in 1955 the University has never looked back. To the sprawling campus at Jadvapur, another at Salt Lake has been added. The two campuses together house thirty one departments[1]. A new approach began to take off from 1980s with the promotion of multi/ inter-disciplinary schools and various research centres. At present the University has eleven such schools where the artificial barriers of particular disciplines are dissolved and different disciplines interact to produce new ideas and promote new research.

Convocations form an important annual event of the University and they are organised with great care. Consequently Convocation Addresses occupy a special position. Delivered by the Guest-in-Chief at the annual gathering of the court, the highest governing body of the University, these often reflect the changing social conditions, political goals and cultural fashions as well as the ideologies at work. They bring out the changing concerns of leading personalities, many of whom play a prominent role in the national life and often are parts of history themselves. As such we hope that this volume will provide material for thought, for reasoned debate and will give an idea of a cross section of Indian minds at work during the last four decades. It will enable us to see how perceptions and goals have evolved during this important phase of Indian history.

This volume contains the addresses delivered by the Guests-in-Chief at the annual convocations held between 1956 and 1996. The University foundation day, December 24, was taken as the formal date of Convocation. The first convocation marked the foundation of the University when Dr. Rajendra Prasad, the President of India, presented the Univesity with its seal or logo. The first speech in this volume was delivered during the second Convocation. Later, on a number of occasions Convocations could not be held on the due date either because of political unrest or due to administrative difficulties. Thus convocations were not held in the years 1960, 1963 and 1968. Often convocations were delayed by a year or two. For the Convocation of 1977, there are three speeches delivered on three consecutive days. This was probably because the convocations of three faculties were held separately. The Convocation Address of 1993 is not available becuase the Guest-in-chief, Mr. M.A. Khan, Member of Public Service Commission delivered an extempore speech which was not recorded. On the whole between 1970 and 1988, the dates of the addresses and the years of the Convocation often do not tally. We have, therefore, mentioned in the Content the dates on which the addresses were actually delivered ; this does not always coincide with the year of the Convocation.

1Arts Faculty–11 departments
Science Faculty–5 departments
Engineering and Technology–15 departments

This volume also contains a list of names of dignitaries to whom Doctorates *(Honoris Causa)* have been conferred by the University. The need to bring out the volume within a certain period, as well as considerations of space caused us to regretfully abandon the plan to include the lists of Doctorates and University Medal awardees of different faculties.

Working on this project, small as it was, gave us considerable statisfaction. We would like to thank all those who have helped us in the work. The proposal was initially mooted by Sri Bhaskar Banerjea, Registrar of the University and he remained the driving force. Prof. Subodh Chandra Som, Vice-chancellor of the University, not only wrote the foreword, but kindly took time to go through the scheme and make valuable sugestions. To the Chief Librarian and the staff of the Central Library we will remain grateful for tracking down some of the more elusive addresses. The office of the Controller of Examination was equally helpful in producing the list of *Honoris Causa*. We would also like to record our gratitude to Ms. Deepanwita Das and Sri Abhijit Sen of the School of Women's Studies, Jadavpur University, for their help in the production of this volume.

Jadavpur University, Calcutta
October, 1997

Anuradha Chanda
Kunal Chattopadhyay

CONVOCATION SPEECHES

ANNUAL CONVOCATION ADDRESS

By

Shri C. D. Deshmukh

24th December, 1956

Mr. President, Graduates of the University, Ladies and Gentlemen,

I am happy to be in the midst of fresh graduates of Jadavpur University on the occasion of this Convocation, which marks a landmark in the history of the germinal institution, the Bengal College of Engineering and Technology. I recall to my mind the noble origin of this institution and feel proud and privileged that I should have been given the opportunity of participating in this function. There was a fine efflorescence of virile nationalism in our country 50 years ago and nowhere was it more resplendent than in Bengal. The Bengal College of Engineering and Technology was a symbol of this spirit together with some financial institutions and industrial concerns.

During these 50 years the Engineer has, one may justly say, come into his own. The administrator and the politician has to rely more and more heavily on the engineer and the technologist for both formulation of plans and their implementation.

The acquisition of a degree is an achievement worth felicitations, and I congratulate the young men (and women) who have received their degrees today. At the same time let me remind them that the acquisition of a degree or a skill is not a good thing in itself. All skills are good or bad according to the use they are put to. Technological skills can be used without a due sense of social responsibility and even exploited for manufacturing the means of mass destruction, or they can be harnessed for socially productive purposes and thus subserving the happiness of man. I am confident that the energies of Indian engineers will always be directed into constructive and socially meaningful channels.

It is naturally expected that the engineers and technologists of tomorrow have a good acquaintance with India's Five-Year Plans. Even a casual perusal of the Second Plan will convince them that they need not have any worry regarding gainful employment. I should like to go into some detail in regard to the problem of the demand and supply of engineering and technical personnel in India, before referring to other matters of interest to engineers.

Expenditure by the Central and State Governments on activities which demand engineering personnel has grown from Rs. 32.24 crores in 1938-39 to Rs. 518.29 crores in 1955-56. Even after making adjustments for the rise in price level as indicated by the Index Number of wholesale prices, the expenditure in 1955-56 would still remain as high as Rs. 137.84 crores as compared

to Rs. 32.24 crores in 1938-39. The demand in the public sector has thus grown four times during the last fifteen years. In the private sector also, a study of the growth in the total paid-up capital of relevant industries would indicate a three-fold increase in the demand for engineering personnel during the last fifteen years. Experiments have already been initiated in India on the peaceful uses of nuclear energy. If these experiments make rapid progress, then there is no knowing as to how many highly qualified engineers will be in demand for installing and looking after atomic reactors.

The shortages of engineering personnel at the end of the First Five-Year Plan had been calculated as some 1,200 graduates and 3,300 diploma-holders in the Civil branch in addition to some 950 graduates and diploma-holders in Mechanical branch, on the Electrical side, in Tele-communication and in other branches. It has been calculated that during the Second Five-Year Plan period India will require a little over 11,000 graduates and about 26,000 diploma-holders in Civil Engineering, 5,000 graduates and 12,000 diploma-holders in Mechanical Engineering, 5,500 graduates and 10,500 graduates and diploma-holders in Tele-Communication, Mining, Metallurgy and Chemical Engineering.

During the First Five-Year Plan, facilities for the training of personnel required in engineering occupations were systematically expanded by the Government. The Institute of Technology at Kharagpur as well as four new Engineering Colleges and 19 Polytechnics were established during the period. In addition, the Indian Institute of Bangalore as well as 20 existing Engineering Colleges and 30 existing Engineering Schools were further developed during the period. All these measures resulted in doubling the output of degree-holders and increasing the output of diploma-holders from 1850 to 4900 during the period of the First Plan. During the Second Plan it is proposed that a sum of Rs. 50 crores should be devoted to the expansion of facilities for technical education for producing engineers, supervisors, overseers and other categories of personnel. Among the programmes included are development of various technical courses relating to printing technology, town and regional planning, architecture, strengthening of existing technical institutions, establishment of higher technical institutions, expansion of Indian School of Mines and Applied Geology, organisation of refresher courses for serving engineers and so on. The result will be that institutions imparting training to engineering personnel both for degree and diploma courses will increase from 128 in 1955 to 155 in 1960. Targets for increasing the outturn of engineering personnel have been fixed in the Second Five-Year Plan. It has been planned that in the year 1960 India should turn out 1,900 graduates and 3,500 diploma-holders on the Mechanical side as well as on the Electrical side in addition to some 1,400 graduates and diploma-holders in Tele-Communication, Electronics, Mining, Metallurgy, Chemical Engineering, Aeronautical Engineering, Architecture and Automobile Engineering.

Some Indian students get their engineering training abroad and return to India after acquiring the 'know-how'. Foreign experts who are sent out to India under various aid programmes and the consultants and technicians who come to India to erect plant and machinery purchased by India, constitute another source of supply for India's requirements of engineering personnel.

In spite of the best effort of the Government and Universities to accelerate the outturn of engineering personnel, it is anticipated that in 1960-61, there will be a deficit of about 900 graduates and 5,000 diploma-holders in Civil Engineering and of 6,500 graduates and diploma-holders in the other branches mentioned just now. The Engineering Personnel Committee set up by the Planning Commission submitted its report on May 16, 1956 and recommended that steps should be taken to increase the capacity of existing institutions and to establish 18 more Engineering Colleges and 62 more Engineering Schools in different parts of the country. These suggestions, which will involve a total outlay of about Rs. 10 crores are under consideration by the government.

The Central Government has been aiming at co-ordinating the research carried on in India's 33 Universities, 14 national laboratories, 88 research institutes and 54 associations in the field of technology, with important problems in different fields of national development. Over 500 research scholarships of Rs. 200 per mensem have been instituted for students who wish to undertake research in science, engineering and technology. A scheme for research fellowships for encouraging advanced scientific research has also been introduced.

The purpose behind this profuse quotation of facts and figures before this gathering of fresh degree-holders is to inspire in them a sense of hopeful expectancy accompanied by a sense of grave responsibility. While addressing graduates in theoretical sciences or humanities, one has to caution them against false hopes or expectations. The spectre of unemployment is always haunting their mental horizons. That phantom does not face fresh graduates in engineering and technology. They are in great demand for the development and industrialisation of the country. But a sense of responsibility is also essential in view of the huge investments which the State is making in providing training facilities for engineering personnel. The engineering student must never forget that these huge funds have come largely from the tattered pockets of the Indian peasant who has to be repaid by making the most of these training opportunities.

The Engineering Personnel Committee has noticed some falling off in the standards and deterioration of quality of new recruits to the engineering profession. They have traced the causes and recommended field experience in industrial enterprises and engineering projects for teachers as well as students as one of the remedies against the deterioration. They also hold that the methods of examination are ineffective and recommended that more attention needs to be given to professional attainments than to bookish memorisation. This is a field in which industrial houses can come forward to serve the needs of the nation by accepting apprentices for training in their establishments. This will also give some opportunity to the students to earn while learning.

If the falling of standards is a fact, the would-be engineer has to be alerted about the consequent risk. The engineer is, as it were, the foundation of the edifice of India's prosperity. If the foundation is defective, the whole super-structure becomes weak. It is no use putting the whole blame on external factors. Only a bad workman quarrels with his tools. The materials available in India offer enough scope to a competent engineer to exercise his creative genius. An engineer who has imbibed the spirit of the dignity of labour and who looks upon his employment as work and not merely as JOB, would enjoy the co-operation of his work-mates. And if his work-mates are prone to shirk their responsibilities, he should learn to command their co-operation. But unless the Civil Engineer can give practical guidance to masons, brick-layers, plumbers or carpenters; unless the Mechanical engineer can show a better way to lathe operators, moulders, turners, furnacemen or boiler-attendants; unless the Electrical Engineer can help wiremen, fitters or linesmen; unless the Agricultural Engineer can operate farm machinery and the Mining Engineer can do some drilling, he will neither enjoy nor command co-operation.

With the advent of Independence in India, the days of high-brow bureaucracy are over. It is no more possible to drive the people any more than it is possible to ignore them. If the people are to be inspired into making the necessary gigantic efforts of construction, they will have to be led, and not driven, by engineers who know their jobs and who are willing to put their shoulders to the wheel. The engineer should look upon himself as the captain of a team and not as the driver of an unwilling herd. Then alone will he be able to make those he leads play the game. This game has to be played fairly. All malpractices and corruption prevalent in the works of development and construction have to be eradicated. Only a conscientious captain of a vigilant team can eradicate this evil from the soil of India. If this evil is not eradicated, all schemes of economic progress will be seriously retarded. It is a patriotic task which only an engineer, and not the administrator or the politician can fulfil. An engineer is only he who can construct a bridge for, say, ten lakhs, which any fool or knave can construct for one crore of rupees.

Before dwelling further on the pitfalls of the engineering profession, I should like to refer to the noble tradition to which the graduates of the Jadavpur University are heirs. That conference of leading citizens of Bengal held in Calcutta on November 16, 1905, which appointed a Committee to take immediate steps to establish a National Council of Education and to organise a system of literary, scientific and technical education on National lines and under National control showed rare courage and vision in an age the horizon of which was darkened by imperial bureaucracy at the height of its arrogant power. This Committee included men like Dr. Rash Behari Ghose, Sriyuts Surendra Nath Banerjee, Gooroodas Banerjee, Rabindranath Tagore, Arabindo Ghose, C. R. Das and Bepin Chandra Pal. The National Council of Education had only an endowment fund of Rs. 8.5 lakhs when it launched on the ambitious venture of establishing a National University for imparting a more comprehensive system of education. The Bengal Technical Institute was amalgamated with the National Council of Education and the devoted batch of workers passed through many vicissitudes.

Again with singular clear-sightedness, the Reconstruction Committee appointed by the National Education Committee in 1918 anticipated many of the problems of Independent India and recommended that the Bengal Technical Institute be developed with a view to enabling young men to organise simple home industries on national lines and with improved technique. The Committee desired that the Institute should serve the cause of the industrial evolution of the country not merely by turning out 'hands' but also by producing men who could organise and conduct simple industries with a small capital, and thereby maintain the independence and dignity of labour. The Committee was also aware of the harmful potentialities of excessive specialisation, which the modern educationists are seeking to mitigate through General Education. On this issue, the Committee observed that technical education, removed from humanising and liberalising influences, was sure to degenerate into a mainly bread and butter question and it should, therefore, be supplemented by lectures on subjects of general, humane and enduring interest. The Committee had also thought of the problem of the medium of instruction and recommended that as far as practicable, instructions should be given in Bengali.

The recommendations of this Committee were accepted and given effect to. The National Council of Education devoted almost the whole of its resources to technical education through the Bengal Technical Institute which came to be renamed the College of Engineering and Technology, Bengal, from the year 1928. National independence brought state help as well as recognition of degrees by Public Service Commissions and certain other authorities. For a long time the College had been virtually functioning like a University. The crowning success of this chequered endeavour came when the Government of Bengal gave statutory recognition to the historical individuality of this institution by the Jadavpur University Act, 1955, enabling them to provide for the teaching of and for training and instruction in, all branches of engineering, technology, humanities and sciences.

With the creation of the Jadavpur University, the University Grants Commission, of which I happen to be the Chairman, has not lagged behind in extending all possible co-operation for its healthy growth. The Commission has agreed to a ceiling recurring grant of Rs. 5,98,000/- to the University. In addition to this the Commission has agreed to share the burden to the extent of Rs. 3,47,730/- for providing additional accommodation, and Rs. 9,68,532/- for the starting of Civil Engineering Degree Courses. Proposals in respect of the College of Arts, hostel buildings, buildings and books for library and wiping out of old debts have been put forward to the Commission on behalf of the Jadavpur University. These proposals involve an amount of more than Rs. 17 lakhs and all I can say today is that the proposals are undergoing a sympathetic and careful scrutiny at the hands of the Commission.

With this brief retrospect of the past tradition and achievements of the Jadavpur University, let us again turn to the general problems facing its alumni. Since the College of Engineering and Technology is the reservoir of inspiration to the Jadavpur University, it is natural to expect that the

objective or the engineering outlook will orientate the attitude of its graduates. The engineer, it is often said but seldom proved, suffers from a paralysis of personality on account of the extreme specialisation of his subject. It is true that there is a good deal of specialisation in the Engineering line. We have specialists in buildings, town planning, highways, irrigation and hydraulics. There are specialists in mechanics and electricity. Sanitation and Public Health constitute a special branch of learning. Soil and Water conservation as well as farm machinery constitute the branch of Agricultural Engineering. Sound, Tele-communication and Combustion are subjects of specialised study. Mining of coal, metal and petroleum calls for the concentrated attention of a specialist. Textiles, sugar, cement, iron and steel may demand the services of specialised experts in India. Aeronautical, marine, locomotive and automobile Engineering have branched off into separate trainings. The need to reduce frictions between the various parts of complicated mechanisms has given birth to a set of specialists known as lubrication engineers. Lastly on the threshold of this age of atomic energy and nuclear power, India will be needing the Nuclear Engineer for her reactors.

The tree of knowledge naturally branches off as it grows. The sciences get more and more specialised. This specialisation is a boon in so far as it leads to greater skill; but when it results in narrowing the vision of the specialist, its harmful aspect is termed as compartmentalisation. Specialisation is unavoidable in the development of sciences and the only remedy to guard against narrow compartmentalisation of human personality is to supplement the training of the student with a liberal dose of General Education whereby he will know something of everything while knowing everything of something.

It is also usual to make a distinction between intellectual sciences and manual arts. Systematic knowledge is regarded to be the function of sciences and skilful action is regarded to be the function of manual arts. There used to be a great gulf between intellectual sciences and manual arts in India. All learning, which consisted of grammar, logic, metaphysics and similar other genteel disciplines, was the monopoly of a handful of Brahmins. And the large number of artisans and craftsmen developed their manual arts empirically, without any attempt at systematising, analysing and generalising their experience. These manual arts were perpetuated from generation to generation by word of mouth and, therefore, were confined to particular castes.

With the arrival of engines, ships and machines in India as a corollary to the advent of industrial revolution in Europe, the social stratification in India began to lose its rigidity. The old learning was insufficient to cope with new problems and the inherited skills and arts were unable to provide bread in an industrialised world. The caste system is breaking up fast because the choice of profession is no more determined by birth. It is not uncommon to find a Brahmin boy chiselling a piece of leather and a so-called Harijan young man delivering a lecture on philosophy. The old polarisation is vanishing and intellectual sciences and manual arts are getting mixed up.

In this emergence of the synthesis of intellectual sciences and manual arts, the engineer and the technician has to play a very responsible role. To use the analogy of a logical syllogism, the engineer is the middle term between intellectual sciences and manual arts. He has to establish a liaison between the two by making theoretical sciences more useful and the manual arts more enlightened. He has to induce the theoretical interpreter of natural phenomena to think of practical utility and he has to help the artisan and the craftsman in doing the practical work of the community more intelligently.

The engineer, in this new era of a Welfare State, need not look upon himself as merely a skilled agent of an amateur master. In this age of collective nation-building, the engineer is in a better position to advise and guide the enterprise of national reconstruction. He need not feel himself inferior to the political or administrative officers who usually have the authority to take final decisions on matters they are not technically competent to deal with. Indeed some engineers may happen to have a talent for administration. That must have been the reason which prompted the Engineering Personnel Committee to recommend that technical and scientific personnel should be introduced at suitable levels in the general administrative machinery, especially to hold posts where their experience was of value. If the engineer has to play a leading role in the building of a Welfare State, it will be necessary that in addition to his specialised knowledge, he should also be able to understand and handle problems of industrial finance, business administration and labour relations. As the University Education Commission has observed, the success of engineering projects very often depends as much on the knowledge of these problems as on the knowledge of engineering technology.

The function of applied sciences is to adapt the universe to the needs of man, through an application of pure sciences. But while applying or discovering the devices for surveying, drilling or moulding the universe, the engineer has to remember that from times immemorial, man has also undertaken the great enterprise of adapting himself to the needs of the universe, particularly to the needs of the human society. Religion, Philosophy, Art, Literature, Politics, Economics and other endeavours of the human mind are the outcome of this complimentary attempt of adapting man to the universe or of adapting human motives and emotions to the requirements of social life. If the engineer has to make his contribution to the laying down of State policy, he must develop a broad interest in human affairs and feel impelled towards the perennial ideals of Truth, Goodness and Beauty that have been beckoning the saints, scientists, partriots and poets through the generations.

This is one reason why many educationists insist that an engineering college should be situated in the campus of a University. That perhaps is the reason why the Jadavpur University which is evolving round the nucleus of the College of Engineering and Technology, is planning to develop faculties of theoretical sciences and humanities within its jurisdiction. A look at the

development map of Jadavpur University, which clusters engineering departments, workshops, laboratories, library, College of Arts and Science, Gymnasium, Pavilion, Polytechnic, hostels, hospital and staff quarters together, holds out the hope that this University will send out sound youths—intellectually, physically and morally sound youths—to undertake the great tasks of national re-construction and to set an example for other citizens to emulate.

The young graduates who have received their degrees and certificates today and who, I wish and pray, will enter into a long and creative span of life, bringing happiness to themselves and prosperity to the community, should never forget that, in the words of the late Surendranath Banerjee, they are the alumni of 'the first great constructive effort of the Swadeshi Movement', namely, the Jadavpur University.

I thank you, friends, and wish you the best of fortunes.

ANNUAL CONVOCATION ADDRESS

By

Dr. Zakir Husain

December 24, 1957

Mr. Rector, Members of the Jadavpur University, Graduates of the year, Ladies and Gentlemen :

At the very outset I share with you the disappointment at the absence due to indisposition, of the President of the University Dr. Bidhan Chandra Roy and I hope you join with me in wishing him a very speedy recovery and long long years of healthy and fruitful life. He is a tower of strength not only to this University but to the State and to the Country. I had looked forward to share with him the joy of being here and I am sorry I cannot do it ; but I share it with you, Mr. Rector, and the rest of the University, because I cannot adequately express my sense of happiness at being with you here to-day.

I am always happy when I am at a School or a College or a University. Having been a student or a teacher—which is, indeed, being a student with, if possible, a greater measure of responsibility—most of my life, I feel happiest among students and teachers. This instinctive reaction is reinforced by the conviction that it is this group of our country's citizens that has a very significant role to play in the shaping of the future pattern of our thinking and of our life. The more wide-awake this group is, more aware of its responsibility, the more vigilant in regard to the traps and snares in the way of constructive thinking and critical appraisal, the better equipped to think straightly, the more anxious to share its ideas with its own members and with the rest of our countrymen, the better for our people in these the formative years of its new life.

But there is something more than this instinctive attachment to educational communities which I mark in my happiness today. Aparently a stranger to your great institution, my feeling is yet one of home-coming. For one may belong to a centre of light and learning, to a seat of significant national endeavour even from a distance. The work that has gone on at this centre and the names of many who, in the face of great odds, have helped to ensure its growth and development, have been a great source of inspiration to the generation to which I belong. When in the twenties I and a host of others like me, under the transforming and transmuting spell of Gandhiji's leadership, decided to dedicate the best years of our life to the cause of national education, the 15 years of the hard and uphill work of the National Council of Education and the courage and vision it enshrined were before us and beckoned to us to surrender ourselves gladly to, and to put forth our best for, the accomplishment of a task which, we were convinced, was one of the basic requirements of the national renaissance. Bengal, the pioneer in other fields of

national awakening—social, religious, political and economic was also the leader in this field of national education. For that we attempted and might have achieved we owe a great debt of gratitude to you of the National Council of Education who showed the way and set the style. It was due mainly to your vision that throughtout the period of our national struggle for freedom, education held a central place in all programmes of action. It was due to your infectious example that some of the best of India's youth were found willing to devote themselves, with a sense of mission, to the rather unspectacular work of education, to its deliberate and purposive sustained and patient toil, thankless and tiring at times, poor in immediate harvest. How one would wish that in the changed circumstances of today, with the resources of a people determined to fashion a good life at the disposal of the devoted worker, some of the traditions of those harder times might well be maintained and education might continue to attract some of the best talent in the country and some of the single-minded spirit of dedication that it succeeded in calling forth in those difficult days. The great enterprise of building up a New India is essentially an educational enterprise.

Mr. Rector :

The National Council of Education, 'the first great constructive effort of the Swadeshi Movement', was, as you know, established "to organise a system of education—literary, scientific and technical—on national lines and under national control." Owing to the exigencies of a difficult situation, the extremely limited resources, the utter neglect, in those days, of technical education, all seem to have led the Council to concentrate its efforts on technical education. The educational complex it established had to wait for long years to grow into the full-fledged University of Jadavpur. It was, perhaps, good so. For in most other cases Universities have grown out of institutions of arts and sciences. But, as every one knows, all art and all science have grown out of handwork and out of the attempt to direct the materials and sources of power in nature for the use and convenience of men. It is this sequence of development in human history, recapitulated also in individual growth, I might allow myself to point out, that has, among other things, actuated the sponsors of Gandhiji's scheme of Basic National Education to rely on intelligently organised hand-work as the main educative activity in the years between seven and fourteen. But that is, let us remember, in the beginning. As life advances and human knowledge grows a constant process of cross-fertilisation goes on between the various aspects of human endeavour. It is, therefore, in the fitness of things that you have grown from a College of Engineering and Technology into a University. The Engineer that grew out of the artisan and the craftsman's tradition—as he once did—could have been trained in isolated institutions, but the engineer who has to base his professional activity on scientific knowledge and on habits of disciplined and organised thinking has to be closely associated with scientific and, yes, humanistic learning. Even engineering, which has been over the years the centre of your interest and effort, if it has to play its rightful role in man's march to progress, if it has to lead man to victory in the fight against a niggardly nature which gives us only a very limited span of life and provides us only with very scarce means to

satisfy our endless wants, will have to depend for the sharpening of its tools and the chiselling of its techniques on fundamental scientific discovery. Minds wedded to routine tend to lose the elasticity which an ever-changing and ever-growing fund of scientific knowledge demands for its proper utilisation for the needs of man. A close relationship between engineering and scientific study and research is clearly indicated. And not only scientific, but also humanistic studies and research. With the ever-widening possibilities of work of great social utility opening up before the engineer in our country, it is essential that he should understand and appreciate the manifold forces operative in that society. With the ever-growing scale of engineering projects, the engineer has to deal not only with a growing mass of material and machines but also with larger and larger numbers of human beings. He should understand and appreciate the urges and aspirations and limitations of these human beings. To understand labour relations—and understand them he must—he should understand human relations and have some insight into the complicated workings of the numan mind. The growing size of an engineer's usual project involves larger and larger finance and more and more effective business administration. It will soon not be enough to have the technical ability to execute what others plan. The Indian engineer of the future will have to plan and be able to determine policies and to take a broad view of men and affairs. And what is by no means less important, we may not forget the man in appreciate what life has to offer. It he can make machines, need he agree to having his mind turned into a machine, incapable of appreciating good poetry, good music, good pictures, good books and good human relationship ? It is good that he is not at an engineering college only but at a University. But then, the University will also have to grow into an institution which can give him all that. A University comprising sovereign faculties and all but soverign departments of studies, agreeing at best to co-exist, may not be able to do so. This University is in its formative years and may well give a lead to others who may find it difficult to pull themselves out of ruts cut laboriously over the years. There is a great deal of discussion these days in Indian University circles about general education. The question of specialised *vs.* general education is, perhaps, not a properly posed question ; and the way of question is posed is very important, not only in law but also in academic practice. The growing complexity of human social existence and the rapid expansion of human knowledge make some kind of specialisation inevitable, in order properly and profitably to use the knowledge that is available and, even more so, to extend that body of knowledge. Specialisation, yes, but at what stage in education. May it not be that is should come after and not before a general appreciation of the main aspects of knowledge has been attained ? May it not be, I throw it out as a suggestion, that the connected totality of knowledge is allowed to have its initial impact, before it is broken up into separate, smaller and smaller compatments by specialists and before knowledge becomes subjects of which the specialist prescribes the details ? And the specialist, by the constant practise of his self-denying narrowness, is usually average to the proper appreciation of any other angle of vision but his own. He prescribes with a view to multiply himself, not the destiny of all educated men and women. Could it not be that the material of instruction is so selected as to make it functional for guidance towards a more satisfactory adjustment of the individual to the society of which he is a part ? Is it not possible to provide for a guided confrontation with problems which face all educated members of a society alike—problems of

living a good and graceful life, problems of effective citizenship and worth-while human relationships, with the possibility of learning to appreciate and enjoy the products of man's creative effort and evolving the capacity for reflective thought about the physical universe and the world of men in which we are placed ? Is it not possible to so fashion our first degree courses as to aim at giving some measure of the essential scientific, aesthetic and moral culture by having represented in it the broad fields of the humanities, the physical sciences and the social sciences ?

I have thrown out these ideas as I feel you are now poised to realise in full meausre your initial resolve of organising a system of literary, scientific and technical education on national lines and under national control. You cannot easily organise it on national lines if you don't seriously consider the questions I have posed and get to your own answers about them. It needs no argument to establish that, in the changed circumstances of today, it is essential to stop effectively the recruitment, to the ranks of our educated, of young men who are blind to the beauty of their own art, deaf to the harmonies of their own music, ashamed, almost, of their cultural heritage, or, what is about the same, ignorantly and arrogantly parading about it, incapable of using their tongue with any degree of competence or effectiveness, woefully unaware of their own literature, indifferent to the social scene around them and out of touch with the aspirations of their people.

As to 'national control', we have happily got it in the sense the words signified when they were used. We are a free people and can hold our head high ; no outsider can control any aspect of our life. But there is, in my view, more to that expression than this. It is an indication of the wise insight of the founders that education, specially higher education, by the nature of its obligation to learning and to the community, should not subserve the exigencies of any university. Coming at a time when, under foreign rule, we were handmaids of the ruler's interests, this was a revolutionary declaration. In our own day, when the disabilities arising out of a foreign rule are happily gone, it is a statement of the wisdom of a people anxious to see its universities grow into vigorous centres of the nation's intellectual and moral life. For freedom is the life-breath of intellectual and moral life. On the preservation of academic freedom depends the strength and vitality of the universities as transmitters of culture, as critical appraisers of culture, as places of extending the boundaries of knowledge, as the headquarters of the nation's general-staff of forces assigned for the advance across the frontiers of ignorance and prejudice and superstition, and as places for the formation of character and the building up of free moral personalities from generation to generation. Of course, this freedom, like all freedom, can not be absolute. But the only limitations and restraints on its should be those of decency and decorum and those of social responsibility, and these it is the duty and the privilege of all connected with a university—students, teachers and administrators alike—to cherish and develop. Freedom is never given, it is earned, and kept only by those who continue to earn it every minute of their active life. While I am sure this University will do everyting scrupulously to guard its autonomy, I fervently hope that it will leave nothing undone most amply to deserve it. For only thus can she keep it.

Now a word to you, young friends, who are receiving your degrees today and stepping out, as

it is said, into life. Life, friends, is composed of sterner stuff than words. It is more than the mere glamour of the phrase. The axis on which worth-while life rotates is not the axis of pleasure and pain but one of progress and retrogression ; not the axis of profit and loss, but one of self-realisation and self-abasement ; not the axis of self-seeking and self-aggrandisement but one of service and sacrifice. It rotates round the axis of the noble and the ignoble, of the worthy and the unworthy. Life is striving for ever higher ends, life is a mission, life is service, life is worship. To be worthy worshippers at the Shrine of life you have to work hand and you have to work incessantly to develop to their fullest extent the capacities with which nature has endowed you.

You have **above all** (1) to strengthen your **will** and train it to express itself not only spasmodically in torrential impetuosity, but in a steady flow of sustained effort capable of realising ends which take time to get realised ;

(2) You have to train your **judgment** to be able to come to independent decisions on issues on which decisions are inescapable ;

(3) You have to broaden your **vision** to be able to see also the other man's point of view, to understand and appreciate it before accepting or rejecting it ;

(4) You have to learn to be true to yourself, to try to be yourself, an original and not just a copy. You have to develop, that is, the capacity for independent judgment, and sustained action, a love of freedom, and tolerance, a preference for methods of persuation rather than force. You have to develop a breadth of sympathy, a sense of social responsibility and a readiness to sink personal and group interest in the common good of a bigger whole. You have to develop a genuine interest in the life that surrounds you and a keen desire to contribute to its imporvement. You have, in short, to work on yourself, to build on the foundations of your peculiar individual endowment a harmonious, stable and sensitive character. This character you will harness to some of the higher values of life. That will give your life a meaning and a purpose, a more than mere transient significance. It will transform you into a moral personality. From individuality, through character to personality is the destiny of worth-whole human life. It is a programme of life-long endeavour, of work on yourself, the work of self-discipline and self-perfection and work in the willing and cheerful service of larger and higher aims than the mere personal. It is time to start on that adventure if you have not done so already. For though you are young and have a whole life before you to fill with effort and achievement, yet time flies fast, and time lost can never be regained. Remember that youth is not an attainment, it is an opportunity—don't let that opportunity go by. Jai Hind.

ANNUAL CONVOCATION ADDRESS

By

Dr. K. S. Krishnan

24th December, 1958

Mr. President, Rector, Fellows and Graduates of the Jadavpur University

It is a great honour indeed to be invited to address the Convocation of any University. But to an old student of Calcutta, like me, who is very much aware of the romantic background in which the National Council of Education was inaugurated, and who has watched it grow over the years to its present stature, the invitation from Jadavpur evokes more than mere appreciation of the honour. It makes me look back with a certain nostalgia to the robust idealism of those days which, among other things, made such great institutions possible, and which, alas, even in Bengal, is becoming rare to-day.

The National Council of Education typifies in many ways our idealistic outlook on problems of education. I find that the Upanishads figure prominently among the subjects taught under the auspices of the Council in the early days and Hirendra Nath Datta had been conducting these classes. So I may be pardoned if I quote from the Upanishads. We listened to the noble Exhortation by the Rector to the outgoing graduates. It is taken from the *Taittariya Upanishad*. Immediately preceding these exhortation verses there is report of a small conference between three rishis which is academically extremely significant as illustrating our old ideals. They pose the question, "What is Tapas ?" They have already decided that tapas is the highest ideal in life.

The first rishi 'Satyabacas' सत्यमिति सत्यवचा राथीतरः Rathitara is the name of the first rishi and he says, "Tapas is Satyam". The word 'satyam' does not merely connote what in English we call 'truth'. यथादृष्टार्थवसीयं हितरुपबचनम्. The contents of it should be the best of one's personal knowledge but the wording of it should be such as to serve the good of humanity. It is a very noble ideal, indeed. Even the Upanishad is not satisfied with it.

The Upanishad says, with a certain delicate humour, "Remember, Rathitara is a Satyabacāḥ, that is, remember he is a specialist." It is like going to a dentist. Whether you have irritation in your eyes or pain in your throat he will examine your teeth first. It is the same thing with Satyabacah, who is a specialist. If you ask him what is tapas, he will say 'satyam'. If you had asked him 'what is dharma', he would still have said 'satyam'. That is the specialist. तप इति तपोनित्यः पौरुशिष्टिः, Pourasisti is the name of the second rishi who is even a more narrow specialist. It is like asking me, "What is electricity ?" Probably I will give you a long lecture for about ten minutes and then finally end with saying, "You understand what I mean electricity is electricity".

He is a taponitya. He does not quite understand significance of the question. After all, by what more appropriate word you can describe tapas. He says, "Tapas is tapas". तप इति तपोनित्यः पौरुशिष्टिः । स्वाध्यायप्रवचने एवेति आह नाको मौद्गल्यः ।

The next rishi to express his views is Naka—Mudgalya's son. So he is Maudgalya and he affirms स्वाध्याय and प्रवचन,—they and they alone consitute the tapas. By स्वाध्याय we mean study by any one of the numerous methods that we know—it may be by research, it may be by listening to discourses, it may be by contemplation, it may be by meditation—any one of the numerous methods by which we acquire knowledge. प्रवचन, again, is imparting knowledge to others by any of the numerous methods. स्वाध्याय and प्रवचन, they and they alone constitute tapas according to Naka. The Upanishad is very careful to refrain from saying that he is a specialist. The Upanishad could have added स्वाध्यायप्रवचननिरतः नाको मौद्गल्यः. It does not say any of these things. It just lets him affirm. But, lest there be in the audience someone who has no sense of humour and could not even take such a broad hint, the Upanishad does not want to take any risk and so it shouts out by raising the hands, "तद्धि तपः तद्धि तपः"—"that certainly is tapas, that verily is tapas." That is the affirmation. It is one of the noblest ideals for a University—स्वाध्याय and प्रवचन, they and they alone constitute tapas which is the highest ideal in life. In fact, in the exhortation that follows—स्वाध्यायान्मा प्रमदः । स्वाध्यायप्रवचनाभ्यां न प्रमदितव्यम्—and finally it uses all the numerous nuances of the language to beseech the students and to impress on them the nobility of the ideal—एष आदेशः—एष उपदेशः and so on. It uses the different ways of exhortation.

The Upanishad also prescribes a certain discontent which is sometimes described as divine as an essential prerequisite for enlightenment, i.e. for a proper understanding of things of permanent value. That discontent was there in a large measure, during the formative years of the Council. I started with the thesis that the National Council of Education typified in itself our idealistic approach to problems of education, namely, that the type of education that was being imparted in those days was not in consonance with the great academic traditions of the country. Judged by the best academic standards these traditions of ours are today as modern as they were nearly three thousand years ago when they were getting established.

Strong adjectives like "Satanic" came to be applied to the old types of education, by which I mean the type of education that was prevalent at the time when the National Council of Education was started. This adjective was applied at a much later date.

The National Council of Education was the people's answer to this challenge and a galaxy of very distinguished teachers like Rabindranath, Aurobindo and Ananda Coomaraswamy and many others volunteered to do service of the Council. Its major objective as you must have heard several times from this platform but is worth repeating was (I am quoting) "to impart education—literary and scientific, as well as technical and professional—on national lines, and exclusively under national control, not in opposition to, but standing apart from the existing system of primary,

secondary and collegiate education, attaching special importance to a knowledge of the Country, its literature, history and philosophy, and designed to incorporate with the best Oriental ideals of life and thought, the best assimilable ideals of the West, and inspire students with the genuine love for, and desire to serve, the country." A noble ideal indeed, and very much in keeping with the spirit of the times.

The movement had its so-called "realist" too who pinned their faith on technological progress as the remedy for most of the ills of the day. The facilities that were then available for technical education were very poor, much poorer than the facilities available for general education, and that, in the opinion of this "realist" group, needed immediate rectification. The Society for the Promotion of Technical Education in Bengal, and the Bengal Technical Institute, organised under its auspices, were the obvious answers from this school to the challenge.

I wish to draw your special attention here to a very significant third group, which, judging from the scant references made to it in the current histories of this movement, is not as well known as it should be. I am thinking of the group represented by the great Mahendralal Sircar, who had devoted considerable time and thought to problems concerning the cultivation of the sciences. He had the correct scientific outlook, rather rare in his days, and rare even today, and his annual addresses to the Indian Association for the Cultivation of Science, of which he was the Founder President, were models of clear thinking and exposition, and show how far ahead of his many distinguished contemporaries he was.

Though the major ambition of Mahendralal in founding the Indian Association for the Cultivation of Science, namely, that it should be an active centre of original scientific research, had not yet been fulfilled—indeed it had to wait to a later generation of scientific workers who have since made great history in the laboratories of this Association. Even so, 210, Bowbazar had already established great tradition as the premier institution for the dissemination of scientific knowledge. The well-known Friday evening lectures, organised on the model of the evening lectures at the Royal Institution in London, and delivered mainly by himself and by Father Laffont, over several decades had become very popular and were attended regularly by some of the elite in Calcutta. Mahendralal Sircar generously offered the resources of this great institution to the new movement. This generous offer was not accepted and it was not even properly appreciated at the time. The reason given was very significant, namely, that what was needed to serve the cause of the new movement was an institution for technology and for the applied sciences, and not an institution for the pure sciences, as the Indian Association for the Cultivation was.

The distinction between the pure and the applied sciences was at that time nearly as pronounced as the distinction between Gentlemen and Players at the Lords, or between amateurs and professionals in tennis today. This was so, not only in India, but in other countries too which had much wider background of scientific experience. Mahendralal was one of the notable exceptions. That was why I referred to him as having been far ahead of his contemporaries in the scientific outlook.

The well known toast for Mathematics, namely, "May it be of no use to anybody at any time" is typical of this outlook. The great mathematician Gauss, who will rank with Archimedes and Newton as one of the greatest the world had ever produced, is reported to have claimed that if mathematic were entitled to be called the Queen of the Sciences, then Arithmetic, by which he meant the theory of numbers, should be regarded "as the Queen of Mathematics" and he went on to add very significantly, "because it is the least useful".

One of his very distinguished successors in Göttingen Professor Klein, realised the value of close contacts between the pure and the applied sciences and he periodically arranged for visits by the pure mathematicians to technical colleges, in order to establish such contacts. Klein was due to lead the group of pure mathematicians on one such visit, when he fell ill and his place was taken by the very distinguished mathematician Professor Hilbert and he had been specially requested to emphasise the main purpose of the visit, namely, the value of close contacts between the pure and the applied sciences.

In the course of the visit Professor Hilbert took occasion to assure the technical people somewhat like this : "Many people talk loosely of the antagonism between the pure and the applied sciences. I want to assure you of this that there can be no such antagonism between the two. How can there be any antagonism when there is nothing in common between the two, when the one has nothing to do with the other ?" I must add, immediately, that it took several new visits before this damage done inadvertently by Hilbert could be rectified.

There is some point in the pure Mathematician who resents the intrusion from outside and wishes to be left alone, expressing some such exclusive sentiments. But the same sentiments would obviously be quite inappropriate as statement of an educational policy.

I should mention in passing that there is hardly any branch even of the purest mathematics, that does not ultimately find application. At a gathering of mathematicians in the United States, many years ago, this question was posed and the theorem of partitioning of numbers was mentioned as a typical example of a branch of Mathematics that is extremely unlikely to find application. To the surprise of many in the audience a physicist from the Bell Telephone Laboratory announced that he had been applying it, applying the theorem, to the splicing of cables. I have since looked up the *Bell System Technical Journal* and there are two papers by this author which describe in detail the application of the theorem of partitioning of numbers to the splicing of cable.

To the Pharaoh this was a live problem to know the volume over the truncated pyramid which was growing, which was yet to be built, to be able to estimate how long it would take to complete, and in particular to know whether it could be completed in time to receive him on his death.

The mathematician must have watched the pyramid go up layer after layer, each of same thickness, but whose base areas were progressively smaller. The volume of each layer is easy to calculate, and hence the total volume of all the layers. To extrapolate from thence the total

volume to the limiting case where the layers are infinitesimally thin there is a major step in mathematics. The clue to the solution must obviously have come from observation.

This is merely to illustrate how the development of even pure mathematics is greatly influenced by its applications. The Fourier series which plays an important part in many branches of engineering was discovered in the process of trying to understand some problems on the conduction of heat. So was spherical harmonies. So was the theory of groups.

If mathematics, which is the purest of the sciences, is so influenced by the applications, the influence on the other sciences would obviously be even more pronounced. Thus the pure and the applied sciences go hand in hand, and help each other to grow.

In attempting to develop technology without developing adequately the background of the pure sciences, we would be very much in the position of my favourite philosopher Prutkov. Prutkov is a pseudonym under which many Russian authors like Alexis Tolstoy have expressed some bright sentiments. Prutkov poses the question : "Which is the more useful, the Sun or the Moon ?" and himself supplies the answer : "Of course the Moon, because it gives us light during the night when we most need it."

That was where Mahendralal scored, and later events at the National Council of Education have amply justified the stand which he took.

Nearly twenty years ago I had the honour of giving the foundation day address at Jadavpur. It was then an Engineering College. Today it has grown into a University, with a Faculty of pure sciences—which ultimately sustains technology—and a Faculty of Arts too, for their cultural value and for their humanizing influence which the technologist greatly needs; and in due course, I am sure, you will have other Faculties too.

Indeed, in the early years of the movement, more than fifty years ago, we spoke loosely of a National University, without realising its full implications. We are realising that ideal today. If the offer made by Dr. Mahendralal Sircar more than 50 years ago of the resources of the Indian Association for the Cultivation of Science for this movement had been accepted the realisation might have come much earlier.

I spoke about the humanizing influence of the arts and their cultural value. The sciences have a cultural value too. Science and Culture is the title of a famous essay by the great Huxley, and our experience during the intervening period has greatly confirmed the sentiments expressed therein. The utilitarian value of the Sciences have tended in some measure to cloud their cultural value. As I mentioned elsewhere I am reminded of a touching episode in Valmiki's Ramayana. In the Atri Asram, Anasuya asks Sita the question : "What is the secret of your being such an ideal wife ?" Sita feels genuinely embarassed. She says : "My husband happens to possess all the virtues in the world. I wish he had none of them, just to be able to demonstrate that I would

behave towards him exactly the same way as I do now." I sometimes feel the same way about the Sciences. I wish we could forget for a moment the utilitarian value of Science, in order to be able to appreciate better its cultural value, which is very real, and is comparable to the cultural value of the best music, or the best literature. Since you in Jadavpur grew from an Engineering College and you know exactly why you added a Faculty of Arts, I would like you to remember that the Science Faculty has its cultural side too besides being so helpful to technology.

There seems to be a vague feeling even among some of the engineers that the pure sciences are high-brow and for some reason the Engineering Sciences are not. Professionally, of course, the engineers are much better off. I am told that the alumni of Jadavpur College have been able to collect a lakh and a half for the College fund. A distinguished visitor to Mount Wilson Observatory, after seeing its large quadrangle, is reported to have remarked that was spacious enough to accommodate the automobiles of all the mechanics and the walking sticks of all the astronomers. The non-highbrow feeling of the Engineer might be result of the old Puritanic dictum that what is comfortable, convenient or profitable is suspect. It may also be part of our heritate from a slave-owning past world, namely that knowledge for its own sake is superior to any human activity which involves physical labour.

Many of you must be familiar with the name of Professor Alfred North Whitehead. He was a great mathematician, and collaborated with Bertrand Russel in writing the well known treatise of the foundations of mathematics entitled *Mathematical Principia* which has since become a classic. He is even greater as a philosopher and better known as such. But it is not so well known that he was deeply interested in problem of education and wrote several essays, which have been collected and published under the title *Aims of Education*. Speaking about the purely educational or cultural value of technology—I am speaking of technology and not of the pure sciences,—he considers it superior to the pure sciences and superior even to the humanities, and the arts; and for the following reason. Technology manages to combine on one side the Platonic ideal of knowledge for its own sake with what Whitehead calls the Benedictine ideal of joy, of useful work. Technology is a marriage of the two ideals, of thought and action, a coordination between which is regarded as an essential requirement of a truly integrated education. This is what technology manages to achieve. It not only enables a man to know something, but enables him also to do something. Coming from one of Whitehead's eminence and his background, which completely rules out any unconscious leanings towards technology, I would accept this flattering compliment to technology without questioning. If even as a means of acquiring a liberal education technology—not as it is usually thought but as it should be—is superior to the other disciplines and, in addition, so useful to humanity that it is double blessedness; and we have no right to ask for more from technology, except of course, that it shall not hold up its nose.

Technology has a great future, praticularly in the service of our country. Allow me to felicitate you, the young graduates, on your entering such a useful career in the service of the country. JAI HIND !

ANNUAL CONVOCATION ADDRESS

By

Dr. Rajendra Prasad

December 27, 1959

President of the University, Graduates of the year, Ladies and Gentlemen :

It gives me great pleasure to have come here in response to your kind invitation to deliver the Convocation address to this young University. It is young only in the sense that it was formally chartered only a few years ago, though actually as an educational and technological institution it has been in existence for over half a century and has been serving the community all these years. The National Council of Education, the parent body from which this University has sprung, was founded as long back as 1906. As one who had he privilege and good fortune of being a student in Calcutta in those days, I was not only a witness to that great national awakening which roused Bengal and many other and distant parts of the country, but could not fail to be affected by its idealism and inspired by its great leaders.

A mere thought of the names of the founders, to mention a few—Rash Bihari Ghosh, Surendra Nath Bannerjee, Aravind Ghosh, Chittaranjan Das, Bipin Chandra Pal, and last though not the least, Rabindranath Tagore—is enough to conjure up a picture of Bengal that is, of the India of those days. If those great names laid the foundation among the bricks without which no foundation can be laid, I may mention a few more who have already joined the majority—Satish Chandra Mukherjee, whose saintly life and dedicated but silent service inspired many among the rising generation, Rabindra Narain Ghosh, a distinguished scholar with a much coveted first class, who later became the Principal of the Ripon College ; and Vinaya Kumar Sarkar, who attained international reputation as a scholar and writer ; and among the living Dr. Radha Kumud Mukherjee, a well-known historian—all of whom I have known rather intimately.

I can therefore recall from personal experience the great enthusiasm which the Swadeshi movement created for education on national lines uncontrolled by government in any way and for development of industries to supply our daily requirements. The foundation of the National Council of Education was a product, national and lasting. The ideal of national education and the dream to impart integrated instructions on national lines to Indian youth prompted the public leaders of Bengal to launch this educational venture. In spite of innumerable difficulties and handicaps, the National Council of Education continued to carry on its functions with determination and provides an outstanding example of creative achievements of the Swadeshi Movement. Though national educational institutions were set up in several other parts of the country in the early twenties, I do

not think public efforts anywhere else could bear the fruit which the National Educational Council of Bengal was destined to have. From the very beginning the Council, blessed by public opinion and embodying the national and idealistic urge of Bengal's leadership, forged ahead with the task of imparting not only literary and general education but also scientific and technical knowledge. The Jadavpur University represents the consummation of those efforts. May I on this occasion congratulate you all and offer my humble tribute to the memory of those great sons of Bengal whose unflinching efforts and patriotic fervour have gone into the making of this great institution.

When I think of the great hopes and the lofty ideals which prompted public-spirited men more than 50 years ago to start the first institution which became the nucleus of the present-day Jadavpur University, I cannot help asking myself and others how far our hopes have been fulfilled. So far as this institution goes, there is no doubt that its history and progress have filled us with satisfaction. It has turned out a large number of alumni who have been well put on their feet and some of whom have made a mark in the various spheres of public service and activity. Again, it has to be admitted that the course of study, particularly scientific and technical studies, offered by this institution have been attracting a large number of boys and girls and equipping them with qualifications for various professions and useful trades.

Some disturbing trends in education in India today almost compel attention. I think it will be wise to probe them and try to see what is wrong and where. Now and then we come across some criticism of the progress in the field of education, particularly at the lower levels, since Independence. It is said that is smaller countries the percentage of literacy has shown much greater improvement in the last ten or twelve years than in our country. I know this fact and have in fact seen a few of these countries in the South East Asian region myself. Nearly all of these are too small to be compared with a vast country like India. Our large numbers and the multiplicity of languages and scripts pose problems with which these smaller countries never had to reckon.

Be that as it may, the progress that we have made in the spread of literacy and in the provision of higher education, particularly technical education, can be described only as stupendous, though seeing the great leeway we have yet to make, we modestly choose to put it as inadequate. For example, we have today more universities than the total number of engineering colleges before the Partition of 1947. Such colleges and technical institutes have been provided and are being provided in all the States in order to meet the requirement of trained engineers and technicians for implementing our big and small projects. As for primary and secondary education, the progress has been equally encouraging, though I know our resources have not yet permitted us to introduce free and compulsory education up to the primary stage as we intended to do and which we still hope to accomplish.

Let it not be forgotten that in the spread of education it is not material resources alone which count. There are other factors involved, for example, need for re-orientation of the present system of education ; the language question, past traditions, immediate requirements, the problem of employment, etc. No advance in education which does not keep in view all these questions is

worth having or planning for. We have therefore necessarily to go slow. I do not therefore think that the critics have a good case if general advance in education is their target.

There are however matters which cause some concern and where it is not possible to join issue with the critics. So far as higher education in arts and humanities is concerned, the problem of unemployment stares us in the face. It has been suggested that only a limited number of boys and girls should be sent up for higher education. The suggestion is good so far as it goes, but who can guarantee profitable employment even for these limited numbers ? As for technical education, the scope for employment is much wider. Whether this wide scope is a temporary phase of the period of reconstruction or represents normal opportunities remains to be seen. Often one gets disturbed to hear of unemployment even among technically trained personnel. I read in papers a few days ago that about 40 per cent of the Indian young men who have returned during the last twelve months after obtaining technological training abroad are still awaiting their turn to get suitable employment. If that is the state of affairs at this time when all the technical institutions which we intend to set up have not been opened and when the tempo of reconstruction work in the country is so high, one wonders how we shall be able to cope with the question of profitable employment of all of our technically trained personnel when all the institutions have come into and when all the major projects now in hand have been implemented. Let me confess I am speaking as a layman with limited knowledge of facts. I can only hope that there are gaps in my information. However, what I mean to say is that there is need to be careful and vigilant about this aspect of the qustion when we think of extending facilities for technical education. I cannot imagine that with the rising tempo of advance in agriculture and industrialisation in all aspects, there need necessarily be lack of opportunities for employment and indeed, I believe, there are places which are not filled up as quickly as they should be. It seems to me that there is lack of coordination which causes the co-existence of employment and the unemployed. The problem is undoubtedly receiving attention and I need only emphasize its present existence and growing complexities to rivet attention on its urgency.

A most disconcerting feature however of the present-day education is the wave of discontent amng the students. Of late it has been manifesting itself in the form of strikes, agitations and demonstrations. There may be som willing to ascribe it to the feeling of general consciousness in the country and the awakening particularly in the student community. There are others who seek to condone it as a sign of the times or as an inalienable feature of the period of transition through which our country is passing. They hold that with the passage of time as conditions get settled, things will automatically improve and meanwhile we must suffer a strike here and a demonstration there as mere signs of the time.

I wish it were possible for me to agree with these views. I am afraid the student malaise calls for a deeper probe. The Indian youth is conscious of the changes that have taken place around him. He is mentally alert and has a sense of self-esteem and partriotism. But for some reason he seems to be suffering from a sense of insecurity leading to social maladjustment. Unless we do

something to remove this sense of insecurity so as to bring about proper adjustment between the youth and their environments, it would be idle to expect improvement in the present situation. In the context of the great changes that are taking place in the community deserves to be helped in its search for harmony between their aims and ideals on the one hand and their capacities and attainments on the other.

Youth is proverbially sensitive. If little things upset him, he is also easily amenable to straight sympathetic talk. I would therefore urge that greater attention is paid by educational institutions, particularly the teching profession, to the susceptibilities and the present-day problems of the youth. Sympathy and a little partience, I am sure, will not fail to bring about the desired result.

A word to the student community also. Let them realise that India is on the threshold of new opportunities, new openings of development and achievements. They are a very important element in the country's population. Unless therefore they do their duty well and instead of putting spokes in the wheel, push the cart in a spirit of service and helpful cooperation, the great work of nationbuilding is bound to suffer a set-back. Surely that is not what they could be amiming at in the country's and in their own interest. It is therefore their bounden duty to listen to the advice of their elders and try to make the best of this opportunity by devoting themselves to the pursuit of knowledge and cultivating the sense of responsibility and discipline.

I need hardly say to the students of this University and the graduates who have just obtained the degree and diplomas—that they should not in their life forget that they are the students of an Institution which had its birth in a period of exceptional awakening in the country. They can hardly forget and could hardly escape the influences and inspirations of a great era of reconstruction and rebuilding of the nation which dawned with the birth of freedom. They are the inheritors of a great tradition and the progeny of a greater present and they should prove themselves worthy of both their past and the present, and be fully equpped to face the bright but arduous future.

ANNUAL CONVOCATION ADDRESS

By

Sir John Philip Sargent

December 24, 1961

Mr. President, Mr. Rector, Members—may I now say 'Fellow-Members'—of the University, Ladies and Gentlemen :

I should like first of all to express my sincere thanks for the double honour which the University has done me, firstly by conferring on me an Honorary Doctorate and secondly by inviting me to deliver the Convocation Address. When the Registrar sent me copies of the last five Convocation Addresses and I saw the names of the distinguished people who had given them, my appreciation of the honour done me and of the heavy responsibility laid upon me was greatly enhanced. It has not hitherto been my good fortune—or phrhaps I should be wiser to say misfortune—to find myself in direct succession to the President of a great Republic, two distinguished Governors, an emnent Scientist and a notable Administrator. After reading what they had to say to you I realise that I cannot rival either their authority or their eloquence.

It is a real pleasure to me to revisit Jadavpur after about twenty years and to find that the Technical College I then saw has grown into a University. On that occasion I had an experience which has and still is unique in my experience as an educational administrator. I soon realised that the College was doing good work but it was also clear that it might do even better, if more money were available for general development and in particular for the purchase of equipment. I could not have been fully aware at the time of the circumstances in which the College was founded and so I asked the Principal whether he would like a Government grant and to my surprise he refused it. This is the only occasion on which I have known any educational institution to refuse money. I hasten to say with regret that I am not in a position to repeat the effer to-day.

Having briefly sketched in my background in relation to Jadavpur, may I now offer my very sincere congratulations to all the new graduates ? I trust that prosperous careers and what is even more important, happy lives lie in front of them and that when twenty five or thirty years hence they come back here to see their sons or daughters take their degrees, they will feel that the foundations of the success they have enjoyed were laid in this place, in fact that Jadavpur University has been a Kind Mother to them in a literal as well as a metaphorical sense.

I regret that by a long-established custom deliverers of Convocation Addresses are expected to utter words of wosdom likely to be of service to young men and women about to embark upon the sea of workaday life. I am afraid that all my days I have been allergic to sermons and I have a suspicion that my feelings in this matter may be shared by quite a large number of those

present. Apart from that, I find that my predecessors on this platform have dealt more ably than I possibly can with such subjects of topical importance as the relation between the sciences and the humanities, the function of higher technical education in an industrial age and the contribution which a place like this can and should make towards the stability and prosperity of a great new nation facing the vast problems of growth and adjustment. For better or for worse I have decided to invite you to join me this afternoon in a brief exploration of a matter, in which, even if it is not strictly topical, all Universities in India and elswhere must have an abiding interest. I will do my best to indicate both its content and its relevance to the obligations laid upon a modern University and all those who work in it and to illustrate it by taking you back through time and space to my own country.

A little more than a hundred years ago a strange but, as I think, a rather great man was invited to give a course of lectures in connection with the establishment of a new University in Ireland. The lectures were subsequently published in book form under the title of *The Idea of a University*. The lecturer's name was John Henry Newman and he afterwards became a Cardinal in the Roman Catholic Church. He also happens to have been a member of my own college at Oxford. He lived in an age which is like our own to the extent that accepted ideas were under the microscope. The Industrial Revolution was approaching its peak and its evil by-products like slums and the almost complete absence of any organised provision for public health or education, were causing anxiety and indignation among the humaner sections of society. On the social and aesthetic sides Morris and Ruskin and on the literary side Dickens and Thackeray were among the chief critics of things as they were. In the religious field the movement that started at the end of the previous century, when Wesley and other young clergymen of the Church of England left their comfortable livings to try to keep religion alive amid the brutalising conditions of the new industrial areas, was still very much in evidence. It had indeed penetrated the conservative cloisters of Oxford and caused a searching of hearts among younger members of the University, of whom Newman was one, which led to what was called the Oxford Movement. But the greatest stirring of the waters took place in the realm of Science. In a few years Darwin, Huxley, Spencer and their followers blew sky high the foundations upon which not only much scientific theory but also much religious belief had hitherto been based. If you would care to know more about the tragic turmoil which this changing age created in the mind and heart of a man torn between his religious convictions and the urgings of his reason, I commend you to a little book called *Father and Son* by Edmund Gosse, who was a well-known author and critic in the early years of this century. His father was a teacher of science and an admirer of Darwin but he also belonged to a very strict sect of Non-conformists called Plymouth Brethren, who believed in the literal inspiration of the Bible, including the creation of the world by God in six days in 4004 B.C. When the *Origin of Species* appeared, his reason told him that Darwin was right, his faith told him that he must be wrong. After a bitter struggle faith won and he wrote a book which tried to refute Darwin's conclusions. It failed, his fellow scientists laughed him to scorn and he died of a broken heart.

Newman was another man of the age who strove desperately to find peace of mind and security amid the welter of conflicting ideas. As he was not a scientist, his dilemma was not quite so formidable as Gosse's. In the end he also sought escape by taking shelter under the wing of authority and became a convert to Roman Catholicism. People who read his later works may feel that he still had doubts from time to time about the omniscience of the authority, to which he had surrendered his reason.

My excuse for spending so long over a rather obscure Englishman, whose life-story has little obvious connection with India or its problems today, is because I want to give you some idea of the background against which the lectures from which I am going to quote were delivered as well as a profile, as we now say, of the man who delivered them. I shall only attempt to bring before you this afternoon a few of Newman's ideas, which seem to me to be still relevant to the issues which are engaging or ought to be engaging the minds of people concerned with the future of Universities in this country.

Having said this, I realise that the first question he raises may strike you as one which was finally disposed of a long time ago. It is whether a University should be a place for the diffusion or for the increase of knowledge or in other words whether its function should be teaching or research. Newman held that if a University undertook any considerable amount of research as its primary object viz. to provide instruction in the widest variety of subjects for students who were mainly undergraduates. He advocated that research should be left to 'Academies' ; the National Research Laboratories in this country would be modern examples of the sort of institution, which he had in mind. I suppose that most people today would agree that there should be room in a University for both teaching and research and that just as advcnced work in Class XI should stimulate the academic atomosphere of a High School, so the presence of people pursuing studies beyond the normal degree stage should have an equally beneficial efect in a University, quite apart from the intrinsic results that may accrue therefrom. The reasons Newman gives in support of his opinion are neither very impressive nor very interesting ; what, however, does interest me in why so clever a man should have reached it at all. I suspect—but I may well be wrong—that he felt that the discipline of the faith which he had accepted could be more easily imposed where the probing into accepted beliefs, which is an essential part of research, was not encouraged or even allowed. In another lecture he is opposed to theology being treated as a separate faculty on the ground that religion should inspire all teaching and guarantee what he calls the 'integrity' of the subject matter.

If there is nothing very relevant in Newman's argument against research in Universities, the age-old struggle between faith and reason is one in which we are still very much involved. Authority disguised as faith or faith disguised as authority in many various forms dominates the outlook of the world today in more ways than we sometimes realise. One keeps on coming across what I collect in a talk I gave in Calcutta a short time ago the 'caged' mind. Sometimes the cage is of the individual's own construction but more often it has been imposed by some external

authority. In some cases, as in old-fashioned zoos, the bars are only too obvious. This is the case in most police states. In others, as in modern zoos, where animals roam at large in what appears to be open country, the barriers to mental freedom are less obtrusive. Some dogmatic religions exemplify this. But sooner or later the animal or the mind comes up against some form of fence or ditch, which means 'So far and no further.'

It one asks what answer can be given to the protagonists of authority in either the religious or political field, it seems to me that there is a simple one and it is this. What makes us different from—or, if you like, superior to—the other members of the animal world is the power of sustained reasoning. If God created the animal world, this power is His gift and the plain inference is that He means us to make the utmost use of it. The only restrictions, therefore, that should be put on reason are those which reason itself approves. This to my mind is the basis of true democracy. It is true that the Goddess of Reason, as in the French Revolution, may be worshipped by people ignorant of the essence of her divinity but for all that, I conceive it to be the duty of all Universities to keep candles burning continuously before her shrine.

When he moves from the academic to the social aspect of Universities, Newman becomes more convincing as well as more relevant to our present purpose. As my time is growing short, may I give you a few extracts from a much-quoted passage ? 'If then' he says, 'a practical end must be assigned to a University course, 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.' And then again a little further on 'A University training.....aims at raising the intellectual tone of society, at supplying true principles to popular enthusiasm and fixed aims to popular aspiration, at giving enlargement and sobrietye to the ideas of the age, at facilitating the exercise of political power and refining the intercours of private life.' You may perhaps feel that these aims, though clearly desirable as ideals, are beyond the reach of modern Universities with their hand-to-mouth or pencil to notebook existence. But it should be noted that those aims are not academic in the narrow sense ; there is nothing here about passing examinations or getting first-class degrees. They are essentially social aims, if you will allow social to include political in this context. I am optimistic enough to believe that they are attainable, given certain conditions. Of those conditions the two most important are that a University should be reasonably small and mainly residential. It is only in a residential university that those personal contacts can be established out of which may grow that unity in diversity, which is the best hope for peace and goodwill among men.

After all, a University should not be simply a place that offers its alumni a wide choice of subjects, it should also offer them a wide choice of personalities among whom to find friends. It is in my opinion a strong point about most Indian Universities that they house not only a variety of individuals but also a variety of races. I intend no disrespect to the staff of this or any other University when I say that the social aims of a University and especially those defined by Newman, are most likely to be attained not in the lecture room or the laboratory but through the polishing which keen young minds receive, when they are constantly rubbing up against one

another. The debt I owe to Oxford lies not so much in the teaching it gave me, though some of that was very good, but in the opportunity it afforded for picking the brains of my contemporaries. I remember that we often sat up all night arguing about religion or politics or sometimes more frivolous topics.

This is why I like the system at Oxford and Cambridge, where the individual colleges contain people studying all manner of subjects, because the variety of contacts and interests does help to promote the right attitude to the outside world, upon which Newman lays so much emphasis. I know that some other countries prefer to have separate colleges for the different faculties and I have met young University teachers at home, who believe that the best way to attain and maintain a high standard in a given subject is to collect its students together under one roof. I should think, however, that the zest or pleasure which one could derive from arguing with no-one but, say, economists, or satisticians might wane before long. You will see that I am still sticking to my heresy that given the right environment and the right atmosphere, University students can learn at least as much from one another as they can from their professors.

With regard to this idea of University as a place where social training in the widest sense is at least as important as purely academic objectives, may I venture a final word ? Those who read contemporary British books, periodicals and newspapers may sometimes get the impression that two world wars, the relaxing of traditional sanctions and the political and other tensions of the world in which we live have combined to produce a new generation of angry young men and fast young women. I feel sure that there are very few if any fast young women in India but I am told that there are a number of young men, particularly in Universities, who, if not angry, have a sense of insecurity and uncertainty, and not about the future of their country, but about their own futures in its rapid evolution. This may find its outward expression in that indiscipline, which I have heard about but have not so far come across. Whether it presents a serious problem or not, it would be improper, if not impertinent, on my part to attempt to suggest a solution. It does, however, link up with a wider issue, which I know to be much in the minds of those concerned with the future of University education in this country. It is how to temper youthful aspirations, enthusiasms and occasional indiscretions by friendly and quite informal contacts with maturer minds. More residential accommodation will do much in this connection, provided that it is accompanied by a vast extension of the tutorial system, which will make possible not merely more seminars but closer personal relations between teachers and students outside the lecture room. Youth, high-spirited or low-spirited, does not take kindly to edicts issued by authority but it is usually generous enough to listen to advice from a senior for whom it has respect and may be affection. I know that this will cost money but so do most good things now-a-days, especially in education.

Well, ladies and gentlemen, I have at last come to the end of this rambling discourse. I must admit that I did not find it at all easy to prepare. If, however, I have managed to say anything which any of you think worthwhile, I am more than repaid for my labour. But if I have failed to do

that, I must take such comfort as I may from an old proverb—Spanish I believe in origin—which says 'How beautiful it is to do nothing and then to rest.' It is not, I fear, one of the maxims by which our President orders his life. I think you again for the honour which you have done me.

ANNUAL CONVOCATION ADDRESS

By

Sir Jehangir Ghandy

December 29, 1962

SOME THOUGHTS ON
SCIENTIFIC RESEARCH IN INDIA

Madam President, Mr. Rector, Graduates of the Year, Ladies and Gentlemen,

I am happy to be here first because you have done me the honour of inviting me to address this Convocation, and secondly because I have always held Jadavpur in great esteem for its proud past in channelising our national aspirations in a scientific and technological direction.

As many of your may know, Tisco's relations with the National Council of Education, from which the Jadavpur Campus of today has grown, were very cordial from the start. Both were virtually born together. The National Council of Education was inspired by the 1905 movement, while Tata Steel was born a couple of years later on the crest of the Swadeshi wave that was then sweeping through the country. I may add that it was the late Mr. P. N. Bose, Rector of the National Council, who was responsible for the discovery of the iron ore bodies of Keonjhar and Mayurbhanj which led to the location of the steel plant at Jamshedpur.

I recalll that it was in 1945 that I had the privilege of visiting Jadavpur, I believe, as a member of the Industrial Research Planning Committee which had been set up by the Council of Scientific and Industrial Research to investigate into the industrial research and scientific education in India. The same year we started offering training facilities to its sutdents in the Tisco Works. Dr. Benoy Kumar Sarkar in his characteristic way called this the 'factorification' of young Jadavpur. Apart from the many who received short-term vacation training in the steel works, many Jadavpur students have worked at Jamshedpur over the past 40 years enriching the reputation of their *alma mater* by substantial contributions towards the growth and development of the country's first heavy engineering enterprise. While it will be invidious to single out any of them for mention by name, I should like to pay here a tribute to these colleagues and to express the hope that their example will serve to illumine the path of Jadavpur students of today.

Closer Liaison

In our country, industry and the academic world have lived at some considerable distance from each other to the grave disadvantage of both. We in Tata Steel have recently introduced a scheme which, we hope, will serve in a small way to bridge the gulf. A team of three professors from the Bihar Institiute of Technology, Sindri, was invited to Jamshedpur in 1960—one each from the faculties of electrical, mechanical and metallurgical engineering. The aim was to familiarise the professors with the working industrial environment which would assist them to apply fundamental knowledge to, say, actual machine or equipment design, and to identify the basic principles applicable in a variety of seemingly different situations in industry. It was hoped that, after six weeks at Jamshedpur, they would be in a better position to correlate theory with practice and improve the quality of their teaching work. We hope to welcome similar teams from other institutions in the future, and to send to them our operating and research personnel. While it would be premature to attempt an evaluation on the basis of this limited experiment, I think a correct start has been made. Further progress in this direction should help in the development of teachers as consultants to industry.

This, however, is only one aspect of a much larger problem. There must be closer liaison between industry and the academic world over a broader front. It is a need made more urgent by the military challenge that we as a nation must learn to live with. The essential point to remember is that we can now never go back to the halcyon days of the pre-invasion era. We will have to spend substantially more on defence, as anyone can see, but that, by itself, will not take us far. Even after allocating such resources as defence requires, we still have to accomplish the basic economic objectives of our Plans because military strength depends, in the final analysis, upon the nation's material progress. Essentially, there is no conflict between defence and economic progress ; both can and must contribute to each other.

Independent Research

The simultaneous pursuit of the two objectives is bound to throw upon us an immense strain, a strain that may well become intolerable unless we can create additional wealth through the greater endeavours of all of us. These efforts, called forth by the national will to maintain our Independence, can provide the country with the extra wealth that will make it possible to combine military preparedness with orderly progress towards a stronger and more viable econmy. In other words, our answer to the Chinese challenge must be higher efficiency and greater productivity in every field of activity, oid or new.

This is, of course, a broad generalisation which, although parhaps worth reiterating, is something that we all instinctively understand. Starting from this, I wish to take the opportunity you have given me this afternoon of discussing the role of scientific research in the larger national endeavour. I am not thinking only of the tasks of research vis-a-vis pressing defence requirements but of the

part it should play in accelerating the modernisation of Indian society to augment its innate strength over a longer term. Admittedly, there are immediate operational problems like the one of reducing the weight of the soldier's kit from the present 78 lb to something more manageable. While work on these must take priority over things in which the scientists are in a position to help, others must continue along present lines of activity with greater purposefulness and urgency than in the past.

At this point, it may be pertinent to define the aims that scientific research in India should pursue. Unlike in some other countries, these aims are embodied in an official statement of policy adopted in March 1958, which declared that the nation would rely upon science and technology to close the wide gap separating India from the more advanced countries of the world. National prosperity, the scientific policy resolution said, depended upon the effective combination of three factors—capital, natural resources and technology. But technology was the most important of the three because appropriate scientific techniques could overcome the handicap of poor physical resources, as evidenced by the examples of Britain and Japan. Similarly, the requirements of capital could be cut down by scientific and technological ingenuity.

It is true that countries like India, late-comers to industrialisation, have to experience of the whole developed world to draw upon. India, for instance, is relying upon five different countries for steel technology—the U.S.A., Germany, Austria, U.S.S.R. and Britain. Some may argue, therefore, that it is unnecessary for us in India to undertake independent research, either basic or applied.

Any such assumption would, in my judgement, be a great mistake. Even in an industry like steel where technology all over the world tends to become more and more uniform, each country has its special problems to overcome. In our case, our fabulous wealth of iron ore is marred by certain characteristics of the ore which introduce great complexities in the production of pig iron. The solution lies in intensive efforts at the plant level to evolve operating practices which help to maximise production. This, by itself, will not suffice. It will have to be supplemented by applied research in laboratories directed towards finding a suitable technological remedy to the problem. This is, indeed, what is being done by the National Metallurgical Laboratory at Jamshedpur, and the efforts have resulted in some benefits to the iron and steel industry. Work in the same direction is being done at the laboratories of the Jamshedpur steel works. Workers in this field may posibly find themselves in need of some guidance from basic research on the fundamental nature of the metallurgical problem posed by the peculiar characteristics of our ore. If so, that too will need to be undertaken right here in India, since no one else will do it forus for the soimple reason that they do not face the same problem as we do.

Differing Problems

Another reason for independent research by newly-developing countries may now be cited. The advanced nations have a resource endowment very different from ours. They have, relatively speaking, an abundance of capital, combined with a shortage of labour. Their preoccupation is,

therefore, with technological improvements which have the eventual aim of replacing labour with capital. In our circumstances, we should be seeking improvements in efficiency and productivity at the minimum capital cost and with the least displacement of labour. Again, many of the advanced nations have already very large domestic markets and their technology is geared, therefore, to large-scale, production. In countries like ours where the relatively small market of today is spread over a vast area, these large production units may be uneconomic in some industries, not only now but for many years to come. Our technology should, therefore, neither a luxury nor a meaningless attempt to bolster national prestige, but an indispensable activity in the quest for modernisation.

A False Antithesis

Even when it is accepted that independent research in necessary, its character will remain to be decided. Should we devote ourselves excusively to applied research because our limited resources do not permit any diversion to basic research which yields little immediate benefit ? Or should we take the view that applied research is unnecessary, since we are relying anyhow upon imported technology ?

The two approaches need not be mutually exclusive. Every scheme of applied research calls for a certain fundamental understanding of the nature of the problem which may or may not necessitate basic research depending upon the circumstances of the case. The search for specifics to control fertility is being combined with basic studies on the nature of the reproduction process. Work on the epedimiology of cholera requires the scientists engaged on this in Calcutta to range over a wide field in both basic and applied research. In any event, there are in every laboratory some scientific workers whose interests and aptitude take them towards basic research. They cannot be pushed in a direction countrary to their inclinations except at a loss of effectiveness. Traditionally, the universities have been the sanctuaries of basic research, and this should, of course, continue. Apart from the intrinsic value of such work, it initiates young scientists into the methodology of research, a not inconsiderable gain. The two facets of scientific endevour should, therefore, co-exist and grow together, although I am quite prepared to agree that our emphasis as a nation should be on quick-yielding, applied research.

Organisation of Research

The vast research apparatus that exists in the country today, employing some 6,000 to 8,000 profesional scienfific workers in 27 national laboratories, universities and other private institutions—let us face it—is not the result of slow, natural growth. It has been brought into being by national policy which ordains progress at a rate faster than that achieved by other countries in comparable circumstances. There is, of course, something of the hot-house atomosphere in all this, but we cannot wholly avoid this if we are to compress into a few years the progress made by others over decades in the more leisurely atmosphere of the 19th century.

I do not share the view of those who look askance at Government's massive and growing involvement in scientific research. Before Independence, the scope for research of any kind was exceedingly limited as there were a very few institutions deveoted wholly to scientific activities. The research activity of Government departments, such as agriculture, had a narrow utilitarian aspect. This lack did not pass without comment ; as far back as 1918, the Industrial Research Commission had remarked that "the position of research was quite unsatisfactory". In 1935 an Industrial Research and Itelligence Bureau was established with the utterly inadequate annual budget of Rs. 2 lakhs. It was the Second World War that quickened the pace, and the Board of Industrial and Scientific Research was formed to advise the Government in organising Indian industry in the best interests of the war effort, and to undertake industrial research with limited objectives. In 1942, an industrial research fund was established and the Council of Scientific and Industrial Research set up.

In 1944, the Council set up an Industrial Research and Planning Committee, headed by Sir Shanmukham Chetty, of which I happened to be a Member, to survey the research facilities, existing in Government and semi-Government institutions, Universities and industry in India. It recommended a scheme for the planning and co-ordination of industrial reseach, which included, among other things, the setting up of national laboratories. The report, a landmark in the development of research, forms largely the basis on which the present research apparatus has grown.

But the Council did not fully come into its own until after Independence. The importance the national government attached to science was made amply evident when a separate Department of Scientific Affairs was constituted at the Centre in 1948, with the Prime Minister himself taking charge of the protfolio, Later, the Department grew into an independent Ministry, while another autonomous Department of Atomic Energy continues to be a part of the Prime Minister's Secretariat. At this point, it is only fair to add that the rapid development of the country's scientific establishment owes a good deal to the personal convictions and interest of Jawaharlal Nehru, 73-year old but much more youthful in spirit and outlook than many younger men.

Today, there are, as I said, 27 laboratories with a staff of well over 2,000 professional scientists. Of these 50 are of the rank of Directors and Deputy Directors, 150 Assistant Directors, 500 Senior Scientific Officers, 1000 Junior Scientists, and some 600 Research Fellows. These laboratories offer openings for 200-300 entrants every year which make it entirely possible for qualified persons wishing to engage in research to find the opportunity to do so—somethings which was certainly not available 15 years ago. Expenditure on national laboratories is steadily rising and and there are few research schemes which have to be abandoned for want of funds.

Admittedly, Government's involvement on the present scale raises the problem of reconciling the freedom of the scientist with financial support from the State which must of necessity entail some direction or control. The fact must be faced that if the national exchequer is to pay for a laboratory or research scheme, it can only be persuaded to do so on the basis of an objective

assessment of the work done or proposed to be done. This implies a value judgement and it is possible that some may violently disagree with the final verdict. The now famous dispute between Lord Cherwell, Mr. Churchill's principal scientific adviser in Britain during the last war, and Sir Henry Tizard illustrates how an error of judgement in making such an assessment can lead to a serious national loss. Nevertheless, we have no practical alternative to the planning of research based upon the judgement of those whose responsibility it is to apportion Government funds. I need hardly add that such judgement should be exercised on the Government's behalf by people who have themselves a scientific and technological background. By and large, this is what is happeining today. CSIR is headed by a Director-General who was till the other day a practising scientist himself.

Team Work in Scientific Endeavour

Some critics of the nation's scientific endeavours profess to see a lack of team spirit inhibiting our progress. I agree entirely that a scientific break-through in any field demands, more and more, the united endeavours of many drawn, perhaps, from several disciplines. A high degree of mutual understanding and co-operation among those engaged on a project is as essential to success as the provision of proper equipment and facilities. To quote an obvious example, engineers, chemists, physicists, mathematicians, metallurgists, pathologists and other specialists have been brought together for space research both in the U.S.A. and the U.S.S.R. In the case of the latter, it is noteworthy that no individual credits have been publicly given, and it is the group as a whole that has earned the nation's and the world's plaudits. I am not suggesting that we need to emulate the Soviet example and submerge the identity of the individual in the group. There is, nevertheless, a pointer here to the importance of team work in any major scientific endeavour. Our laboratories cannot isolate themselves from the paternalistic social milieu in which they function, but I like to think that leaders of Indian science can overcome any difficulties of this nature which impede team work or initiative from below. In cases, I know, they have made personal endeavour to give junior scientists ample scope for initiative and the fullest credit for their achievements.

Improving the Scientist's Lot

I do not wish to dwell on these intra-mural problems of science at any length but there is one aspect which may be legitimately discussed from the outside. I am referring to the current salary levels in scientific research over which there has been much valid concern. A person entering a laboratory as a senior scientific assistant—in most cases he has a research degree—starts on a basic salary of Rs. 350 which goes up to Rs. 600. Above the senior assistant, there is the junior scientific officer with a starting salary of Rs. 350 going up to Rs. 850. While it is true that industry may offer better emoluments, it has to be remembered that the work of a scientist brings him job satisfaction and recognition which is not always the portion of his counterpart in industry. While I

am all in favour of improving the professional scientist's lot, it is necessary, however, to preserve a sense of proportion. The average annual salary of the scientist in Japan, I learn, is only $1200 (about Rs. 475 per month) and even a full professor in the Tokyo University earns no more than $1800 (about Rs. 720 per month). Despite this, Japan has developed a vigorous scientific tradition.

I should acknowledge here the efforts made by CSIR to improve matters for the scientist. Merit promotions have been introduced cutting across the strict time-honoured principle of seniority, advance increments up to a maximum of three granted to research workers who have shown exceptional originality. Younger men are, as a matter of principle, being included in scientic delegations sent abroad, while opportunities for advanced training have multiplied under various international aid programmes. Pension benefits have been extended to CSIR employees and the age of retirement for research scientists raised to 60.

Utilisation of Research Results

I have been talking so far about creating the necessary pre-conditions for purposeful scientific research. I should now like to take a few minutes to discuss problems connected with utilisation of research results. Indian industry, it is alleged, has been slow to profit from the scientific and technological work being done in our laboratories and other institutons. As a broad generalisation there are exceptional cases. In many industries, research and utilisation have been married together with success. The modernisation of Indian industry undoubtedly depends upon larger inputs of science, a task which will be facilitated by establishing closer relationship between laboratories and factories. I suspect that the initiative for this will have to be taken by research men themselves. In the case of one national laboratory with which I am connected, such initiative has yielded very good results, so much so that the laboratory today has its working facilities fully booked for the next three years on important problems brought up by the industries concerned.

I should also like to caution against impatience. Scientific endeavours do not yield overnight results particularly in our circumstances where research in many fields has been started from scratch in the past few years. From the time a laboratory gets going it takes several years for it to settle down to really fruitful work. This time-factor must be kept in view before we begin to appraise the performance of our young institutions too critically.

Specialist Laboratories

If we wish to see research more fruitfully utilised, it will be necessary to establish in course of time specialist laboratories to translate the results of basic or applied research for facilitating their practical implementation. Such specialist laboratories are best established on a co-operative basis by industrial units working in a given field. There are several such institutions already, as for example, the Textile Industry Research Association of Ahmedabad, the Jute Mills Association Laboratory right here in Calcutta or the Tocklai Research Centre of the Indian Tea Association. The contributions of co-operative research may be illustrated by reference to the example of

Tocklai whose work has helped to increse the yield of tea from 567 kg per hectare in 1938 to over 957 kg today. The Tocklai Institute has also been responsible for a remarkably successful innovation in tea-manufacturing equipment which has enabled one machine to replace five of the older variety. The Jute Mills Laboratory is working out ways of extending the usefulness of jute goods so that this major Indian industry is assured of an expanding world market even though its role as a packaging material progressively diminishes with the change-over to bulk handling and paper bags. The importance of this research is obvious not only for the many lakhs employed in growing jute or in the mills but also for the country's foreign exchange earnings. Another laboratory concerned with raw jute has successfully pioneered the use of jute sticks, a waste material, for paper manufacture that provides substantial benefits to the paper industry as well as the jute-grower.

Basic Research—the Driving Force

We shall, as time goes on, undoubtedly need more such research if our industries are to keep pace with the country's growing needs. There are also the special requirements of defence to consider. In countries like Britain and the U.S.A., military research accounts for 90 per cent of all expenditure on scientific research. While I do not think that India's circumstances require diversion of research effort to defence on this scale, I feel that the discipline of working to a set task within a given time-span may do some good by stimulating effort and quickening the tempo of activity in our laboratories. But applied research, whether undertaken in specialist industries or the national laboratories, cannot be sustained without the stimulus and the driving force of basic research. There can never by any question of ruling out the latter because of an excessive preoccupation with the former.

Long-term Perspective

In conclusion, I should like to enter a plea here for the planning of scientific research in longer time spans than the five-year period into which we have endeavoured to fit it, as scientific activity inevitably takes a long time to bear results. We have before us Japan's example which adopted a ten-year plan for the country's scientific development in 1960. The plan concerns itself with creating a favourable environment for fruitful work and defines also the broad social and economic needs which research should keep in view. It avoids, however, defining too closely the specific objectives of research to allow science the environment of freedom in which it best flourishes. Japan is spending $80 million a year today on royalties and other payments for use of foreign technology. This total, the planners concede, may go up as Japan endeavours to keep her industries abreast of the best in the world, but at the same time it will increase her own expenditure on research fivefold by 1971 so that some of her industries may gain an edge over world competition. The plan provides a model which we need to keep view in determining our own longterm strategy.

I should like to offer my hearty congratualtions to all of you who have received degrees in Engineering, the Sciences and in the Arts this year. Although the Jadavpur University lays particular accent on science and engineering, the humanities, I am happy to say, also receive their share of attention. The Jadavpur University, I understand, was the first institution in India to introduce a two-year course in the humanities for engineering students. This practice has since been adopted in many engineering institutions in the country. The University has kept itself true to the ideals of the National Council of Education for providing a comprehensive education, well-balanced as between scientific and technical knowledge on the one hand and the liberal arts on the other. And, this is as it should be. Our society, in order to function, needs a continuing flow of administrators and lawyers, economists and social scientists, teachers and historians. But apart from the purely utilitarian aspects, the study of the humanities is necessary for all of us—whether scientists or engineers, doctors or specialists. It serves to combat the danger of the specialist mind from being imprisoned within the narrow groove of the chosen discipline, and to impart a sense of human values and a broader view of life.

Students' Role

One final word to the students assembled here today. Research and experimentation cannot flourish in a tradition-ridden society, because a willingness to change and accept the risks of innovation runs counter to traditional values. In this sense, therefore, the utilisation of researh is bound up with the inculcation of a scientific spirit in the nation as a whole. The Prime Minister called, not so long ago, for creating among the Indian people a temper of science to pull people out of the rut of sluggish habit. In creating this temper of science, the educated strata of society, particularly the youth, have a very important role to play. They have to make themselves responsible for disseminating the scientific spirit by becoming its true votaries themselves. By spreading the word and by setting a personal example, they can create a climate within the country in which purposeful scientific research can flourish. This is the contribution that the present generation of youth has to make for completing the country's modernisation and for giving this ancient land a new face.

ANNUAL CONVOCATION ADDRESS

AT

JADAVPUR UNIVERSITY

By

Sri M. C. Chagla

January 12, 1964

Mr. President, Rector, Fellows and Graduates of the Jadavpur University

I deem it a great privilege to have been asked to deliver the Convocation Address of the Jadavpur University. This University is the result of a great nationalistic upsurge which took place as a result of the partition of Bengal. It is the child of the National Council of Education which was founded in 1906 and the University has retained the characteristic which made the National Council of Education so justly famous. It has done a great deal for national integration; is has a modern and advanced outlook; and under the able guidance of its Rector, Dr. Sen, it has achieved a very high position among the Universities of our country.

We are living in an age when there is a great intellectual ferment in the world of education. Old ideas are being revised and new ideas are being tested and put into practice. I witnessed this intellectual ferment both in the United States and the United Kingdom. Both are highly developed countries. The former is perhaps the most affluent society today and the latter is trying to hold on in a highly competitive world to a position which it once occupied. In both the countries, it is now accepted that the best investment a country can make is in education—in man, in his development, in imparting knowledge to him, in providing him with the skills which a highly scientific and technological world today requires. If this is true of highly developed countries like ours. I am afraid there is a tendency in some quarters to minimise the importance which must be given to education. It is true that we have lagged behind in technological and scientific development. It is also true that the only way to assure prosperity to our country is by industrialisation on a massive scale. But notwithstanding that no country can be great unless its human material is fully and properly utilised. We will need men to run our factories and plants and hydro-electric schemes; we will need able administrators to run our country and to help it changeover from an age of *laissez-faire* to an age where social justice is the primary consideration.

A Convocation Address more often than not is a combination of a sermon and platitudes. With regard to the first, one needs a sense of self-righteousness in order to deliver a good sermon. I am afraid I completely lack that quality. I am too painfully conscious of my fallibility and

the tremendous capacity I possess of making mistakes. With regard to the second, when one is in politics one cannot avoid giving utterance to platitudes. But there are certain platitudes which can never be too often repeated. And if you find that I am going to say things which you have heard often and which do not have an air of novelty, please forgive me. I will do so because I often feel that even platitudes are apt to be forgotten, and propositions are being put forward which make one think that one was wrong in accepting certain principles as axiomatic.

Our education in India today is suffering from a serious disease and before we can prescribe a remedy, it is necessary to diagnose the malady from which the patient is suffering. In the first place, there has been too much politics in education. There are so many spheres where the politicians can have a field day and it is a thousand pities that they will not leave education alone. They do not realise that they are playing with the destinies of a whole generation. If you make a mistake in constructing a plant, or a factory or a dam, you can correct it within a short time although it may entail serious financial consequences; but a mistake in educational policy is very often irrevocable. Nothing can be done to save the particular generation of students which has been affected by it. They are not guinea pigs to be experimented upon. They are not raw material for being worked upon in the laboratory of politics. Therefore, I beg every educationist in this country to apply his mind to the problems that face us today and help Government to come to a decision taken after careful thought which will endure and which can be justified on the sole ground that it is the best in the interest of education and of the students notwithstanding what the politicians might have to say about it.

The first and most important question is the question of language. The primary purpose of language is to act as a means of communication. But I admit that it is much more than that. It is the repository of the culture, history and the traditions of the people who speak it. It is something closest to the most cherished sentiments of the people. It is, therefore, not surprising that the question of language has roused such violent passions in our country and educational standards have been sacrificed in order to uphold one or other of the political views prevailing about the future of Indian languages in our country.

The problem is very difficult because we have a large number of languages, all rich in literature and with great potentialities of growth. Our Constitution itself recognises fourteen languages. We have then to take into consideration our long association with the United Kingdom which, while it may have commited many sins of omissions and commission, did spread the knowledge of English, at least among the educated classes, and made it the means of communication between one part of India and another and one section of the people and another. It would be contrary to history to deny that English did have a great unifying influence in our country. It was the language from which we learnt not only the principles of responsible government and democracy but the ringing words of freedom and human dignity which we used on many

platforms to fight our British rulers. I need not say more about English in West Bengal because I like to recall that the first English college was founded here and it was the great leaders of Bengal who, realising the value and importance of English, felt that its knowledge will help India to become modern and progressive. But with all that there was the inevitable infirmity in the use of English as the sole medium of instruction. It was not the mother-tongue of the people and the knowledge of the language did not permeate down to the masses. It created an intellectual elite but it did not solve the problem of illiteracy or the spread of education among the masses.

Let me now first state certain propositions which are universally accepted and which I think would be beyond controversy. A child must be taught in the early stages through his mother-tongue, and, therefore, in our primary schools we must have instruction being given through the regional language. In the second place, all our Indian languages must be developed. As I said before, they are languages rich in literature and each can compare favourably with any of the modern European languages. Take for instance Bengali. Any Bengali can and should be proud of a language in which men like Gurudev Tagore have written. The next proposition is that we must have an all-India language as a means of communication between States and as a language in which scholars and academicians can exchange their ideas and through which scientific research can be carried out. The Constitution has accepted Hindi as this language. It is not because Hindi is a richer language than Bengali or some other Indian language but because it happens to be spoken by the largest number of the people of our country. Having stated these positions I will now pose the real problem that we have to solve. Hindi is not spoken by or even known to millions of our people. Apart from their own regional languages, they are more familiar with English than Hindi. The development of regional languages is going on apace and I am glad that it is so. But in this development there is an underlying danger and a very serious danger that while we concentrate on this development we may overlook the great national need for an all-India language which should act as a link and a bond to tie our people together.

Let me first consider this problem in relation to our Universities. We have 55 Universities today and 35 of them still retain English as the medium of instruction. Some have switched over to the regional languages and the others are contemplating doing so. I appreciate the argument in favour of making the regional language the medium of instruction in the Universities. If the regional language is confined, as the medium of instruction, to the elementary schools, then these languages will not have the development which those who speak them naturally desire. But English has been the medium of instruction of Universities in some cases for a hundred years, in other cases for although not so long a time still for a considerable period. Today we do not have the necessary text books in the regional languages. The difficulty with regard to Science is even greater. This is a scientific and technological age and the horizon of knowledge is expanding at an incredible pace. One can at least translate text books in the Humanities but in Science, apart

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from the text books, the student has to keep pace with new discoveries, and this he can only do if he is familiar with the large number of scientific journals which are at present only published in English or other European languages. Therefore as far as Science is concerned, even the translation of text books will not solve the problem. A large body of scientific scholars in regional languages must grow up who will be publishing their researches in journals and magazines which will be available to the Universities. This is a long and laborious process and must take a very long time. Therefore a sudden changeover from English to the regional language must result in precipitous lowering of standards, more particularly in the field of science where, if we wish to industrialise our country and transform its economy, we need the work and co-operation of our best scientists and our best research scholars.

But the change to regional languages must have another equally disastrous consequence. The history of India points to one lesson : that our country has fallen a victim to foreign invasion, has been subjected to a cruel Partition, all because we lacked unity and national solidarity. Therefore, in the field of education, we must not do anything which will undermine our national structure and the foundation of unity on which the edifice of our Consitution has been raised. What other consequence is possible if in the 55 Universities in this country graduates in Arts and Science are turned out who really know their own regional language and would not be able to communicate with graduates of other universities. Today we speak the same language even though it is a foreign language at a high-powered conference held in Delhi. We do not want a day to come when we will need interpreters to interpret one Indian to another.

It follows from this that we must have a common language at the University level. The Constitution envisages that Hindi should be this language. But as I am not a politican I can afford to be frank and let us admit that this possibility cannot be contemplated in the near future. Therefore, English must continue for some time to come but we cannot and perhaps should not prevent universities gradually adopting the regional languages as media of instruction but while they are doing it and I hope they will be doing it slowly and carefully, they must constantly bear in mind the need for this common language and the only way to do it is to make a study of Hindi compulsory through all stages of university education. But I would go further. We should also make the study of English equally compulsory because even when Hindi has become, in the true sense of the term, the official language of India, the usefulness of English will always remain. It constitutes a window through which we can look upon the world outside. It will be the window through which all the winds of new ideas, new thoughts can blow into out own country. It will always remain a language of international relations and a language of science. It is a great cultural asset we possess today and it will be a shame and a tragedy it as a gesture to political chauvinism we throw it away.

But if we are going to retain English as a medium of instruction for some time to come and even afterwards to make it a compulsory language, it is necessary that English should be properly taught in schools from which the students will go to the universities. The most terrible thing that has happened in India today is that our standards in English have fallen everywhere and in lowering these standards we have overlooked the obvious fact that these poor students would not know sufficient English, will have to attend lectures in colleges where professors would be talking to them in English. How many professors have told me recently that when they deliver their lectures they feel they are addressing a dead audience. The students cannot take in anything and all that they can do is to study cram books in order to pass examinations. Therefore, let us call a halt against this foolish and futile vendetta against English.

We have now officially accepted the tri-language structure in our educational system, the regional language, Hindi and English. But it is not enough to pass pious resolutions in the olympian heights of Delhi and fail or refuse to implement them when the enthusiasm generated in the conference in Delhi has evaporated. If you are going to teach our students these three languages let us teach them well. If a thing is worth studying it is worth studying properly. At one time I used to be worried by the thought that studying of three languages would be an unconscionable burden upon the child but modern opinion is clear on the point that a child has the aptitude to learn languages provided he is taught at an early state. It becomes a burden when he is to launch upon the study of a new language at a later stage. Therefore, I feel the study of Hindi and English should be started at an early stage. I must congratulate the West Bengal Government for starting English in the III standard.

The next question I would like to turn to is the question of the overcrowding of universities. I know what that means. It means the lowering of standards, it means that there is no close relationship between the teacher and pupil, it means that to many university education signifies nothing more than the passing of examinations and obtaining of degrees. But I think it is the elementary duty of the Government to provide opportunity to study for every young man and woman who wish to prosecute their studies further. Unfortunately, in our country a degree has acquired a status value and even a market value. Most employers, and I am afraid even sometimes the Government, insist on a university qualification before they employ any one, whatever the nature of employment may be. We have also failed to provide alternative avenues to our students. The pressure upon the universities can only be lessened if a student is made to realise that every one has not the aptitude for academic studies in a university and that more gainful studies are available in other institutions. I, therefore, attach the greatest importance to the setting up of a large number of junior technical schools. These schools should be job-orientated, and at an early stage of his educational career, the student can switch over to these schools from the ordinary secondary schools. In India today, we do not only need highly educated technicians and engineers

but we also need a large number of people who possess the necessary skill for a job. I was told the other day that in India there is a terrible waste of top class technicians and engineers being used for work which in the United States or in the United Kingdom would be done by ordinary craftsmen who have never been to a university. I am myself a humanities man and I realise the importance of the study of the humanities but even in these junior technical schools there will be taught to these students English and some humanities subjects like Civics. But this is only one part of the programme. The other part is setting up of polytechnics which students can join at the end of their term of higher secondary education and instead of going to universities, can join these institutions. We must invest these polytechnics with the same status that we now give to our science colleges.

We must also carefully consider the question of imparting higher education otherwise than through regular courses in colleges. There is a growing feeling both in the United States and the United Kingdom that the State should provide adequate alternative facilities to students who either do not get admission into colleges or cannot afford the fee for the college. These alternative facilities are provided through correspondence courses and part-time evening classes. Radio and television have also been requisitioned for the purpose. Only the other day, Mr. Harold Wilson, Leader of the Opposition and the prospective Prime Minister of the United Kingdom, spoke of a University of the Air, an ambitious project by which students can be trained and educated without having to go to the colleges at all. We have no television yet but I do not see why the radio cannot serve the purpose of education. I agree that these alternative methods cannot be a proper substitute for a regular education in a university. The university education is much more than merely acquiring knowledge and passing examinations. A student in a university participates in the various extra-curricular activities and meets other students and comes in personal contact with the teacher. But when in India we are dealing with such a gigantic problem, we cannot concentrate all our attention merely on regular university education. As I said before, it is the duty of the State to provide facilities for education for all those who demand it and we have thousands and tens of thousands of young men and women who find the doors of the colleges barred to them either because of poverty or because for want of accommodation.

The third part of the programme must be to lower the pupil-teacher ratio in colleges. This means more colleges and more teachers. One of the most acute problems today is the shortage of teachers. It is an unfortunate situation that very few of our bright young men want to enter the teaching profession and the reasons are obvious. They are badly paid, the terms of service are not satisfactory, they do not even get the dignity and reverence which the "Guru" in ancient times received even though he might have been poor. And, therefore, we have to improve the terms of service of our teachers. We have done a great deal in this respect but it is not enough. It is being realised in England today that the real way to solve the educational problem is not to have merely

buildings and curriculum and equipment but the crux of the educational problem is the improvement in the standard of teaching. It is, therefore, essential that we must have more and more institutions in which we can produce first class teachers and also institutions where teachers from time to time can go for a refresher course. In this fast moving world, a teacher cannot afford to rest on his laurels or on the knowledge which he acquired when he was himself in a school or college.

I cannot end my address without saying a word about student indiscipline. We have been hearing a great deal about it and we feel appalled at the new trends which are manifesting themselves in the students' world. I think, in the first place, students' indiscipline has been exaggerated and we are apt to concentrate on isolated instances forgetting the large body of students who carry on their work quietly and conscientiously. In the second place, students' indiscipline is a symptom and not a disease. We cannot remove the symptom unless we cure the disease. The disease is a sense of frustration among the students. I know the young people well and I always find in them both patriotism and idealism in the highest degree. But patriotism and idealism must find an outlet and it is our duty to provide means to the students which would eanble them both to serve their country and to make the most use of the talent which they possess. There is also a sense of dissatisfaction and discontent arising out of the surroundings in which the students have to prosecute their studies. Schools and colleges are overcrowded. There is hardly any personal contact possible between the teacher and the pupil. The teachers themselves often do not possess the qualifications which one would like them to have. The laboratories are badly equipped and, most important of all, at the end of a long and expensive educational career, the students may have nothing to look forward to except the dreary prospect of unending unemployment.

It is customary to wish well to the young graduates who are leaving this University today. I do so with all my heart. I wish them to remember that they are living in a very exciting age, one of the most exciting that the long history of our country has known. It is not a small thing to fight poverty, ignorance, illiteracy and disease among 440 million people. It is a noble ideal to keep before oneself that we will transform the whole Indian society from a poor and under-developed one into a prosperous and highly developed society. And it is in the achievement of this ideal that I call upon you to make your contribution. Education does not merely mean the acquisition of knowledge; it must also mean the learning of a way of life and discovering of a purpose in existence. I am sure that your way of life and the purpose that you have discovered will help our country forward to the goal for which we have dreamt and prayed and which is at last coming nearer to fulfilment.

ANNUAL CONVOCATION ADDRESS

By

Professor D. S. Kothari

January 4, 1965

Mr. President, Rector, Fellows and Graduates of the Jadavpur University

I am happy to be here and I consider it an honour and a privilege to participate in this function. I am grateful to the Vice-Chancellor and members of the University for inviting me to address the Convocation. I am conscious of my limitations to present a worthwhile Address befitting this distinguished gathering; and this feeling is sharpened when I think of the eminent men who in the past have addressed Convocations of this historic University.

The University has made a most notable contribution to engineering education in our country. It is the good fortune of the University to have a Vice-Chancellor like Dr. Sen who combines great professional ability, wide experience, vision and, above all, a spirit of dedication. May I express the confident hope that with devoted efforts of its students and teachers, and under the inspiring guidance of the Vice-Chancellor, this University, which already occupies a leading place amongst our universities, will attain to a still higher level of education and research.

University Stands for the Search of Truth

Faith in the future of a University such as this one is an expression of our faith in the future of our country, and our determination to achieve a high level of prosperity and to pursue with zest the varied tasks and goals of national endeavour and life. In the contemporary world progressive universities are in a sense the pace-makers of a Nation's progress. The stirring words of our beloved and revered leader Pandit Jawaharlal Nehru come of our mind :

A University stands for humanism, for tolerance, for reason, for the adventure of ideas and for the search of truth. It stands for the onward march of the human race towards even higher objectives. If the universities discharge their duty adequately, then it is well with the nation and the people.

To the young men and women who have received their degrees and distinctions today, I offer my warm felicitations. I wish them a happy and purposeful life. And I trust that by their life, work and example, they will prove worthy of this Institution, worthy of our great heritage and the challenging future we face. Albert Einstein in his message on the opening of a University Laboratory in our country said : "Keep good comradeship and work with love and without preconceived ideas and you will be happy and successful in your work".

And the *Taittiriyopanishad* in its exhoration to the youth declares : "Speak the truth; Cease not to study and teach; Do only irreproachable acts, not others; Follow only right courses of conduct, not others; If you should still have doubt concerning your course of action or concerning your conduct in a given situation, deport yourself in the same manner as men who are competent to judge, devoted, gentle and prone to righteousness would do in such situation : This is the precept; This is the advice; This is the pith and substance of all scriptural teaching; This is the commandment; Follow it; Follow it."

University and the Community

We may recall that this Institution was established by the National Council of Education in 1906 to impart education 'on national lines and exclusively under national control, not in opposition to, but standing apart from, the existing system of primary, secondary and collegiate education, attaching special importance to knowledge of the country, its literature, history and philosophy, and designed to incorporate with the best oriental ideals of life and thought, the best assimilable ideals of the west, and inspire students with the genuine love for and desire to serve the country'. These words underscore the importance of education in bringing about a social and economic transformation in the country, but they say something more. Knowledge is vitally important; but if it is to transform society from a state of relative stagnation to one of dynamism and progress, there must be a general willingness and determination to make use of it in the service of the community. In a developing country it is most important to strengthen the universities. We need strong and progressive universities. But, if the universities are to fulfil their role, as envisaged in the original charter of this University, these must be close to the people and close to their needs and their life. In this context, what Sir Eric Ashby says with regard to the new African Universities is also much more than of passing interest in relation to our own situation. He says (*African Universities and Western Tradition*, Harvard University Press, 1964) : "Even in England we have witnessed the social dilemma of the "first generation student"; Richard Hoggert's *Uses of Literacy* gives a vivid example of how a university education may drive a wedge between a young man and his working-class family. In England the side-effects of social mobility are negligible compared with their effects in Africa. For an African the impact of a university education is something inconceivable to a European. It separates him from his family and his village (though he will, with intense feeling and loyalty, return regularly to his home and accept what are often crushing family responsibilities). It obliges him to live in a Western way, whether he likes to or not. It stretches his nerve between two spiritual worlds, two systems of ethics, two horizons of thought. In his hands he holds the terrifying instrument of Western civilisation : the instrument which created Jefferson's speeches, the philosophy of Marx, the mathematics and chemistry of atomic destruction. His problem is how to apply this instrument to the welfare of his own people. But he has no opportunity to reflect on this problem. For one thing, the gap between himself and his people is very great....."In

our time", Dr. Nkrumah once said, "the universities are looked upon almost as if they were the heart of the nation, essential to its life and progress". Yet, although they are "the heart of the nation", the universities and their graduates are isolated from the life of the common people in a way which has had no parallel in England since the middle ages. This is the peculiar dilemma of the African university". And in our country are we giving enough time and attention to this vital task of bringing universities closer to the people ? Are we in the universities giving to Indian Philosophy, Ethics and thought the place and status that these deserve ? And are we doing all we can so that science secures its roots in our soil.

It is important to recognise that in an age of science and technology, universities, in 'advanced' as also in 'developing' countries, have acquired a new role and a new significance. Through the invigorating and symbiotic combination of teaching and research, knowledge and discovery, youth and age, universities make a contribution to fundamental science as no other organisation or agency can or does. In fact, the state of science in the universities provides a reasonably good barometer to the standard and health of science and technology in a country generally. The experience of more than a century, beginning with the great German universities, has clearly demonstrated that teaching and research flourish best in combination. In isolation they both wither. The best of either is achieved in an atmosphere where both are cultivated; and in this combination of teaching and research, learning and discovery, lies the real strength of the universities.

Science and technology is perhaps the most powerful instrument we have to transfrom society. And it is the universities which provide the focal points for importing science and technology from where it is in abundance and transmitting it to the local community. They alone, or at any rate much more than any other agancy, function as the 'ports of commerce' in the great ocean of international science. They act as powerful 'pumps' drawing science and technology from 'advanced' countries, and creating some more in the process; and spreading it wide to irrigate the native soil. But if the universities in a developing country are to fulfil this vital and challenging role, they must be close to the native soil, close to the poor and the needy. They must be close to the people and to their aspirations and close to the government. This often implies that the structure of university organisation in developing countries would need to be very different from the traditional pattern.

The New Thing in the Modern World is Science

It is common place to say that the new thing in the modern world is science and technology, or rather its cultivation on an intense scale, and its permeation into almost every aspect of our lives. The characteristic of a science-based world is that it is no longer a place of slow and gradual change. On the contrary, the pace of change and innovation is almost terrific and these changes affect not only our material environment but also our cultural and social and, in the end,

spiritual values as well. The doubling period of science and technology is some 10 years or even less.

Science is a powerful dispeller of fear and superstition, of fatalism and passive resignation. By debunking magic and sorcery, which aimed to control Nature by cheating or cajoling her, science which controls Nature through understanding and reason, has given a new insight into the relationship between Man and Nature, *and in a deep sense has made that relationship more spiritual.* By providing a framework of objective knowledge of natural laws, expanding and deepening as each generation, and in all lands, contributes to it, science has given man a new outlook and a new dimension. "The world's horizon is new to the degree of offering a wholly new perspective. The eyes which look at it are new. The old Walpurgis night is over; its company is disbanded; its votaries are fled, its dance will never be resumed; its festival has lapsed, because deserted. The half-gods are not only vanished, they are by nigh forgotten; matter for labels and a museum-shelf." Science is no magic, no fairy wand, no royal road; and it is a characteristic of science that the *output* is proportional to the *input.* Science is hard work; and in a profound sense one could even say that science is another name for hard and dedicated work. It is a relentless and a passionate search for truth. And by bringing an uplifting experience, which comes from such pursuit, within reach of a large mass of people everywhere, science has contributed immeasurably—far more than may appear at first sight—to strengthening the commitment of man to free enquiry and to the quest of truth as his highest duty and obligation. By loosening the bonds of dogmatism, by prviding a common and rapidly expanding stock of knowledge and by fostering an attitude of objectivity and true humility, by encouraging honest doubt and vigorous but dispassionate thinking, science is becoming a major force in reducing ideological tensions and coflicts. *Science is the new humanism.*

Science Must Think in Terms of the Millions

The vital role of science in India is to fight ignorance, poverty and disease, and function as a powerful instrument to bring about a social transformation, so that millions could live longer and happier lives. The expectation of life at birth in India is only about half of that in the advanced countries. In India the bottom-tenth of the population, which in numbers equals the population of U.K, has as its total yearly income no more than what the people of U.K. spend on cigarettes and tobacco. In the modern world rich countries are those which are rich in science and poor are those which are poor in science.

In stirring words Jawaharlalji declared at the 1947 Science Congress : "For a hungry man or a hungry woman, Truth has little meaning. He wants food. And India is a hungry starving country, and to talk of Truth and God, and even of many of the fine things of life, to the millions who are starving is a mockery. We have to find food for them, clothing, housing, education, health and so on, all the absolute necessaries of life that every man should possess. When we have done that

we can philosophise and think of God. So, science must think in terms of the few hundred million persons in India. Obviously, you can only think in those terms and work along those lines on the wider scale of co-ordinated planning."

In the past there have been great and flourishing civilisations, but the lot of the common man was almost invariably one of miserable existence. For instance, at the height of the Athenian civilisation, it was said that to abolish slavery would be to abolish Athens itself; and Aristotle asserted that slave labour would remain the foundation of culture so long as human ingenuity could not devise machines for doing manual work. It has taken more than two thousand years to achieve this end; and now man has the means to build a civilisation where all can live in peace, plenty and happiness.

The key to an improvement of the standard of living in a country is, no doubt, science and technology and industrialization. However, it is important to recognise that in this matter there can be no half-way house. Once we start moving along the road of science and industrialization, we disturb the old equilibrium reached and maintained over many centuries. Disturbance of the old equilibrium brings about a host of new problems, of which the most important is a rapid rise in population as a consequence largely of improved sanitation and control of epidemics. We must move towards a new equilibrium, based on a full utilisation of science and technology; and it should be achieved as quickly as possible. But if we march with faltering steps and if our commitments and convictions are half-hearted and lack faith, then, the new situation may turn out to be worse than the earlier one. Tinkering with science and technology can often make things worse than what they were before.

For the growth of science material resources are necessary. But what is still more imperative is the 'climate' which makes possible serious and sustained cultivation of science. Science needs, above all, dedication and it is, therefore, vitally important that everything possible is done which would call for and sustain the spirit of dedication. That it is by no means easy to establish a proper scientific climate in a developing country has been well brought out by Polanyi. He said : "Those who have visited the parts of the world where scientific life is just beginning, know the back-breaking struggle that the lack of scientific tradition imposes on the pioneers. Here research work stagnates for lack of stimulus; there it runs wild in the absence of any proper directive influence. Unsound reputations grow like mushrooms : based on nothing but commonplace achievements, or even in mere empty boasts. Politics and business play havoc with appointments and the granting of subsidies for research. However rich the fund of local genius may be, such environments will fail to bring it to fruition."

Education and National Productivity

The direct link between education, specially scientific and technological education, and nationa development and prosperity underscores the importance of the proper planning of educationa!

development in the country. It seems that more than 50 per cent of the increase in GNP of the advanced countries has been generated because of improved education of the population. In general, increased capital outlay accounts for less than 50 per cent of the rise in GNP. The role of improved technology, as distinct from higher capital outlay, is specially important in agricultural production. For example, according to R.M. Solow (*Review of Economics and Statistics*, August 1957) during the period 1909-49 technological improvements contributed to 7/8th of the increase in output per man-hour in the USA as against only 1/8th due to increased capital. Education, both in terms of quality and quantity, must be related broadly to national needs and requirements. It is important to observe that in our system of education, agriculture has not received the importance that ought to be given to it.

In our pattern of education though there has been considerable expansion in engineering and technology, yet they still have not attained, either in numbers and more so in quality, the level that they should reach if we are to meet properly the national needs. If we take a group of 10 students selected at random, six out of them would be in arts and commerce, three in science and only one would account for engineering, medicine and agriculture as against in the U.K. where out of 10 students, four would be in arts and commerce and two each in science, technology and medicine. Inspite of the fact that our demands for development in agriculture are extremely pressing, the proportion of students doing agriculture in India is not more than what it is so in the U.K.

It is important to recognise that in countries where agriculture has been modernised, the output has increased rapidly and is many times more than what it was before the industrialization of agriculture. Where agriculture has not been linked to science, the ouput has remained practically stationary. For example, take the production of rice. The yield per acre in Italy is 3,240 lbs., in Japan 2,800 lbs., in China 1,600 lbs., but in India it is 900 lbs. In the case of wheat, the yield per acre in Japan is 2,740 lbs., in the USA 1,610 lbs., in Denmark it is as high as 4,130 lbs., whereas in India it is about 850 lbs. It is generally recognised that through improvement and modernisation of agriculture, it should be possible to double or even triple agricultural production in many parts of Asia, Africa and South America where the yields at present are below about 1,000 lbs. per acre. (Raymond Evell : *Address to American Chemical Society*, Chicago, September 1964.)

The Revelle Report

In this context, and as a striking example of inter-nation cooperation, I may mention of a report of unusual interest and value for the Indian subcontinent which has recently appeared. The report is by a multidisciplinary panel of experts appointed by the U.S. President at the request of the Pakistan Government, to study the waterlogging and salinity problem in West Pakistan. Dr. Roger Revelle (Dean of Research at California University and now at Harvard School of Public Health) was Chairman of the Panel. In India and Pakistan the agricultural yields are one of the

lowest of all countries, and this despite the fact that about 80 per cent of the population lives on land and half of the national income is derived directly or indirectly from agricultural produce. Added to this, it is most disconcerting that due to waterlogging and accumulation of salt in the soil, about 0.2 to 0.4 per cent of the irrigated area is being rendered waste every year in West Pakistan. Says the Report—"We have the wasteful paradox of a great and modern irrigation system pouring its water into lands cultuvated as they were in the Middle Ages. Ploughing is done by a wooden plough of ancient design, pulled by a pair of bullocks enfeebled by undernourishment. Unselected seeds are sown broadcast. Chemical fertilizers and pesticides are comparatively little known. Egypt uses 100 times more fertilizer per acre than does Pakistan; Japan more than 200 times as much, and yields per acre in both countries average about three times those of Pakistan." The most encouraging aspect of the Report is the conviction of the Panel that "within a few decades agriculture in the sub-continent can undergo a revolution of the kind already occuring in the agriculture of Japan, the United States, and other advanced countries. A rate of increase can be established and maintained which will far outrun the growth of population, and will so improve the economic condition of the farmers as to form of a base of farm purchasing power for industrial development." The capital cost for this development is estimated to be of the order of $ 100 per acre. The recommendations of the report, as also the entire study, are of considerable importance in relation to the problems of Indian agriculture. The Report has also stressed the importance of research and development and education as an essential foundation to ensure continuing improvement in agricultural production.

Research and Development

Research and Development has now become a major national activity in advanced countries, and is gaining rapid momentum in developed countries. In the USA the total national expenditure on research and develpment has been doubling every 4 to 5 years in recent years and now totals more than $ 16 billion a year (about Rs. 8,000 crores). This represents 3 per cent of the GNP—it was 1.4 percent twenty years ago. It is important to observe that increasing R & D effort is closely linked to an increase in the scientific and technical manpower. The manpower in science and technology in the USA has increased from 1.5 per cent of the labout force in 1940 to 3.2 per cent in 1960, and is expected to rise to 4.7 per cent in 1970. The R & D expenditure in India is about 0.3 per cent of the GNP; and scientists and engineers constitute about 0.05 per cent of the population.

A National Goal

The strengthening of education and research at all levels has to be conceived as a national goal and a national responsibility, and it is specially true at the level of postgraduate studies and research.One of our most urgent needs is the improvement of quality of postgraduate courses and also their expansion. In considering all these matters, the words of the famous *Seaborg*

Report come to our mind. This was a Report made to the U.S. President by the President's Scicence Advisory Committee. The Report says, "Both basic research and graduate education must be supported in terms of the welfare of society as a whole. It is in this large sense that the role of the Federal Government is inevitably central. The truth is as simple as it is important : whether the quantity and quality of basic research and graduate education in the United States will be adequate or inadequate depends primarily upon the Government of the United States. From this responsibility the Federal Government has no escape. Either it will find the policies and the resources—Which permit our Universities to flourish and their duties to be adequately discharged—or no one will." These are wise and powerful words and they apply to us no less.

It is important to recognise that one of the characteristics of science is that things of quality need not necessarily be expensive. If enough thought is devoted it should be possible to have education of quality and yet 'cheap' enough to be within our means. Science brings today within the reach of the common man things which at one time were not available except to the very rich. The same can apply to education, but to bring this about would need hard work and much *serious thinking and research into the process of education.* The new techniques and instruments of education, such as Correspondence Courses, Programme Learning, Audio-Visual Aids can be of great value to us; but much of the new techniques required will have to be discovered and developed by ourselves.Lord Rutherford, the great pioneer of nuclear physics said in the robust way of his, when he was told that America was going ahead in nuclear physics because they had a lot of money. "Americans have money. We do not have it, and so we have got to think". There is no substitute for hard and serious thinking; and with sustained and serious effort we should be able to go a long way even with our meagre resources and capital.

The contribution that the universities and colleges will or can make to meet the great challenge of our times will be in direct proportion to their being and becoming, in pursuit of their true ideals, places where there is freedom to enquire boldly and readiness to doubt courageously, where knowledge and understanding and true humility go together and grow more and more, and where the highest standards of scholarship, integrity and couduct are expected, respected and cultivated.

Appendix

I. Relation between Research and National Prosperity

(Tables from 'Underdeveloped Science in Underdeveloped Countries' by Stevan Dedijer, *Minerva*, Autuman 1963).

Country	Expenditures on research and development (1960)		Consumption of commercially produced energy per capita (1960) (tons equivalent coal)	GNP Dollars per capita
	Per cent of GNP	Dollars per capita		
U.S.A. ...	2.8	78.4	8.0	2308.0
U.S.S.R. ...	2.3	36.4	2.9	—
U.K. (1961) ...	2.7	35.4	4.9	1146.0
France ...	2.1	27.0	2.5	1026.0
Sweden ...	1.6	27.0	3.5	—
Canada ...	1.2	21.9	5.6	14.08.0
W. Germany ...	1.6	20.0	3.6	1115.0
Switzerland ...	1.3	20.0	1.9	1463.0
Netherlands ...	1.4	13.5	2.8	859.0
Norway ...	0.7	10.0	2.7	—
Luxembourg ...	0.7	9.3	—	—
New Zealand ...	0.6	8.9	2.0	1317.0
Belgium ...	0.6	7.5	4.1	1030.0
Japan ...	1.6	6.2	1.3	404.0
Hungary ...	1.2	—	2.5	—
Poland ...	0.9?	5.3?	3.2	—
Australia ...	0.6	5.3	2.2	1239.0
Italy ...	0.3?	1.8	1.2	623.0
Yugoslavia ...	0.7	1.4	0.9	223.0
China ...	—	0.6	0.6	—
Ghana ...	0.2	0.4	0.1	198.0
Lebanon ...	0.1	0.3	0.7	—
Egypt ...	—	0.3	0.3	138.0
Philippines ...	0.1	0.3	0.2	200.0
India ...	0.1	0.1	0.1	69.0
Pakistan ...	0.1	0.1	0.1	54.0

II. Investment in research pays far more than investment in anything else. The experience of the advanced countries has shown that for the economy as a whole the net yearly return on research and development expenditure is of the order of a few hundred per cent. "It is a spectacular rate as far as rates of return on investment go." (F. Machlum : *The Production and Distribution of Knowledge in the United States,* Princeton University Press, 1962).

ANNUAL CONVOCATION ADDRESS

By

Sri Asoka Mehta

Deputy Chairman, Planning Commission

December 31, 1965

I feel honoured to address your convocation this year. It has been my privilege to mingle with the youth in different parts of our country as they leave the portals of their universities to enter the broad current of life. Thus have I been able to share in some measure their joys and cares, their sense of accomplishment born of their academic distinction and their hesitations about an uncertain future. For me a convocation is a ceremony of renewal, a calling together to re-affirm one's faith in what one believes to be of essence and what one holds dear to one's heart. I am therefore grateful to you for providing me with another such opportunity this year.

The present occasion is however all the more significant for it has brought me to the fount of much that is profound and abiding in the life of Bengal. I cannot forget that you carry the legacy of the Dawn Society which had a pioneering role at the turn of the century in the life of this city with its four-fold programme for a stouter intellectual life, selfless service to one's fellow beings, building up one's personal character and dedication in the cause of the motherland. Nor can I forget that you owe your existence as an institution of learning to that great beginning, the patriotic upheaval following the first partition of Bengal which brought in its wake the universal demand for a truly national education. Immortals like Shri Aurobindo and Rabindranath Tagore cast your seed while great savants like Satish Mukherjee, P.C. Ray, Bipin Pal, and Benoy Sarkar have nurtured your growth. By striking a new path of development independently of the help of foreign rulers, you led the way before the whole country. Your maturity into a virile institution today is a matter of justifiable pride. The nation is proud of you because you represent in some way the indomitable courage and the boundless hope of its seers and builders.

In the difficult time ahead we have to draw unceasingly upon this fund of courage and hope if we are to survive as a nation. Many difficulties beset our path. In the economic field, our first and foremost difficulty is our continued inability to attain self-sufficiency in food. The prospect of our immediately crossing the hump of partial development faces new challenges today. Some of the obstacles are of an external nature having to do with the attitude of others who have so far lent us a helping hand but who seem suddenly to have been struck by a paralysis of will. I specifically refer to the note of hesitancy that has crept in the economic aid programme of the Western countries. The physical threat from unfriendly neighbours will also continue to draw away resources

from peace time consumption or investment. In the social field, the countryside presents the spectacle of a house divided. The great multitude of poor farmers who are also generally socially backward shows signs of alienation. In towns and cities hovels and slums continue to swallow in their cavernous maws hundreds of thousands of human beings who are condemned to lead a maimed existence, making the islets of affluence all the more diabolical in their splendour. Politically united more than ever before, the nation is deeply divided economically and socially.

All this however is part of the game of life and it would be idle to expect that our path of development would be smooth and easy, free from pressures, tensions and racking anxieties. It has never been so with any nation that has come up in the world. It is for this reason that courage and hope and a spirit of cheerfulness are of the greatest importance today. And it is in the universities and institutes of higher learning in our country that these noble elements have the greatest chance of being hammered into a resilient social psychology and philosophy which can help us ride over the storms and stresses of development.

The university is our ultimate defence against frustration. This might sound paradoxical. It might be said that by questioning every facet of our existence a university acts as a supreme critic and that it would therefore be illogical to expect it to become a focal point for faith. While I firmly believe that it has to be the greatest critic of life, I am sure all constructive criticism is capable of generating a conviction in the contours of the good life which the university misses in society today. Instead of degenerating into a bundle of schisms, a good university always acts as the cradle for such a wholesome and constructive philosophy. It is true that it is in the university that the conflict of generations unfolds creatively. What the father is doing in the City, the son repudiates in the debating forums in his campus. What is regarded as the good and useful life by men in power today is thought to be indifferent, stale and even derelict by the young and impetuous generation at the university. This also is something as it should be. There is little development and progress in an atmosphere of conformism.

What is, however, important to see is that the cynicism of the City does not seep into the precincts of the academy and that the smugness and opportunism and scepticism of the man about town do not corrode and eat into the vitals of the young rebel. The university is the last stronghold of the innocence of youth, its overmastering anger at the baseness of life, its uncompromising rejection of all that is false.

In order to safeguard this basic buoyancy of youth it is necessary to find out from time to time what they are thinking. It is only by learning more about the current student psychology that the university authorities and the guardians of society can discharge their true obligations to the rising generation. I am sure that if you conducted a survey or a poll among your student population you would find all kinds of interesting notions and views about political, economic and social matters. Some of these would inevitably show the contamination of their sources, the cynicism and

scepticism which are rampant in the life outside. But the great majority of students will be found to be of one mind in their total rejection of the many evils that surround us today.

There are many things in our milieu of which the young generation cannot approve. Take the case of this vast city. Nearly 9 lakh people live in its overcrowded and unhygienic slums in an area of approximately 3.5 square miles, resulting in one of the highest densities of population per square mile in the world. Most of these slums do not have basic amenities such as an adequate supply of drinking water and sewerage. In fact the entire Calcutta Metropolitan District covering an area of about 460 square miles threatens to become a vast slum in another 20 years unless the rot is stopped. From about 67 lakhs in 1961 its population is now nearly 76 lakhs and is likely to become 86 lakhs in 1971, 97 lakhs in 1976, 110 lakhs in 1981 and 123 lakhs in 1986. If the rising demand of this vast population for water supply, sewerage, drainage and sanitation, transport facilities, housing and education are not met satisfactorily, very soon life is going to be utterly impossible here. Simultaneously with the pressure of population and their needs the prices of urban sites soar and enrich a few. I am certain that much of the restlessness and rebelliousness of the student community in this city is ultimately traceable to the dire conditions of human existence here. Youth everywhere is scandalised and horrified by social injustice, but unless it is given a concrete programme of work, its energy is likely to flow into devious channels. It is here that the university has to provide a leadership which is sadly lacking today.

While government in the State and at the Centre will have to play a key part in making metropolitan planning and channelling of unearned gains to social purposes a reality, I have no doubt in my mind that the task of saving the life of this city is so stupendous that it cannot be completed without the help of its industrial interests and its educational institutions. There are a variety of ways in which industry and university can join hands in saving this city. I shall consider only one such area of cooperation today, namely, urban community development. Urban community development in metropolitan Calcutta can have a programme of five distinct objectives : health education, family planning, adult education, recreational and cultural activities and consumer cooperatives. Such a programme, however, has two important conditions for its success : voluntary participation by the people themselves in their upliftment and an organisation which can mobilise and direct this voluntary effort behind the programme. Only if industry and business and the universities in this area come together, will it be possible to build up an organisation required to canalise the efforts of the people for their own improvement.

I am told that Calcutta Metropolitan District can be divided into 50 traditionally distinct localities each having a population of about 150,000. Each such locality can have a community service centre, a citizens' development council and a small trained staff of full-time specialists in various fields of urban community development. The centre can be advised by the citizens' council on the one hand and serviced by the community development staff on the other. On the citizens' council

the elected councillors of the wards concerned, representatives of local voluntary organisations like health and welfare societies, educational and cultural associations, recreation and sports clubs, trade unions, employers' associations and cooperatives as well as citizens' clubs and charities can be represented. Similarly, representatives of the State departments, corporation or municipal authorities, universities and colleges, major voluntary agencies like the Red Cross and such other special agencies as the Calcutta Improvement Trust can be associated with it.

It is not necessary to build new buildings for housing these projects. In my brief yet varied sojourns in this city I often see many old mansions belonging to the landed aristocracy of a by-gone age now in a state of disrepair. Can we not get them repaired and use them as the headquarters of these projects : After all the great zemindary families of Bengal have been noted for their spirit of public service in the cause of education and social development. Even this university owes its existence in no small measure to the generosity of many illustrious houses of Bengal. I do not know what the recurring cost of running a project like this might be, but assuming that it is roughly between one and one and a half lakhs of rupees a year, it would be the easiest thing for a hundred big industries to share the cost of operations of these projects. With a little effort they can be persuaded to shoulder this burden, for their debt to this city is not negligible. Finally, it is the university students who can supply the organisational input in this entire movement.

It is important to realise that great cities like Calcutta cannot be resuscitated merely through governmental effort. In the giant cities of the world authority of government is least felt and that of corporations, industry and voluntary organisations is of the greatest importance. It is unfortunate that the voluntary organisations of the people have not yet been linked together in a coordinated effort to change the life of this city. There is no dearth of such organisations. In fact, the whole of its sports and non-commercial recreation as well as a good part of its primary education is still organised on a voluntary basis. A very large number of charitable societies and clubs is carrying on regular activities. The Corporation is also in its own way doing not a little although there is much scope for improvement in its activities. But all these piecemeal efforts have to be brought together into a focus. The community projects which I have in mind can perhaps provide this focus and a rallying point for the youth in this sick city.

I am sure you can make a small beginning in this direction in your own neighbourhood. You can enlist the support and help of industries and voluntary organisations in the locality in running a community service centre. In fact you can do much more. You can adopt a few high schools and a number of primary schools in the area also and bring up their teaching standards. You can fan out in all possible directions in your neighbourhood in a crusade of improving the condition of the community.

In the last analysis it is the universities which can really tranform our town and country life. For they are the repositories of the accumulated wisdom of the ages and the best that human

imagination can conceive of. Unless they bring their knowledge and vision to bear on the day-to-day life of the community, the latter cannot find the wide angle of growth and universality. I do not say that the government has no part to play in this process of universalisation of the people, in enabling them to overcome their parochial interests and to participate in the main stream of life as a nation; but the responsibility of the universities remains distinctive.

In this great city of Calcutta you literally have hundreds of isolated villages. The Gujaratis, the Marathis, the Tamils, the Oriya, the Punjabis and the Bengalis are living their own lives in isolation from one another. This is not as it should be. It is the task of urban community development to build bridges between one community and another, to bring all of them into a common fold, to make them take interest in one another's doings, to make it possible for them to understand one another better. This is what city life means as distinct from life in a village. It is the transcendence of a parochial insular, custom-bound existence which gives meaning to life in a city. And universities by being an instrument of change and the handle of urban community development can make city life possible. We are aware of the great university towns which have played a seminal role in the life of different nations. In our own country also there have been many such great universities in the past. It has again become important for our universities to assume their civilising role in the surrounding community. For in the years to come, our greatest need will be to bring about a change in the psycho-social make-up of our people so that they can come forward, take advantage of the economic changes that are taking place and reorient themselves to the demands of a new civilization. In bringing about this pervasive change, our universities will prove to be our sharpest instruments, not only in a general manner by casting their broad influence over the rising generations of men and women, but in the specific day-to-day tasks to be carried out by the enlightened young soldiers of social change. I have sought to outline only one such task before you today. I have every confidence that you will have the imagination and the initiative to discover many such tasks of social transformation in your own surroundings.

In the end I once again express my gratitude to you for giving me an opportunity of sharing my ideas with you, I wish the young graduates every worthwhile success and every conceivable happiness in the long life before them. May they become worthy bearers of the great tradition of this university and partisans of change and growth in our society.

ANNUAL CONVOCATION ADDRESS

By

Dr. P. B. Gajendragadkar,

M.A., LL.B., LL.D.,

December 31, 1966

"POLITICS OF VIOLENCE : A GRAVE CHALLENGE TO INDIAN DEMOCRACY"

INTRODUCTORY

As I rise before you to deliver my Convocation Address this evening, I really do not know how I should express my feelings. I am not an educationist and though it was my plan to be a teacher, Chance decided otherwise and I spent forty years of my life in the service of Law. Having worked in the Temple of Justice for this long period, after my retirement as Chief Justice of India, I went back to the Bombay University because I wanted to serve in the Temple of Learning. The Governor of Maharashtra had invited me to be the Vice-Chancellor of the Bombay University and I accepted his invitation without any hesitation. All the time that I was serving Law, I had a feeling in my mind that I should have served Saraswati, and I had been casting a longing lingering look behind throughout the period of my asociation with law. Having joined the Bombay University, I feel a sense of fulfilment and it gives me very great pleasure to participate actively in all the activities of the Bombay University. Thus, a would-be teacher whose steps were directed to a court of law by chance, now finds himself in the Vice-Chancellor's chamber at the Bombay University.

Even whilst I was working as a Judge in the High Court of Bombay and later in the Supreme Court, I did not miss any reasonable opportunity to meet the students, understand their point of view and speak to them. I have delivered several convocation addresses in many universities in India and it has always given me a sense of exhilaration to meet the young graduates of our universities and talk to them in a friendly way. After I accepted the invitation of your Chancellor to deliver the Convocation Address of the Jadavpur University, I was looking forward to meet and address you with unmixed feelings of happiness and exhilaration ; but, to be honest, my feelings to-day are very mixed. Whilst I feel happy to have been given an opportunity to meet this distinguished gathering of young, vigorous graduates of the Jadavpur University, I cannot disguise from myself or from you a feeling of distress which has overtaken me since I came to Calcutta.

I know that the origin of the Jadavpur University is very inspiring : A research and cultural institution, which was devoted to national reconstruction and national education and which was sponsored by patriotic, selfless and cultured workers of Bengal, gave birth to this University. In a sense, this University is a young university ; but the progress this University has made during the short span of its existence holds a promise for a very bright future indeed ! The traditions of this University, the high standards of its teaching, the academic qualifications of its students and reputation which it enjoys in the academic world of India have already given this University a place of honour amongst the universities in this country. I, therefore, thought that if I expressed my hopes and aspirations and my fears and apprehensions to the graduates of this University, they would not fail to reciprocate my sentiments.

Think of Calcutta in the pre-independence days. Its glory was literally glittering. Calcutta gave to the country so many enlightened, progressive intellectuals that it is impossible to name them all. May I, however, refer to some of the outstanding names which inspired India in pre-freedom days and which continue to inspire her even now ? Raja Ram Mohan Roy, the wisest Indian of his times, the father of India's renaissance, who had a broad, comprehensive and integrated vision of India's future, a fearless advocate of the freedom of the press, a rationalist, modernist and secularist, fair and free from fear. Shri Ramkrishna, the prophet of modern India, full of compassion, wisdom and love, gave the inspiring message of Hinduism in a radically new form. Vivekananda, who conquered the world by his eloquent and passionate message of the dynamics of Hindu philosophy. Was it not Vivekananda who was never tired of telling his countrymen that true religion consists in wiping the tears from the eyes of a hapless widow and bringing food to the hungry lips of an orphan ? The philosophy which Vivekananda preached was dynamic in every sense and represented the very essence of Hindu culture. In Shri Ramkrishna and Vivekananda, Hinduism had discovered the most illuminating and progressive exponents. Jagdishchandra Bose who by his matchless scientific research virtually proved the truthfulness of the Hindu philosophical concept that there is life everywhere ; and Ray, the austere and simple, scientist, showed by his example that the pursuit of science can well be matched by a passionate and buring desire to serve society. Bankim Chandra gave us all the immortal national anthem. At 6-00 A.M. every morning the All India Radio in Bombay wakes up all the citizens and invites them to salute the mother in the words of Bankimchandra. And last but not the least, Tagore, the great sentinel of modern India. His voice always was the voice of reason and wisdom. The poet, the philosopher, the litterateur, the visionary whose burning nationalism was wise and enlightened and whose dream took within its sweep the concept of one world. Bengal gave to the country a galaxy of brilliant men and the glory these men brought to India made Calcutta a place of pilgrimage in those days. My first reaction in standing before you this evening is that I am visiting a place of pilgrimage.

AND CALCUTTA TO-DAY

To-day however, Calcutta seems to be in trouble and turmoil. The soul of Calcutta seems to be in distress and the voice of reason and the voice of wisdom which once sounded as a beacon

call to the whole of the country, somehow appears to be hushed into silence. The troubles of Calcutta and, indeed, of Bengal, began with the partition of India. The question as to whether the partition of India was inevitable may have to be considered dispassionately after some time. Some more years must elaspse before historians will be able to assess the strength of different pulls and pressures which brought about the partition and pronounce their verdict about its wisdom or otherwise. But one thing is certain that the grievous injury caused to Bengal by the partition, has not yet been healed. The problem of refugees has been haunting Bengal in general and Calcutta in particular, in dimensions the extent of which is unfortunately not fully appreciated by the rest of the country. The presence of a large number of Bengalis uprooted from their hearths and homes which had been in Eastern Bengal has naturally helped to inject into the general atmosphere of Calcutta a distorted sense of values. All these years Calcutta has been ill at ease. But 1966 has probably witnessed the glory of Calcutta at its lowest ebb. Newspapers announced some time ago that the Calcutta University had been closed indefinitely, and even the Presidency College, which was the pride and glory of the whole of India, has received the shattering blow of closure. The lamp of learning which lit Calcutta and indeed helped to guide other universities in India in old days appears to have been put out. When the light of learning is put out, what else would happen but that confusion and chaos may descend upon the social consience ? That is the unfortunate story of Calcutta in 1966 ; an so when I rise to address this convocation gathering, my mind is overwhelmed with mixed feelings : happiness at being able to meet the students of Jadavpur, who are the inheritors of the proud traditions of Calcutta, sorrow at meeting stdents whose brethren in a sister university were on the streets protesting against the university officials and virtually bringing to a close its smooth and effective functioning. That is why I began by saying, I find it somewhat difficult to express adequately with what feelings I am addressing this gathering this evening.

GENESIS OF THE EXPLOSION OF VIOLENCE

On March 16, 1966, it was reported in newspapers that the police had to open fire in Madhya Pradesh on a violent mob which consisted mainly of students who were determined to protest against the suspension of the Higher Secondary Examination, ordered owing to the leakage of some question papers. Ever since then we have witnessed almost uninterrupted explosion of violence in different places and unfortunately in some of these violent explosions students have participated in a large measure. Along with the students' unrest, unrest prevailing in the general community has also erupted into violent precessions and movements. "Ghera Dalo" and "Bandh" appear to indicate a new pattern of agitational movement and they in turn have on some occasions led to violence. Let us remember that when India became politically free, the country was looking forward to the speedy solution of all its economic and social problems. Political freedom always generates in the minds of ordinary citizens fond hopes of enjoying the blessings of life, liberty and happiness within a short time. Promises made by politicians in power have not been redeemed

and the hope deferred has naturally made the heart of the public sick. We must also remember that the behaviour of the student world wherever unrest overtakes them is no more than a replica of the adult behaviour, which the country has witnessed for several days. The proceddings in the legislative chambers of the different States and even in the Parliament in New Delhi have taken such a unparliamentary turn that the very institution of parliamentary government is falling into disrepute. Members have been hurling charges against one another, sometimes justifiably, sometimes unjustifiably ; exchange of words which no parliamentary chamber should hear takes place frequently ; character assassination seems to be the order of the day ; and the whole political life is far from being spiritual or noble and is being vulgarised. If that is the pattern which adults set up, it is not surprising that the restless, discontented student community should imitate that pattern and go no the streets and indulge in rowdy processions and sometimes violent acts. The eruption of mass violence from which Indian democracy has received severe blows in the last few months must be considered as a total picture and it is this total picture which is so distressing, almost frightening, in its potential mischief to the democratic way of life itself.

The economic situation in the country is also very depressing. Notwithstanding the fact that our three Five-year Plans have been substantially worked out, the common man's lot is still not as well as it should have been nearly twenty years after political freedom was won. In recent times prices have ben going up and common men are finding it difficult to make a decent living. This factor cannot be ignored.

The fact that the Congress Party has continued in power throughout this period has also added to the frustration and anger of the opposition parties. It is true that the failure of the opposition parties to get majorities in the general elections cannot be legitiamately put against the Congress Party. Our elections, on the whole, have been free and fair and if the Congress Party enjoys the confidence of the public at large and is returned to power every time general elections are held, the Congress Party cannot be blamed. Nevertheless, the frustration and anger in the minds of the opposition parties can also be well understood. In a parliamentary democracy all political parties subscribe to the basic tenents of democracy and behave in a dignified and decent manner, because there is always a reasonable chance that the party in power will be out of power and the party in oppositon may take power in its hands. Where, as in India, this chance does not appear to be even remotely possible, it naturally tends to make the parties in opposition less responsible and more angry.

In the public mind a feeling has been growing for years past that some members of the party in power have become complacent, unresponsive to public feelings and even overbearing and insolent. Charges of coruption and nepotism have been so frequently made against so many persons in power that though the charges may not be well-founded, a feeling has inevitably taken root in the minds of the public that every thing is not fair in administration. The public feeling that the administration suffers from the vice of corruption or nepotism may be wholly unjustified ; but the existence of the feeling destroys respect for political power and that is a very serious danger to democracy and explains the explosion of anger from time to time.

The unrest amongst the students and the explosion of violence to which it led can be regarded as a part of the general unrest from which the community at large is suffering to-day. In regard to the students of our universities, besides the factors to which I have just referred, there are certain other factors special to the university life which may have played their part in aggravating the situation. Where students live in large numbers in the campus of the university, the corporate life may lead to the development of healthy tendencies or may result in restlessness amongst the students. Our methods of education need to be revised ; our system of examinations suffers from some infirmities ; our administration of universities is often charged with irregularities ; and there appears to be lack of understanding and imagination on he part of teachers and university administrators in some cases. Lack of communication between the student community and the teachers can also be said to be the general fetures of university life where violence has erupted.

Besides, the economic instability from which the whole society suffers to-day has also its impact on the students' minds. Students are unable to look forward to any profitable avenues of employment after they complete their education. Most of them have to struggle agianst adverse financial circumstances and sufer from several wants. In addition they know that even after completing their education, there may not be good prespects of employment or any other fruitful occupation. A sense of social and economic insecurity naturally acts as a sword of Damocles hanging over the heads of large number of our students. The impact of this consideration on the general student behaviour cannot be ignored.

There is still another factor which explains the explosions of violence on the students' campuses. Political parties sometimes take part in encouraging, if not instigating. troubles in the university campuses. The presence of professional students who are more interested in propagating thieir political ideology and the policy and philosophy of the political party to which they belong, is also a contributory factor. I feel that it would be worthwhile for sociologists to make a thorough inquiry into the recent cases of students' violence. If an inquiry is properly made, it would be possible for us to find out the reasons which led to the explosion of students' anger in the last four months. The places where the violence erupted, the sequence in which it spread, and the pattern which it followed, pose a problem which cannot be solved unless a proper inquiry is made on the spot by educationists and sociologists working in a detached, objective manner.

"Ghera Dalo" and "Bandh" which now threaten to take their place in the recognised pattern of mass agitations are full of potential danger to the democratic way of life. The very concept of "Ghera Dalo" or "Bandh" is aggressive. To-day the participants in these movements show their anger by destroying public buses, sometimes even private property and causing sabotage in trains. This is bad enough. Destruction of public property is no doubt intended by the agitators to register their protest against the party in power ; but in their anger the violent agitators forget that the destruction of such property causes loss to national economy and in that sense they suffer by this destruction as much as the rest of the community. But let it be remembered that if this trend of violence is not checked in due time, the violence against private property and ultimately lead to

violence against the persons of citizens themselves. Such a development will tend to create chaos in our social life, terror in the minds of individual citizens and would paralyse democracy altogether.

It appears that these incidents of mass violence result from the belief that unless public dissatisfaction speaks the language of violence, it does not receive the attention of the party in power. Explosion of violence is in a sense dramatic and it immediately attracts the attention of the party in power and the public at large. It is, therefore, absolutely essential that Government must not by its action or inaction encourage the belief in the mind of the public that it continues to be unresponsive to public grievances unless they are attempted to be ventilated by violence. Unimaginative, unresponsive, unsympathetic approach on the part of Government cannot escape blame for some of the explosions of violence. If the cause for which the violent agitators purport to fight is a good cause, it should receive the attention of Government even before dissatisfied public takes recourse to violence. If the cause for which violence erupts is illegitimate or unreasonable, Government msut make it clear that the basic postulate of democratic life, as indeed of any civilized Government, is that law and order must be maintained. It may sound platitudinous to say, but it is profoundly true, that if law and order tend to become frequent casualties in the public life of a country, it is as certain as night follows the day, that democracy will inevitably be the next casualty.

EXPLOSION OF VIOLENCE TOTALLY INCONSISTENT WITH THE DEMOCRATIC WAY OF LIFE

When I say that the explosion of the politics of violence poses a grave danger to the Indian democracy, I am not basing my opposition to violence on any doctrinnaire or philosophical considerations. It is well known that even Gandhiji, who was a great apostle of non-violence, often emphasised the fact that his non-violence was the non-violence of the brave and not of the timid or the weak. On several ocasions Gandhiji took the precaution of emphasising the fact that in the modern world as it is situated to-day, it would be difficult to preach non-violence as a dogma or as a proposition which is absolutely and always true without any exception. This is what Gandhiji said on this point :

> "When two nations are fighting, the duty of a votary of Ahimsa is to stop the war. He who is not equal to that duty, he who has no power of resisting war, he who is not qualified to resist war, may take part in war and yet wholeheartedly try to free himself, his nation, and the world from war."

Gandhiji has also said that "if there was a National Government, whilst I should not take any direct part in any war, I can conceive occasions when it would be my duty to vote for the military training of those who wish to take it. For I know that all its members do not believe in non-violence to the textent I do. It is not possible to make a person or a society non-violent by compulsion". On one occasion Gandhiji took a typical illustration to show how violence may be

necessary. "Even man-slaughter may be necessary in certain cases. Suppose a man runs amuck and goes furiously about sword in hand, and killing any one that comes in his way, and no one dares to capture him alive. Anyone who despatches this lunatic, will earn the gratitude of the community and be regarded as a benevolent man". It is thus plain that even according to Gandhiji's philosophy of non-violence, if a nation is attacked, it has to stand up to the challenge and repel the attack by violent means, it has to stand up to the challenge and repel the attack by violent means, if necessary. And so, when I say that the explosion of mass violence is a grave danger to democracy, I am not stating may case on any dogmatic consideration about the absolute character of non-violence.

Politics of violence is subversive of the democratic way of life, because it is plainly and obviously inconsistent with the rule of law. The basic postulate of democracy and, indeed, the foundation of the whole of the Indian Constitution is that Indian democracy will seek to establish socioeconomic justice by the rule of law. In a democracy such as in India we have general elections every five years with adult franchise. As a result of the elections, the party that wins the elections takes power and in the legislatures all laws are fully debated, discussed and voted upon before they enter the Statute Book. The validity of these laws is then examined by our courts and it is only after it is found that they do not contravene the fund a mental rights unreasonably that they are enforced. In a democracy it is essential that the legislatures should be wise, the executive should be incorruptible and efficient and the judiciary should be fair, fearless and independent.

The Indian Constitution has guaranteed certain basic human rights to all the citizens and they are described as the fundamental rights of the citizens. The Constitution has also recognised that these rights are not absolute. It contemplates that some times, and in some situations, it would be necessary to regulate the fundamental rights in order to serve the higher purpose of social good. A democracy which is committed to the ideal of establishing socio-economic justice by rule of law, has often to face the eternal problem of reconciling or harmonizing the conflicting claims of individual liberty and public good or social welfare. When a democracy is committed to the rule of law, it cannot avoid to face this problem. It is no doubt a difficult, delicate problem ; but the solution to the poblem lies in making an earnest endeavour to evolve a rational synthesis between the two competing claims. This process can be comprehensively called the rule of law.

A democratic way of life is in a sense wedded to the doctrine of consensus. The majority no doubt can make laws ; but the majority must not tyrannize over the minority merely on the strength of its brute voting numberical superiority ; it must be responsive to the legitimate grievances of the minority and must always act with wisdom and foresight. On the other hand, the minorities also cannot purport to tyrannize over the majority and they must try to adjust themselves to the basic concepts of the philosophy which the majority follows. In this process it is generally expected that the minority of to-day may be the majority of tomorrow. Where, as in India, this possibility does not materialise, difficulties no doubt arise and frustration and anger overtake the opposition parties.

Nevertheless, if all parties subscribe to the democratic way of life and genuinely believe in the rule of law, there should be no difficulty in a general consensus being reached on the issue as to the subversive character of the politics of violence. The politics of violence negatives the rule of law and proceeds on the strength of brute force of violence. That is my main basic objection against the politics of violence. It is therefore absolutely essential to arrest the growth of the politics of violence in our country.

THE CREATION OF A NEW SOCIAL ORDER : THE OBJECTIVE OF INDIAN DEMOCRACY.

Let us all remember that the Constitution which we adopted on the 26th January 1950 has promised all the citizens in this country that the Indian democracy is dedicated to the task of establishing socio-economic justice by the rule of law. Nineteen years have passed by since we became politically free and sixteen years have elapsed after the Constitution was adopted ; and yet the dream proclaimed by the Constitution on the 26th January 1950 still appears to be as distant as ever. That is a challenge to the Indian democracy and in meeting this challenge all Indians must participate in bringing about socio-economic justice in this country. And this is to be done in a democratic way be means of the rule of law.

WHAT DOES THE NEW SOCIAL ORDER INDICATE ?

The new social order postulates there will be complete equality amongst all the citizens. This postulate would become a reality only when Indian democracy is able to annihilate castes and sub-castes that divide the Hindu community. Castes and sub-castes create narrow loyalties and construct exclusive walls of separation around smaller groups of the community. This has to be fought and it can be fought more effectively by the intellectuals than by political power.

The new social order is totally inconsistent with any sense of inferiority as between different citizens belonging to different castes or communities. Let us realise that the social inequality from which the Indian community suffers cannot be eradicated merely by the force of law ; public conscience must assist the process of law and that is another challenge to the intellectuals of this country. The new social order postulates the acceptance of secularism. Secularism is a progressive, revolutionary, dynamic doctrine. It emphasises that citizenship, its rights and its obligations are entirely secular matters in which religion has no relevance. Indian seculrism is not anti-religion or anti-God ; it recognizes the need for religion and assumes that all religions are entitled to equal respect. It, however, demands that religions must confine themselves to their normal functions as religions. So long as they are operating within the region which is purely religious, secularism does not interfere. But if religion seeks to trespass into secular matters and attempts to distinguish between citizens and citizens on the ground of religion, secularism intervenes and asks religion not to interfere in secular matters. This doctrine is a comprehensive doctrine and it takes within its sweep all religions that are practised in India.

The new social order also postulates that economic justice must be established in this country. Disparities in wealth which create stresses and strains in social life must be corrected by introducing a rational balance in the economic structure of the community. Unless political democracy can legitimately claim to have become an economic democracy, it is idle to suggest that economic justice has been established.

These than are the broad postulates of the new social order. Indian democracy is committed to establish this new social order in a democratic way by the rule of law. This is the basic and the fundamental concept of the Indian Constitution.

THE ROLE OF UNIVERSITIES IN INDIA

It is in the light of this national commitment to the glorious ideal of creating a new social order in a democratic way that the role if Indian Universities to-day must be determined. The Indian Universities have to play a dynamic role in the evolution of to-morrow's India. First and foremost their primary duty is to engage themselves in the search of Truth. The campus of the university must enjoy the solemn, quiet and peaceful atmosphere so esential for the search of Truth. The teachers and the students must alike be dedicated to their task of teaching and learning. With the expansion of knoledge and its diversification, the search of Truth also becomes diverse and manifold. The universities of to-day have to supply to the country to-morrow's philosophers, economists, politicians, scientists and technocrats. The progress of modern India will no longer be determined by slogan-shouting ; it will be determined by intellectuals' efforts which meet the socio-economic challenges from time to time. The experts who will meet the challenges in to-morrow's India have to be supplied by the Indian universities of to-day. Sustained, hard, dedicated work must, therefore, be the first essential characteristic of the life in the university campus to-day.... The teachers and the students alike must always remember the eternal doctrine which India has always cherished ; *i.e.* "Work is Worship".

The other aspect of the University life to-day must be in relation to extra-curricular activities. Between the students and the teachers there must be free communication ; whether in class or in outside extra-curricular activities, there must be a continuous dialogue between the students and the teachers. These extra-curricular activities should be so directed as to develope the students' personality : emotionally, culturally and physically. Let the students and the teachers discuss all socio-economic problems freely and fearlessly. Such discussion vigourously carried on in the debating societies on the university campus will prepare the students to face their task to-morrow.

There is still another aspect of university life which has assumed significance to-day. The universities to-day must participate in some kind of social work in which the teachers and the students will be involved and which will bring the student community into human contact with the larger community around the university campus. This activity has no doubt to be undertaken without prejudice to the main academic function of the university. It is not the extent of the activity

which matters ; it is the fact of such activity which is significant. If the teachers and the students become conscious that the intellectual community is a part of the larger community in this country and that the university education ultimately must serve the purpose of this larger community, that will create in the minds of the students a constructive creative, positive approach to life. At this hour in the history of India, education, like other professions, must regard itself as a branch of social service. We must evolve a kind of ethos, a sense of dedication, a sense of social purpose, to inspire our work from day to day on the campus of the university. That is the nature of the role which the universities have to play in the context of to-day.

CHALLENGE TO THE INTELLECTUALS

The explosion of violence in the general life of the community in India to-day as well as the explosion on the campus by the students, constitute a challenge to the teachers of the universities and the intellectuals of the country. I wish to emphasise with all the earnestness at my command that wherever explosion occurs, it constitutes a law and order problem and no government should tolerate the breach of law and order. Any problem created by the explosion of violence by the students must be dealt with as a law and order problem and law and order must be firmly established.

Even so, it is necessary to remember that explosion of violence is more often than not the result of anger, frustration and fury. Angry men become blind and oblivious to reason and it is the duty of the intellectuals to attempt to remove the sources of anger and the causes of frustration. It is in such a situation that the voice of reason and the voice of wisdom must become articulate, vigorously and uninterruptedly articulate. We must develop a proper sense of values by incessant debate and create an atmosphere and climate in which explosion of violence will not be suffered or tolerated by the public itself. I think it is absolutely true that for the sucess of democracy and the efficient practice of democratic principles, law must inevitably receive the active co-operation of vigorous public opinion. Let us not feel that without political power intellectuals cannot achieve any effective results. I believe that ideas—healthy, dynamic, progressive ideas—constitute a mighty weapon and the intellectuals must learn to use that weapon in the service of good cause. Dynamic ideas have long legs and they travel fast. Their journey from place to place cannot be obstructed by Customs barriers or any artificial obstructions. Let the intellectuals, therefore, start a cursade of propagating and popularising progressive, dynamic, constructive secular ideas which believe in democracy and in the rule of law and I feel confident that sooner rather than later this country will witness the emergence of a strong public conscience which will safeguard democratic values in this country. Unless the atmosphere is changed and the climate rendered wholly uncongenial and positively hostile to undemocratic methods and undemocratic tendencies, political power by itself may not be able to cope with the problem. It is really a problem for the intellectuals to tackle because basically the explosion of violence has its roots in angry minds and minds can be conquered and corrected by reason ; and that is where the intellectuals have to play a part.

INDIA OF TOMORROW

Whilst we are discussing this problem of the politics of violence which has overtaken many urban places, let us try to remember that our India lives not in big cities or even in smaller urban towns, but in numberless villages scattered all over the land. In these villages live humble, modest, poor people who have been waiting since the 15th August 1947 to enjoy the practical benefits of political freedom. On these villages are scattered people who are ignorant, who have no houses to live, no clothes to wear, no food to eat and not even good water to drink ; and they ask you and me, What does political freedom mean for us ? They have patiently borne all these years ; but even their patience may come to an end. If their patience comes to an end, the frustration of these small, humble people will raise a grim question-mark against the future of democracy. It is the duty of the universities and the intellectuals at this critical hour in the history of India to guide public opinion and create a climate where the promise made by the Constitution will be realised and the rule of law will help the speedy attainment of the ideal of socio-economic justice. If the rule of law does not succeed and the subversive philosophy of the politics of violence takes hold of our public life, confusion will descend and chaos will follow. That is the danger singal which the intellectuals must notice to-day. I would, therefore, appeal to the teachers and graduates of the Jadavpur University and through them to the whole university community in Bengal to play their legitimate role at this critical hour in India's history and help Indian democracy in its onward march to the Temple of Socio-Economic Justice.

THE DREAM OF TAGORE

What is the Temple of Socio-Economic Justice to which the Indian democracy is marching ? All of us do not realise, but it is nevertheles true that ever since 1947 India has been marching towards the Temple of Socio-Economic Justice. Her steps have faltered sometimes, sometimes a wrong direction is taken ; but, on the whole the nation has been marching in a Yatra (pilgrimage) towards this temple. Let us, therefore, join this great adventure and march in step with the rest of our countrymen. What is ultimately the goal of the Indian democracy ? The answer to this question has been given by Gurudev Tagore. Tagore's words are poetic, prophetic, sublime ; and their grandeur, rhythm and beauty are absolutely unequalled. In my opinion, they constitute the progressive intellectuals' Bhagvad-Geeta of to-day. Listen to Tagore :

"Where the mind is without fear and the head is held high :

Where knowledge is free

Where the world has not been broken

Up into fragments by narrow domestic walls :

Where words come out from the depth of truth :

Where tireless striving stretches its arms towards perfection :

Where the clear stream of reason has not lost its way into the dreary desert sand of habit :
Where the mind is led forward by thee into ever widening thought and action :
Into that heaven of freedom, my father,
Let my country awake".

ANNUAL CONVOCATION ADDRESS

By

Dr. S.C. Bhattacharyya

December 24, 1967

Much Esteemed, Erudites ladies and Gentlemen, My Student Friends and the graduates that are going to cross the thereshold of their student carrer today ;

It is my great privelige to welcome you all and I thank you for making the occasion a success by yur presence and encouraging graduates that have just ended their student career.

At the outset, I pay my humble homage to those great departed who conceived the idea of National Council of Education, Bengal, those who by their munificence made the creation of the national Council possible and those scholars and workers who by their selfeess and devoted work kept the activity of the Council going on through all the crises and hard times. My homage is also to those students who in the face of great odds and sometimes even in the face of personal danger, helped to maintain activity of the Council. This day, I greatly miss the presence of Professor Hem Chandra Das Gupta, one of the pioneers of National Council who is still among us but due to his very advanced age is unable to be present here. He was responsible for selecting this site for the National Council of Education, Bengal, as its permanent home and laying out the plan of the buildings for the College of Engineering & Technology. He guided the National Council and the College of Engineering for long twenty years upto 1939. Various extensions have of course been made to those buildings and also new buildings have been constructed after that date to serve the purpose of Jadavpur University which is the offspring of the National Council. Lastly, I remember with gratitude, Pandit Jawaharlal Nehru, who just after his release from jail, came here to deliver his Convocation address. He was greatly impressed by the activities of the National Council and gave his words that if at any time opportunity came, he would help this Institution in all possible ways. Opportunity presented itself shortly afterwards, he becoming the first Prime Minister of free India. In spite of his complicated and multifarious activities as the first Prime Minister of a country just liberated from foreign domination, he remembered this Institution and kept his word. It was mainly through his instrumentality and help that Jadavpur University was created out of the National Council of Education, Bengal. This history of growth is well known to you all and I beg to be excused for repeating this to you here on this occasion.

Convocation marks the successful culmination of a student's career. It is a happy day for the student as well as for his teachers. I am happy to be called upon to convey my best wishes to the fresh graduates at this year's Convocation. My connection to this Institution goes back to the year

1921, when I joined it as a student. I became one of its teachers in 1923 and when I retired in 1957, the University was kind enough to nominate me Professor Emeritus. All my active life has been spent in the service of this Institution and it has pleased Providence to entrust me with the functions of the Chancellor of the University for a few months in the advanced days of my life.

Graduates know that the Convocation marks both a termination as well as a beginning. They have successfully finished all the examinations of the school and the University and they are now going to enter the sterner school of life. Here they will have to give an account of what they have learnt in the protected atmosphere of the school and college and their real examination will take place here. The Vice-Chancellor, while giving his blessings, had administered to them a few of the noble directives taken from the Upanishads, according to which a citizen should regulate his life. I pray, that in their day to day work, they may ever be guided by these noble ideals. This is really a very difficult task. Even Jadavpur University in trying to follow strictly the rules of other institutions cannot abide by the noble ideals laid down in the Upanishads.

Life is a hard reality. To achieve success in life, one needs, not only knowledge and skill, but also wisdom and discernment. It is the endeavour of each teaching institution to give every student a rich foundation of knowledge and character on which he can build up a successful life. He has to go on adding to this capital as he proceeds along his life's journey. When they set out in their career as full citizens of the society, I wish them all success in life. I pray that they find suitable opportunities to make fruitful use of what they have learnt and thereby make themselves and their motherland happy.

As they enter the realities of life, graduates have to give, above all, a good account of their powers of self-reliance. To them, my advice is to make judicious use of knowledge and to remember always their obligations to the society. At the present moment, it is difficult to secure a proper work, but I believe, this is only a passing phase. India is a developing country and it is now passsing through a transition period. Ups and downs come to every nation and specially to countries which are trying to switch over, to develop on modern lines. It is no doubt a fact that we are not satisfied with the rate of our progress and we expect a much more rapid rate. It will then open up more opportunities of work to the young men of the country. All students of engineering know that however good a contrivance is, you cannot expect to get more work out of it than you put into it. Actually the output is only a fraction of the energy put into it. The administration of the Indian Union is a contrivance to better the conditions of its citizens. The result of the administration in improving the condition of the country, can only be speeded up, if the whole country put more energy into the contrivance. That we have not been able to progress quickly enough, shows only our own drawbacks, we have not been able to put sufficient energy into it. This may be due to our ignorance or to our want of training. The contrivance may also need improvement. This has to be carried out and indeed by experts who know their job. This expert knowledge has however to be acquired by us and this again requires time. All these factors contribute to the slow rate of progress for which we citizens of India alone are responsible.

I would now like to make some observation on two problems concerning education today, in all its phases. One is the question of finance. I believe that if growth is be to maintained in our country, it is very necessary that the Government and the society support liberally all educational institutions starting from the primary education. Whenever there is a financial crisis, there is a tendency on the part of the Government to curtail expenditure on education. Everybody knows that this is not a sound policy to follow, specially in a developing country like ours, and I urge upon the Central and State Governments not to make reduction in their education budgets on the plea of inadequate finance. We have not been able to carry out the directives of our Constitution regarding even primary education in these twenty years after attaining independence.

The other problem is the choice of the medium of instruction for higher education and this is a raging problem of the day. Nobody wants that the standard of education in educational institutions is lowered in any way by the choice of the medium of instruction. Our medium of instruction was English in days before we were free and it is continuing to be the same after we attained our freedom. As an independent country with a number of highly developed languages of its own, it is highly desirable and quite natural that the medium of instruction at the topmost level of university education should be an Indian language and not an imported one. This language naturally will be the link language of the country. It will be the medium of communication between the States and between the States and the Centre. It will also be the language used in High Courts and Supreme Court. It must have to possess a strong unifying force to hold the country together as one unit. In one word, it must be able to foster National integration. An Indian language pssessing this value is yet to be developed. Language does not obey politician's command, it carves out its own line of growth. There is no denying the fact that the link language will be dominant language of the country. I understand the zeal of the Hindi speaking politicians in supporting the cause of Hindi as the link language. Patriotism towards their language urges them to it and there is nothing wrong for them to do it. I would, however, just like to remind them that there are other citizens of India who from the same partiotic motive may like to get their languages recognised as link language. Patriotic feeling of everybody has to be respected. No one can force a certain language on any group of unwilling people. Constitution of India is quoted in support of Hindi. Does the Constitution exist for the people or the people for the Constitution ? Constitution can be amended and has been amended often to suit the changed conditions. Constitution is not a static but a dynamic entity. Our patriotic feeling regarding languages, I note, however, with regret, is rather hazy. We do not ourselves pay due respect to our languages. We still allow, even in the highest centres of learning, the use of the epithet "vernacular" to our own languages and this is happening even after more than twenty years of independence. We should have possessed more self-respect. In this connection I would like to draw your attention to a newspaper report, according to which our Prime Minister Sm. Indira Gandhi is said to have told Loksabha on 18th instant, that it will not be possible in near future to arrange for communicating in Hindi with foreign countries for two reasons, firstly we have not the persons who are capable of properly expressing in Hindi the

subject we want to communicate and secondly, the recipient country has not the persons who are capable of properly expressing in Hindi the subject we want to communicate and secondly, the recipient country has not the proper facility to translate the Hindi letters in the languages of its country. We need not trouble ourselves about the second reason, but the first reason is very significant. It shows that the Hindi language is not yet developed to that extent. It is, therefore, necessary to use extreme caution and patience in deciding for a link language.

Before closing, I would like to impress upon the fresh graduates of the University, that the cost of imparting education on University level, is many times the amount spent by the individual student on it. They should never forget that University graduates are a privileged minority. Even now, more than three fourths of our countrymen are illiterate. A very small number of our people gets the chance to receive college education. The cost incurred by the society to give a person higher education is very high compared to the average per capita income of our country. So the educated people owe a debt to the society and this they can discharge only by rendering appropriate service to the country. I hope and trust that our graduates will not fail in this sacred duty. And I pray to Providence that they be given adequate strength to render good account of themselves in every sphere of activity. I wish them Godspeed.

BANDE MATARAM

S.C. BHATTACHARYYA

December 24, 1967

SPECIAL CONVOCATION ADDRESS

By

Mahamahopadhyaya Vidyavachaspati

Dr. Datto Vaman Potdar

29th January 1969

Mr. Chancellor, Mr. Vice-Chancellor,

Venerable guests, Members, Distinguished Officers, Teachers, Students, and Staff of the Jadavpur University,

Jadavpur University is a name to conjure with and I feel elated to receive an invitation from this unique modern Temple of Learning for its Special Convocation. I had been here before but an invitation to address the Convocation at which some very renowned votaries of learning are to be honoured has a significance and distinction of its own. I highly value such a signal opportunity and hence I have to bow to your call.

But soon rumours reached me about some trouble in the Jadavpur University which dampened my hopes and made me restless. But dauntless as your leaders are, telegrams from them revived my spirits and here I am—your dutiful comrade.

When I throw back my memory to the days of the First Partition of Bengal, the Swadeshi and Boycott agitation and the National Council of Education, the clarion call of the late Babu Surendra Nath Banerjee begins to ring in my ears :

Agitate, Educate and Organise.

We from Maharashtra soon joined hands with Bengal under the astute leadership of Bal Gangadhar Tilak. I was then a student and read with avidity the *Dawn* Magazine and the *Bande Mataram*, the daily of Aurobindo Ghosh. The Jadavpur University is a development of the Dawn Group which fortered the spirit of National Education or education on National lines and under National control.

At Kolhapur in Maharashtra the late Prof. Bijapurkar a Sateerthya of my late lamented father, founded the Samartha Vidyalaya as a National School in 1905, which was closed down by the Government as an Unlawful Assembly in the year 1910. Later in the days of Gandhian Non-co-operation, was founded the Tilak Maharashta Vidyapeeth as a National University of which I am the Kulguru for these several years. I therefore, feel a special fraternal feeling in being amongst you this day and to bring to your University the best wishes and fraternal affection of Tilak Vidyapeeth.

Friends, I have a feeling that these Convocation addresses have become a formality, a ritual. They are forgotten soon after they are delivered. This saddens me. Oftentimes they contain a rich food for thought and guide-lines to the young graduates, throbbing with enthusiasm and drenched in dreams as they are, for shaping their future.

Before, however, I proceed further, let me congratulate the Jadavpur University for honouring some most distinguished personalities who have by their contribution in their respective fields carried forward the torch of knowledge and added to the existing fund thereof. I am particularly delighted to welcome, among these, my old friend and colleague Dr. Ramesh Chandra Majumdar, famous historian who has devoted his whole life to the worship of the Muse of History. His books and researches have created a name for him both in India and outside. Space forbids me to enumerate here his varied achievements. Other savants are no less known for their outstanding work and they all richly deserve the honour we are conferring on them. In fact in honouring them the Jadavpur University is honouring itself.

As a nation we are one of the oldest ; but as a modern nation we are yet young. We gave to ourselves a Constitution as a Sovereign Democratic Republic. We declared Adult Franchise and have carried out pretty satisfactorily the biggest democratic elections, involving crores of voters, though the majority of them still remains unlettered ! We have raised many new instruments to help us to become a real Welfare State. Please remember we are not a United States, but a Union of States. The responsibilities taken by us upon our shoulders are really tremendously heavy. Only when we stand united as a people and help ourselves all round could we hope to attain our goals. The task needs supreme sacrifice, a rare singlemindedness, unending efforts, burning patriotism, true broadmindedness, genuine fellow-feeling, an everpresent spirit of adjustment, quick acquisition of new skills, a wide awake awareness of the NEW AGE unfolding before us in the World, abounding enthusiasm, a constant urge to go forward, a stubbornness of mind which never yields to temptations, a readiness to give and take, a real understanding of the pride in our past and an inexhaustible Faith in our Future ! Thus equipped we have to go forward "Still achieving Still pursuing."

This surely is not an easy task. But this is Real Education taken in its broadest sense. Mere acquisition of knowledge, studying books and even performing experiments does not make a Perfect Man, though even this education helps you in its own way and is necessary. The establishment of modern universities in this country about a century or so ago was mainly the outcome of the need of trained personnel required by our British masters to help them in their Administration. This situation is creating an Equation between University Degrees and Services. In those old days when the number of English knowing Indians–Indians trained as Teachers, Lawyers, Engineers or Doctors–was very small and the requirements were very large, every degree-holder, nay, even a diploma holder, could be sure of getting a Government appointment. Why, in those days appointments were assured even before the results were declared. But educational institutions began to spread rapidly. The number of trained people turned out annually

was much more than required by the Government or even private enterprise of which there was but little in evidence then. Besides, the policy of the foreign British Government was not what could be naturally expected of a national Government. However, the knowledge of British History, Laws, Freedom and Science gradually awakened a new spirit of Nationalism in the younger generation of the day. This resulted in the foundation of the Indian National Congress which ultimately enabled us to get our freedom. But the old antiquated equation of education and services still persists and cries are heard at Convocations :

'We want Service and not Degrees'.

Though it is not in the hands of the Universities to give services to their young graduates, they must be helped to establish themselves in life. Non-employment is a stark reality today and ways and means have to be found to enable our young men stand on their own legs. The cries of our young men can no longer be ignored. This is the lession all of us have to take seriously to our heart.

But, friends, here I have to say a few words for the consideration of our young friends. If there is a genuine desire in their hearts to play their role in the development of the New Indian nation then the world of work is wide open before them. A little adjustment, a readiness to cast off the white-collared ways would easily enable them to make their own bread. The Government may or may not do their part well and properly, the elders may or may not truly fulfil their own duties as they should, the leaders may be engaged in their own way, but in spite of all this I appeal to the young not to follow the destructive agitational approach and help chaos—destruction and chaos which in the long run are bound to fall on their own shoulders, but to bear up for a while, face hardships and help the establishment of a New Order in a determined but peaceful manner. Please take an overall view of the situation and make your decisions. I have great faith in the goodwill and nobility of feeling in the hearts of 'angry' young men who all the world over are showing signs of mounting restlessness, so that they will be shown the Right Path by the youth of this Great Land of Dharma. Let Bharat endure. Let Dharma—the one great universal Dharma–endure !

Says the Great Lord Shri Krishna in the Bhagavatgita—

'*Swalpa mapyasya Dharmasya Trayate Mahatobhayat,*'

'A little of this Dharma saves you from great dangers.' Great seers like Dnyaneswar, Tulsidas, and Ramkrishna Paramhans have vouchsafed to us this truth by their own experience !

At present I find that the country is engulfed into the meshes of Power-Lust. Laws, Rules, Forms and Formalities are eating into the vitals of our poor economy ! The old zest for work and service seems to have disappeared. We have on our tables big piles of reports followed by reports so that man is being crushed under the weight ! The sound conclusions reached after carefully collecting and sifting the data collected are bottled away and fresh commissions are appointed to produce reports. But this interminable report-making only helps postponement of the

implementation of some of the sound conclusions already reached but bottled away ! This gives a decent-looking cover to the administration of further delay the implementation. Ultimately this process results in frustration. Decisions are quickly and hurriedly taken on the eve of elections. This is my view as a layman and a citizen. These tactics must be abandoned for they result in frustration, disappointment and agitation and supply a good handle to mischiefmongers. Power-lust is a very serious disease and leads to disaster. I wish the youth of the country turns its serious attention to annihilation of this disease in our body politic. The democratic process is by its very nature a time-consuming and halting process. But it has the great advantage of taking the people with the Government and involving the whole country in the process of governing. The people begin to feel that they govern themselves and they are the real masters.

Time is one of the most precious free gifts of nature. Since it is free it is wasted in the most reckless manner. This is specially to be borne in mind by the youth, because the days of youth never return. This is the time of life to be devoted by the youth equipping themselves in every possible way to be ready to face fairly and squarely the hard realities of life. Therefore, when you are at the Universities make the best use of the facilities offered to you, for similar facilities will not be had elsewhere. Even when others may some times fail in their duties—and teachers and authorities will pardon me if I do not make a total exception in their case—do your duty and help yourselves to the utmost.

The most potent instrument to build up a strong and united Sovereign Democratic Republic is Language. Language makes you to gather knowledge and you all know that Knowledge is Power. This Knowledge in a Democracy must be made the common possession of every one of its constituents. No artificial barriers need obstruct their path. No artificial barriers be created by themselves. Let good understanding prevail.

India is a country of many languages. Some fifteen to twenty or so out of the thousands are well developed so as to become worthy instruments of communication of modern knowledge. Sanskrit is our richest heritage and serves us as an unrivalled power-house. But fifteen or so modern Indian languages also have developed an individuality of their own. These modern Indian languages are at present the main vehicles of thought and communication in their respective regions. If democracy is to function in the proper way the only instruments for all the people of the regions are the Regional Languages so called.

Our ambition and goal is to be an equal and respectable, if not a leading member in the comity of Nations in the world. The obvious need is so to develop our Regional Languages by giving them their natural and proper place but also by making every honest effort to raise them to the level required. In other words, the regional languages must be equipped to serve as the media of instruction and expression in every field of human action including the highest.

True there are most than one regional languages but the whole of India must speak through one common language also. The present choice of Hindi-Hindustani appears to be the best. 'Use

Hindostani' was the advice given to newcomers to India for propagating the Christian Faith by their earlier and more experienced brothers in the days of Akbar ! This is recorded by the Catholics as 'The Indostan Language !' So this is not a new fad. It has the backing of old experienced foreigners. Even the word Rashtrabhasha is not quite so new as some believe. We have a book published in Marathi as far back as 1894 by the late Shri Keshav Vaman Pethe who has discussed this question of a common language for India under the title 'Rashtra-bhasha'! The Hindi will be our basis but the course of its development and use for our National Purposes will have to be under the representatives of the Regional languages from all over India. There should be no room for fear if we carry our own work courageously and not allow any unnecessary domination or interference of any group of emotionalist.

As regards English, it is our main source of modern knowledge—the Window of the World as it is fittingly known. In the Universities or places where we have to do with ever increasing knowledge we must keep English. Remember, however I advocate the study of English not as literature but as a library language. To me English is only a Receiving Station—a station from which I receive knowledge not available in our languages. Where I can at present easily do in either a regional language or Hindi-Hidustani, I should not indulge in English for the same. Such misuse of the English language is rampant in this country. It must be cut to its real proportions but on no account should the window of the world be closed. The window will be opened only for bringing light and on no other account whatsoever. The need for English may remain for a long time to come, for the relative rate of production of knowledge is bound to vary considerably. I consider translations as a mere temporary stop-gap arrangement. The real consummation will be when we will begin to produce New Knowledge through our Regional languages. A very powerful and efficient Translation Bureau to translate original works from one regional language to another and from that to the other and the need to encourage the study of more than one Regional Language at our Universities are very real necessities. The difference and the difficulties at present supposed to exist between many of the regional languages–except in the case of the most Southern Languages are more imaginary than real. Experience will dispel all such doubts.

Friends, Vak is a power whose force and potency have to be fully understood and then only you will experience Power and Energy and have the fruits of New Creation. This Nation has yet to speak with full force. I appeal to the youth to try and perform this Tapas. They will succeed in building The New India of the Age !

— Datto Vaman Potdar

ANNUAL CONVOCATION ADDRESS

By

SHRI D. P. DHAR

Minister of Planning

12th January 1974

Mr. Chancellor, Mr. Vice-Chancellor and Friends

I fell deeply honoured and moved that I should have been asked to address the Annual Convocation of this famous University. The history the Jadavpur University is the microcosm of India's struggle to face the challenge of the modern age. The great patriots like Raja Subodh Mullick who founded the National Council of Education and great scholars like Hira Lal Ray who served it with such selfless devotion did not think of organising courses of instruction in various branches of knowledge, particularly scientific and technical knowledge, as simply a method for providing more of what was being provided by the then existing educational system. They had another and larger purpose in view.

Their grand design was to assimilate science and technology, the gifts of the eighteenth century revolution in the consciousness of the Western man, to the genius of our society. The educational system established by the British in India was producing a rather strange type of man. Admirable in many ways, he was yet devoid of the spark of creativity.

The problem was not that we had to borrow modern techniques of production. The give and take of ideas, knowledge tools and products of human labour have been part of history since man's odyssey began. The problem was how to make the new knowledge a part of our being, how to relate it to all that we had been, all that we had thought and felt and dreamed through the ages. The great renaissance in Bengal was, in one sense, concerned with this fundamental question. Nationalism, a rediscovery of our past, a revaluation of our symbols, myths, religious and philosophical ideas and the quest for a vision of an independent Indian society were all parts of this manysided endeavour. It was a revolt as much against the present as against the past. This university, if I may make bold to say, was born out of that revolutionary ferment of mind spirit.

But has the task to which men like Shri Aurobindo, Gurudev Rabindranath Tagore, Swami Vivekananda, Acharya Jagdishchandra Bose and Acharya Prafullachandra Ray, devoted their energy, been accomplished ?

The task, if I may remind the distinguished alumni of Jadavpur, was nothing less than the reconstruction of Indian society. Achievement of political independence was a pre-condition of

that reconstruction. So we had to throw ourselves into the fight for freedom from the alien rule. The passion for freedom surged through out lives which were lifted above the petty concerns of day to day existence. The struggle gave us dignity, because even before the final act of freedom came, we had been set free from fear. A man had walked among us who had banished fear—fear of the might of the weapons of death, fear of losing what one has, fear of consequences of what one does to uphold what one believes to be right. Under Gandhiji's leadership, revolt acquired a new historical dimension. The supreme moral issues of ends and means were woven into the fabric of rebellion.

The act of rebellion became thus not only an act of negation. It was also an act of affirmation. In fact the affirmation of new values of social and political life in an independent India constituted the essence of the revolutionary vision. Therefore, when the curtain came down on the Raj, the stage was set for the struggle to give social and economic content to political independence. There was no time to pause because the march of history had left us far behind in man's age-old endeavour to create a just social order. Other societies had forged ahead. With the help of science and technology, they had vastly improved their means to end the poverty of the masses. It was not quite clear whether improvement of material conditions of living had brought them nearer to the realisation of a good life for their members. But at any rate they had taken a big step forward and were pushing further ahead.

We stood on the edge of a new era in our long history. In the midst of hatred and destruction. India dared to hope a new and to look forward to a future which would bring much striving, but also the fulfilment that goes with striving. What was she going to strive for ?

The answer to this question does not lie in any fully rounded philosophy of social action. It is so, partly, because the answer is furnished by the processes of contemporary social life which defy dogma. Also, as social life changes, and as what we set out to do is partially achieved, fresh problems arise and old answers are re-tested in the light of what has happened since the answers were formulated.

This does not mean that we were anchorless, or that we did not see clearly where we were headed. The direction of our striving had been set by the mass movements of national liberation. The powerful urges of self-reliance and social justice had found expression in the struggles of the common people. Economic independence was a vital element in the concept of nationalism. But economic strength of the nation was to be built for the good of all sections, particularly for the benefit of the poor. It was an undertaking which required the cooperation, indeed the contribution, of all classes. For before a society of plenty could materialise, the whole productive base of the economy had to be transformed, and transformed quickly.

The question was how and under whose auspices was this process of social transformation to proceed ? Adult suffrage and the establishment of democratic parliamentary institutions provided the political matrix of development. Democracy is incompatible with the classical capitalist route

of development. But equally it is a system that rules out the use of force to shorten the time needed for constructing modern industry and agriculture. We were accordingly led to evolve our own path which has been variously described, but which in substance reflects the diversity of our social life and its different stages of development.

The path we chose is an exceedingly difficult one. For one thing, it conforms to no known model of development. There are not many lessons we can draw from the history of the developed nations. Again, we do not have an unlimited amount of time to demonstrate the correctness of our choice. We live in a time of unprecedented change. Expansion of science and technology is no longer a process which allows gradual adjustment to new techniques. Promethean man has indeed stolen the fire from the gods, but has little notion of how to use it. We are inextricably caught in this web of change. We have to keep pace with the swift advances in knowledge. At the same time we have to complete on the basis of existing knowledge, the task of modernising our whole system of production.

Even as we are involved in the making of innumerable small and big decisions to move the economy in a particular direction, we have to think of what it means in terms of the kind of society we wish to create. Socialism is the goal towards which we strive, but we cannot wait for the socialist man to emerge fully formed at the end of the process of reconstruction. Socialist consciousness has to inform and to mould here and now the decisions we make. In this way alone will the new motivations replace the old, not as a cataclysmic event in the history but as part of the daily business of living, producing and sharing.

The younger generation in our country understands the compulsions of this gigantic enterprise. It has inherited the vision that inspired countless men and women to forsake the security of their homes for the exultation of the battle for a free and resurgent India. It has experienced the pain that accompanies the gradual breaking up of the old patterns of life and the building of new ones. It has contributed to the advances the country has made in mastering modern techniques of production in industry and agriculture. It has been in the forefront of movements which seek to end social and economic injustice. Its deep commitment to the ideals and values of a self-reliant and progressive society has sustained the historical thrust for social change. It has questioned everything, refusing to take on trust accepted modes of thought and behaviour. It is intensely idealistic, impatient, restless, eager, angry and rebellious.

We have hope because the youth is constantly reassembling the fragments of the vision of a new society and judging men and institutions with reference to the wholeness and authenticity of that vision. We have no cause for despair ; we have cause for rejoining. A society without the rebel's vision is a society in decay. It is a society of total and terrible silence, for it permits no dialogue between the present and the future. Murder is the ultimate expression of such silence, because it prohibits with definitive finality human effort to improve the social condition. A dynamic and creative society, on the other hand, cannot exist without its idol-breakers because they are the dialogue makers.

But the concept of rebellion has to be related to our specific historical situation. Rebellion against what ? And how ? These questions have echoed down the ages. Each generation has sought to answer them in its own way. You have to answer them too, because not to answer them means that you deny your own specific quality. But before you do, you have to understand the context in which the questions arise. It is your context and mine. It is the context of your neighbour next door who is laid off because somebody has decided not to move coal on the railways. It is the context of an old civilisation which is struggling to be born anew. We are not writing on a clean slate. Nobody ever does. We have to contend with the past. And we have to contend with the present which is full of preplexities. We made a good start. We have done a good deal mainly by relying on ourselves and by introducing into our social set up forces of scientfic and technological change. But we have to do a great deal more, and that too at a much faster pace than in the past to develop our capabilities to solve the urgent social and economic problems of our people.

Nonetheless, the problems remain and impinge on our consciousness. Where does one begin in one's effort to understand the nature of one's personal choice in this collective situation ? What does one deny ? More importantly, what does one affirm ? Rebellion, to be meaningful, has to go beyond the logic of denial. It has to create. The two processes go on simultaneously. Or else there is something unreal about the rebel. Mere denunciation or destruction is poor imitation of the authentic act of rebellion, for the simple reason that it does not create any values in the light of which the act of destruction acquires historical meaning.

No doubt there is a good deal in our situation to be angry about. There is much to pull down and much to build. The youth, more than any other section of society, is moved by the prevalence of social injustice. It wishes to act to end the injustice. But action, to be successful, has to be grounded in mass consciousness. Kabir and Nanak dealt blows to the caste system by making the people understand the falsehood of the whole structure of its relationships. Their rebellion lives even today as an everpresent reproach to the tyranny of birth.

Too often some people tend to think that nothing can change until the whole system is brought down in an upheaval. This is really a method of abdicating responsibility because one refuses to identify the forces that work for social transformation, and consequently refuses to help such forces. There may be obstacles in the way of such forces. There may be imperfections in policies, in institutions and in men who are concerned with the direction of the process of change. The task is to remove the obstacles ; it is to correct the distortions of the process of development ; it is to set up standards of conduct and belief against which the failings of institutions and men can be evaluated and exposed and it is to educate the public mind regarding the nature of forces which obstruct progress towards the objective of socialism. These are basically the obligations of the rebel because he, in cooperation with his fellowmen, seeks to expand in a given historical context the area of human freedom and justice. This is not an arbitrary definition. To ignore the historical context of democracy in India is to deprive rebellion of its fundamental content.

This is where the importance of the method one chooses is of such decisive significance. In choosing one method rather than another, one signifies one's relationship to the social context. In our situation, the possibilities of peaceful action align the democratic rebel with the forces of change. It is no doubt more difficult to persuade people to rebel peacefully ; the rebellion is not on that account less heroic or less effective as we know from our history. On the other hand violence and terror put the rebel squarely in opposition to the forces of peaceful social transformation, for they arouse the still strongly entrenched defenders of the status quo to use their own kind of violence. Political power does not grow out of violence because the masses do not use the gun and do not want to use it. When the gun is used, it destroys a great deal of what the masses have laboured to build. In this setting, an individual act of violence remains at best a futile gesture of personal courage without any social relevance. In the larger sense, however, violence causes a serious setback to the whole process of peaceful revolutionary change, for it brings into play the combined might of economic and social orthodoxies. Rebellion is reduced to simple denial ; its life affirming quality atrophies under the weight of violence which is socially unrelated to the causes for which the rebel fights. It becomes a thing in itself — coarse, brutal and ugly, unredeemed by a larger purpose or hope. As violence increases, the revolution recedes.

In the ultimate analysis, then, one has to start with oneself, and ask whether one has rebelled enough to transform oneself. It is a privilege and a duty to ask this question in this university, because here some of the greatest men India has produced underwent this inner transformation. In so doing they released mighty forces of change which shaped the destiny of our people.

The graduates who receive their degrees today have forged unbreakable links with a valuable tradition of free inquiry and courageous conduct. The country looks to you with hope because your youthful minds are equipped to analyse the complexities of social reality and because your capacity for action is guided by a profound sense of justice. I wish you well in your future efforts to help the country move forward.

Thank you,

বার্ষিক সমাবর্তন ভাষণ

শ্রীসত্যেন্দ্রনাথ সেন

উপাচার্য, কলিকাতা বিশ্ববিদ্যালয়

১৯ শে ডিসেম্বর, ১৯৭৫

শ্রদ্ধেয় আচার্যদেব, মাননীয় উপাচার্য ও শিক্ষকগণ,

প্রিয় ছাত্রছাত্রীরা এবং মান্য সুধীবৃন্দ,

ভারতবর্ষের বিশ্ববিদ্যালয় সমাজে যাদবপুর বিশ্ববিদ্যালয়ের একটি বিশিষ্ট স্থান আছে। ন্যাশনাল কাউন্সিল অফ এডুকেশনের জন্মের ইতিবৃত্ত এবং পরিচয় বিদ্বৎসমাজে কারো অপরিচিত নেই। স্বাধীনতা সংগ্রামের সেই আদিম যুগে যে কয়েকজন মনীষী অর্থ মান যশ ও নানা জানা-অজানা বিপদের ভয় ত্যাগ করে জাতীয় শিক্ষাপদ্ধতিতে ছেলেদের গড়ে তোলার ব্রত গ্রহণ করেছিলেন, তাঁরা এই বিশ্ববিদ্যালয়ের হোতা। ভুবনবিদিত পুষ্করাবর্তকবংশে জাত মেঘের ন্যায় এই বিশ্ববিদ্যালয়েও অধিগুণসম্পন্ন। সেই বিশ্ববিদ্যালয়ের সমাবর্তন উৎসবে যোগদানের নিমন্ত্রণ পেয়েছি বলে আমি কৃতজ্ঞ। বিশেষ করে এই বিশ্ববিদ্যালয়ের জন্মের সঙ্গে বহু গুণী এবং জ্ঞানী শিক্ষকের কর্ম জড়িত আছে। শিক্ষকদের অক্লান্ত নিষ্ঠা এবং সেবায় পুষ্ট হয়ে এই বিশ্ববিদ্যালয় গড়ে উঠেছে একথা বললে কোন অত্যুক্তি করা হবে না। আপনাদের আমন্ত্রণ পেয়ে সেই শিক্ষকদের মধ্যে একজনের কথা আমার বিশেষ করে মনে হচ্ছে। তিনি আমারও শিক্ষক অধ্যাপক বিনয়কুমার সরকার। আপনারা জানেন তিনি অতি নিষ্ঠার সঙ্গে জাতীয় শিক্ষা বিস্তারের পুণ্যব্রত গ্রহণ করেছিলেন এবং সমস্ত জীবনে শিক্ষকতার উচ্চ আদর্শ পালন করেছিলেন। তরুণ শিক্ষক হিসাবে আমি যখন কলকাতা বিশ্ববিদ্যালয়ে যোগ দিয়েছিলাম, তখন থেকেই তাঁর আদর্শবাদের বহু পরিচয় লাভ করার সৌভাগ্য আমার হয়েছিল। আমাদের মত তরুণদের তিনি বার বারই উপদেশ দিতেন—চুপ করে থেকো না, বাজে কাজ করবে না। গবেষণা কর এবং জ্ঞানসমুদ্র থেকে রত্ন সংগ্রহের নেশায় ডুব দাও। আজকের দিনে তাঁকে কৃতজ্ঞচিত্তে সশ্রদ্ধ প্রণাম জানাই।

আমার শ্রদ্ধেয় শিক্ষকের কথা মনে পড়ছে বলে শিক্ষকদের সম্বন্ধে দু-একটি কথা বলে আলোচনা সুরু করব। আর একটি কারণ এই যে আমি নিজেকে এখনও শিক্ষক বলে গণ্য করি। সুদীর্ঘ ৪২ বৎসর পূর্বে ১৯৩৩ সালে কলকাতা বিশ্ববিদ্যালয়ে কয়েক মাসের জন্য শিক্ষকতার কাজ করি। তারপর প্রায় দেড় বৎসর বেকারী জীবন যাপনের পর ১৯৩৫ সাল থেকে ১৯৬৮ সাল পর্যন্ত শিক্ষকতা করেছি। শিক্ষকজীবনের সর্বস্তরের সঙ্গে পরিচয় হওয়ার সৌভাগ্য আমার হয়েছে—বেসরকারী কলেজে শিক্ষকতা, বিশ্ববিদ্যালয়ে লেকচারার, রিডার, অধ্যাপক—এই কয়টি পর্যায়ের শিক্ষকতার সুখ-দুঃখ, নিন্দাস্তুতি, সুবিধা-অসুবিধা সবকিছু আমাকে জানতে হয়েছে। নানা শ্রেণীর শিক্ষাপ্রশাসন ব্যবস্থা, বহু ছাত্রছাত্রী ও তাদের ব্যবহার এবং দুর্ব্যবহার—এর পরিচয় পেয়ে আমি বুঝেছি যে স্কুল কলেজ ও বিশ্ববিদ্যালয়ের ভালমন্দের একটি বড় মাপকাঠি হচ্ছে তাদের শিক্ষকশ্রেণী। ন্যাশনাল কাউন্সিলের বিবর্তনের ইতিহাস অনুসন্ধান করলে দেখা যাবে যে এর মূলে রয়েছে এখানকার শিক্ষকদের ত্যাগ

এবং নিষ্ঠা। আমি যখন ম্যাট্রিকুলেসন পরীক্ষার পর কলকাতায় কলেজে পড়তে আসি তখন একটি বিখ্যাত বেসরকারী কলেজে পড়বার সৌভাগ্য আমার হয়েছিল। তখনকার দিনে বহু বেসরকারী কলেজে এবং আমার কলেজেও অন্তত কয়েকজন দিক্‌পাল অধ্যাপক ছিলেন যাঁদের পাণ্ডিত্য ও অধ্যাপনখ্যাতি সর্বজনবিদিত ছিল। সে যুগে কলকাতা বিশ্ববিদ্যালয়ে যাঁরা অধ্যপনা করতেন তাঁদের জ্ঞান এবং গবেষণায় এই বিশ্ববিদ্যালয় বিদ্বৎসমাজে শীর্ষস্থান লাভ করেছিল। কিন্তু নানা কারণে আজকের বিশ্ববিদ্যালয়গুলিতে এবং কলেজে সেই শ্রেণীর অধ্যপক যে কমসংখ্যক হয়ে গেছে তা অস্বীকার করা যায় না। কেন আমরা এই অবস্থায় এসে পৌঁছেছি তার আলোচনা করতে হবে। আমি আমার অভিজ্ঞতা থেকে যা বুঝেছি তা সঙ্কোচের সঙ্গে আপনাদের জানাচ্ছি।

প্রাক্‌-স্বাধীনতা যুগে সরকারের বড় বড় চাকুরীতে খুব কমসংখ্যক ভারতীয় প্রবেশ করতে পেরেছে—তখন আই-সি-এস এবং ফিনান্স সার্ভিসে সবশুদ্ধ বৎসরে ১৫/২০ জনের বেশি ভারতীয় নেওয়া হোত না। বাণিজ্যিক প্রতিষ্ঠানগুলিতেও উচ্চ পদে ভারতীয় নেওয়ার রীতি ছিল না। সুতরাং ভাল ছাত্রদের মধ্যে একটি বিরাট অংশ বিশ্ববিদ্যালয়, কলেজগুলি ও স্কুলেই কাজ নিয়েছিলেন। কিন্তু স্বাধীনতা লাভের পর বড় সরকারী চাকুরীর সংখ্যা বহু বেড়ে গেল এবং সে সমস্ত পদে ভারতীয়দের নেওয়া হচ্ছে। এ ছাড়া ব্যাঙ্ক, বীমা প্রতিষ্ঠান প্রভৃতি একে একে রাষ্ট্রায়ত্ত করা হোল এবং তাদের উচ্চপদে ভারতীয় ছাত্রদের নিযুক্ত করা সুরু হোল। একদিকে যেমন ভাল বেতনের পদের সংখ্যা অনেক গুণে বেড়ে যায়—অন্যদিকে বিশ্ববিদ্যালয় ও বিশেষ করে কলেজগুলি অর্থাভাবে তুলনায় অনেক কম বেতন দিতে বাধ্য হয়। এর ফল হয়েছে ভাল ছাত্রদের অধিকাংশই সরকারী ও আধা-সরকারী প্রতিষ্ঠানে বেশি বেতনের কাজে যোগদান করতে আরম্ভ করে। কিছু কিছু ভাল ছাত্র বিশ্ববিদ্যালয়গুলিতে তবুও যোগদান করেছে। কিন্তু কলেজগুলিতে বেতনহার এত কম ছিল যে সেখানে ভাল ছাত্র খুব কমই গেছে। যাট দশকে ইউ-জি-সি বিশ্ববিদ্যালয় এবং কলেজে বেতনহার বৃদ্ধির নীতি গ্রহণ করে এবং এদিক দিয়ে কিছুটা উন্নতি হয়েছিল। পঞ্চম পরিকল্পনার সময় শিক্ষকদের বেতনহার নির্ধারণের জন্য ইউ-জি-সি যে কমিটি নিয়োগ করে তাঁরাই প্রথম এই সমস্যার সর্বাঙ্গীণ আলোচনা করেন। সুদীর্ঘদিনের অবহেলার ফলে বিশ্ববিদ্যালয় এবং কলেজগুলি যে অবস্থায় এসে পৌঁছেছে এর পরিবর্তন করতে হবে যদি উচ্চ শিক্ষার মান উচ্চ করে তোলাই আমাদের নীতি হয়। তা যদি করতে হয় তবে দুটি বিষয়ের কথা বিশেষ করে মনে রাখতে হবে। কিছু ছাত্রছাত্রী আছে এবং আনন্দের বিষয় চিরকালই থাকবে—যারা লেখাপড়াই ভালবাসে এবং এমনভাবে ভালবাসে যে তার জন্য আর্থিক ক্ষতিও মেনে নিতে দ্বিধা করে না। কিন্তু দুঃখের বিষয় তাদের সংখ্যা খুব বেশি নয় এবং প্রয়োজনের তুলনায় অনেক কম। সুতরাং ভাল ছাত্রছাত্রীদের অধিকাংশকে যদি শিক্ষকতাবৃত্তি অবলম্বনের পথে আনতে হয় তবে তাদের ভাল বেতন দেবার ব্যবস্থা করতে হবে। ভাল ছাত্রছাত্রীরা যখন পড়াশুনা শেষ করে এসে দাঁড়ায় তখন তারা সামনে উপার্জনের দুটি বিশিষ্ট পথ খোলা দেখতে পায়,—তারা পরীক্ষা দিয়ে আই-এ-এস প্রভৃতি বড় বড় সরকারী চাকুরী নিতে পারে। কিংবা গবেষণা ও পঠনপাঠনের পথ বেছে নিয়ে বিশ্ববিদ্যালয় ও কলেজের শিক্ষক হতে পারে। যদি বিশ্ববিদ্যালয় বা কলেজে ভাল ছাত্রছাত্রীদের উপযুক্ত সংখ্যায় আনতে হয় তবে শিক্ষকদের বেতন প্রথম শ্রেণীর উচ্চ সরকারী চাকুরীতে যে বেতন দেওয়া হয় অন্তত তার সমান করে দেওয়া প্রয়োজন। বেতন সমান থাকলে যে যার পছন্দমত বৃত্তি বেছে নেবে। এ যুক্তির ঔচিত্য সম্বন্ধে কোন দ্বিমত থাকতে পারে না। আমার পূজনীয় শিক্ষক অধ্যাপক জে পি নিয়োগীকে বারবার বলতে শুনেছি যে, তোমরা শিক্ষকতার পথে এসো না। কারণ এ পথে দারিদ্র্য-দুঃখ কোন দিন ঘুচবে না। তিরিশ এবং চল্লিশ সালের যুগে

বহু অধ্যাপকই ছাত্রদের একথা বলেছেন। যার ফলে অনেক ভাল ছাত্র সরকারী বা অন্য অর্থকরী কাজে যোগদান করেছেন। কোন দেশের পক্ষেই এ মঙ্গলদায়ক নয় যে ভাল ছাত্রছাত্রীদের অধিকাংশই শিক্ষকতার পথে না গিয়ে সরকারী বা অন্য কাজে চলে যাবে। এর ফলে শিক্ষা ব্যবস্থার মান নেবে যেতে বাধ্য এবং দেশের উন্নতি ব্যাহত হবে। আজ শিক্ষার মান নেবে গেছে এবং এখন আর পূর্বেকার যুগের আদর্শ শিক্ষক খুঁজে পাওয়া যায় না বলে যাঁরা দুঃখ করেন, তাঁদের এই বিষয়টি ভাল করে ভেবে দেখতে বলছি।

আজকের দিনে অর্থের মাপকাঠিতে লোকের অবস্থার বিচার করা হয়। বেতন দিয়ে শুধু কেবল জীবনযাত্রার ব্যয়নির্বাহ হয় না—সমাজে কার কি স্থান তারও পরিচয় অনেক সময়ে করা হয়। এ দুঃখের বিষয় সন্দেহ নেই। কিন্তু এই রূঢ় সত্যকে স্বীকার করতে হবে। সমাজ যদি সত্যই মনে করে যে, শিক্ষকতা অতি মহৎ বৃত্তি এবং শিক্ষকদের উচ্চ সম্মান দিতে হবে তবে তাঁদের উচ্চ বেতনও দিতে হবে। কোন বৃত্তিকে কোন শ্রেণীতে স্থান দেওয়া উচিত হবে তা অনেকটা বেতনের মাপকাঠিতে বিচার করা হয়ে থাকে। এইভাবে বিচার করা উচিত কিনা সে প্রশ্ন তোলা হলে উত্তরে বলা যায় যে, শিক্ষকদের যে যুক্তিতে উচ্চ স্থান সত্ত্বেও নিম্ন বেতন দেওয়া হবে সেই যুক্তি অন্য ক্ষেত্রেও কেন প্রয়োগ করা হবে না ? প্রশাসনের উচ্চপদে যাঁরা আছেন, তাঁদের সামনেও বুনো রামনাথের দৃষ্টান্ত ধরা হবে না কেন ? বুনো রামনাথ শিক্ষকজাতির আদর্শ পুরুষ ছিলেন। কিন্তু সে আদর্শ অন্যদের বেলাতে প্রয়োগ করতে আপত্তি কি আদর্শটি যখন অতি উচ্চপর্যায়ের বলে গণ্য করা হয় ? শিক্ষকদের একদিকে উচ্চপর্যায়ে স্থান দেবো আর অন্যদিকে তাঁদের নিম্ন বেতন দেবো এই আত্মপ্রবঞ্চনা পরিত্যাগ করার সময় এসেছে। সমাজ বা রাষ্ট্র তাঁদের যে স্থান দেওয়া ন্যায্য বলে মনে করে বেতনের হার নির্ধারণ বিষয়ে তা প্রতিফলিত হওয়া উচিত। বুনো রামনাথের ন্যায় ত্যাগী উচ্চ আদর্শবান শিক্ষক আজও আছেন একথা আমি বিশ্বাস করি। কিন্তু তাঁর সময়ে এইরূপ আদর্শ চরিত্র শিক্ষকের সংখ্যা যে খুব বেশি ছিল না এ বিষয়ে কোন সন্দেহ নাই। আজও তাঁদের সংখ্যা যে অনেক কম তা স্বীকার করতে হবে। সেইজন্য ভাল শিক্ষকের সংখ্যা বাড়াতে হলে আরো ভাল ছাত্রছাত্রী যাতে এ বৃত্তি গ্রহণ করে সে ব্যবস্থা করতে হবে। এ ব্যবস্থার প্রথম সূত্রপাত হোল শিক্ষকদের বেতন অন্যদের সঙ্গে অর্থাৎ ভাল ছাত্রেরা যেখানে যেখানে যেতে পারে সেই সব বৃত্তিতে দেয় বেতনহারের সঙ্গে অন্তত সমান করে দিতে হবে। যে সমাজ বা রাষ্ট্র তা দিচ্ছে না তাদের বাক্যে ও কর্মে অসামঞ্জস্য থেকে যাচ্ছে। কেবলমাত্র স্কুলে কলেজ বিশ্ববিদ্যালয়ের সংখ্যা বাড়িয়ে গেলেই শিক্ষার উন্নতি হবে না। ভাল শিক্ষক না থাকলে উচ্চপর্যায়ের শিক্ষাদান হয় না। ভাল শিক্ষকের সংখ্যা বাড়াতে হলে ভাল ছেলেমেয়েরা যাতে শিক্ষকতা বৃত্তিতে আকৃষ্ট হয় তার উপযুক্ত ব্যবস্থা করতে হবে। নান্যঃ পন্থা বিদ্যতে অয়নায়।

সুখের বিষয় ইউ-জি-সি কমিটির এই যুক্তিগুলি ভারত সরকার মেনে নিয়েছেন। কিন্তু কয়েকটি রাজ্যসরকার এই ব্যবস্থা গ্রহণে দ্বিধা বোধ করছেন এবং যে যে রাজ্যসরকার নীতিগতভাবে ব্যবস্থাটি মেনে নিয়েছেন তাঁদের মধ্যেও অনেকে একে কার্যকরী করার সময় এমন কয়েকটি সর্ত প্রয়োগ করছেন বা করতে চেয়েছেন যার ফলে মূল উদ্দেশ্যের ক্ষতি হবে। তৃতীয় বেতন কমিশন সরকারী কর্মচারীদের বেতনের হার বৃদ্ধির সুপারিশ করেছেন। এই সুপারিশগুলি চালু করার সময় কি বর্তমানের কর্মচারীদের মধ্যে কে এর উপযুক্ত কে নয় এই বিচার করে বর্ধিত বেতনের হার কার্যকরী করা হয়েছে? কিংবা চতুর্থ পরিকল্পনাকালে ইউ-জি-সি বিশ্ববিদ্যালয় এবং কলেজের শিক্ষকদের জন্য যে উচ্চ বেতনের হার ঠিক করে দিয়েছিলেন সে সময়ে প্রতিটি শিক্ষকের গুণাগুণ বিচার করে কি তখন তাঁদের উচ্চ বেতন দেওয়া হয়েছিল? তবে আজ বিশ্ববিদ্যালয় এবং কলেজের শিক্ষকদের বেলাতে

গুণাগুণের এত নিক্তির বিচার করা হবে কেন? এই বেতনের হারের যৌক্তিকতা হোল ভাল ছাত্রছাত্রীদের শিক্ষকতা করছেন তাঁদের মধ্যে কিছু শিক্ষকের উপযুক্ত গুণাবলী নাই এই যুক্তি দিয়ে নূতন বেতন হার প্রবর্তনের ব্যবস্থা নাকচ করা অন্যায় হবে। কেন উপযুক্ত সংখ্যক ভাল ছাত্রছাত্রীরা শিক্ষক হতে এলো না এই চিন্তা করলেই নূতন বেতন হার প্রবর্তন নীতি মেনে নিতে হবে। অর্থাভাবের যুক্তিও যে সব সময়ে গ্রহণযোগ্য তা ঠিক নয়। যে নীতিকে আমরা ন্যায্য বলে মনে করি এবং যা না করা হলে দেশের শিক্ষাব্যবস্থার মান উঁচু করা সম্ভব হবে না তার জন্য উপযুক্ত অর্থ সংগ্রহের দায়িত্ব রাষ্ট্রকে নিতে হবে। শিক্ষার উন্নতি বেশি উৎপাদনশীল না কৃষি ও শিল্পের উন্নতিতে বেশি ফসল পাওয়া যাবে—এ তর্কের উত্তর অতি সহজ। আজ যাঁরা সবুজবিপ্লবের গর্ব করেন, তাঁরা কি ভেবে দেখেছেন যে, যাঁরা এই বিপ্লব এনেছেন তাঁরা বিভিন্ন বিশ্ববিদ্যালয়ে শিক্ষিত? গবেষণাগারে উচ্চ ফলনশীল বীজের গবেষণার ফলেই এই বিপ্লব সম্ভব হয়েছে। ভাল শিক্ষক গবেষণা করে নূতন নূতন আবিষ্কার করবেন যার ফলে কৃষি এবং শিল্পের উন্নতি আরো বেড়ে যাবে। রুগ্ন শিক্ষক তথা রুগ্ন বিশ্ববিদ্যালয় রেখে শুধু কেবল কৃষি এবং শিল্পের উন্নতি করা কতটুকু সম্ভব হবে তা সবাইকে ভেবে দেখতে বলছি। ভাল শিক্ষক, ভাল কলেজ এবং ভাল বিশ্ববিদ্যালয় দেশের সবচেয়ে সমৃদ্ধ বিনিয়োগ সম্পদ্। অধিকাংশ বাবা-মাই ছেলেমেয়েদের উপযুক্ত শিক্ষা দেওয়ার জন্য বহু ত্যাগ স্বীকার করেন। রাষ্ট্রকেও ছেলেমেয়েদের উন্নত শিক্ষাব্যবস্থা প্রবর্তনের জন্য প্রয়োজনীয় ত্যাগ স্বীকার করতে হবে। আমি প্রত্যেকটি রাজ্য সরকারকে বলব যে, আপনারা কোন দ্বিধা না করে এই নীতি গ্রহণ ও কার্যকরী করুন। যে সমাজ শিক্ষকদের দ্বিতীয় শ্রেণীর নাগরিক পর্যায়ে ফেলে রাখতে চায় তারা সেই সমাজের সমর্থক কিনা এই বিষয়টি তাদের ভাববার সময় এসেছে।

ইউ-জি-সি কমিটি যে সমাজে শিক্ষকদের কোন স্থান দেওয়া উচিত শুধু কেবল এই বিষয়টি আলোচনা করেছেন তা নয়। তাঁরা শিক্ষকদের কর্তব্য সম্বন্ধেও সজাগ ছিলেন। অধিকার এবং কর্তব্যের মধ্যে যে আদিম ও অচ্ছেদ্য সম্বন্ধ আছে সে কথা শিক্ষকদের বিশেষ করে ভেবে দেখতে হবে। শিক্ষকদের আচরণবিধি প্রবর্তন করা উচিত হবে কিনা এ তর্কের মধ্যে না গিয়ে এই কথা বলা যায় যে, তাঁরা যে শিক্ষক ও শিক্ষকতা, পঠনপাঠন ও গবেষণাই যে তাঁদের মুখ্য কাজ, এই কথা আমরা যেন কখনও ভুলে না যাই। আচরণবিধি প্রবর্তনের মুখ্য উদ্দেশ্যও তাই। তাঁদের অধিকাংশ সময়েই পড়াশুনা, পড়ান ও গবেষণার কাজে ব্যয় করতে হবে। অধিকাংশ শিক্ষকও যে তা করেন সে বিষয়ে কোন সন্দেহ নেই। শিক্ষকেরা দিনে দু-তিন ঘণ্টার বেশি ছাত্রছাত্রীদের ক্লাস নেন না। সেইজন্য অনেকেরই ধারণা যে শিক্ষকেরা অতি সামান্য সময়ই কাজ করেন। একটি ক্লাসের বক্তৃতার জন্য শিক্ষককে যে কতখানি লেখাপড়া করতে হয়—বাড়ীতে এবং লাইব্রেরীতে—দুঃখের বিষয় খুব কম লোকেরই সে ধারণা আছে। আচরণবিধি প্রবর্তনের আর একটি উদ্দেশ্য হচ্ছে যে শিক্ষকেরা পঠনপাঠন গবেষণা লাইব্রেরী ও লেবরেটরীতে কাজ এবং গবেষণারত ছাত্রছাত্রীদের সাহায্য দেওয়া প্রভৃতি নানা ধরণের কাজে যে সময় দেন এই বিষয়টি জনসাধারণের গোচর করা। আমি ৩৩ বৎসরেরও বেশি সময় শিক্ষকতা করেছি। দৈনিক এক ঘণ্টা বা দুই ঘণ্টা ক্লাসে বক্তৃতা দেওয়া ছাড়া আর কোন কাজ করি নি—এ কথা যে কতখানি মিথ্যা তা বলার প্রয়োজন আছে বলে মনে করি না। যাঁরা শিক্ষকতা করেন তাঁরা অন্য বৃত্তিধারী লোক থেকে কম সময় কাজ করেন এ কথা কেন বলা হয় তা বোঝা মুস্কিল। যাঁরা অফিসে সন্ধ্যা বা রাত্রি পর্যন্ত ফাইল ঘাটেন তাঁদের কাজই কাজ—আর যাঁরা লাইব্রেরীতে বা বাড়ীতে পড়াশুনা করছেন, লেবরেটরীতে গবেষণা করছেন তাঁদের কাজকে অবহেলার চক্ষে দেখার কি কোন সঙ্গত কারণ আছে? অনেকে হয়ত বলবেন যে, সকল শিক্ষকই কি তাই

করেন? স্বীকার করতে বাধা নেই যে সর্বস্তরে যেমন "কালো মেষ" আছে শিক্ষকদের মধ্যেও তা আছে। তাঁদের ভুল বুঝিয়ে দেওয়া এবং ঠিক পথে আনার চেষ্টা করা—এও আচরণবিধির একটি উদ্দেশ্য। ভাল ছেলেমেয়েরা শিক্ষকতা করতে আসবে, শিক্ষকতার গুরুদায়িত্ব পালন করবে পড়বে পড়াবে গবেষণার মাধ্যমে জ্ঞানের পরিধি বৃদ্ধির সাধনায় সমস্ত জীবন দেবে এই আদর্শ নিয়েই কমিটির সভ্যেরা তাঁদের প্রস্তাবগুলি দিয়েছেন। যে কোন স্তরে যাঁরা কর্তব্যকর্মে ফাঁকি দেন তাঁদের কর্তব্যের কথা মনে করিয়ে দিতে হবে এবং প্রয়োজনমত ব্যবস্থা নিতে হবে। কিন্তু কিছু লোক ফাঁকি দেন বলে যাঁরা তা করেন না তাঁদের ন্যায্য বেতন এবং মর্যাদা না দেওয়ার কোন যুক্তি নেই। আচরণবিধি দণ্ডনীতির হাতিয়ার নয়। যদি কোন ব্যক্তি তা মনে করেন তবে তিনি বিষয়টি একেবারেই বুঝতে পারেন নি। আচরণবিধি কর্তব্য পালনের স্মারকলিপিমাত্র। আমরা শিক্ষকরা সমাজের শ্রেষ্ঠবৃত্তিধারী। আমরা দেখাব যে শিক্ষক শুধু অধিকার দাবী করে না—কর্তব্য সম্বন্ধেও অতি সজাগ। যে যত বড় তার দায়িত্ব এবং কর্তব্যও তদনুযায়ী অনেক বেশি। তাকে বহু বিষয়ে পথপ্রদর্শক হতে হবে। শিক্ষক যদি পথপ্রদর্শক না হবেন তবে তিনি শিক্ষকতাবৃত্তিচ্যুত হবেন। আমাদের দেশে অধিকার থেকে কর্তব্যের উপর বেশি জোর দেবার সময় এসেছে। একথা বলার কারণ এই যে আমরা অতকাল সর্বস্তরে অধিকার রক্ষার দাবিই বেশি করে করে এসেছি। সঙ্গে সঙ্গে দুঃখের বিষয় কর্তব্যের দিকটা অবহেলিত হয়েছে। কোন দেশই এই মনোবৃত্তি নিয়ে বড় হতে পারে না। আজ মন রাজী না হলেও সবাইকে হিসাব মিলাতে বসতে হবে। বিশেষ করে সমাজের মাথা যাঁরা সেই শিক্ষকদের এই কথা মনে করিয়ে দেব। সমাজ যখন তাঁদের স্থান এবং মর্যাদাকে মেনে নিয়েছে ও উপযোগী ব্যবস্থা গ্রহণ করছে তখন কর্তব্যপালনের বিষয়টি তাঁদের বিশেষভাবে ভাবতে হবে। এই সমাজ বহু অভাব-অনটনের মধ্যেও যখন তাঁদের দাবি গ্রহণ করেছে তখন তাঁদের সংকল্প নিতে হবে যে আমরা কর্তব্য পূর্ণভাবে পালন করে ঋণ শোধের ব্যবস্থা নেব। আমরা প্রত্যেকেই যেন নিজের কর্ম ও জ্ঞানতপস্যার মাধ্যমে সত্যিকারের শিক্ষক হবার যোগ্যতা অর্জন করতে পারি। এই অতি দরিদ্র রাষ্ট্র আমাদের যা দেবেন আমরা যেন তা সমস্তই স্বর্ণ করে ফিরিয়ে দিতে সক্ষম হই।

ভাল শিক্ষক সংগ্রহ করা এবং তাঁদের পঠনপাঠন গবেষণার উপযুক্ত ব্যবস্থা নেওয়া ছাড়াও বিশ্ববিদ্যালয়গুলির বহু সমস্যা আছে। আমাদের প্রত্যেককে নানা ধরণের প্রশ্নের সম্মুখীন হতে হচ্ছে। একটি গুরুত্বপূর্ণ প্রশ্নের বিষয় এখানে আলোচনা করতে চাই। প্রায়ই প্রশ্ন করা হয় যে আমরা যা পড়াচ্ছি তা ছাত্রদের তথা দেশের কাজে লাগছে কি? কলেজ বা বিশ্ববিদ্যালয়ের প্রাঙ্গণ ছেড়ে এসে ছেলেমেয়েরা দেখতে পায় যে বাইরের জগতে তাদের কোন ঠাঁই নাই। অতি সাধারণ কাজ ছাড়া অন্য কোন কাজের যোগ্যতা তাদের থাকে না এবং বিশ্ববিদ্যালয়ে লব্ধ শিক্ষা তাদের যোগ্যতা বর্ধনে বিশেষ সহায়তা করে না। আপাত দৃষ্টিতে এই ধরণের চিন্তা আসা খুবই স্বাভাবিক। কিন্তু ছাত্রছাত্রীদের বেকারত্বের জন্য বিশ্ববিদ্যালয়ের দায়িত্ব কতটুকু? আমরা বেকার সৃষ্টি করি না। বরং বেকাররা দলে দলে কলেজ এবং বিশ্ববিদ্যালয়ে এসেছে বলেই আমরা বহু সমস্যার সম্মুখীন হয়েছি। অর্থনৈতিক অবস্থার যদি ঠিকমত উন্নতি করা যেত এবং অনেক বেশি কাজের সৃষ্টি করা হোত তবে বিশ্ববিদ্যালয়গুলিকে অবাঞ্ছিত অতিথি সৎকারে শক্তিক্ষয় করতে হোত না। কর্মের অভাবে যারা বিশ্ববিদ্যালয়ের প্রাঙ্গণে ভীড় করেছে তাদের অধিকাংশেরই উচ্চ শিক্ষা লাভের যোগ্যতা নাই—যেনতেন প্রকারেণ ডিগ্রি লাভ ছাড়া উচ্চ শিক্ষার জন্য কোন আগ্রহ নাই। তারা নানাভাবে বিশ্ববিদ্যালয়ের শিক্ষাব্যবস্থাকে কলুষিত করছে। ১১ বৎসরের স্কুল ও তিন বৎসরের কলেজীয় শিক্ষাব্যবস্থার প্রবর্তন যখন করা হয়েছিল তখনকার উদ্দেশ্য ছিল যে ১১ বৎসরের স্কুল থেকে

অধিকাংশ ছেলেমেয়েরা নানা কাজে ও বৃত্তিতে ঢুকে যাবে। কলেজ এবং বিশ্ববিদ্যালয়ে আসবে অপেক্ষাকৃত কমসংখ্যক ছাত্রছাত্রী যারা উচ্চ শিক্ষা লাভে আগ্রহী এবং যোগ্য। কিন্তু অর্থনৈতিক উন্নতি যে পরিমাণে হওয়া উচিত ছিল তা ষাট দশকে হোল না। সুতরাং এই দশকে প্রবল বন্যার ন্যায় ছাত্রছাত্রীরা স্কুল ছেড়ে কলেজ এবং বিশ্ববিদ্যালয়ে উপস্থিত হোল কোথায়ও কিছু করবার নেই বলে। এই বন্যা সামলাবার জন্য বহু নূতন বিশ্ববিদ্যালয় এবং কলেজ খোলা হোল। বিশ্ববিদ্যালয়গুলির মধ্যে অর্ধেকেরও বেশি ১৯৬০ সালের পরে স্থাপিত হয়েছে। এর ফলে ছাত্র-ছাত্রীদের কতটা উপকার হয়েছে বলা শক্ত। কিন্তু বিশ্ববিদ্যালয়গুলির পঠন-পাঠন ব্যবস্থার যে ক্ষতি হয়েছে এ বিষয়ে কোন সন্দেহ নেই। আজ আবার ১১ + ৩-এর পরিবর্তে ১০ + ২ + ৩ বাৎসরিক শিক্ষাব্যবস্থার প্রবর্তন করা হচ্ছে। এর ফলে বিশ্ববিদ্যালয়গুলির বিশেষ কোন উপকার হবে না যদি মধ্যেকার দুই বৎসরের কোর্স সর্বপ্রকারে কর্মমুখী না করা হয়। সুতরাং বিশ্ববিদ্যালয়ের শিক্ষাব্যবস্থার উন্নতির দিক থেকে মধ্যবর্তী দুই বৎসরের কোর্সের মূল্য অনেক বেশি। সেই সঙ্গে বিশেষ করে প্রয়োজন হবে কর্মসৃজনকারী অর্থনৈতিক উন্নতির পরিকল্পনা। দ্বিতীয় ব্যবস্থাটি ঠিকমত না করা হলে প্রথমটি অর্থাৎ "প্লাস টু" শিক্ষাব্যবস্থাও ভালভাবে গড়া যাবে না। বেকারের বন্যায় বিশ্ববিদ্যালয়গুলি যেমন ডুবে আছে তাই থাকবে।

আমরা অনেকেই পরসমালোচনায় স্বস্তি ও আনন্দ পাই—আত্মসমালোচনা করতে মন অধিকাংশ সময়েই রাজী থাকে না। বিশ্ববিদ্যালয়ের বিরুদ্ধে যে প্রশ্ন তোলা হয়েছে তার উত্তর দিতে গিয়ে আমি সেই পথ নিয়েছি এই অভিযোগ করা যেতে পারে। কিন্তু তা সত্য নয়। কারণ বিশ্ববিদ্যালয়ের কর্তৃপক্ষ এবং অধ্যাপকবৃন্দ আত্মসমালোচনায় বিমুখ ত ননই—আনন্দলাভ করেন। আমরাও আমাদের শিক্ষাপদ্ধতির যুগোপযোগী পরিবর্তন করা সম্বন্ধে সজাগ আছি। অন্তত যাদবপুর বিশ্ববিদ্যালয়ের এ বিষয়ে যথেষ্ট সুনাম আছে তা আমরা সকলেই জানি। আমরা বিশ্ববিদ্যালয়ের আওতায় যতদূর সম্ভব কর্মমুখী শিক্ষাব্যবস্থা প্রবর্তনের চেষ্টা করছি। অসফলতার কারণ অধিকাংশ ক্ষেত্রেই অর্থাভাব। কিন্তু বিস্ববিদ্যালয়ের বহু ক্ষেত্রেই কেবল কর্মমূখী শিক্ষার প্রবর্তন সম্ভব নয় একথা স্বীকার করতে হবে। পূর্বে যা হয়েছে সে কথার বিচার না করে বলা যায় যে আজকের শিক্ষক, গবেষকগণ দেশের কৃষি, শিল্প সমাজব্যবস্থা রাজনৈতিক কাঠামো প্রভৃতি নানা বিষয়ে সমস্যা নিয়ে অনুসন্ধান করছেন—সমাধানের পথের খোঁজ করছেন। উচ্চ শিক্ষাব্যবস্থাকে সমস্যামুখী, জীবনমুখী করবার চেষ্টা সুরু হয়েছে এবং আরো হবে।

বিশ্ববিদ্যালয়গুলির অর্থসংকটের সংবাদ সর্বজনবিদিত। উচ্চ শিক্ষার ব্যয় প্রতিদিনই বেড়ে চলেছে—বিশেষ করে বিজ্ঞান এবং প্রযুক্তিবিদ্যার বিভাগগুলিতে। মানবিক এবং সমাজবিজ্ঞান বিষয়গুলিতেও ব্যয়ের পরিমাণ বাড়ছে। কারণ বই এবং পত্রিকার মূল্য ক্রমান্বয়ে বেড়ে চলেছে এবং নিত্য নূতন বই কেনার প্রয়োজন হচ্ছে। এই ক্রমবর্ধমান ব্যয়ের চাপে বিশ্ববিদ্যালয়গুলি পঠনপাঠন গবেষণার সুযোগ-সুবিধা কমিয়ে দিতে বাধ্য হচ্ছে। শিক্ষাখাতে তথা উচ্চ শিক্ষার জন্য কত ব্যয় করা সমীচীন হবে এ নিয়ে তর্ক বহুদিনই আছে। প্রদানত দেখা যায় যে সরকারের অর্থসংকট উপস্থিত হলেই শিক্ষার ব্যয়ের পরিমাণ হয় প্রথম বলি। কিছুদিন পূর্বে দিল্লীতে কেন্দ্রীয় শিক্ষা উপদেষ্টা পর্ষদের যে বৈঠক হয়েছিল সেখানে এই বিষয়টির আলোচনা হয়। মোট শিক্ষার ব্যয় ছাঁটাই করার মূলে বোধ হয় সেই পুরাতন ধারণা আছে যে কৃষি শিল্প বা শক্তি উৎপাদনজনিত ব্যয় যেভাবে উৎপাদনশীল শিক্ষার ব্যয় তা নয়। সুতরাং কৃষিশিল্পোন্নতি প্রভৃতি খাতে ব্যয় না কমিয়ে শিক্ষার ব্যয় কাটছাট করে দিলে দেশের উন্নতির পথ সুগম থাকবে। এ ধারণা যে কত অসার তা আমরা পূর্বেই আলোচনা করেছি। সবচেয়ে ভাল

সবচেয়ে অধিক উৎপাদনশীল বিনিয়োগ হচ্ছে মানুষ গড়ায় বিনিয়োগ। শিক্ষার প্রধান কাজ মানুষ গড়ে তোলা যার চেয়ে শ্রেষ্ঠ বিনিয়োগ নেই। শিক্ষাব্যবস্থা ঠিকমত মানুষ গড়ছে কিনা সে বিচার কর এবং শিক্ষাব্যবস্থার দোষত্রুটি সংশোধন কর। কিন্তু তা করতে গেলে হয়ত দেখা যাবে যে শিক্ষাক্ষেত্রে ব্যয়ের পরিমাণ বাড়ছে। সুতরাং শিক্ষার ব্যয় কমান ভ্রান্ত নীতি এবং বেশি হারে কমান আরো বিপদজনক ব্যবস্থা। এ অনেকটা মন না রাঙ্গিয়ে শুধু কেবল কাপড় রাঙ্গিয়ে সন্ন্যাস নেবার মত। মানুষ গড়ার কাজ স্তব্ধ রেখে শুধু কেবল শক্তি বা যন্ত্র বা খাদ্য বাড়ালেই দেশ সমৃদ্ধ হবে না। সবার উপরে মানুষ সত্য—মানুষ গড়ার কাজের গুরুত্বের তুলনা নেই। দুঃখের বিষয় এ দেশের সরকার এবং পরিকল্পনা পরিষদ এই ভুলই বারবার করে আসছেন। কেন্দ্রীয় শিক্ষা উপদেষ্টা পর্ষদ এ বিষয়ে যে প্রস্তাব গ্রহণ করেছেন তা দেশের সত্যিকারের হিতাকাঙ্ক্ষী সকলেরই সমর্থন করা উচিত।

কথা উঠতে পারে যে, শিক্ষাখাতের মোট ব্যয় কমান যদি বা যুক্তিসঙ্গত না হয় উচ্চ শিক্ষার ব্যয় বৃদ্ধি সমর্থনযোগ্য কিনা ভেবে দেখতে হবে। অর্থাৎ আপেক্ষিকভাবে প্রাথমিক এবং মাধ্যমিক শিক্ষার গুরুত্ব বেশি। কার কতটুকু গুরুত্ব এবং প্রাথমিক, মাধ্যমিক এবং উচ্চ শিক্ষায় কত অর্থ ব্যয় করা ঠিক হবে—এ নিয়ে তর্কের অবকাশ আছে। প্রাথমিক শিক্ষার গুরুত্ব নিশ্চয়ই বেশি এবং মাধ্যমিক শিক্ষাকেও যথেষ্ট মূল্য দিতে হবে। তার অর্থ এই নয় যে, উচ্চ শিক্ষার ব্যয় কমান উচিত হবে। শরীরকে অনশনে রেখে মস্তিষ্ক বড় হতে পারে না ঠিক। কিন্তু মস্তিষ্ক শুষ্ক থাকলে বা রাখা হলে দীর্ঘ শরীরের কি বেশি মূল্য থাকে অথবা সুস্থ শরীর হতে পারে? সার্বজনিক অক্ষরজ্ঞান ও প্রাথমিক শিক্ষার প্রবর্তন না করা অত্যন্ত লজ্জার বিষয় এবং দেশের পক্ষে অশেষ ক্ষতিকর। মাধ্যমিক শিক্ষা উচ্চ মানের না হলে উচ্চ শিক্ষা নীচু থেকে যাবে। সবই সত্যি। কিন্তু উচ্চ শিক্ষা দুর্বল হলে কি মাধ্যমিক শিক্ষা সবল হতে বা থাকতে পারবে? এই ইতন শ্রেণীর শিক্ষাব্যবস্থার মধ্যে এমন অঙ্গাঙ্গী সম্বন্ধ যে একটির গতি বন্ধ রেখে অন্যটিকে বেশি দিন সজীব রাখা যাবে না। সমস্ত বিষয়টি ভালভাবে বিবেচনা করে এই তিন শ্রেণীর শিক্ষাব্যবস্থার ব্যয়ের পরিমাণ ঠিক করতে হবে। হয়ত দেখা যাবে যে, এই তিনের মধ্যে বিবাদের সূত্র খুব কমই আছে—বিশেষ করে শিক্ষার মোট ব্যয়ের পরিমাণ যদি না কমান হয় অথবা খুব কমই ছাঁটাই করা হয়।

বিশ্ববিদ্যালয়ের সমস্যার মধ্যে ছাত্রছাত্রীদের সমস্যাও একটি বড় অংশ। আমরা ছাত্রছাত্রীদের ভাল পড়াশুনার ব্যবস্থা সব সময়ে ঠিকমত করে উঠতে পারি না। তরুণ শিক্ষার্থীরা এই অবস্থায় নিরুৎসাহ হলে তাদের দোষ দেওয়া যায় না। তা ছাড়া পাসের পর কর্মহীন জীবন নানা দিক থেকে তাদের মনে ব্যর্থতা এনে দেয়। এত অসুবিধা এবং দুশ্চিন্তা সত্ত্বেও বহু ভাল ছেলেমেয়ে সব মন দিয়ে পড়াশুনা করে, গবেষণা করে—আজকের দিনে শিক্ষাপ্রশাসক ও শিক্ষকদের এ অতি আনন্দের ও গর্বের বিষয়। এরাই উচ্চ শিক্ষাব্যবস্থার প্রাণ ও ভবিষ্যৎ। আজকের সমাবর্তন ভাষণে এদের স্নেহ এবং আশার বাণী দিয়ে শেষ করতে চাই। সব দেবতার সাধনাতেই কষ্ট না করলে ইষ্টলাভ হয় না। হয়ত সরস্বতীর সাধনা সবচেয়ে কষ্টের ও দুঃখের। সব তুচ্ছ করে এই সাধনা যারা করছে তাদের আমরা স্নেহ করি, শ্রদ্ধা করি ও সম্মান জানাই।

ANNUAL CONVOCATION ADDRESS

By

PROF. AMLAN DATTA

JANUARY 21, 1978

Mr. Rector, Members of the Jadavpur University, Graduates of the year, Ladies and Gentlemen :

Respected Chancellor, Dr. Bose and other friends, ladies and gentlemen, it is a privilege to be with you this morning and to be able to share with you a few thoughts on education. There are certain routine problems of teaching, research and administration which take up most of our time and energy on an ordinary working day in a university, when we try to solve them or sometimes to by-pass them, as best we can. But once in a while it is necessary to stop and ponder on the more basic questions of education, to stand back and consider outstanding issues in a larger perspective. This is important not only for the health of our mind and spirit. but also for devising ways and means for a more adequate solution of our problems. There are some very pressing problems at this moment for all universities, and Jadavpur, child of a great educational movement, offers a particularly appropriate forum for discussion them.

Education has meaning and significance at two different levels. On the one hand, it is a preparation for participating in an adventure of ideas and it is that adventure itself. On the other had, it is an aid to the fulfilment of certain practical needs of life and society. Of these practical needs, I will speak more a little later. But before I do that, it is good to remind ourselves for a moment that the ultimate value of education does not lie in and cannot be measured by its immediate and practical utility. The material needs of life are, indeed, pressing; but let us honestly face the fact that the teacher can, at any given moment, make only a marginal contribution to satisfying those needs. He can yet contribute something valuable to the life around him. He can keep alive in himself and communicate to others a love of knowledge, a certain capacity to take delight in a deeper and more systematic understanding of the world including and around himself. It would be a sad day for us if we did not have in our society some people who had this capacity and valued it. A university is that unique institution among all other institutions in society, where the enthusiasm of the young and the experience of the old can blend together in a common adventure of ideas and a common pursuit of knowledge. Other institutions in society have other purposes; but a univeristy must have some reverence for that one purpose from which it derives its special value. A teacher who overlooks this truth rapidly loses devotion to his vocation and he stays only to spread a kind of moral and intellectual gloom all around.

Having stated this, I have to be cautious. Although the adventure of ideas is distinct from the pursuit of the merely material and practical ends of life, yet the two are not unrelated. It is as

much of an error to ignore that relatedness as it is to overlook the distinction. In the growth and development of a branch of knowledge, there are two factors which are simultaneously at work. On the one hand, there is a continuous striving for building up a coherent and internally consistent body of ideas, capable of encompassing new facts as well as those already known in that branch of knowledge; and logical challenges arise at every step pointing up inconsistencies and these have to be faced and overcome. On the other hand, there is also a pressure that arises from man's struggle for existence and his practical endeavour to develop his potentialities in and through society. This too has a vital influence on the direction of man's pursuit of knowledge. When, for some reason or other, the link between the two is weakened or lost, there is a devitalization that sets in the totality of life, and knowledge itself tends to be fancy or imitative. There can be little doubt that something of the kind has happened time and again in our own society.

The National Council of Education, which spearheaded one of the most remarkable educational movements in Bengal at the beginning of this century was fully aware of this problem. Furthermore, the question of the proper relationship between technical education and the humanities received the most serious attention of the leaders of the movement and in fact, they were divided into two groups on that question. It is clear, however, that the movement as a whole believed in a certain blend of technical education and the humanities. The Council appointed a Reconstruction Committee in 1918, when it became clear that, under the circumstances prevailing then, the limited resources of the movement must be devoted chiefly to the development of technical education. Even then the Reconstruction Committee stated with great clarity that "technical education removed from humanising and liberalising influences" would be "a doubtful good."

These were not empty words. We should try to understand the deeper meaning of the remarkably varied activities of the Council in the first quarter of this century. Thus, for instance, the same movement which gave such a high priority to technical education also organised extension lectures by Ananda Coomaraswami on Art, Rabindranath Tagore on Literature, Ramendra Sundar Trivedi on Physical Science and Hirendranath Datta on the Upanishads. We have to catch something of that spirit, and Jadavpur University may continue to play a pioneering role in giving expression to it through a carefully considered programme. For academic purposes, it is convenient to break up knowledge into several compartments; but the walls between them should not be so high and air-tight as to preclude inter-communication. A course on the history of science and technology may be of interest not only to the student of engineering, but it is likely to do a lot of good to students of history, literature and the social sciences as well. Joint seminars for the Departments of Science and Philosophy may be useful to both. Extension lectures on comparative religion, art and literature may have an appeal which cuts across separately constituted faculties. These and other programmes of a similar nature help to keep the frontiers of knowledge for each discipline just sufficiently fluid. This is desirable for a number of reasons. Ours is an age of specialization; but it is also an age of rapid change, when the boundaries of knowledge are changing in unexpected directions. Moreover, the proper use of science in an age like ours calls

for a moral and aesthetic sensibility which goes beyond the strict limits of science.

Recently vocational education has come to receive much attention at least on paper. In fact, we are in the process of restructuring our educational system and the new system is designed particularly in classes XI and XII, to allow general and vocational education to run along parallel lines. There is also provision for a link or a bridge course by which a person may, if he so desires subsequently return from the vocational to the general line. Interestingly, the National Council of Education also gave thought to what is basically a similar problem and this is evident from a scheme which it discussed and adopted some seven decades ago. Its ideas were in certain respects, both more radical and more realistic than ours. While we propose to let our students leave the general stream and join the technical or vocational stream at the end of class X, they proposed to allow this at three different points in course of the school years. viz, at the end of class III, end of class VIII and termination of class X. This shows a surer grasp of our social reality. Even now a fairly large number of students, particularly from the poorer families in our towns, drop out around class VIII and in the villages, around class III. I think that there is a strong case for giving our students an option to join a course of vocational training at the end of class VIII.

Indeed, it may serve a useful purpose if we set up gradually over the next few years, a new type of institution, with a status intermediate between a secondary school and an undergraduate college of today. It should provide four years of general education corresponding to classes IX to XIII and also courses of vocational training of varying length for students who might join it either after class VIII or at the end of class X, which should be the two entry points in the new institution. Secondary schools of the conventional kind should continue to teach up to class X as at present and conexist with the new type of multi-purpose higher secondary institution proposed above. There are some practical advantages to be derived from this arrangement, which may be briefly explained.

The case for the proposal outlined above may be presented in three parts. I have to begin with a few words on a controversial question. Many universities in India, including Delhi, Bombay and Madras have adopted a three-year Honours course and some have even a three-years pass course. I think that it will be wise on the part of West Bengal universities to have an Honours course of the same length. With a two-year course, as proposed by some educationists here, our Honours degree would not be considered as equivalent to the corresponding degree of other leading universities in India. Similarly a Master's degree coming in the wake of a two-year Bachelor's course would not be regarded as the equivalent of a Master's obtained after a longer preparation. The services of our pass students have mostly a local market. But it is important that our students with an Honours or a Master's degree should not be placed at a disadvantage in the highly competitive market for their services at the national level. A three year course is also desirable if we want to raise the level of our university education, particularly for Honours students, and make it comparable with standards in leading universities abroad. Our scholars should not be

imitative; but a university cannot justify its existence in society if it is scornful of scholarly standards. India has to keep abreast of world knowledge. One of the aims of higher education is to make this possible. The Honours course is a preparation for that high standard of scholarly equipment without which we cannot maintain our teaching and research activities at the appropriate level, that is the level of world knowledge. Much has changed over the last quarter of a century. The fact that the Honours course was of two years duration once upon a time is no longer a sufficient basis for the conclusion that the same should be good enough today. I believe that, on purely academic grounds, there is a strong case for a three-year Honours course after ten plus two years of higher secondary education.

But this at once leads to a problem to which we have not been able to find a simple answer. The last two years of higher secondary education are being taught currently in the colleges and in some schools too. Most schools do not have an adequate complement of competent teachers for the higher secondary course and cannot, in fact, expect to attract such teachers with any thing like the present pay-scales for school teachers. But if, on those grounds, we decide to make the higher secondary course effectively a part of college education, we are again bound to come up against a very serious difficulty : a college which intends to provide facilities for the "plus two" course, including the general as well as the vocational stream, and in addition teach a three-year Honours course, will need not only more physical facilities but also a substantially larger total of teachers than most colleges have today. Since we cannot have two categories of teachers in the same institution without creating very difficult psychological and administrative problems, all these teachers in the undergraduate colleges will have to be appointed on the same footing as other lecturers. The pay-scale and minimum qualification for lecturers have been determined by the University Grants Commission and these are practically the same for colleges and the universities. Now, this is where lies the crux of the problem. It is just not possible to attract to the majority of our colleges outside the big cities the requisite number of teacher-scholars fulfilling the minimum qualifications laid down by the U.G.C. One step leads to another, and after we have decided to rely upon our colleges to impart five years of teaching, including the "plus two" course, we will be forced to allow these colleges to appoint teachers with substantially lower qualifications. And then the rot will spread. We cannot permit notably lower qualifications for college teachers and keep this permissiveness confined there, while the pay-scale for lecturers remains uniform everywhere.

What then is the solution to the problem ? The question remains, whether or not one accepts my answer to it. Oters are welcome to suggest alternative answers. I see not other way out of the impasse than the one I have indicated above viz., to set up a kind of multi-purpose higher secondary schools or intermediate colleges or call them by whatever name you please, which will stand somewher between the existing secondary schools and colleges, in respect of both pay-scales and required qualifications for teachers. Such teachers need not have, for instance, a Doctor's degree or published work of high merit to their credit. In order to make these institutions at all viable, they should be allowed to provide a four-year course, including the last two years of secondary education. In this way it should be possible to combine a full work load for a wholetime

teacher in these institutions with the possibility of a minimum of specialization in the major branches of a subject. The last two years of secondary education should contine to be taught in the existing schools, but those students who wish should have the possibility of entering these intermediate institutions at the end of class VIII. These new institutions would, thus, form a very useful link between schools, on the one hand, and colleges, on the other.

No work of destruction will be necessary and no hasty steps will have to be taken before we start gradually to build these link institutions. All that will be needed is a clear decision and some purposeful planning. The main trouble with our educational policy and performance has been the absence of a healthy and constructive blend of academic and administrative considerations. Educationists and administrators have lived in unwholesome and uncomprehending contempt of one another, and each has been content to lay on the other the blame for every major failure. There is, to be sure, too much administration and too little education in this country; but surely the remedy for this state of affairs is not to be found in a hidden hostility between the two professions.

The National Council proposed to introduced some kind of technical education, or what we prefer to call work education, already at the end of class III. This, I think, will be a good idea, provided we interpret it correctly. Work education is useful particularly at an early stage, although some students with a bent for abstract thinking may withdraw themselves subsequently for intenstive work of a theoretical nature. Work education, it should be clear, is not synonymous with vocational training. It is education for a particular attitude of the mind. There is a cetain sympathy between the mind and the body, and certain faculties of the mind are properly developed when there is opportunity for finely coordinated use of the limbs and the senses and the intellect. Moreover, the integration of intellectual work with the physical represents, even for the beginner, an essential link between theory and practice. It also conveys to the learner an idea of the worth and dignity of physical labour. If these essentials of education are not introduced at an early stage, they cannot be made part of education at a later stage except very artificially.

The system of education which we have developed in India has had certain consequences worth noting at this point. It has created a middle class which is overwhelmingly dependent on salaried jobs in a bureaucracy centred in the city and on a limited range of supporting professions. The middle class is passively dependent upon but not actively and productively engaged in agriculture. This, together with caste, has produced a concept of social respectability based on a separation between intellectual and manual labour carried to excessive lengths. It has also created a rift between the town and the village. It lies at the root of our economic crisis and the special form that the problem of unemployment has assumed in our country. Finally, the totality of this social and cultural situation has deeply influenced the character of Indian politics.

It is in this context that the idea of "total revolution", which has been widely talked of recently, needs to be understood. A revolution which is primarily political is not a total revolution. The social, cultural and economic aspects of life are, at least, as important as the political. If sufficient attention is not given to these other aspects, it will not be possible to bring about the desired

reconstruction of India society. Power may be seized on behalf of a party, heads may roll and some seemingly sweeping changes may be made; but if the "revolution" is not "total", there will emerge out of these convulsions under whatever name a society, unfree and unjust, hierarchical and ruled over by a bureaucracy, which will not answer to the deeper aspirations of our age. From the point of view its deeper meaning and purpose, a "revolution" may be called "total" only when it is not exclusively or even mainly political, but it is also cultural, social and economic. In other words, what is needed is a broad and may-sided movement. Breaking down the rigidities of the old society, overcoming the barriers between caste and caste, repairing the rift between the city and the country, it will help build up a new society in which the creativity of man can find expression in an atmosphere of greater freedom and equality.

Precisely because this movement will have to go beyond politics, respect the multiformity of life and avoid monolithic centralism, it will be a mistake and a misforture if politicians arrogate to themselves controlling power and authority over the cultural, intellectual and educational life of society. That is what was attempted during the Emergency and what ought to be carefully avoided now. But this also throws on all those who are associated with the profession of education a corresponding and special responsibility. As a teacher and an educationist myself. I know that it does not by any means depend on us alone to create an ideal society. But the known evils abounding in society at large cannot serve as an excuse for the persistence of patently undersirable practices in the universities. It is necessary that we convince society by our conduct that we who are in education are determined to give of our best.

The price of liberty is eternal vigilance. It has to be vigilance not only against an external enemy, but also the enemy within. The academic community must brace itself with self-criticism. Or else it cannot hope to muster sufficient strength to resist inroads on the autonomy of the university. In a number of universities in West Bengal, the elected bodies, such as the Senate, the Syndicate and the Academic Council, have been supreseded by an Ordinance. Jadavpur has fortunately, escaped that fate. But no educationist can afford to ignore the signs of the time. It would be a pity if this generation of teachers were to allow an erosion and a subverting of that tradition of autonomy and academic freedom which earlier generations had struggled to build up.

We stand today at a turning point in the history of education in India after independence. I hope and trust that Jadavpur University, with the tradition of the National Council of Education behind it, will play its role honourably and with some success at this juncture. To those students who have qualified for various degrees and awards this year. I wish every success. May it be granted to them to use their knowledge of their own improvement and equally for the advancement of society.

In conclusion, permit me to express once again my sense of gratitude for this opportunity to be with you today and let me wish the University of Jadavpur all the best.

ANNUAL CONVOCATION ADDRESS

By

Annada Sankar Ray

December 29, 1978

Mr. Chancellor, Mr. Vice-Chancellor, Ladies and Gentlemen,

It is a memorable day in the life of a man when he has the honour to receive a degree at a Convocation presided over by the Governor of the State as Chancellor of his University. My memory goes back to 1925 as I remember such an occasion. Dr. Ziauddin Ahmed, Vice Chancellor of the Aligarh University, delivered the Convocation Address. I have forgotten his wise counsel, but what Sir Henry Wheeler said still rings in my ears. "Gentlemen", he meant us graduates seated before him, "aloow me to congratulate you upon your distinction. I myself never had a chance to go to a college and secure a degree." We were astounded.

In His Excellency's tone there was a note of regret. His was a success story as a member of the Indian Civil Service. Yet he never had the chance which every one of us had. Fortunately for him there was in his youth no insistence on an academic career as a prelude to an open competition for His Majesty's civil services. By the time I went in for it in India it was a *sine qua non*. So my degree came very useful to me when I was in desperate need of a job. In 1921 I was a would be non-co-operator who though it was wrong to join a *golamkhana* and acquire slave mentality. After my failure to be enrolled as an apprentice in the Calcutta newspapers I had no other alternative, unless I agreed to be a stenographer, but to respect the advice of my uncle and do as my friends had started doing. Instead of marching to jail we marched to college. That was a most inglorious decision and I could not show my face to the comrades I had incited to defy the British Government.

I had been brought up to value independence in an individual as much as in a nation. Journalism was the career which I had myself set before my eyes. I intended to return to Calcutta two years later to try my luck again at a newspaper desk but unforeseen success coupled with a handsome scholarship led me from Cuttack to Patna in the footsteps of Sir Jadunath Sarkar, the great historian. For a time he was at Cuttack. At Patna I came in closer contact with him, though I changed my mind and opted for English as my Honours subject. We travelled together in North India. It was one of my good fortunes in life that I was taught by Indians from different parts of the country as well as by Englishmen and Scotsmen. If college-going had no other justification it was this good fortune of mine. I had always been a citizen of the world of literature. Both at Cuttack and Patna I found my proper place in the libraries where I met the master minds of all ages and all climes. Among my fellow students too there were some of the finest flowers of India. My friend

Bhabani Bhattacharya is now world famous. Where else could I make so many Oriya, Bihari and Bengali friends, both Hindus and Muslims ? There were some Christians and Jains too and a few Brahmos. College is the temple where all worship a common deity, the Goddess of Learning. In my case she was also the Muse of Literature.

The colleges of India reflect the liberal democratic traditions of the Western countries. It has been so since the days of Derozio and Young Bengal. The lamps that were lit during the Italian Renaissance lighted the minds of England and France and Germanay and their Enlightenment illumined the modern minds of India across time and space. It would have happened in any case, even if there had been no British conquest. Knowledge and learning are like light and air. They are never confined to space or time. Think of the spread of Buddhism from India to Sri Lanka, Burma, Thailand, Malay, Indonesia, Indo-China, China, Japan, Korea, Mongolia, Tibet, Central Asia and Afghanistan. It is a wrong habit to attach geographical labels to education. What was there Western about Physics, Chemistry, Mathematics, History, Economics, Logic, Philosophy or Philology ? If English was there so were Sanskrit and Persian and Hindi and Urdu and Bengali and Oriya.

I found no trace of 'slave mentality' anywhere. The Europeans who taught us were liberal democrats, not Tory Die-hards. Loyalty to the King Emperor was all they expected of us, but even this they did not inculcate. Only those of us who cared for Government service were scared of police reports. There were scores of others who had no such ambition or aspiration. They thought of independent careers. The real complaint against the system was that it shirked physical labour. It was a system fit for Bramhins or Mandarins or Clerks in the sense of Clergymen. In Western Europe where it originated it was meant initially for monks and priests of the Christian faith. It became gradually secularised. Until the nineteenth century it had an upper class basis. Then the class barriers gave way and after that the sex barrier too. At last the only barrier that was left was that the college-educated people could boast of higher education whereas the school educated populace could not claim that distinction, not even when one of them rose to be the Governor of Bihar and Orissa, Sir Henry Wheeler. He was neither an Oxonian nor a Cantabrigian nor a London University man. In his youth the 'Redbrick' Universities were just coming up. Like Jadavpur they had an Engineering and Technology base. Since they involved a certain amount of physical labour they were half in and half out of the academic tradition. By now Engineering and Technology have become more paying subjects, their degrees carrying an assurance of employment. If Oxford and Cambridge are still ascendant it is because their products have a polish, an accent, a self-confidence, a commanding presence which are valued in certain spheres. These are extra-academic qualifications. The Foreign Service used to be their monopoly. At this moment the Labour Government is trying to alter this.

The original meaning of 'School' and 'College' and 'University' has changed over the course of centuries. A 'School of Law' might have four 'Universitates' or guilds of students, two of them of foreign students. They were in need of residential accommodation. This was provided in a

'College'. they still have the old meaning in an institution like the London School of Economics which teaches up to the M.A. standard and admits research scholars for the Ph.D. I should have said 'M.Sc.' for Economics is a Science subject in London whereas it an Arts subject at Cambridge. Colleges are still residences of students and teachers at Oxford and Cambridge. Universities are now the highest bodies in the educational system everywhere. The system is no longer confined to Western Europe. The Socialist East has some of the oldest universities in Czecho-Slovakia, Poland and East Germany. Whatever the ideological differences the standards are of the highest known to man. Therefore the degrees are of the greatest value. The gap between those who have a university degree and those who have not is still there in the Socialist countries. China is probably the only exception where they have tried to remove this gap by either closing the universities or by admitting workers' and peasants' nominees without sufficient qualifications. They call it a 'cultural revolution'. Standards are bound to fall to suit the least meritorious. This will work havoc in medicine and engineering.

There has been an age-old link between higher education and higher posts in the state. The have-nots of every country now consider it an abiding injustice. The question is how far it is practicable to delink the two without impairing efficiency in civil and military services as also in the public sector enterprises. To relax the standards either in the matter of degrees or in that of appointments is sure to lead to public discontent when there is a deterioration in administration in every department. On the other hand the have-nots are not likely to accept their inferiority without a protest which may take the form of a 'cultural revolution' of some sort. The question does not seem to have a readymade answer. I have none to offer except voluntary renunciation of higher incomes and higher standards of comfort on the part of those occupying the higher ranks.

A student is something more than a student. He is also a young conservative or a young liberal or a young radical or a young socialist. This was what I found in London where I was an I.C.S. probationer attending four different institutions : University College, King's College, London School of Economics and London School for Oriental Studies. I arrived after the failure of the General Strike. Out of this failure came the success of the Labour Party at the next General Elections. Naturally the great debate of the times was between Capitalism and Socialism. Most of the Liberal votes went to the Conservatives and some to Labour. The Liberal Party which had been ruling Britain by rotation with the Conservative Party for two centuries became a poor third in Parliament. It backed Labour then as it is doing now to keep it in power. Nobody was prepared to fight another war, so war was no longer or not yet a subject of general debate. Fascism had already made its appearance but nobody took it seriously. Hitler had not yet burst on the scene. No one believed that the Germans were capbale of rising again. Red Russia looked like a far greater peril because it threatened the propertied classes.

In India the great debate of the times was between Violence and Non-violence. If Indians won their Swaraj by non-violent means it would make history for the whole of humanity. It would be a world event of the same dimension as the Russian Revolution. I had come under the spell of

Tolstoy and Gandhi while still at school. I believed with all the fervour of a novice that the Kingdom of God was at hand. With Swaraj achieved the next step should be the gradual abolition of the coercive apparatus of the State consisting of the Army, the Police, the Law Courts and the Jails. Indians did not want the British type of Swaraj. Therefore they had not need for a Parliament nor even for a party system. Here I had my differences with the orthodox Gandhians, I had a preference for parliamentary democracy, like the earlier French Revolutionists. Panchayats were certainly good for the villages but we had to think of the country as a whole and also of the provinces some of which were as big as, if not bigger than, England and France. Historical evolution was in the direction of parliamentary democracy in spite of variations and setbacks here and there.

Another aspect of the great debate was that Non-violence was interwined with Non-exploitation. Gandhi believed that economic independence could not be secured without a non-exploitative economy and this could not be ensured by mills and factories run with capital supplied by the richer classes, both Indian and foreign. It was obvious that industrialisation of India could not be carried out with Indian capital alone. Dependence on foreign capital was inherent in such a policy. His alternative was a self-sustaining national economy centred on Khadi locally produced by the village people with indigenous materials and locally consumed. City people were expected to patronse Khadi and allied products of the villages and identify themselves with the village people by spinning. Rabindranath Tagore saw no sense in it and young men like me who adored both of them were torn between the two. I could not bring myself to reject industrialisation in toto. Nor could I accept it wholesale. The country named India must make use of her mineral wealth and her power resources such as steam and electricity. On the other had the people dwelling in its six hundred thousand villages must produce something besides food. Otherwise their food would be taken away in exchange for clothing manufactured in the cities and they would be left to starve.

This was the position before I went to England for my probation. I studied how England had industrialised herself. It was by large-scale migration of her rural population from the villages to the cities and from the cities to the colonies, retaining only an industrial proletariat. To feed it she had to import cheap food from her colonies and dependencies. This was in exchange for manufactured goods exported there. If we Indians were to adopt this solution we must have colonies and dependencies of our own after we had gained our independence. It followed that we must build up a powerful army and navy and adopt militarist-imperialist-capitalist policies like Japan. War would be the inevitable consequence. I shrank from the thought. Did it mean that the status quo should be preserved in our economy for all time ? I Could not reconcile myself to this propostion either. I was unable to decide one way or ther other.

Meanwhile events were moving every fast in Germany and Russia. Nazis and Communists were getting ready for a war of ideologies. What chance had England's liberal democracy or India's Gandhism in a world where violence ran rampant ? The 'thirties were a decade of mental agony for intellectuals like me in both England and India in spite of our political differences. The

climax was reached in the 'forties. The Second World war left England exhausted and she had not the strength to rule India by force. India gained her feedom only to be divided against herself. There was a precedent for it in Ireland. Our Irish friends warned us against independence at the price of partition but we preferred it to civil war. Gandhi believed that there was a non-violent way out of civil war but he failed to show us the way in Noakhali. Now could he show us the way in India as a whole ? His most ardent followers took the final decision against his counsel. How could he resist them in view of his failure in Noakhali ? I was distressed beyond measure.

Thirty years have passed since then. We have been able to tide over crisis after crisis. Yet the youth of India is faced with the same old debate, the same great debate, as I in my youth. It is a debate between Violence and Non-violence as a means to Social Revolution. It includes the question of ending exploitation the way Gandhi advocated through his Khadi-based economy. It involves the problem of democratic functioning of the State as laid down in our Constitution. It is for the younger generation to study deeply, think deeply, discuss openly, debate freely, decide courageously, behave compassionately, carry the masses patiently. Nothing will be gained by this group or that group acting violently. India is so big a country and so populous that even the strongest group will not be able to keep her down by brute force, even if it succeeds in seizing power by brute force.

I now congratulate the heroes and heroines of the day and wish them all they wish for themselves in life. I also thank the authorities for the honour they have shown me by inviting me to address this august Convocation. Forgive me for recalling my own experience on this memorable day.

ANNUAL CONVOCATION ADDRESS

By

Sri Sadhan C. Dutt

Chairman & Managing Director
Development Consultants Private Limited
December 30, 1978

THE UNIVERSITY
AS AN INSTRUMENT OF CHANGE

Mr. Vice-Chancellor and Friends,

This campus is crowded with tall memories. "Where'er we tread'tis haunted, holy ground". Here you can almost touch the spirit of pilgrim soul, for it is true that the men who brought the National Council of Education into existence were among the tallest that Bengal ever produced. And, they were men who set out to find among us, in this country, a pilgrim soul.

This is also the place where the founder's dream was to set up a school and, I quote, "Inspire students with the genuine love for and desire to serve the country". So, here "Walk humbly with thy God", and stand today, as always, in "Modest stillness and humility".

In this unseen and eminent presence I cannot but feel dwarfed.

When you look back, it is remarkable how the founders of this Institution so truly envisioned 60 or 70 years ago that this century would be rocked by what we now call the phenomenon of "Knowledge Explosion", and how, as early as in 1906, they laid the path for Bengal and for India to be in it all. If possible, ahead of all.

Probably 75 to 90 percent of all significant scientific discoveries and technological developments have occurred in the past half-century more particularly since World War II. These discoveries and break throughs have perhaps caused strains and stresses on human society, but, they have also endowed man with new insights into his own role on this planet and outer space, new tools to assail previously intractable problems, to bend nature to his own needs in conformity with an unprecedented desire for improving his own creature comforts and quality of life.

Indirectly, all these discoveries, collectively called knowledge explosion, information explosion, technological explosion, have altered both the premises and procedures of policy-making in almost all areas of human endeavour—politics, sociology, health, education, engineering and management of people and resources. In fact "Policy Research" is today a major programme in scientific laboratories of the major universities in advanced countries.

Logically enough, scholarship in humanities too is being influenced by a scientific attitude, a technological temper, consistent with the logic of life and living itself.

There are few developing countries in the world today which are as well equipped and destined as India to take advantage of this technological explosion, to grasp emerging opportunities, and thus to pole-vault itself into the 21st century. Not much proof is needed to support this assertion. Even as we were speaking of the transition from the bullock-cart to the bicycle, let us not forget, we were also unravelling the secrets of the atom.

We are no doubt proud of our large steel plants, one of the biggest fertiliser industries in the world today, petroleum refineries, petrochemical complexes and huge hydro, fossil and nuclear power generation complexes. Our real pride, however, lies in our ability to produce capital equipment for industries, which has been more than proved by BHEL, HEC, HMT, MAMC, BHPV, Bharat Pumps and Compressors, together with the large base of light, medium and medium-heavy machinery manufacturing complexes that have sprung up in the private sector. And with this growth, consultancy engineering services have kept commendable pace, making this profession in India rank at par with international standards.

The past 28 years have seen a growing refinement and sophistication of the Indian engineering infrastructure, so that it requires non-indigenous technical inputs, ranging from zero to a very small percentage, to build the largest of industrial complexes.

This has become possible because India has the requisite base. One but not the least important fact is that India has probably the second or third largest enrolment in technical and engineering institutions. What does this immense reservoir of talent mean? It does not mean that everybody is going to be a specialist in laser beam technology or in microminiaturisation. But it does mean that, as a nation, India is most eminently suited and ripe to imbibe the advance of technology. The resource base has already been given strong foundations in this country. The already trained manpower is ready to be harnessed. We have the talent and the people, in terms of quality as well as quantity, to exploit that knowledge.

I mention briefly all this in order to make one point which is of utmost significance to us : we do not have to go through the slow, expensive and painful process of the learning curve. Not anymore. We the technologists know, but it is important that policy-makers do also realise the importance of our being able to avoid the learning curve, given the proper direction and political will.

Japan is the most dramatic example of this technique. Japan did not invent the transistor, but was the first to make it commercially feasible. Likewise, the Wankel Automotive Engine Cycle was invented by the Germans, but it was Japan which made it a commercial proposition and put it on wheels. And Japan has been able to remove the snags—for instance, its design of the Wankel Engine is no more the inefficient petrol burner it was.

In a similar manner, Indian talent ought to skip certain intermediate stages of technological development through cannibalising other inventions and products, through innovations appropriate to our needs, and through discoveries that result as a spin-off from such endeavours.

The future for today's engineering graduates, technologists and scientists is not to be seen as a linear path of progression from the opportunities that a graduate in the early 40's, like myself, faced or even dreamt of.

Yes, we know what to despair of : in which areas India's progress has been stubbornly obstructed, and with what cruel curse the dreams of equitable distribution, of wealth as well as education, have been blighted. We are distressed daily by the noise of socio-political bickering. We know what the nightmare is.

Yet let us for a moment concentrate on the exponential growth track, which, I am convinced, India of your times, India of the 1990's, is bound to traverse. It would need the mightiest of demons and thousands of Himalayan blunders to deflect India from this destined course.

How am I so convinced ? Is it just a romantic dream conjured as an escape mechanism only to flee from the scene of social despair ?

No.

Let us take a look at India's boiler room. Between 1950 and 1978, in 28 years, and mind you, in spite of a chilling recession, national income has doubled to about 250 billion rupees, at constant price. And, in pace, irrigated area has almost doubled to 50 million hectares pushing grain harvest up by 50 percent, and to today's massive 125 million tons. All these are gravel stones of the future growth track to which our profession has contributed and from which it will derive the strength of exponential momentum. Installed power generating capacity has gone up more than tenfold to 27 million kw and generation risen more than twelvefold to almost 100 billion kwh. I don't wish to tire you with statistics, but listen to this : In my time nobody believed India would attain self-sufficiency in food or foreign exchange. What has happened now ? Aren't we sitting on a massive reserve, up by about 25 times, to 45 billion rupees ? And, are not agricultural economists seeing India in the not-too-distant future as a grain exporting country ? Employment, every one knows sadly, hasn't expanded anywhere at a pace to cope with the demand, and that remains our source of biggest despair, like food and foreign exchange were in the 60's. Even so, in the organised sector job situations have doubled to 24 million, although the private sector has puffed behind with only a 50 percent growth.

All this is the result of, and the source for, technological expansion and new growth targets.

The changing profile of India's economy, its colossal reserves and huge food stocks together mean India must now dare take risks. What policy risks can be weighed, measured in fractions of time and cost without inputs from technologists, engineers and scientists ?

Even where growth is still stultified—the challenge of rural development—the need is for critical inputs : infrastructure, raw materials, energy and suitable technology and engineering consultancy. This is where we need to innovate with, and adapt, the latest technology to achieve the quickest take-off.

The search for policy—in the management of the corporate giants, or in the government—must now ask for technological inputs more than ever before. The leaders of the nation as well as entrepreneurs must listen to you.

Why, you may ask, have we become so indispensable and so suddenly ? Here are some examples, only a few though, to illustrate my point. Take the case of landsat photography, pictures taken of the earth via satellites. These pictures, taken through numerous variations of filters and infrared photography, can now determine minutely the state and extent of crop growth, blights, quality or quantity. Thus you see crop forecasting has suddenly emerged into a new era of technology.

Take another example—the integration of large circuits into micro-miniaturised chips. Computers the size of big rooms are now being literally condensed into a chip the size of your fingertip. By virtue of increasingly lower hardware cost and yet a fathomless scope of application in every area of human endeavour, this development alone promises a world of new prospects—of new horizons—comparable with the discovery of the wheel.

Even the simplest fruits of this have immediate implications in India. The application of computers, microprocessors and allied micro-electronic systems are today well within our reach, both in terms of price and in terms of skills that we possess.

It will spring upon us another ramification, as you can see. That too is immediate. It will make possible the quick processing and control of data for management information and intelligent decision making resulting in unprecedented efficiencies.

Similarly, laser technology will have revolutionary implications, on data communication systems, case hardening of metals and other production processes.

Are these scenarios from a science fiction, the year 2000 ? Take a look into your own back yard, in West Bengal itself—we should be proud to note—many small scale units have already started working on this forefront of technology—of solid state plant annunciation systems and micro processor based data logging and scanning systems. They are not wonders conjured in science fictions—they are here right in our midst. And, they are waiting for the endowment of mind that you will bring to them.

Twenty five years ago I was as unaware, as many graduates of today would be, of the future of our profession within this country. It 1950, when under the guidance of my mentor and friend the late Harry Kuljian I embarked on engineering consultancy, I remember still so vividly, one day

he took my arm, pulled me gently to his side and murmured on to me, as though he was enwrapped in a dream : "I envy you, Dutt. You are young. Your country is growing. It has a tremendous future".

But, there is another future that awaits us all. With the growth base set as it is today, we are poised to serve nearly two-thirds of the globe where emerging nations are anxiously awaiting the results of our pioneering venture, our process of learning and the fruits of our technology. This then represents the greatest of challenge to Indian engineers and technologists over the next decade.

My friends, the world is your oyster. In South East Asia, in the Middle East, in Africa and in Latin America a great ground swell of economic growth and industrialization offers for the next ten ysars a superb testing field for what knowledge, what excellence and what caution we have been able to teach ourselves in the last 28 years. And, of course the professional pride and confidence we will take with us, as we face our neighbours.

A few instances of how the world sees us today :

Recently, in Tripoli, Lybia I wanted to visit the West Tripoli Power Station where, as you may know, Bharat Heavy Electricals has been awarded one of its biggest assignments—a 240 MW expansion on a turn-key basis—a site which should be a source of pride for any Indian engineer. The drive is about 19 km out of the city. Half way to the work site I was afraid we might have lost direction. We stopped at a petrol pump, and asked the service man, could he tell us where the West Tripoli Power Station was ? There was a vacant look in his face; obviously he never heard the name of the station, and as we were about to turn away, gazing steadfastly at us suddenly his face lit up. "Is this the project", he asked, "where the Mohindis Hindis are working ?" Mohindis Hindis means Indian engineers—now known to all Arab countries, from Lybia to Syria, Egypt, Iraq, Saudi—the whole belt in ferment.

Incidentally, the West Tripoli Power Station, when we reached, was a giant of a project site to see. Even to me, who has seen and participated in the construction of a few giants. Huge earth moving equipment—dozens of cranes and thousands of technicians rushing under the blazing sun to bring a project to its completion in just 36 months, and, there you say Sikhs, Bengalis, Tamilians—a new generation of India's Ambassadors abroad, grappling with the aspirations of a country's growth.

If an Indian visits Syria today, the Customs Officer takes a look at his passport and the greeting spurts out : "You are a Mohindis Hindis". The bags are hardly ever opened.

In Puerto Ordaz, in Venezuela the world is soon going to see one of the biggest steel complexes rising out of the wilderness of South American tropical forest. The Indian Ambassador and I went to see Dr. Marshall, the Project Head, under whom works a wide variety of nationals—

engineers from Europe, North America and India. India contributed about 60 of its highly skilled and talented young men. What do you think Dr. Marshall says to the Indian Ambassador ? He admires Indians not only because of the technical excellence which they bring to their jobs, but also because of their understanding and patience with the working conditions of a developing country and their ability to put in a hard day's work, the sweat of their brows.

This is the other challenge to which I wish you all to rise. The Mohindis Hindis. Rise to that.

Even in India, only a decade ago, in Bandel, the thermal power plant's site was filled with the same excitement, the throb of a system being born, a source of immense power and a matter of complex designs and structures. We stooped down on the equipment or the drawing boards day after day, with thumping heart beat, as something didn't. And, Finally, one day like magic, like a day break, power flowed from the plant to the grid. This is the joy of creation.

This is the joy of bringing power to the life of people, to give them a new world, new conditions of life and a new environment.

But, even in those days among a thousand technicians and engineers the key men were about 30 foreigners. And, now ? Go to Namrup in Assam, look at Hardwaganj and Panki in U.P., or Amarkantak in M.P., or in Tripoli and Syria : there isn't a trace of a non-Indian in the team. And, what is more important, we are building with our own machines in India, with our own systems, drawings, all our own inputs.

This is the state of the arts, as you may call it. And, this is the profession you have chosen. The founders of Jadavpur had indeed envisioned this day for you and charged this campus with such spirits as should make us participate in the knowledge explosion of the 20th Century.

Contrary to popular impression or ignorance, the Law of Karma is translatable into scientific principle—cause and effect, or input and output. If you accept the hypothesis of interaction between what you do and what you get—that is including the deterministic burst that the Law of Karma engineers into the process—then there must be a like correlation between input and output across the entire spectrum of human activity. This is more true in India because we transmute our spiritual and philosophic passivity (that is Tamasiks) into scientific activity—into doers, achievers, performers.

That is what the technological temple is all about—to use and apply the immense human knowledge that has now become available in the solution of equally immense problems that confront us today.

Again to put it is another way, we speak of the poverty barrier. This cannot be surmounted if there is also a poverty of ideas. That would be a double tragedy. Happily we are not a nation without ideas. Nor without a specific and significant technologgical identity. We do have them. We do have the means to implement them. Only, instead of talking in diffused, ethereal terms or in a

vaccuum, we must now correlate those ideas and the specific scientific achievements to the problems on hand. This correlation is what we scientists, engineers and technologists have been waiting for. This is what we need in our all out war against poverty. After all, what are the ingredients of poverty ? Simply there are the scarcity of food, water, clothing, shelter. It is a wonder that man has discovered cheaper, more efficient and more prolific means of securing all these through scientific devices not even thought of, say, a generation or two ago. In the last decade alone we have discovered and wielded a number of weapons against poverty. They are India's firm harvest, the HYV revolution, the possibility of nitrogen fixation. Or, even the ability to eradicate dreaded diseases like smallpox from the surface of the globe.

The distribution of the fruits—how fast and how equitably possible—is a question that the politician must grapple with.

What India needs is simply the will to mix, blend and process all the available inputs into desirable outputs, in a rational and economic manner. In a coherent and dynamic format of growth planning.

If someone asks a mountaineer why he wants to climb Everest, he may simply say, just because it's there. Precisely so. Why must we try to solve problems ? Because they are there. Because we want to conquer them. Because we are engineers not of structures, not to deal with machines, but mainly to transform life and to make people march over and beyond all limitations, denials and poverty. Because that is what destiny has thrown up as a challenge to this generation of Indian technologists. And, the endowment of the human mind, today's Indian mind, makes it possible to compel science, technology and engineering to serve as hand maidens of India's own evolution and progress.

Good Luck and God Speed to you all.

ANNUAL CONVOCATION ADDRESS

By

Prof. S. C. Bhattcharyya

Director, Bose Institute

December 31, 1978

Respected Chancellor, Mr. Vice-Chancellor, Teachers and Students of the Jadavpur University, Ladies and Gentlemen,

I consider it a pleasure and privilege to be with you this afternoon and to participate in today's deliberations. It also gives me a unique opportunity to share some of my thoughts on education and academic matters with you.

Jadavpur University occupies a place of pre-eminence amongst the educational institutions in the country, and particularly those in the eastern region. The nationalistic upsurge, which swept the country after the partition of Bengal, was essentially responsible for the genesis of this university. The early pioneers who were involved in this task deserve our thanks and gratitude. Over the years, this organisation, which started from a small beginning and for years had to fight for existence and recognition, which was denied to it by the then Government of the time, has grown into a full-fledged University with activites spread over a wide area of human endeavour, covering science and technology, arts and literature, humanities and social sciences. For many years, the composite nature of this University was a unique feature for Eastern India and which had given it a character of its own, quite different from the other organisations in the region. A large number of dedicated teachers, motivated students and a host of well wishers, who nurtured this institution with great affection, have made it possible for this University to reach its present status.

After we gained independence in 1947, a tremendous amount of enthusiasm generated for advancement of education at all levels. However, certain other undesirable features also crept in, which steadily eroded the placid atmosphere in the academic institutions, particularly those located in our eastern and northern territories, including the province of West Bengal. Jadavpur University was no exception. It also went through a period of tremendous turmoil lasting over a decade and now, hopefully, appears to be stabilising itself once again. The turmoil mentioned above adversely affected the institutions in the southern and western parts of our country as well, but the intensity was somewhat less.

At a person who has spent his entire career in education and research, who has innumerable friends in West Bengal and no enemies, who is as proud as anyone else of the cultural heritage

of the region, but who stayed away from West Bengal for a period of 40 years, I had the somewhat unique opportunity to observe the happenings in this part of the country from a distance, and, therefore, could claim a measure of detachment. It is, in this context alone, that I wish to make some remarks; which I hope, would be viewed by the august gathering with the attention it may deserve, though they may find these somewhat provocative.

Gaining independence in 1947, and the aftermath a simultaneous division of the country, probably affected West Bengal, more than any other provincial unit. The people are yet to be settled fully. The newer problems which are cropping up will take time to be sorted out. The stress and strain from which members of our community had to suffer, have, for justifiable reason, given us a certain amount of extra sensitiveness. This, and the unequivocal and aggressive manner, in which we generally express ourselves, have made us somewhat of *persona non grata* in other parts of India. For explainable reason, there is less employment potential in Eastern India than in the western part. An employer in that region would hesitate to employ a person from Bengal, lest he purchases a possible problem. This allergy is fairly wide spread and even governmental, public sector and autonomous institutions are not free from it. Disturbances in academic atmosphere have been there all over the North Indian track, but all the same, is a general feeling, that such difficulties are more in the region of Bengal, that products of this region are likely to prove a group of trouble makers and better be avoided. The result is disastrous. We, no doubt, can find solace from the oft quoted statement, that "What Bengal thinks today India thinks tomorrow", but the problem remains and is likely to continue. I have had intimate and extensive contact, with industries and other institutions and I speak from experience.

An educational institution for its growth required three components, (1) the students, (2) the teachers and (3) the environment. When good students are taught by worthy, motivated teachers and the environment is congenial, academic activites thrive without difficulty. But when any one of these components fails, the standard deteriorates and the results are what we see today.

With our long tradition of education and culture, a student from this part of the country is as good as a student anywhere else or, may be, even better. However, irrespective of other considerations, a student would expect that after he has satisfactorily completed his education, he would have adequate opportunities for employment in an area of his choice so that he can function as a citizen, and, in addition to earning conditions, contribute his mite towards the growth of the community. Such conditions, at present, do not exist in our country and, more so, in this part. Thirty years after independence we have not been able to make even the primary education compulsory. Our men of public life and political leaders, many of whom have ulterior motives, have toyed with our educational system at all levels, primary, secondary and thereafter, without evolving any better and in the process almost destroying whatever we had. Fortunately for us, the system of 10+2+3 (2+1), now being adopted in West Bengal, may lead to a solution.

There are other factors which also deserve consideration. Along with the population explosion, schools and colleges have grown in number. Larger number of students than even before are

admitted to colleges, universities and institutions of higher learning. Many of those who are admitted, however, do not have the necessary background and cannot take full advantage of whatever opportunities are available. The opportunities offered also fall far short of the minimum standard. Some of the teachers, who participate in our academic programmes, are, no doubt, very good and do their jobs with sincerity and dedication. But there are others who joined the profession because they had no other opportunity for employment and accepted whatever came their way. The large majority of the students, after whatever education they receive, face a bleak future. This eventually leads to unrest, indiscipline, lack of enthusiasm and courage to face life. Thus, all of us, the teachers, the students and, in fact, the entire community, seem to be victims of circumstances, Unless these conditions, particularly the political conditions, change and stabilise into a durable and uniform pattern, both in the province and the centre, whatever efforts we may make, will not lead to desirable results. The flux will continue. The authorities will find it difficult to identify Vice-Chancellors, who in their turn will be mortally afraid, as they are, of the teachers, the students and the non-academic employees and will, perforce, behave like timid nonentities. The students will be afraid of themselves and their bleak future and, consequently, indulge in indiscipline, vandalism, copying and what not. I, for one, strongly feel that it is the failure of the elders which is responsible for the present impasse. The condition is essentially the same throughout India, only the intensity is a little more in this part.

There are certain other features of education where we have not done badly, but can certainly do better. We seem to have an apathy for change. We offer useless and obsolete combinations of subjects, advocate the same course-content and books for thirty years, ignoring serious consequences. In most of the universities with a large number of affiliated colleges, the examination system leaves much to he desired. The question papers are set by a group of teachers who may not have even taught the courses, moderated by another group and them evaluated by an entirely different crowd. Some of them do their job properly, but the others are a nonchalant tribe caring little for the consequences, and even less for their victims, the students. Is it surprising that there is students unrest?

Teachers in this part of the country also appear to be particularly miserly in their assessment and restrictive in apportioning marks. In most of the countries in the west, where education has spread much more widely and the standard is incomparably higher than what we have in our country, the method of setting questions and evaluating the same have been standardised, so much so, that a correct answer is expected to bring hundred percent credit. Against this background, our teachers might give only 60 or 70%. They behave as if they are distributing their ancestral legacy or personal fortune. The fact of the matter is that they are not being strict, they are merely displaying their ignorance in academic evaluation and attributing virtues unto themselves which they do not possess. The tragedy is that the limitations from which they suffer cost the students dearly.

Our programme of teaching at the post-graduate level also leaves much to be desired. This is true for theory and, more so, for practical classes for science subjects. Newer concepts which have been accepted in the west as standard practice take years to be introduced into our programme. Obsolete laboratory instruments and exercises still continue. The archaic practice of setting up question papers by one group, moderation by another and evaluation by third crowd still continue, though at the masters degree level procedural changes can be easily introduced. We do not want to do that.

To make our educational system effective it will be desirable to divide our bulky universities into smaller and more easily manageable units. This will enable us to introduce all the healthy norms which have been accepted in the developed countries after due experimentation. The semester system is one of these. Even such an established and accepted system has to face hostility in this country. Is not it surprising?

Jadavpur University is placed in a very convenient position. It is a small, compact, composite unit. All the advanced educational practices which have been accepted in the leading Universities abroad can be introduced here with great benefit to the students, as also to the teachers. I understand some of these features have been already adopted and the others may be incorporated in due course.

There is another point on which I would like to make some remarks. This is regarding the medium of instructions. No doubt, the medium of instructions should be the mother tongue, provided adequate number of standard text and reference books are available. With reasonable efforts it should be possible to write books suitable for the lower stages of the college courses, covering up to the B.A./B.Sc. level. However, for the masters degree programmes, much greater efforts will be necessary. Books do not seem to exist at all in any of the Indian languages. For example, in Chemistry, a subject in which I have some experience, I do not know of even one book either in organic, inorganic or physical chemistry, which can be adopted for the M.Sc. course. Moreover, availability of just one suitable book covering a particular area is not enough. In good academic institutions, even in our country, several books are simultaneously consulted by a teacher before he can offer an effective course. Such books are not available in the Indian languages, which also includes Bengali. I have several other points in may mind, but for the sake of brevity I refrain from mentioning the same.

I once again thank the authorities of the Jadavpur University for giving me this opportunity, I also wish the students who are going to get their degrees all the best in their career. They will need a good deal of courage and fortitude to face the hard realities of life.

ANNUAL CONVOCATION ADDRESS

By

PROFESSOR A.K. SAHA, D.SC. F.N.A.

DIRECTOR

Saha Instute of Nuclear Physics, Calcutta

February 7, 1980

MR. CHANCELLOR. MR. VICE-CHANCELLOR, TEACHERS AND STUDENTS OF THE JADAVPUR UNIVERSITY, LADIES AND GENTLEMEN,

On 25th of the last month I had the misfortune to be in a Press Conference with your Vice-Chancellor. I did not quite like the looks in his eyes. At the end of the Press Conference, he threw a bombshell at me. Apparently the Chief Guest of today's function, a very great personality, at the last moment could not make it. The Vice-Chancellor forced me to act as a substitute, and would not take no for an answer. Well I suppose there is always quid pro in life—nothing in this world is free. For what you are about to receive from me, you have only your Vice-Chancellor to thank.

I do appreciate, however, this honour that has been bestowed on me by asking me to address you in the precinets of this great University. Seventy four years ago, the National Council of Education was formed here and that was the beginning of a very great experiment to impart education on national lines and exclusvely under national control. Today we may not quite realise what a great event it was in those days, when all education was under the control of an alien Government. Today this University can look with pride at the place it has taken among the community of universities of the country. Some of the faculties have high reputation of excellence known all the world over, and they are growing up as great centres of research. This university started as an organisation for technical education, but later it transformed into an university in the total sense as we understand it. The Engineering faculties of this university have maintained a high tradition over the years, and their students are eagerly sought after by the Government and the Industrial houses of the country. Already this University measures up favourably with the other great University of the city. The country expects much from it and the founding fathers would have been proud of what it has already achieved.

Fortyfive years ago I passed my High School Examination and joined what was then called Intermediate course, which was a mid way stop between the High School and the University. At this distance of time, those days appear to me very precious and golden. You will no doubt also

one day look back on this days with a sense of nostalgia. I crave your indulgence to recall those past days and describe them to you as I see then now. The intermediate system of those days was an excellent thing, because it provided us with the time for corrective measures for any negligence on our part during our school, for consolidation of the knowledge acquired earlier, and with a pause for contemplating the next step that we should take. We were not committed in any final sense to any particular career as students today are. Our age group just about coincided with the usual time when the cognitive development of a young person reached the highest pitch. Piaget discovered that the cognitive development of a person in the early years round about this period of his life, a formal structure appears in their mind. Concepts acquire meaning and ethical value find moral justification. Without the development of such a structure at the right time a person remains immature throughout his life. The extreme pressures and the need for haste which plague the students of today were fortunately not faced by us in those days. We took things rather leisurely ; we had ample opportunities to develop our critical faculties and the ability to assess the knowledge that we acquired. There were enough choices open to us for the next step in our education. One did not feel that he was crossing the Rubicon when one finally chose a carrer for himself, One could always change midway to other paths which were suited to one's genius. I shall remember always those days, which were the most happy and formative period in my life. I had the great privilege of having very inspired teachers. The next stage of my education was rather formal and pedagogic. We worked hard and acquired many skills, but some how I felt that the earlier excitement and inspiration was missing. In the M. Sc. class, I changed my subject. I have said that it was possible to do so in those days. Here I had fortune of having a great physicist of India as our teacher. He had the most curious method of teaching. A foregetful man by nature and habit, he had to be reminded by his secretary of his classes. If he received the notice sufficiently in advance, he delivered neat formal lectures, of very high standard not doubt, very informative and very useful to us. But if he was reminded at the last moment and he came to lecture quite unprepared, then what we received was the most exciting thing one could imagine. He gave us a grand stand view of the panoroma of physics—its concepts, the inner unities, interactions with other disciplines and visions of future vistas. There was very little that was stereotype is these lectures. And everything looked so simple and beautiful. Without seeming to do so, he brought out physics as a cultural activity of man. Since he was a very busy man, most of his lectures were like this, and we usually begged his secretary not to remind his of his classes. After passing M. Sc. I had the great fortune to work with him for my D. Sc. degree, and then I was entirely on my own. The great physicist believed in giving the barest indication of the problems of current interest of those days, and left it to us to sweat and toil to accomplish something. But if we did achieve something his pleasures knew no bounds. His face positively beamed. At such moments and also when we could catch him during some of his very rare spare moments we had dazzling expositions. He made us to see consequences of our work which we normally missed. He was born much ahead of his times—a man who could look far into the distant future, a organiser of men and institutions. Such men are rare these days today in this country.

As I have already said, at this distance of time the systems of those days seem wonderful because it provided us with a time to develop our critical faculties and a capacity for assessment and decision making and perhaps to cultivate wisdom, which have been of great help to us in after years. This was possible because we had the leisure and the time to think and ponder. Of course the scenario those days were quite different—the all pervading tensions and uncertainities of today were not to be seen so much, at least so it would appear to me today. In the intervening years our educational organisations have grown in size and numbers. The various faculties have developed tremendously and transformed often beyond recognition. The nature and content of the various disciplines that are usually taught have expanded, so much so, that it has become a great burden on those who design the corresponding syllabi and courses and the teachers who would wish to introduce into the existing system the modern theories of pedagogy. New disciplines are appearing and demanding attention ; the rigid boundaries of many of the traditional disciplines are disappearing. The size of the student population has also growin beyond control. The old teacher student relationship is taking more and more of a formal character. It seems to me that we have tried often to bring about changes too abruptly and too blindly with not too happy consequences. Terrible pressures are applied today on the young minds, who are compelled to go through vast courses without adequate guidance. I notice the tragic turning away of the young generation from scholarship and knowledge, because of these crippling tortures which squeeze out curiosity from the young minds. I dare say there are wonderful educational aids developed but very little of such things are available to the average student. Education is now subjected to cost benefit analysis, which is foreign to the whole philosophy of acquiring and imparting knowledge. But I am an optimist, I believe that once again an effective system would emerge which would not only transmit the knowledge needed to live in today's would but also develop in them curiosity for all things and the wisdom to face any situation that may come. I brought up all these matters, because I wished you to know that we had a very good system and the change from it has not been always for the good. Times change and new needs have to be accomodated. But in transforming a system care should be taken not to destroy it. Thus we need to hasten slowly, carefully calculating the various consequences and gently introduce the changes that are necessary ; at least in curricula for the very young people such precautions are very necessary.

What does the Society want from the universities ? Certainly education and the pursuit of knowledge need no justification per se. It is a part of the cultural endeavours of a nation which are remembered long after the buildings and organisations, where such activities were pursued, fall into ruin and are forgotten. There was a magnificient isolation of these centres of learning from the main stream of Society ; the scholars were revered everywhere and they belonged to quite a different world. It is only in recent years, after two great wars that it was discovered that some of the disciplines, at least those in science and technology, are of paramount importance in providing the State and Industry with workers for specific tasks. The days of Universities supported by private charities are over now, and the State has become the main fund giver. The question

which is now being asked is whether the money which is beign spent on the universities to train people to high competence are justified in the face of other priorities of Society. Unfortunately is very difficult to assess and analyse the achievements of the universities. There is often a complaint that the job potential in the country compel our trained personnel to emigrate to developed countries where attractive pay is available along with a far better style of life. The developed countries purchase our people and swallow them into their system. Evidently a part of the funds the flow in the universities from our State go for the benefit of outher countries. The question that is asked is : why should the State indulge in such profitless spending. I do not agree with this argument to reduce the funding of the universities and reduce their activities. It takes time to build up organisations and it is necessary to narture them. A time may come sooner then we realise, when the country may need as many of the scientists and technologists as it could produce. System makes the man. The success of our students abroad is mainly due to the fact that they find a wonderful system ready made for them. Here it takes all the energy that one has to preserve the system as it is. I will illustrate with the tragic situation faced by our research scientists. To make any significant advance in one's field one has to hob nob with the powers that be that control the unds that he needs. But once he starts walking in the corridors of power, he is cut off from the main stream of his discipline. He may get some funds but he is not in a state to make the best use of it. On the other hand, if he does not leave his laboratory to find the funds, then of course he can forget about the necessary equipments, and then also he is lost. This is the dilemma which is faced by most research workers in less acute in the giant institutes which have come up after the independence.

On an occasion of valedication like this, what can I wish you. What kind of world would you be entering ? When I finished my education, India was just about to gain independence. The world seemed to us to be a wonderful place—everything was possible, we had just to work for it. We never doubted the potentials for growths of anything you could mention. Economy would grow, we scientists would establish great research institutes, the quality of life of our people would be transformed beyound recognition. So much has happened after that. Today we are a much chastened people, and we are looking at the future with anxiety and misgivings. When I say this, I am not thinking our mistakes and failures as a nation. This feeling of impending catastrophe pervades the whole global scene. What I am contemplating is the coming decades of shortages which will prevail all over the world ; while many countries are preparing to put into operation the necessary plans to face the coming traumatic situation, we have yet to study these problems and formulate concrete policies about the strategies to be followed. There will be shortages in all things except the numbers of people inhabitating this planet. We are looking at a stark era of want.

The key shortage which would dominate over everying else and which would dicatate all other shortages would, in my opinion, be the scarcity of energy. This is why I chose the energy situation in India as my focal theme at the current session of the Indian Science Congress. I have

considered a scenario. Which I think would be most likely to happen in the next twenty years to the colse of this century. Many would not agree with me about some details—but I feel that broad aspects of the scenario cannot be challenged. For you who are baout to start life on your own, it might be helpful if I present a broad picture of what I feel is the most likely shapes of things to come.

In the scenario I discussed, oil would vanish from the Indian scene by 1990/1. Coal production would level off at about 280 MT annually ; not much more can be produced with the primitive mining methods employed in this country. This would cause drastic restrictions in the production of thermel i.e. thermal electricity. Salvation for us lies in the development of hydel ; but I have grave doubts whether the past annual percentage growth rate of hydel production can be maintained. If that could be done, then the total hydel potential of the country could be developed by 2000/1. Even if this is accomplished, the total per capita energy would only increase from 0.434 TCR/Cap in 1960/1 to 0.936 TCR/Cap in 2000/1. This amounts to just over doubling in a period of 40 years, which is a very slow rate of growth indeed, and cannot be expeted to sustain any kind of economic growth. In the figures of per capita energy I have included the noncommercial fuels ; fire wood, vegwaste and dung, which are mainly used in the rural area, and constitute the fuel for the poorer sections of the society. There can not be the slightest doubt that energy will be a very scarce commodity by the turn of this century.

The medieval world depended heavily on human and animal labour for its energy requirements. Firewood from the forests, wind, flowing water and oil from vegetable and animal sources also supplied the many energy shortage. My father studied in the light produced by burning of vegetable oil—he came from a very poor family. I do not believe the rich people had better lighting system. I have had always the benefit of the electric lamp. My children have grown accustomed to fluorescent lamps. But I can not think of anything but vegetable oil for my grand children. This is the kind of world that we have to accept. Absence of oil will shatter the transport and domestic sectors. Mobility of manufactured commodities and food would be seriously hampered, causing serious scarcity and high price escalation. Energy would not be available to the household for the simplest chores. Shortage of coal and electricity will affect industry so that there will be grave shortages in all types of manufactured articles. Since it would be difficult to travel, the process of homogenisation of cultures brought about by modern rapid transport systems would come to a halt, and society would break up in small closed isolated segments. I am afraid this dismal world would be a reality if we do not evolve appropriate strategies to meet the energy crisis loomin ahead.

What can we do about all these threatening possibilities about which we are being warned. Evidently the simple answer is—find alternative energy sources. Thirtyeight years ago great expectations were roused by the famous experiment of Fermi demonstrating controlled release of fission energy. We went along with many other countries and tried the unclear fission path, albeit not with any remarkable success. Today all over the world fierce diebates are raging whether

utilisation of fission energy is really desirable and whether man can live with it. In any case prospects for fission energy in India seem bleak. Fusion energy will perhaps be commercially viable only by the middle of the next century. This leaves us with coal which has to be transformed into the liquid or the gas forms to be of use in the transport and domestic sector. But there is not too much coal that can be diverted for such transformation. The other possibilities are ethanol from biomass and hydrogen. Another important line of research should be on utilisation of solar energy, which might prove to be very uueful in the rural area.

Introduction of these new energy sources would need intense R & D work in the universities and the research institutes, with international collaboration in specific areas followed by a determined effort by our planners to introduce these fuels with the appropriate energy conversion technologies in the economy of India. In this area I hope this University will make very significant contributions in years to come. Energy problems need multidisciplinary approach for solutions. For this purpose at the research level collaborative efforts would be needed between various departments of the universities for identification of areas of investigation and joint research programmes. More and more trained personnel would be needed to work in the energy segment of the economy and the universities would be required to design courses for this multidisciplinary subject for the students. I hope that this University will set pace for others in this matter.

I have painted a very dismal picture of the world which you young people are about to enter. But adversity brings out the best in man. I have faith that this ancient people will not be swept away by the crisis, which seems so unsurmountable now. We of the passing generation look upon you to overcome all the hardships the future may bring and take the country to new heights of achievement. God speed to you.

ANNUAL CONVOCATION ADDRESS

By

DR. M. S. SWAMINATHAN, F.N.A, F.R.S.,

March 7, 1981

I am happy to have to the privilege to being here on an occasion when this University is commemorating its 25th anniversary. The National Council of Education which gave birth to this University was founded 75 years ago. An occasion like this provides an opportunity both to look back and to look ahead. Looking back, the staff and students of this University can legitimately be proud of their contributions and accomplishments. The University has set high standards of excellence both in research and teaching. This is, therefore, a proud occasion for the faculty and students who can derive from their past performance inspiration for the future. Looking ahead, our country as well as West Bengal will face altogether new challenges when this University celebrates its Golden Jubilee in 2006. The challenges will relate not only to the already existing problems of illiteracy, poverty and unemployment, but also to more serious problems relating to the conservation of basic life support systems like soil and water, fauna, flora and the atmosphere.

When we look at the past 25 years from the point of view of the growth of university education in the country, any objective observer cannot but be impressed by the tremendous advances made. Thus the number of universities in the country increased from 27 in 1950-51 to 119 in 1979-80. The number of colleges increased from 798 in 1950-51 to 4558 in 1979-80. Consequently, enrolment at degree and post-graduate levels increased from about 4 lakhs in 1950-51 to 26.5 lakhs in 1979-80. The enrolment of girls in the universities has also steadily increased, reaching a percentage of 26 in 1979-80. The outlay in the First Five Year Plan (1951-56) for university and college education was Rs. 483 crores. Thus both in terms of quantitative expansion of facilities for higher education and the scatter of such facilities in the country, there has been an impressive progress since the time Jadavpur University came into existence.

The number of post-graduate scientists made available to the country by the University system has been estimated by Dr. B. K. Nayar of the CSIR to be of the following order :-

Category	Number
Agriculture	29,000
Botany	33,000
Zoology	34,000
Physics	45,000
Chemistry	78,000
Mathematics	60,000
Statistics	11,000
Geo-Sciences	11,000
Geography	34,000
Psychology	28,000
Other Sciences	10,000
Total About :	3,70,000

Inspite of this impressive progress there are serious problems relating to the quality and relevance of higher education with the result that the links among education, employment and development are not well formed or even non-existent in several area of university education. Consequently there is considerable unemployment among educated youth. Current estimates of educated unemployed put the number at about 3.5 millions (1979-80). A majority of them are matriculates. The wide-spread incidence of poverty in the country (Table I) leads to inadequate resource back-up to universities and S & T manpower. Poverty in its turn is due to our inability to profit from our vast human resource. When the human resource is under-valued and land and other physical assets are over-valued, poverty persists.

There are several other problems related to university education which are fortunately now engaging the serious attention of the academic community. These include the special problems faced by first generation learners for which pedagogic solutions are yet to be developed, the academic culture and ethos prevailing in the universities and above all the relevance of the education system in relation to the needs and problems of real life. I feel that all these issues can be resolved satisfactorily only by the total involvement of the faculty and students of the universities in understanding and facing them. In a recent lecture delivered at the Central Institute of Education, Delhi, I had dealt with the role of non-monetary inputs in improving the quality of higher education. Hence, I wish to confine myself in this talk to dealing with two sets of problems where, in my view, there are great opportunities today for combining classrom and real life learning. The first relates to the elimination of destitution and reduction in poverty. In the Sixth Plan, a household approach to poverty alleviation has been suggested. The major elements of this approach are :

i) Transfer of assets like land and livestock to families with no asset base ;

ii) Employment generation with integrated attention to salaried, self and wage employment ;

iii) Providing the basic human needs, such as drinking water, education and health care ; and

iv) promotion of a small family norm.

All these elements need to be integrated into a well planned household approach so that within the next four years a measurable degree fo progress can be made in elfminating absolute poverty. All religions and philosophies stress that bringing cheer into the lives of the poor is the best form of prayer. Therefore, there can be no greater challenge to the university system than involvement in programmes designed to give human beings a human existence. To be meaningful, this should be done as an educational and not as a social service programme. You may wonder in what way the university system can respond to such a large and complex task. I would like to offer a contrete suggestion for your consideration.

Starting from October 2, 1980, the Integrated Rural Development Programme has been extended to all the blocks of the country. This programme alms at achieving (a) economic emancipation of poor families, (b) provision fo necessary infra-structure for development, and (c) promotion of steps for optimising producers' return and consumers' satisfaction. The programme also envisages a new deal for the self-employed and the promotion of opportunities for individual and group self-employment in land and water based occupations, non-land enterprises and organisation of relevant services. The programme also aims to provide residuary employment to the landless poor during the lean agricultural season through a National Rural Employment Project. All this, however, will require a considerable input in the field of planning and programme implementation.

This will call for a closer alliance between brain and brawn. This is where the university system can play a pivotal role. One method of achieving this will be to ensure that every block in the country is served by one unit of the National Service Scheme (NSS) and National Cadet Corpse (NCC). At present about 4.5 lakhs of university students participate in the NSS throughout the country. The strength of the NCC is about 4 lakhs at the senior level and 7 lakhs at the junior level. Thus even now we have over 15 lakhs of boys and girls serving in NSS and NCC in the country. This number can be easily raised to about 20 lakhs, thereby providing a combined NSS-NCC unit of about 400 students per block. In other words, one unit each of NSS and NCC could be attached to every IRD Block performing such tasks in the area of rural development where the units have a competitive advantage by virtue of their skills and academic and professional back-up services. This type of structured linkages between NSS and NCC units on the one hand and the block administration on the other should provide opportunities for satisfying work experience in fields, such as environmental improvement, drinking water supply, eradication of specific diseases like blindness in children caused by Vitamin A deficiency, malaria, filariasis and so on. Work

performed in this way will not be mechanical work but will be pregnant with learning opportunities. At present, the work done by many such units tends to have neither an economic impact nor an educational content. If we can organise one NSS/NCC group linked to each of the 5000 blocks in the country, we will see the beginning of a more enduring inter-action between the academic community and the rural population. Such symbiosis between the academic and rural worlds can alone generate the desired degree of synergy in development.

The second area where I feel there are challenging opportunities for university participation in national development is economic ecology. We see all around us a rapid deterioration in environmental quality, partly due to either wanton or ignorant human interference. We take pride in saying that it was Emperor Ashoka who was the first in recorded history to provide detailed guidelines for setting up wild life sanctuaries and nature conservation organisations, Similarly, we take pride in the advanced state of knowledge of eugenics in our country long before the rediscovery of Mendel's Laws of Inheritance. Our ancestors had realised over a thousand years ago the importance of heredity in the transmission of both good and bad characters in human population. The ecological diversity of our country arising from the wide range of soil and climatic conditions prevailing in different regions is reflected in our rich fauna and flora. In fact greatest concentration of primate species occurs in India. The entire eastern region is a rich reservoir of valuable genes in both plants and animals and animals. It is believed that the original home of rice occurs in Orissa and that of citrus in eastern himalayas. We have very primitive races of maize in Sikkim and north-eastern himalayan region, thus suggesting that the exchange of plant material between the old and new worlds preceded the discovery of the new world by Columbus. However, what we see today around us is the gradual destruction of all this biological wealth of inestimable value. For example, in a recent book entitled "Stones of Silence", George B. Schaller writes as follows :—

"At most a few hundred Kashmir stags, a sub-species of red deer, survive in the vale of Kashmir, their only home. Yet as recently as 1947 there were over 4,000, the animals having brought to the verge of extinction because no one cared. There are many species similarly threatened, all in need of some one concerned enough to fight for their needs. The fact that a living being can vanish from the earth solely because of man's improvidence and neglect is appalling and the utter finality of it touches the consciousness of far too few. I have met in the Himalayas many species without a future."

Fortunately, there is now a growing awareness of the threat to our very survival if the current rate of soil and gene erosion and water and atmospheric pollution proceeds unchecked. Awareness has also led in several cases to analysis of the maladies and possible remedies. Logically, analysis should lead to action. However, this is the missing link in the awareness-analysis-action chain. We have so far concentrated mainly on methods of analysis of problems through frequent seminars, symosia, etc. It is high time that we also took appropriate action since otherwise paralysis is the only result of analysis.

This again is a field where the university community can show the way. In the Sixth Five Year Plan provision has been made for stimulating such a movement. Universities can help in the following two ways. First a multi-disciplinary economic ecology group of the university consisting both staff and students can undertake a systematic analysis of problems relating to development without destruction in the areas surrouding the university. Not only the damage, which is now taking place at an increasingly alarming rate to soil and water resources and to fauna and flora needs careful monitoring, but also the problems of the atmosphere such as the concentration of carbon dioxide need study. A recent international seminar came to the following conclusions about the carbon dioxide problem :

"Carbon dioxide is increasing in the atmosphere and may cause 'green house' effect on the earth. Most of the increase in CO_2 concentration is due to the burning of fossil fuels, but partly it could be due to deforestation. There could be an increase of 2-3°C temperature of the globe with the doubling of CO_2 concentration, which could influence agriculture, fisheries and other biota. It is difficult to specify the regions which would be affected most but some effects could be in tropical regions also. One of the measures to countrol this situation is to change the use of sources of energy. For example, a change to renewable biomass may be more beneficial."

Unfortunately, we have not yet given serious thought to such problems. A recent report compiled by the Department of Science & Technology, brings out the vast untapped potential for biomass utilisation in our country. The rich countries in contrast are trying to capitalise upon this potential. For example, at the Royal Swedish Technical University at Stockholm, a laboratory model has been developed to convert biomass into oil or gas. It has been reported that the yield of oil can be as much as 30% of the dry biomass. We need more intensive experiments of this kind in our universities. Now that an Alternate Energy Commission has been set up by the Government of India, it is to be hoped that there will be more intensive and coordinated attention to such possibilities.

It is proposed during the Sixth Plan period to provide opportunities for the students and universities to organise eco-development camps in different parts of the country. Such camps can take up specific assignments, such as the establishment of a biosphere reserve, marine and inland national parks, gene sanctuaries, "Hot Spot" screening nurseries, etc. Also the students participating in such camps could be drawn from different parts of the country, working together in restoring damaged hill eco-systems, providing fodder and fuel to rural people and similar tasks. I wish to emphasise again that in all such projects intellect and labour must be combined together so that the educational component of such an activity is given as much importance as the purely social service, physical work or other aspects of the work plan. Many of you would have seen the beautiful film relating to the "Ocean to Sky" expedition. There are universities all along the Ganga. Cannot they join together in an "Ocean to Sky" analysis of pollution in the Ganga and its elimination ?

If the academic community can get involved more intimately in programmes of poverty elimination and eco-development, education employment and development would become integrated.

On the occasion of the Silver Jubilee of this University, I hope that the tremendous achievements of our nation during the last 25 years would provide the inspiration necessary for facing the even more challenging tasks ahead of us. During the last 25 years we have increased our capacity for food production by an order greater than that achieved during the previous 10,000 years of our agricultural evolution. However during the next 25 years we have to repect this performance again. In other words, even to stay where we are, we have to run twice as fast. Fortunately, necessity is the mother of invention and the human mind gives its best when the challenge is the greatest. I have every hope that several of the young scholars present here today on whose shoulders the privilage of managing the problems the country will face on the occasion fo the Golden Jubilee of this University, will rise to the occasion. I wish the staff and students continued success in their mission of building further this great University, imbued with a genuine love and desire to serve the country.

TABLE—1

PRECENTAGE OF POLULATION BELOW THE POVERTY LINE BY STATES SEPARATELY FOR RURAL AND URBAN AREAS, IN 1977-78

Sl. No.	State/U.T	Rural	Urban	All Combined
(0)	(1)	(2)	(3)	(4)
1.	Andhra Pradesh	43.89	35.68	42.18
2.	Assam	52.65	37.37	51.10
3.	Bihar	58.91	46.07	57.49
4.	Gujarat	43.20	29.02	39.04
5.	Haryana	23.25	31.74	24.84
6.	Himachal Pradesh	28.12	16.56	27.23
7.	Jammu & Kashmir	32.75	39.33	34.06
8.	Karnataka	49.88	43.97	48.34
9.	Kerala	46.00	51.44	46.95
10.	Madhya Pradesh	59.82	48.09	57.73
11.	Maharashtra	55.85	31.62	47.71
12.	Manipur	30.54	25.48	29.71
13.	Meghalaya	53.87	18.16	48.03
14.	Negaland	N.A.	4.11	4.11
15.	Orissa	68.97	42.19	66.40
16.	Punjab	11.87	24.66	15.13
17.	Rajasthan	33.75	33.80	33.76
18.	Tamil Nadu	55.68	44.79	52.12
19.	Tripura	64.28	26.34	59.73
20.	Uttar Pradesh	50.23	49.24	50.09
21.	West Bengal	58.94	34.71	52.54
22.	All Union Territories	34.32	17.96	21.69
	All India (weighted)	**50.82**	**38.19**	**48.13**

Note : 1. The above estimates are derived by using the all-India poverty line of Rs. 65 per capita per month in 1977-78 prices corresponding to minimum daily calorie requirement of 2400 per person in rural areas and the poverty line of Rs. 75 corresponding to calorie requirement of 2100 in urban areas.

2. These results are based on the provisional and quick tabulation of National Sample Survey on household consumer expenditure of 32nd round (July, 1977 to June, 1978.)

3. The difference between the aggregate all India private consumption expenditure estimated by Central Statistical Organisation in their National Accounts Statistics and that derived from the NSSO data has been prorata adjusted among the different States and Union Territories in the absence of any information to allocate this difference among the States and Union Territories.

ANNUAL CONVOCATION ADDRESS

by

Dr. Bhabatosh Datta,

Chairman

W. B. Commission for the Planning of Higher Education.

December 24, 1981

Mr. Chancellor, Mr. Vice-Chancellor, Members of the University and Distinguished guests,

I feel greatly honoured by the invitation to address the Convocation of Jadavpur University, a University which, over the relatively short course of its life, has established itself as one of the foremost centres of academic excellence in our country. The Bengali mind has a soft corner for everything that originated in the Swadeshi Movement of 1905, whether it is a cotton mill, or a pharmaceutical works, or an educational institution, but an educational institution is a very special repository of sentiment and pride. We have watched with admiration how the sapling planted by some of our greatest intellectual leaders seventy-five years ago grew, despite official apathy and sometimes antipathy, into an independent College of Engineering and Technology, and then after Independence into a full-scale multi-faculty university. To me the invitation is the high-water mark of my association with the university, under the dynamic leadership of the first Vice-Chancellor, Dr. Triguna Sen, and later, under Professor Hem Chandra Guha, who brought to his administration a rare kind of scholarly grace.

I hope I will be forgiven if I do not follow the two conventional tracks that seem to have been laid down for the guest speaker on such occasions. The first of these is an impassioned discourse on the ideals of higher education. So much has been said on these ideals by our great philosophers and visionaries, that it is superfluous to repeat the attempt. I feel, however, that we often pitch our ideals a little too high, with the result that there is an unbridgeable gap between what is desirable and what is feasible. And sometimes the fact that this gap is visibly wide inhibits our initiative and we do not actually achieve even what should be realisable with our resources and abilities. The two gaps—between the ideal and the feasible and between the feasible and the actual—are both glaring, but it is the second of the two gaps that is more important for immediate policy decisions. Perfection is an ideal, but it is difficult to define it. It real life, we achieve a great social good if we are able to reduce the identifiable imperfections. Perhaps we should speak more of concrete objectives than of ethereal ideals.

The second track that is often followed is to deplore the trends and tendencies that are visible in the academic area and then to give advice. I shall not try to give any advice, because I feel that

we of the older generation do not have the face to climb up to the lofty pedestal from which advice can flow out. We do not always remember that there is no problem today which was not experienced in the past and all our yesterdays were full of stories of unedifying action of the elders. When our Matriculation examination had to be held three times in 1917, that was not due to any campus trouble, but to unseemly rivalry at the topmost level. One can trace back to the last century the history of executive tampering with the valuation made by examiners. All that has happened over time is that the scale of such activities has become wider. The reaping of academic benefits from unacademic action has, by its own internal logic, evolved from oligarchic privilege to democratic diffusion. And this has been organically associated with what is called 'politicisation'.

In this latter-day evolution, we the elders have often played an inglorious part. We suppressed the emerging problems by time-serving palliatives and every time we did so, we aggravated the problems for the future. We are today facing the cumulated results of our past compromises. We require, therefore, some heart-searching. We should ask ourselves the question, whether we have been, and are, setting before our sons and daughters the type of exemplary behaviour which we can ask them to emulate. When we complain about rowdyism in the campus, we do not remember the disorder that sometimes becomes distressingly evident in our public bodies where the senior people assemble to transact business of national importance. The unrest in the academic sphere is a reflection of the culture of disorder we have developed in all spheres of social life. If discipline is needed, it is needed simultaneously over a wide field and all along the line. And this requires a joint exercise by all who are involved in the retrogression of order.

Looking forward to concrete objectives for the specific field which is ours, it is necessary to start by emphasising that education is both a consumer good and an investment good. As a consumer good, it satisfies individual wants for a better quality of life and has therefore a basic welfare content. As an investment good, education increases the productive or creative power of the individual and therefore of society. Like a well-planned material investment that raises productivity and thus makes more output and more investment possible, education as an investment should raise the levels and increase the supplies of socially-desired skills and thus make further extension and improvements possible. The model for educational development has to be similar to the dynamic growth model of the economist, where the variables and their interrelations contain within themselves the stimuli for further growth.

I do not mean that all education has to be productive investment in the material sense. There is a valued place in every system for education that is creative and welfare-generating in a wider sense. A society requires philosophers and classical scholars in the same way that it requires poets, painters and sculptors. But, for the large majority, it is productive education of the earthy type that counts. Such education has to cover all knowledge which, directly or indirectly, immediately

or finally, enriches the community and results in increasing well-being for increasing numbers.

The practical difficulty here is that of designing a programme within the constraints of realisability. The primary difficulty is the multiplicity of objectives, or of the 'target variables', as distinguished from the 'instrument variables'. If there had been only a single target variable, it would have been easy to formulate a maximisation programme within the given constraints of resources and the constraint of the adopted time-horizon, incorporating in it the dynamic elements that are relevant. In fact, however, the target variables are many and even if only a few major ones are selected for optimal policy-designing, there are the difficult problems of choosing the co-efficients for weighting them and of their inter-relations. One desirable target may be in conflict with another and, at the other end, the achievement of one target may help in the attainment of the others.

The problems can be illustrated if we select five target variables about which there will be general agreement : numbers, standards, opportunities, skills and utilisation. We want large numbers to be educated—100 per cent at the elementary stage, gradually declining at the later stages. We want to maintain and improve standards at all levels. We want that no one who has proved his ability should be denied the opportunity of going up to the highest level, unhindered by financial, social or other obstacles. We want the development of all types of skill—for the agricultural field and the factory floor, for management and planning, for social service—and all at levels ranging from the simplest to the most sophisticated. At the highest levels, this means the encouragement of good colleges and universities that can produce the specialists we essentially require. Finally, we want that the skills developed should be fully utilised—which means that the time-paths chosen for the development of abilities must correspond with the time-paths of the development of the economy and the society as a whole. In simple terms, it means the integration of educational planning and economic planning.

It will be noticed that each of these targets is a composite of multiple sub-targets. For example, in deciding about the skills to be developed, there is a very complex choice involved about the distances to be travelled in each line and then there are the problems of integrating them together and further deciding how the index number of the summed-up choice-composite should be made to rise. We have experienced serious wastes in the last three decades because of not creating an adequate supply of the skills that have been actually required and also because of creating some skills at a faster rate than the rate of growth of the demand for them. There is a difficult problem of the locational transfers of high-level skills also; such skills will not move from the metropolis to the rural areas but will easily move from Calcutta to Sheffield or Detroit.

The most commonly cited example of conflicts between targets is that between numbers and standards. The argument that as the numbers entering the field of higher education are increasing, students 'unfit' for such education are forcing the teachers, examiners and syllabus-makers to

lower the standards. This thesis ought to be carefully examined. There are differences in aptitudes and there are at the extremes some exceptions—of students with unusual abilities in particular branches of knowledge or of students with unusual deficiencies. Aptitudes can however change and can be made to change. And one can ask the scientists to answer squarely the questions whether there are many who are genetically unfit for higher education and whether what appears as 'unfitness' is a result of social hurdles, environment, family poverty, poor training and our own failure to bring out the best in the students who come to us. We do not always notice that many students whom we considered 'just ordinary' have blossomed into first-rate research workers after two or three years at the more receptive and stimulating foreign universities. The stigma of unfitness is unfairly affixed when it is the result of social failures. The numbers at the higher stages have to be restricted because of the limitations of resources and of demand, but there is no necessary connection between numbers and standards.

The main problem lies elsewhere. Large numbers enter college half-heartedly, because there is no alternative. They are able to shelve their unemployed state for four to six years and there is also the psychological gain of personal dignity. For society as a whole, it is a huge waste. In money terms, we spend hundreds of crores of rupees for the lagged conversion of unemployed matriculates into unemployed graduates. In real terms, we lose the benefits of the productive use of these 'surplus' students, who constitute the reserve army of the politicians. The apparent problem of the conflict between numbers and standards is basically a problem of the imbalance between the rates of creation and absorption of skills. What appears as an educational problem is really a problem of the failure of our economic planning as a whole.

One thus comes back to the problem of integrating educational planning with over-all economic planning. This is recognised every time a new Plan is in the process of being formulated. And it is almost entirely forgotten when the Plan is being implemented. Particularly, when there is the usual financial squeeze, the budgetary axe falls first on education, thus cutting off the carefully thought out intersectoral links and balances. The lapse is often due to the fact that the benefits of education accrue with a time-lag and the actual decision-makers are generally short-sighted, partly by training or the lack of it and partly because of immediate pressures. Myopia is the greatest enemy of planned growth.

The financial constraint is undoubtedly there. The student fees are insignificant and should be allowed to remain so. Even in those countries where the fees are inordinately high, they constitute a very small fraction of the university budgets and in some countries the high fees are in effect paid only by foreign students. Examination fees are important only for affiliating universities and there is the unhealthy fact that these fees yield large amounts when the examination failures are large, so that students have to repeat their examinations. Incomes from publications cannot be substantial and may even be negative, unless text books are published, but there are strong

academic grounds against any monopolistic enforcing of particular text books at the university level. Private charity has dried up, first because the tax-exemptions do not go far enough, secondly because the new rich prefer investing in the educational institutions they can themselves control and thirdly because of the development of a culture of all-pervasive state-paternalism. The fact remains that the funds for all education has to come from the tax-payers.

There is, however, the other side of the matter. The scarce resources have not always been allocated and used efficiently in the technical sense of the term. This applies to the over-all distribution of the Plan outlays as also to the planning of the educational sector and to the allocation within individual universities. One can ask how many science laboratories could have been raised to the modern level with the money we are spending on glamorous programmes of international sports, or how many primary schools could have been financed by the funds that are now flowing down to the underground railway in Calcutta. Similar questions could also be asked in every university. There is the famous old case of a munificent gift to two universities, one of which founded a much-coveted research scholarship from the income from the fund, while the other used the capital sum to erect a clock tower. Our recent times can show a number of comparable cases.

With a shortage of funds and the sometimes more crucial shortage of high-grade faculty personnel, it is difficult to understand why there is not more of co-operation and co-ordinated planning among neighbouring universities and also between universities and the developing autonomous research institutions. And there is much scope for at least more of interdisciplinary co-operation within a university. It should be easy for a compact university like Jadavpur to do this. Jadavpur has a fully developed faculty in Engineering and also a high quality department of Economics. There are mathematicians and statisticians, backed by their own computer service. Technologists are not always able to consider the economic implications of their findings and recommendations. The economists' growth models involving technological choice are often vitiated by an imperfect understanding of the technical problems. The two groups can work together in a joint exercise. In the great effort of socio-economic planning, Jadavpur can fruitfully offer the facilities which very few other institutions have.

I realise that there are many aspects of the problem which I have not gone into and also that I have raised a number of questions to which ready answers are not possible. There are certain deliberate gaps in my analysis and these are due to the fact that I cannot at the present stage enter into a debate on matters included in the terms of reference of the Commission with which I am associated. If on the other matters, I have spoken plainly, you will forgive me, as I am one of you. I have grown old along with the system and I have shared in your achievements and aspirations as well as in your difficulties and disappointments. If I have spoken at times in anguish, I hasten to express my unbounded admiration for the students and teachers who have

kept the lights burning in the midst of difficult conditions. I know that there are thousands of students and hundreds of teachers who are whole-heartedly devoted to their search for knowledge and are imbued with the spirit of social good. The best of our scholars are among the best in the world. we are repaying our debt to the West through our scholars in teaching and research assignments at the highest levels at the best among the universities abroad. Even if some of these scholars do not return to India, we benefit from their contributions to knowledge. I hope our successors will be able to create the conditions which will retain with us and invite back to us the majority of those who are denied opportunities and facilities today.

I said at the beginning that I would not give any advice to the recipients of degrees. I would only say at the end that those who have been students recently are the people who, some years from now, will be our leaders in every field—in education and administration, in the advancement of knowledge and technology and in the production of tangible wealth. It is for them to make what they want to make of the country. I fervently hope that in the not-very distant future, today's scholars will remember with pride what they got from their university and that the University will be able to say that it is proud of the students it nurtured.

বার্ষিক সমাবর্তন ভাষণ

অধ্যাপক কালিদাস ভট্টাচার্য

২৪শে ডিসেম্বর, ১৯৮২

শ্রদ্ধেয় আচার্য, উপাচার্য ও সমাগত সজ্জনবৃন্দ,

যাদবপুর বিশ্ববিদ্যালয়ের মতো উচ্চমানের শিক্ষাপ্রতিষ্ঠানে সমাবর্তন ভাষণ দানের সৌভাগ্য অর্জন করেছি, এর জন্য প্রতিষ্ঠানের কর্তৃপক্ষকে প্রথমেই মামুলি ধন্যবাদ জানাচ্ছি। প্রকৃত ধন্যবাদের কারণ কিন্তু অন্যত্র। স্বাধীনতা-উত্তর ভারতের শিক্ষাসমস্যা সম্বন্ধে দীর্ঘ দিনের অভিজ্ঞতা ও ভাবনা চিন্তার কিছুটা প্রত্যক্ষ জ্ঞান আমি অর্জন করতে পেরেছি। তারই কিছুটা আপনাদের সামনে বলবার সুযোগ পেলাম, এটাই হল ধন্যবাদের প্রকৃত কারণ।

স্বাধীনতা লাভের পর থেকেই এদেশে অন্যান্য নানা সমস্যার মতো শিক্ষা সমস্যারও সমাধান সুরু হয়েছিল পূর্ণ উদ্যমে, এবং অতি বড় নিন্দুকও অস্বীকার করতে পারবেনা যে, শিক্ষারাজ্যে অনেক সমস্যার সমাধানে আমরা অনেকখানি অগ্রসরও হয়েছি। স্কুল-শিক্ষা ও উচ্চ শিক্ষার প্রসার, শিক্ষণীয় বিষয়ে বৈচিত্র্যবৃদ্ধি, বাড়িঘর যন্ত্রপাতি ছাত্রছাত্রী শিক্ষকমণ্ডলী ও অশিক্ষক কর্মচারীদের নানা দিকে স্বাচ্ছল্যবৃদ্ধি — এ-সব তো সাড়ম্বর ও ঘোষণা করবার মতো। কিছু বিষয়ে ন্যূনতা এখনও আবশ্যই আছে — বিশেষ করে, বিজ্ঞান শিক্ষার উপযোগী সাজসরঞ্জাম ও যন্ত্রপাতির ব্যাপারে। কিন্তু যে-হারে অগ্রগতি চলেছে তাতে অদূর ভবিষ্যতে যে এ-সব ন্যূনতা দূর হয়ে যাবে সে ভরসা সকলেরই আছে। শিক্ষাপ্রতিষ্ঠান পরিচালনা ব্যাপারেও অনেক পরিমাণে স্বায়ত্তশাসন আমরা — অর্থাৎ শিক্ষক, অশিক্ষক কর্মচারীরা, ছাত্রছাত্রীরা, এমন কি অভিভাবক ও অনভিভাবক জনগণও — লাভ করেছি। কিছু ক্ষেত্রে কিছুটা বাড়াবাড়ি ঘটে যাচ্ছে, ঠিকই। কিন্তু স্বায়ত্তশাসনের প্রকৃতি অর্থ বুঝতে কিছটা দেরি হলেও আমরা যে অনতিবিলম্বে ঠেকে শিখব, এ-বিশ্বাস এখনও হারাই নি। কেবল শিক্ষার ব্যাপারে নয়, জাতীয় জীবনের বস্তুতান্ত্রিক সব দিকেই আমরা যে সমৃদ্ধির পথে এগিয়ে চলেছি, এ-কথা তো বিশ্বজনস্বীকৃত।

কিন্তু তৎসত্ত্বেও আমাদের জাতীয় জীবনে, বিশেষ করে শিক্ষার জগতে, কি কোথাও একটা সাংঘাতিক মৌলিক অসঙ্গতি থেকে যাচ্ছে না? কেবল 'থেকে যাচ্ছেনা' নয়, এই অসঙ্গতিটা কি জাতীয় জীবনের মর্মস্থলটাকেই নিঃসার করে দিচ্ছেনা, এবং অসুস্থ প্রাণপ্রবাহের ফলে কি সমস্ত জীবনটাই বিষিয়ে উঠছেনা, ধ্বংসের পথে দ্রুত এগিয়ে যাচ্ছেনা? এ-প্রশ্নটা রাখছি বিশেষ করে যাদবপুর বিশ্ববিদ্যালয়ের ছাত্র শিক্ষক ও কর্তৃপক্ষ সকলের কাছে, কারণ আপনারা হলেন 'জাতীয় শিক্ষাপরিষদ' (National Council of Education)-এর উত্তরাধিকারী এবং আপনারা আজও গর্ব করে বলেন, আপনাদের "শিক্ষাব্যবস্থা জাতীয় দৃষ্টিতে উদ্বুদ্ধ" এবং আপনারা "সম্পূর্ণ জাতীয় নিয়ন্ত্রণ ও পরিচালনায় এই দেশে কলা, বিজ্ঞান ও কারিগতি বিষয়ে এক সুষ্ঠু, সমন্বিত শিক্ষাব্যবস্থা গড়ে" তুলেছেন। জাতীয় শিক্ষাপরিষদের লক্ষ্য ছিল "শিক্ষাপ্রতিষ্ঠানের কর্মধারাকে একঅনন্যবৈশিষ্ট্য মণ্ডিত" করা যারই অপর নাম "শিক্ষার সঙ্গে চরিত্র ও জ্ঞানবিজ্ঞানচর্চার সঙ্গে মানবকল্যাণ ও সুন্দর সুখী ভবিষত্যের স্বপ্নকে সমন্বিত দেখতে প্রয়াসী" হওয়া। এই বিশ্ববিদ্যালয়ের মাননীয় উপাচার্য প্রায় প্রতি বছরই বিদ্যালয়ের এই পুণ্য ব্রতের কথা আমাদের স্মরণ করিয়েছেন। কিন্তু প্রশ্ন হচ্ছে, জাতীয় শিক্ষাপরিষদের এই লক্ষ্য ধরে আমরা সত্যই কি স্বাধীনতা-উত্তর ভারতে অগ্রসর হয়েছি? উপাচার্য মহাশয়ও কিছুটা দ্বিধাগ্রস্ত

মনে হয়। কারণ তিনি বলেছেন, এই "জাতীয়-শিক্ষা বিজ্ঞান ও প্রযুক্তিবিদ্যার প্রসারের সঙ্গে মানববিদ্যার প্রজ্ঞা এবং জাতীয় সংহতি ও জাতীয় সংস্কৃতির সাধনাকে যুক্ত করে। বিদ্যাচর্চার ফলে যাতে সমাজ ও জনসাধরণের কল্যাণে নিয়োজিত হতে পারে সেদিকে লক্ষ্য রাখাও এই 'জাতীয়' শিক্ষার বৈশিষ্ট্য।" তাঁর মনে যদি কোনও দ্বিধা সংশয় না থাকত তাহলে তিনি কেন বললেন "সেদিকে লক্ষ্য রাখাও এই ... শিক্ষার বৈশিষ্ট্য", কেন বললেন না যে লক্ষ্য রাখাটাই বৈশিষ্ট্য? কেনই বা বললেন, মানববিদ্যার প্রজ্ঞার সঙ্গে জাতীয় সংস্কৃতির সাধনাকে যুক্ত করতে হবে? কেন বললেন না, একীভূত করতে হবে? আমি উপাচার্যের উক্তির কোনও প্রকার বিদ্বিষ্ট সমালোচনা করছিনা। আমি কেবল এইটুকু বলতে চাইছি যে, আর সকলের মতন তিনিও অনুভব করছেন কেথাও বেশ কিছুটা ফারাক ঘটে গেছে। জাতীয় শিক্ষাপরিষদের উদ্যোক্তারা নিশ্চয়ই কেবল এইটুকু মাত্র বলতে চাননি যে, বিশ্ববিদ্যালয়ে মানববিদ্যা (Humanities) ও বিজ্ঞানের অবাধ চর্চা আগে কর এবং তার পরে সেই জ্ঞান মানবকল্যাণে প্রয়োগ কর। সে-কাজ যতটা পরিমাণেই হোক, ইংরাজের আমলেও চলত। শুধু কি সেই প্রয়োগের পরিমাণ বৃদ্ধিই শিক্ষাপরিষদের উদ্যোক্তারা চেয়েছিলেন? তাঁরা কি চাননি যে, ইংরাজ আমলে soulless যান্ত্রিক বিদ্যাচর্চা পরিবর্তে এমন বিদ্যাচর্চা হোক যাতে মানুষ তার মনুষ্যত্ব, মনুষ্যোচিত গুণাবলি, হারিয়ে না-ফেলে? প্রথমে এই soulless যান্ত্রিক বিদ্যাচর্চা পুরোদমে চালিয়ে তার পরে বাইরে থেকে মনুষ্যত্বের বোঝা চাপালে ফললাভ কিছুই হবেনা, যতক্ষণ পর্যন্ত না মনুষ্যত্বের সঙ্গে এই সব বিদ্যার যোগসূত্রটা হৃদয়ঙ্গম হয়। তা না হলে, বিভিন্ন বিদ্যাবিভাগ (discipline)কে পরস্পর যুক্ত করে কী লাভ হবে? এ-কথা অস্বীকার করছিনা যে, দুই বা ততোধিক বিদ্যা বিভাগের বিদ্যার্থিমণ্ডলী অথবা/এবং শিক্ষকমণ্ডলী যদি তাঁদের চিন্তাধারার স্থূল আদানপ্রদান চালিয়ে যান এবং যদি ঐ সব চিন্তাধারার অন্তস্তলে কোনও গভীরতর যোগসূত্র থাকে তাহলে সেটা ধরা পড়তে পারে। কিন্তু ধরা নাও পড়তে পারে, এবং ধরা পড়লেও কত দীর্ঘকাল পরে তা ঘটবে কেউ সে আন্দাজ ও দিতে পারে না। অথচ, যোগসূত্র যদি থাকে, প্রথম থেকেই তার কিছুটা ব্যবহারিক আন্দাজ পাওয়া যেতে পারে যদি যে-কোন একটি বিদ্যায় বিশেষত্ব হবার আগেই মানুষ তার স্বাভাবিক unitary দৃষ্টি. যাকে বলে সহজ গোটা জীবনের দৃষ্টি, হারিয়ে না-ফেলে। specialists জুড়ে জুড়ে generalist তৈরি করা যায় না। তিনিই একজন ভাল generalist হতে পারেন যাঁর মধ্যে আছে গোটা মানুষের জীবনবোধ, যিনি বিশেষজ্ঞতার জটিল জালে জড়িত হয়ে নিজেকে হারিয়ে ফেলেন নি, এক বা একাধিক বিষয়ে বিশেষজ্ঞ হয়েও তাঁর সহজ গোটা দৃষ্টিটা, হল মাতৃভাষা ব্যবহারের মতোই সাবলীল, স্বচ্ছন্দ; বর্ণমালা, শব্দতত্ত্ব, ব্যাকরণাদি তন্ন তন্ন করে শিখলেও মাতৃভাষার ব্যবহার আগের মতোই স্বচ্ছন্দ থাকে, যদি-না ঐ সব শব্দতত্ত্ব ব্যাকরণাদি শেখার ফলে একটা কৃত্রিম 'অভিজাত' ভাষা সৃষ্ট হয়। বিজ্ঞান, বিশেষ করে পদার্থবিজ্ঞান (Physics), আমাদের শিখিয়েছে যে-কোনও পরিস্থিতিকে প্রথমেই বিশ্লেষণ করে তার constituent অঙ্গপ্রত্যঙ্গগুলি যতদূর সম্ভব খুঁজে বার করে নিতে হবে, এবং তার পরে সেগুলি পুনরায় জুড়তে হবে। পদার্থবিজ্ঞানের বক্তব্য, এই ভাবে জুড়ে জুড়ে আগেকার পরিস্থিতির যতটা উদ্ধার করা সম্ভব হবে কেবল ততটাই খাঁটি পরিস্থিতি, বাকি সব ভুয়ো প্রতিভান। পদার্থবিজ্ঞানের আভিজাত্যে আমরা মুগ্ধ, তারই সহকারী প্রযুক্তিবিদ্যার দানবশক্তিতে আমরা বিমূঢ়। তাই এই বিজ্ঞানকেই আদর্শ বিদ্যা মনে করে এর logicটা আমরা কেবল অন্যান্য বিজ্ঞানেই নয়, অন্যান্য অনেক মানবিক বিদ্যাতেও - এবং কেবল তাই নয়, অনেক সময়ে গোটা জীবনটাতেও - প্রয়োগ করি। অথচ, একবারও ভেবে দেখিনা, পদার্থবিজ্ঞান ঐ কাজ যে সুচারুভাবে করতে পারে তার অন্যতম কারণ হল তার রাজ্যে ঐ সব অঙ্গপ্রত্যঙ্গগুলি জোড়বার logicটাও - যার নাম গণিত সেটা - সে অনেক আগে থেকে সুন্দরভাবে আয়ত্ত করে রেখেছে। কিন্তু সব শাস্ত্রে, সব ক্ষেত্রেই, কি এই-জাতীয় কোনও যূথনপদ্ধতি ঠিক ঠিক জানা থাকে? আজকাল জোর করে অনেক ক্ষেত্রে গণিত প্রয়োগ করা হয়। কিন্তু, প্রথমতঃ ঐ প্রয়োগ মূলে বৈজ্ঞানিকৈকপ্রাপ্য

'আভিজাত্য' লাভের নিরর্থক প্রয়াস কিনা ভেবে দেখা উচিত। দ্বিতীয়তঃ, গণিত ছাড়া অন্যপ্রকার যূথনপদ্ধতিও তো থাকতে পারে। Specialist-এর কাজই হল প্রথমে ভাঙ্গা এবং তার পরে বহুজনস্বীকৃত কোনও যূথনপদ্ধতির সাহায্যে আবার যথাসম্ভব গড়ে তোলা। এইজন্যই অধিকাংশ সময়ে তাঁকে ছোট এক পরিধির মধ্যে থাকতে হয়। বিশেষজ্ঞরা প্রত্যেকেই এক একটি দ্বীপের রাজা। দ্বীপপুঞ্জের অধীশ্বরকে কিন্তু generalist হতেই হবে শিক্ষারাজ্যের কর্ণধারদেরও তদ্রূপ হতে হবে generalist। মৌল মনুষ্যত্বের দৃষ্টিতেই তাঁরা সমস্ত বিদ্যাবিভাগকে পরস্পরসম্বদ্ধ করবেন; তাঁরা দেখবেন যে-কোন বিভাগেই কোন বিদ্যার সূক্ষ্মাতিসূক্ষ্ম অনুশীলন হোক না কেন, কোনটিতেই যেন মৌল মনুষ্যত্ব উপেক্ষিত না থাকে, বিদ্যার সূক্ষ্ম সৌখিন জঞ্জালে খাঁটি মানুষটি যেন হারিয়ে না-যায়। যে মানুষটাকে এইভাবে বাঁচিয়ে রাখতে হবে - কেবল বাঁচিয়ে রাখা নয়, ঐ বিশেষ বিদ্যারই মাধ্যমে তাকে এমন ভাবে সমৃদ্ধতর করে তুলতে হবে যার ফলে সে বহু বিদ্যাবিভাগের মধ্যে স্বচ্ছন্দবিচরণক্ষম হয় — সে মানুষটা কিন্তু বিশিষ্ট বিদ্যার্জনের আগে থেকেই চেনাজানা। ক্রিশ-চল্লিশ বছর আগেও তাকে আমরা সহজভাবে পেতাম, দেখতাম, চিনতাম, পরিবার ও সমাজের মধ্যে। স্কুল, কলেজ ও বিশ্ববিদ্যালয় সেকালে যতই দরিদ্র ও বহুধা-অসমৃদ্ধ থাকুক, এবং যতই না কেন সামগ্রিকভাবে তাদের উপর বিদেশী প্রভু আধিপত্য করুক, তারা শেষপর্যন্ত সমাজজীবনের অঙ্গীভূত ছিল এবং সেইজন্যই সহজ স্বচ্ছন্দ মানুষটাকে স্কুল-কলেজ-বিশ্ববিদ্যালয়ে যত্রতত্র দেখা যেত। এখন ঐ সমাজ পদার্থটা আমাদের শহুরে জীবন থেকে বিলুপ্তপ্রায়, দূরবর্ত্তী গ্রামগুলিতে স্পষ্টতঃ ক্ষয়িষ্ণু এবং শহরের উপকণ্ঠবর্তী গ্রামগঞ্জে দ্রুত অপসৃয়মান। শ'খানেক বছর আগেও ভারতীয় জীবনের যে সহজ অখণ্ড প্রকাশ দেশজুড়ে চোখের সামনে জ্বলজ্বল করত, স্বাধীনতা সংগ্রাম কালে যেটাকে অবক্ষয়ের হাত থেকে রক্ষা করে পরিপূর্ণভাবে পাওয়াটাকেই আমরা স্বাধীনতালাভ বলে বুঝতাম, কেবল যারই প্রেক্ষিতে রাজনৈতিক, অর্থনৈতিক ও রণনৈতিক ব্যাপারগুলি কিছু কিছু বুঝতাম এবং (তদভাবে) নিছক অর্থনৈতিক, রাজনৈতিক, রণনৈতিকাদি সমৃদ্ধ জিনিষটা কী তা বুঝতামই না, সে ভারতীয় জীবন চল্লিশ-পঁয়তাল্লিশের নিচে যাদের বয়স তারা এখন কল্পনাও করতে পারবেনা। এটা উন্নতি কি অবনতি - সে-কথা আমি কিছুই বলছিনা। আমি শুধু বলছি, তখনকার কালে সজীব মানুষ ছিল এবং সেইজন্যই human values-এর জীবন্ত সম্মান ছিল, তা সেই সব value হিন্দুধর্মোচিতই হোক, ইসলামোচিতই হোক, অথবা খৃষ্টধর্মোচিতই হোক। এমন কি, নাস্তিকেরাও জানতেন কাকে মানুষের সম্মান (human dignity) বলে। মানুষ এমন এক জীব যে তার অনন্য বুদ্ধির সাহায্যে কেবল প্রকৃতির ভাণ্ডার লুঠ করে নিজের ও আপন জনের ঐহিক সুখস্বাচ্ছন্দ্য বাড়িয়ে যাবে এ-ধারণা তখন আমলই পেতনা। আমাদের দেশে এ-ধারণা আজও খুব বেশি একটা আমল পায়নি, আজও এটা স্বার্থপরতা ও পশুভাব বলে নিন্দিত। কিন্তু গত তিন দশকে এরই একটা ঈষৎ উচ্চ সংস্করণ মনুষ্যত্ব বলে স্বীকৃত হতে চলেছে। সেটা হল বুদ্ধির সাহায্যে ধরিত্রীর ভাণ্ডার নিঃশেষে শোষণ করে সমগ্র মানুষ জাতিটার ঐহিক সমৃদ্ধি বাড়িয়ে চলা। এই আর্দশটা ভাল, অথবা human dignity রক্ষা করা রূপ আদর্শটা ভাল — এ-বিষয়ে কোনও বিবাদে প্রবৃত হতে চাই না। শুধু এইটুকু বলতে চাই যে, human dignity-রূপ জীবন্ত মনুষ্যত্বের কদর দ্রুতসঙ্কুচিত হয়ে চলেছে। জীবন্ত মনুষ্যত্ব আমরা যে দ্রুত হারাচ্ছি তার কারণ হল এই যে, যে-পরিবেশে ওর সাক্ষাৎ পরিচয় পেতাম — যথা পরিবার ও সমাজ — সেটাই লুপ্ত হতে চলেছে। প্রাসঙ্গিক বক্তব্য হল, যদি এটা পুরোপুরি লুপ্ত হতে পারত, এমন কি যদি অনতিদূর ভবিষ্যতে এর লুপ্ত হবার নিশ্চিত থাকত তাহলে না-হয় সজীব মনুষ্যত্বকে এখন থেকেই অগ্রাহ্য করতে পারতাম; কিন্তু বিপদ তো ঐখানেই। বৈজ্ঞানিক বিশ্লেষণ ও যূথন প্রণালীতে মানুষকে নিরবশেষে ঐহিক সুখস্বাচ্ছন্দ্যভোক্তা রূপে পেলেও ঐ পুরানো dignity-বোধটা, যাকে আমরা sense of value বলেছি সেটা, যে কিছুতেই মুছে যেতে চায়না; কোণঠেসা হয়েও সে অক্লান্তভাবে সাবধানবাণী উচ্চরণ করে চলে, কেবলই স্মরণ করিয়ে দেয় যে আমরা বুদ্ধিমান পশুমাত্র

নই। বুদ্ধি যে আদৌ প্রকৃতির শক্তির চেয়ে বেশি। এতখানি শক্তিধর হয়েও যদি সে শেষ পর্যন্ত ঐহিক, অর্থাৎ প্রাকৃতিক, সুখস্বাচ্ছন্দ্য আহরণেই ব্যাপৃত থাকে, তাহলে তার পক্ষে সেটা শ্লাঘার কথা নয়, যতই-না কেন সে প্রকৃতিকে বৈজ্ঞানিকভাবে বুঝে এই কাজ করুক। সুখস্বাচ্ছন্দ্য হল মানসপ্রকৃতিরই এক বিশেষরূপ, কারণ প্রকৃতির অন্যান্য রূপের মতন ঐহিক সুখদুঃখাদিও মানুষকে নিজের ক্রীড়নক বানিয়ে রাখতে চায়। কাজেই যে-বুদ্ধি মানুষ পেয়েছে প্রকৃতির উপরে আধিপত্য করবার জন্য, যদি মানুষ সেই বুদ্ধিকে শেষ পর্যন্ত প্রকৃতির চরণেই সমর্পণ করে তাহলে তার মাহাত্ম্য আর কতটুকুই বা বজায় রইল?

দ্বিতীয় কথা, সমগ্র মানবজাতির জন্য অফুরন্ত সুখস্বাচ্ছন্দ্য ভোগই যদি মনুষ্যত্বের মাপকাঠি হয়, তাহলেও তো সেটাকে বিদ্যার্থীদের দ্বারা স্বাঙ্গীকৃত হতে হবে। সমাজ, পরিবার সব যেখানে ভাঙ্গনের মুখে সেখানে কোথা থেকে সে এই-মনুষ্যত্বটাই বা পাবে? বিশ্লেষণ ও যূথন পদ্ধতিতে এটা পাওয়া যেতে পারে। কিন্তু তার অনুশীলন কোন্ শিক্ষায়তনে হচ্ছে? 'মনুষ্যত্ব' শব্দে যাই বুঝি না কেন, সেই মনুষ্যত্ব আয়ত্ব করতে হবে কচি বয়সে; তাহলেই বয়োবৃদ্ধির সঙ্গে সঙ্গে ওর পুষ্টিসাধন হয় এবং ওটা অধিকতর কর্মক্ষম হয়ে ওঠে। সমাজ ও পরিবারের অভাবে অগত্যা স্কুল স্টেজেই ওটা এমন ভাবে শেখাতে হবে যাতে জীবনে গেঁথে যায়। মনুষ্যত্ব, নৈতিক শিক্ষা ইত্যাদি বিষয়ে অতিরিক্ত ক্লাসের ব্যবস্থা করলে কিছু হবেনা। পাঠ্যপুস্তকের পাতায়পাতায় তার অনুগ্র ছাপ থাকা চাই, শিক্ষকের জীবনে — কেবল বাক্যে নয় — তার চেহারা যেন ফুটে উঠে, স্কুল-জীবনে এবং সম্ভব হলে স্কুলের বাইরেও যাতে ওটা একই প্রকার অনুগ্রভাবে কাজ করে যায় তা দেখতে হবে। অধুনা পশ্চিমবঙ্গ সরকার স্কুলে এই ব্যবস্থা করছেন বলে পুরাতনপন্থীরা প্রতিবাদের ঝড় তুলেছেন। প্রতিবাদের অর্থ আমরা বুঝি ঃ বামঘেঁসা মনুষ্যত্বের ধারণা তাঁদের একান্ত অপছন্দ। উত্তম কথা, কিন্তু পরিবর্তে তাঁরা কী করতে বা করাতে চান? স্কুলের বাইরে তো মনুষ্যত্ব শেখবার অবকাশ কোথাও নেই, স্কুলের মধ্য থেকেও সে উধাও; ফল যা হবার তাই হচ্ছে। এক্ষেত্রে বামপন্থী সরকার তবুও একটা ভাল কাজ করছেন, তাঁরা যে-কোন একটা ভদ্র মনুষ্যত্বের ধারণা শেখাবার ব্যবস্থা করছেন। প্রতিবাদীরা বিপরীত, অর্থাৎ সনাতন, মনুষ্যত্বের ধারণা যদি গত পঁচিশ ত্রিশ বছর ধরে শেখাবার ব্যবস্থা করতেন তাহলে তো এই 'অঘটন' ঘটত না। এখনও তাঁরা অন্ততঃ party স্তরে সে-কাজ পূর্ণোদ্যমে সুরু করে দিন না। সমাজ তো নেই, কিন্তু তার পরিবর্তে রয়েছে শিক্ষায়তন ও পার্টি। যে-কোন এক জায়গায় তাঁরা সুরু করে দিন না।

সযত্ন মনুষ্যত্ব শিক্ষা চলবে অবশ্যই বালক বয়সে। কিন্তু সেই মনুষ্যত্বের ধারণা এমন ভাবে হৃদয়ে, চিন্তায় ও কর্মধারায় গ্রথিত হয়ে যাবে যে জীবনের অন্যান্য যাবতীয় কাজ আপনা হতেই এই মনুষ্যত্বের সীমানা লঙঘনে বিরত থাকবে। প্রাচীনকালে যে বলা হত অর্থ ও কাম ধর্মের গণ্ডি লঙঘনে বিরত করবে না, তার অর্থ তো এই-ই। মানুষকে ধারণ করে রাখে বলে এই মনুষ্যত্বের নামই ছিল 'ধর্ম'।

কলেজ ও বিশ্ববিদ্যালয় স্তরে এই মনুষ্যত্ব শিক্ষা দেবার আর প্রয়োজন নেই। সেখানে, এমন কি স্কুলের উঁচু ক্লাস থেকেই, প্রতিটি শিক্ষার্থীকে কয়েকটি বিশেষ বিদ্যায়, এবং যত উঁচু ক্লাসে উঠবে ততই স্বল্পতর সংখ্যক বিদ্যায়, বিশেষজ্ঞ হতে হবে। মনুষ্যত্বরূপে পশ্চাৎপট কিন্তু তৈরি হয়ে গেছে। অতএব এই 'বিশেষজ্ঞ'রা তাঁদের সুরক্ষিত বিদ্যাগৃহে কাজ চালিয়ে গেলেও সহজ সাধারণ 'মানুষে'র মতো এককালীন বহু বিষয়ে উৎসাহ দেখাতে তাঁদের বাধা থাকে না। এই সব বিশেষজ্ঞেরা আইনস্টাইনের মতন মহা-বিশেষজ্ঞ হয়েও পূর্ণ মানুষ হতে পারেন। এঁরাই নিজ নিজ বিশেষ বিশেষ বিদ্যার বাইরে আর কী বিদ্যা আছে তার খবর ভাল ভাবেই রাখেন, একপেশে হয়ে উঠেন না। এঁরা বৈজ্ঞানিক, এমনকি প্রযুক্তিবিদ্যাকুশল (technologists) হলেও এ-কথা বলবেন না

যে প্রকৃতির বিশাল ভাণ্ডার লুণ্ঠন করে অফুরন্ত আরাম আনন্দের ব্যবস্থা করে যাওয়াই বিদ্যার্জনের মূল উদ্দেশ্য। বহুলাংশে generalist হবার ফলে এঁরাই প্রথম দেখতে পান যে এ-জাতীয় অবাধ লুণ্ঠন, প্রযুক্তি বিদ্যার নির্বাধ নিঃশেষ প্রসার, সম্ভব নয়। প্রকৃতির ভাণ্ডার দ্রুত শূন্য হয়ে আসছে, বিভিন্নপ্রকার মারাত্মক পরিবেশদূষণ বেড়েই চলেছে, বিভিন্ন উন্নত এবং উন্নয়নশীল জাতির পারস্পরিক ঈর্ষাদ্বেষ সহাবস্থানের সীমা ছাড়িয়ে যাচ্ছে এবং ফলে প্রযুক্তিবিদ্যাকুশলীরা অবিরাম বিধ্বংস অস্ত্রশস্ত্র তৈরি করে চলেছেন — সব চেয়ে সুগ্রথিত ভাবে এসব ব্যাপার দেখতে পান তাঁরাই। একপেশে বিজ্ঞানীরা এবং প্রযুক্তিকুশলীরা অবশ্যই আশা করছেন তাঁদের বিজ্ঞান ও প্রযুক্তিবিদ্যার মণিস্পর্শে সব মুস্কিলের আসান হয়ে যাবে। কিন্তু ঊষর ভবিষ্যতের চিন্তা তাঁদেরও সুরু হয়েছে। বিকল্প energy তাঁদের ক্রমাগত বৃদ্ধাঙ্গুষ্ঠ প্রদর্শন করে চলেছে। বিকল্প আবিষ্কৃত হলেও ঐহিক সুখস্বাচ্ছন্দ্যপ্রীতির বল্গাহীন ক্রমবর্ধমানতা তার ভয়াবহ কুফল এড়াতে পারবে না, যতই না কেন ঐ সুখস্বাচ্ছন্দ্য সকলের মধ্যে সমানভাগে ভাগ করে নেওয়া হোক? আসল বক্তব্য হল, সমস্ত বিদ্যানুশীলন, মানুষের সব কাজকর্ম যেন human dignity-র আবহাওয়ার মধ্যে থাকে। তা না হলে সৌষম্য নষ্ট হয়ে যাবে, সব কাজকর্ম সব বিদ্যাচর্চা একপেশে হয়ে নানা দিকে অশান্তি ও বিভ্রান্তি ঘটাবে। বিশেষজ্ঞতা নিশ্চয়ই থাকবে, কিন্তু 'সমগ্রে'র আলোকবলয় যেন তাকে ঘিরে থাকে।

আবার বলছি, যখন উপাচার্যের এক সমাবর্তন ভাষণ থেকে কয়েকটি পঙ্‌ক্তি উদ্বৃত করে বলেছিলাম তাঁকেও জাতীয় শিক্ষাপরিষদের মূলবাণী কিছুটা হাল্কা করে পরিবেশন করতে হয়েছে তখন আমরা শুধু এইটুকুই বলতে চেয়েছিলাম যে যেহেতু আসল রত্নটি হারিয়ে গেছে, অথচ সেটা খুঁজে বার না করলে আমাদের চলবে না, এবং যেহেতু স্বাধীনতা-উত্তর যুগে আমাদের দৃষ্টিভঙ্গির অনেকখানি পরিবর্তন ঘটে গেছে, অতএব রত্নটি কিছুটা বাঁকা পথে খোঁজার প্রবণতাই আমাদের বেড়ে যাচ্ছে। সেই বাঁকা পথে খোঁজার আর একটা দৃষ্টান্ত হল 'গণসংযোগ' (mass contact), যার উপর আজকাল যেন একটু বেশি মাত্রায় জোর দেওয়া হচ্ছে। নতুন করে গণসংযোগের কথা যে উঠছে তার আসল কারণ হল, সহজ মানুষটাকে — যারই সহজ রূপ হল 'গণ', তাকে — আমরা এতকাল হেলায় নস্যাৎ করে শিক্ষায়তনের কৃত্রিম পরিবেশে বিদ্যাধর হবার চেষ্টা করেছি এবং হয়েও উঠেছি। এখন যদি অভিজাত শ্রেণীর সখের গ্রামোন্নয়নকামীদের মতন আমরা 'অশেষ কৃপাভরে' জনগণের উন্নয়নে আত্মনিয়োগ করি তাতে ফল কিছুই হবে না, ঠিক যেমনটি আমরা দেখেছি রবীন্দ্রোত্তর যুগে শ্রীনিকেতনের কাজে। জনগণের সঙ্গে হার্দ সংযোগ স্থাপন করতে হলে প্রথমমেই আমাকে তাদের একজন হতে হবে — দূর থেকে ছোঁয়াচ বাঁচিয়ে তাদের মঙ্গল করা যাবে না। প্রথমেই, যতটা কম পরিমাণেই হোক, ফিরে পেতে হবে সহজ গণজীবন, যেটা আমরা হারিয়েছিলাম। কেতাবী গণসংযোগ inter-departmental study-র মতোই হাল্কা ও ব্যর্থতাভিমুখী।

মানুষের সঙ্গে সম্পর্কিত অথচ বিশেষজ্ঞসুলভ বিদ্যানুশীলন — এর অর্থ অনেকে আবার অন্য ভাবে বোঝেন। তাঁরা শুধু এইটুকু বোঝেন যে, অর্জিত বিদ্যাকে জনকল্যাণে প্রয়োগ করতে হয় — এ-কথা কেই বা অস্বীকার করে? বিজ্ঞান তো প্রযুক্তিবিদ্যার আকারে স্বতঃই জনকল্যাণে প্রবৃত্ত, এবং এ-কথা কে অস্বীকার করবে যে প্রয়োজনানুসারে এই কাজের পরিধি বাড়িয়ে যেতে হবে। কিন্তু তবুও দুটো কথা থেকে যায়। প্রথম কথা হল, যে-কোন বিদ্যাকে মানুষের সঙ্গে যুক্ত হতে হবে, এর দ্বারা আমরা বোঝাতে চাইনি যে, ঐ বিদ্যা কেবল ঐহিক সুখসম্পদ বাড়াবে। এটা সম্পূর্ণ অন্য ব্যাপার। কেবল প্রযুক্তিবিদ্যা কেন, সব বিদ্যাই তো এক অর্থে মানুষের সুখস্বাচ্ছন্দ্য বাড়ায়। ইংরাজি সাহিত্যে বা শব্দতত্ত্বে এম. এ. পাশ করে তো চাকুরি পাওয়া যায়। এটা হল শিক্ষার অর্থনৈতিক

দিক। বিজ্ঞান ও প্রযুক্তিবিদ্যা যে মানুষের কাজে লাগে সে-ব্যাপারটা কিন্তু এরই সম্প্রসারিত সংস্করণ নয় — সমষ্টিগতভাবে সুখস্বাচ্ছন্দ্যবৃদ্ধি নয়। যে মানবকল্যাণের কথা আমরা এতক্ষণ বলে আসছি সেটা অনেক গভীরতর কল্যাণ।

দ্বিতীয় যে-কথাটা এখানে বলতে চাই সেটা হল এই যে, বিজ্ঞানই একমাত্র বিদ্যা যা, মানুষের সুখসুবিধার কথা বাদ দিলে, বিশুদ্ধ বিদ্যা হিসাবে বাইরের কোনও কিছু মূল্যবোধের ধার ধারেনা। নিজের কৃতিত্বে, নিজের মহিমায়, অন্য কোনও দিকে নজর না দিয়ে সোজা এগিয়ে চলে। কিন্তু অন্যান্য বিদ্যা (যাদের চলতি নাম মানবিক বিদ্যা বা Humanities) প্রথম থেকেই এই স্বাধীনতা হতে বঞ্চিত। 'বিজ্ঞান' বলতে আমরা বুঝছি 'আধুনিক বিজ্ঞান' যে-বিজ্ঞান মাত্র শ' চারেক বছর আগে পাশ্চত্ত্যে খৃষ্টীয় ধর্মাধিকারিকদের শাসন উপেক্ষা করে অগ্রসর হতে সুরু করেছিল। এই বিজ্ঞানের স্বধর্মই হল theoretic দিকের উপর ঝোঁক বেশি দেওয়া এবং সেই অনুপাতে, practical দিকে, মনুষ্যত্ববোধের (human values) বন্ধন থেকে মুক্তিলাভ, তা সে-বন্ধন বাহ্যাড়ম্বরসর্বস্ব ধর্মবোধই হোক অথবা আধ্যাত্মিকতাই হোক। মানবিক বিদ্যা র ক্ষেত্রে কিন্তু এ-জাতীয় অবাধ স্বাধীনতা আজও কারুর মেলেনি। প্রতি মানবিক বিদ্যার ক্ষেত্রে আজও আমরা খাঁটি-বাজে, সুন্দর-অসুন্দর ন্যায্য-অন্যায্যের বিভেদ মেনে চলি। আগেকার কালে সম্প্রদায়ভেদে খাঁটিত্ব, সৌন্দর্য ও ন্যায়ের মাপকাঠি নির্দিষ্ট থাকত এবং এখনও বহু ক্ষেত্রে আছে। বর্তমান যুগে পরিবর্তন শুধু এইটুকু হয়েছে যে, ছোট ছোট গোষ্ঠী ইচ্ছামত এই মাপকাঠি বদলাচ্ছে; কিন্তু তবু ও সুন্দর-অসুন্দর, খাঁটি-অখাঁটি, ন্যায্য-অন্যায্য — এই শব্দগুলি এবং তৎশব্দানুযায়ী ধারণাগুলি, অর্থাৎ value-conceptগুলি, ছাড়তে পারছে না। সুন্দর, ভাল এবং ন্যায্যের যে-ধারণাই আমাদের থাকুক না কেন, মানবিক সব বিদ্যাকেই তার চৌহদ্দির মধ্যে স্বভাবতঃই আমরা রাখি। সৌন্দর্য, ভালত্ব এবং ন্যায় - এরাই তো মনুষ্যত্বনিয়ামক, এবং মনুষ্যত্বপরিমাপকও বটে। সত্যকেও এই তালিকার অন্তর্ভুক্ত করা যায়, কিন্তু যে-সত্য বুদ্ধিসৃষ্ট theory-রূপ সত্য নয় সে-সত্য বিনা দ্বিধায় সর্বান্তঃকরণে গৃহীত, এবং ভবিষ্যতে কোনও সময়ে যদি সে-সত্য পরিত্যক্ত হয় এবং তৎস্থলে অন্য সত্য গৃহীত হয় তাহলে সেই পরিত্যাগ ও গ্রহণ-ও দ্বিধাহীন, সর্বান্তঃকরণসম্মত। অর্থাৎ, এ-জাতীয় সত্য এবং তার পরিত্যাগ, ও সঙ্গে সঙ্গে অন্য সত্যের গ্রহণ সবই ঘটে যায়, আমি এদের সৃষ্টি বা ধ্বংস করিনা; আমি যে কাজটুকু করি সেটা হল পরিস্থিতিসৃষ্টি বা পরিস্থিতিশোধন, যার ফলে সত্য ফুটে উঠে, অথবা কিছু-কাল-ফুটেথাকা সত্য শূন্যে বিলীন হয়ে যায় এবং তার জায়গায় অন্য এক সত্য সমানভাবে ফুটে উঠে। এই হল মানবিক সত্য; বিজ্ঞানের theory-র মতন একে আমরা বুদ্ধিতন্তু দিয়ে তৈ রি করিনা, বুদ্ধির জালে ছেঁকে তুলি। এই-জাতীয় যে মানবিক সত্যের গণ্ডির মধ্যে মানববিদ্যার বিচরণ সে-সত্য চিরকালের অব্যয় অক্ষয় অপরিবর্ত সত্য নাও হতে পারে — অনেক সময়েই তা নয় — তবুও প্রতি যুগে, প্রতিসম্প্রদায়ের কাছে, তা নির্দ্বিধায় গৃহীত। তদ্রূপ ভাল, ন্যায্য ও সুন্দরের ক্ষেত্রেও। একেই বলে culture— এক এক যুগের এক এক সম্প্রদায়ের সংস্কৃতি বা কৃষ্টি। এই culture-এর মধ্যেই আবার গড়ে-তোলা বৈজ্ঞানিক সত্যগুলিরও স্থান থাকে। বৈজ্ঞানিক সত্য বুদ্ধি-প্রয়োগে 'গড়ে তোলা' হলেও একবার গড়ে উঠার পর ঠিক অন্য সত্যের মতন 'গায়ে গেঁথে' যায়, এবং সাধারণের কাছে — এমন কি বহু বৈজ্ঞানিকের কাছেও — তখন সেটা মানবিক সত্যের মতোই বিনা দ্বিধায় গৃহীত হয়।

সর্ববিদ্যার অভিভাবক এই মানবিক সত্য, মানবিক ন্যায় ও সৌন্দর্য অন্তরতম প্রদেশ থেকে কাজ না করলে বিদ্যারাজ্যে বিভিন্ন বিদ্যার সুষম সমন্বয় অসম্ভব। মানুষ হারিয়ে গেলে বিদ্যাগুলি তো চালকহীন পাগলা ঘোড়ার মতো কেবল ছুটেই চলবে; হয় বুদ্ধির সূক্ষ্মাতিসূক্ষ্ণ ফুলঝুরি ছড়িয়ে ভীতচমকিত জগদ্বাসীর কাছ থেকে জোর করে সম্ভ্রম আদায় করবে, না হয় প্রায়োগিক ক্ষেত্রে রাশ-না-টানা নব নব উদ্ভাবনের প্রাচুর্যে দানবীয় শক্তি অর্জন ও করে আধিপত্য বিস্তার করে চলবে। দানবিক ও দৈবী শক্তির মধ্যে প্রভেদ এই

যে, দৈবী শক্তি মানব-সত্য, ন্যায় ও সৌন্দর্যের অভিভাবকত্ব মেনে চলে, আর সর্ববন্ধনহীন দানবশক্তি যা-খুসি তাই করে বেড়ায়। এইজন্যই দানবশক্তি প্রথম দিকে দৈবী শক্তিকে পিছনে পেলে সদম্ভে এগিয়ে গেলেও আখেরে পরাভূত হয়।

মনুষ্যত্ববোধের (human dignity) ক্রমবর্ধমান অভাবটাই হল আজকালকার সমাজের — বিশেষ করে শিক্ষারাজ্যের — মূল ব্যাধি। এর ফলে সমাজের কাঠামো ভেঙ্গে চৌচির হয়ে যাচ্ছে, সমাজ চলেছে দ্রুত অবলুপ্তির পথে; এবং সেই সমাজের স্থান গ্রহণ করছে দলীয় রাজনীতি ও তাদের পশ্চাদ্বর্তী বা সহবর্তী (এতদংশে পূর্ববর্তী নয়) অর্থনীতি। শিক্ষারাজ্যে অর্থনীতির ততটা প্রাধান্য নেই যতটা আছে দলীয় রাজনীতির। মানবতার প্রাপ্য স্থান অনধিকৃত থাকায় রাজনীতি সহজেই সে-স্থান অধিকার করে নিয়েছে। আমি আমাদের দেশের কথাই বলছি। অন্যান্য সমৃদ্ধতর দেশে রাজনীতির নোংরা খেলা খুব বেশি নেই বলে সেখানে বিশেষজ্ঞ হবার জন্য বিশেষ বিশেষ বিদ্যার চর্চা হয়তো আরও ভাল ভাবে চলে যার অবকাশ আমাদের দেশে হচ্ছেনা, কারণ এখানকার অপরিপক্ক রাজনীতির নোংরামি ও ব্যক্তিকেন্দ্রিকতা অনেক বেশি। আজকাল অনেকেই বলেন শিক্ষাপ্রতিষ্ঠানে রাজনীতির প্রবেশ অবাঞ্ছিত, অতএব সেখান থেকে রাজনীতি সরিয়ে নিলেই সব সুষম হয়ে যাবে। অবাঞ্ছিত তো বটেই। কিন্তু রাজনীতির এই অনুপ্রবেশ বন্ধ করা অতি কঠিন ব্যাপার। মানবতার স্থান যতক্ষণ শূন্য বা শূন্যপ্রায় থাকবে ততক্ষণ সেখানে হয় রাজনীতি না-হয় উৎকট বিশেষজ্ঞতা লাভের প্রবণতা আসর জাঁকিয়ে বসবেই। 'উৎকট বিশেষজ্ঞতালাভে'র অর্থ সহজ-মনুষ্যত্ববোধ-হীন দানবীয় বা চমক জাগান উৎকর্ষ লাভ। শিক্ষারাজ্যের অবনতি রাজনীতি অথবা উৎকট বিশেষজ্ঞতাপ্রীতির জন্য হয়নি। বরং বলা যায়, অবনতি ঘটেছে বলেই এদের এত প্রভাববৃদ্ধি, এবং অবনতিটা ঘটেছে ষোল-আনা ভাবেই মনুষ্যত্বের অভাবের কারণে।

এখন প্রশ্ন এই ঃ এই সহজ মনুষ্যত্ববোধটাকে কি ফিরিয়ে আনা যাবে? উত্তর পেতে হলে প্রথমেই ভেবে দেখতে হবে কেন, কী পরিস্থিতিতে, এই সহজ বোধটি লোপ পেতে আরম্ভ করল। এই কারণ খুঁজে বার করতে হলে আমাদের ফিরে যেতে হবে তিন চারশ'বছর আগে যখন প্রথম পাশ্চাত্য জগতে আধুনিক বিজ্ঞানের দ্রুত প্রসার সুরু হয়েছিল। এক দিকে সে যেমন খৃষ্টীয় ধর্ম সংস্থার নিয়ম অগ্রাহ্য করে এগিয়ে যেতে লাগল, অন্য দিকে তার সঙ্গে এসে হাত মেলাল আর এক সারা পশ্চিম-জোড়া মনোভাব যার উদ্ভব হয়েছিল তারও কিছুকাল আগে এবং যার নাম Renascence (মহাজাগরণ), যার ত্রিপুটী মন্ত্র ছিল 'সাম্য, সৌভ্রাতৃত্ব, প্রেম'। অত্যাচারী রাজতন্ত্র ও, ফলে ফলে, দর্মসংস্থার বিরুদ্ধে সোচ্চার এই মনোভাবের সঙ্গে নব বিজ্ঞানের ঐক্য ঐ কালে সহজেই ঘটে গিয়েছিল। কিন্তু মাঝখানে আর এক ব্যাপার ঘটল যার ফলে সবার অলক্ষ্যে এই দুই মনোভাবের মধ্যে বিশাল এক ফারাক সৃষ্টির কাজও সুরু হল। সেই বিভেদকটি হল বিজ্ঞানের বলদৃপ্ত ব্যবহারিক প্রয়োগ এবং তদ্বলে বলীয়ান পাশ্চাত্য জাতির — বিশেষ করে ইংরাজ জাতির — দিগ্বিজয়-অভিযান ও অভূতপূর্ব সাফল্য। বিজ্ঞানের ব্যবহারিক প্রয়োগে সারা দুনিয়ার মাল লুঠ করে এনে পশ্চিমের মানুষ নিজের ঘর আরাম সামগ্রীতে ভরিয়ে ফেলল। বিস্ময়বিমুগ্ধ বিশ্ববাসী সব দেখল, এবং বিজ্ঞানসৃষ্ট এই যন্ত্রদানবকেই অবলম্বন করে বেঁচে উঠার — কেবল বেঁচে উঠা নয়, ওদের সঙ্গে পাল্লা দিয়ে প্রভূত সুখস্বাচ্ছন্দ্য ভোগ করার — স্বপ্ন দেখতে লাগল। নব যন্ত্রের দানবীয়তা চাপা পড়ে গেল — লোভের আতিশয্যে ততটা নয় যতটা — সমকালীন Renascence-এর কল্যাণে। Renascence ছিল খাঁটি মানবতাবাদ, ষোলআনা দানবতা-বিরোধী। Renascence চেয়েছিল মানুষকে উচ্চাসনে, তার যোগ্য আসনে, বসাতে। যন্ত্রদানব কিন্তু প্রথম থেকেই চেয়েছে মানুষকে পদানত রাখতে, যতদূর সম্ভব নস্যাৎ করতে। তার উৎপত্তির মূলেই রয়েছে মানুষকে সরিয়ে দেবার মনোভাব। আগেকার কুটির শিল্পে মানুষই চালাত যন্ত্র, এখন বিজ্ঞানের অনুগ্রহে যন্ত্র যথাসম্ভব — বহু বহুদূর পর্যন্ত — নিজের জোরে চলে, মানুষের প্রয়োজন যেখানে হয় সেখানে অধিকাংশ স্থলেই তাকে ব্যবহার করা হয় যন্ত্রাংশ হিসাবে (অর্থাৎ, যন্ত্রের একটু উন্নতি

হলেই সেই মানুষকে সরিয়ে দেওয়া হয়)। অবশ্য, দানবযন্ত্রের মূল পরিচালক হিসবে — মানুষের সম্মানিত স্থান আছে, ঠিকই। কিন্তু সে মানুষ তো প্রতিক্ষণ চিন্তা করছে মানুষের জন্য কত স্বল্পায়াসে এবং কত দ্রুত কতটা সফল ভাবে প্রতিপক্ষী মানুষকে ঘায়েল করা যায়। ন্যায্য আরামসংগ্রহ এবং দুঃখপ্রতিকারের জন্য শত্রুবিনাশ নিশ্চয়ই দোষাবহ নয়। কিন্তু মনুষ্যত্বের খাতিরে সব ক্ষেত্রেই একটা নির্দিষ্ট সীমারেখা মেনে চলতে হয়। দানবযন্ত্রের দোষ হচ্ছে, সে যতই বলদৃপ্ত হয় ততই এই সীমারেখা অগ্রাহ্য করে মানুষের অপমৃত্যু ঘটায়। কুটির শিল্পে এ-জাতীয় মানবতা বিরোধীভাব একেবারেই ছিল না। মানুষই সেখানে প্রভু, যন্ত্র আজ্ঞাবহ ভৃত্য মাত্র। কিন্তু দানবযন্ত্রের ক্ষেত্রে আখেরে যন্ত্রই প্রভু, মানুষ আজ্ঞাবহ — যন্ত্র তাকে রাখতে চাইলে রাখে, মারতে চাইলে মারে। অতি আধুনিক কালে যন্ত্রের এই দানবীয়তার বিরুদ্ধে মনোভাব গড়ে তোলার প্রচেষ্টা যে হচ্ছে তা আর কিছুই নয় যন্ত্রদানবের বিরুদ্ধে বিদ্রোহ ঘোষণা, মানুষের পুনর্বাসন।

সে যাই হোক, যে-যন্ত্রদানব প্রতি পদক্ষেপে মানুষের অবমাননা করছে, মানুষের মনুষ্যত্বকে দলিত করে চলেছে, ভাগ্যের অনুগ্রহে Renascence-এর সমকালীন হওয়ায় ঐ Renascence-এর মূল বাণী 'সাম্য সৌভ্রাতৃত্ব প্রেম' তারই অনুকূলে বাতাস বইয়েছে। অনেকেরাই এই ভুল ধারণা হয়েছে যে, প্রযুক্তিবিদ্যার মূলে যে বিজ্ঞানশাস্ত্র সেটাই বুঝি এই ত্রিপুটী মন্ত্রের উদ্‌গাতা এবং এখনও তার সোচ্চার পৃষ্ঠপোষক। তবে সুখের কথা, ভুলভাঙ্গার কাজও সুরু হয়ে গেছে।

আধুনিক বিজ্ঞানের সহভাবী যন্ত্রদানবের সব কাজই অতি দ্রুত তালে, নিখুঁত যান্ত্রিক ভাবে, এবং ব্যাপক থেকে ব্যাপকতর আকারে আকারিত হয়ে চলে। উদ্দেশ্য, সব চেয়ে বেশি পরিমাণে সবচেয়ে নিখুঁত 'মাল' সব চেয়ে তাড়াতাড়ি তৈরি করা। আধুনিক যান্ত্রিক যুগে এই logicটাই জীবনের সব বিভাগে গৃহীত হয়েছে। শিক্ষারাজ্যেও ঘটেছে ঐ একই ব্যাপার ঃ বিশাল বিশাল স্কুল কলেজ বিশ্ববিদ্যালয়, প্রতিটি শিক্ষায়তনে বিশাল সংখ্যক ছাত্র, শিক্ষায়তনে প্রতি দিনের ও প্রতি বছরের সুরুর থেকে প্রতি দিনের ও প্রতি বছরের শেষ পর্যন্ত যতদূর সম্ভব যান্ত্রিক জীবন, যান্ত্রিক পদ্ধতিতে পরীক্ষা গ্রহণ এবং — সব চেয়ে দুঃখের বিষয় — যান্ত্রিক পদ্ধতিতে পঠন-পাঠন, যার একমাত্র উদ্দেশ্য সব চেয়ে দ্রুত তালে সব চেয়ে বেশি সংখ্যক ছাত্রছাত্রীর কপালে 'পরীক্ষিত এবং এতটা উৎকর্ষ সম্পন্ন' এই ছাপ মেরে বাজারে ছাড়া। ফল যা হবার প্রতিদিনই চোখের সামনে আমরা দেখছি ঃ ঐ ছাপটি হয়ে দাঁড়াচ্ছে একমাত্র কাম্য, যার জন্য শিশুবিদ্যানিকেতন থেকে বিশ্ববিদ্যালয় পর্যন্ত সর্বস্তরেই ছাত্রছাত্রী শিক্ষক ও অভিভাবক নির্বিশেষে সকলেই চাইতে সুরু করেছেন যে-ভাবেই হোক একটি 'বাজারে ছাড়া'র ছাপ সংগ্রহ করা। এর জন্য ছাত্রছাত্রী, শিক্ষক, অভিভাবকদের মধ্যে অসৎ উপায় গ্রহণেও আগ্রহ ধীরে ধীরে বৃদ্ধি পাচ্ছে। যন্ত্রদানব সারা জগৎটাকে দানবনিবাস না করে ছাড়বেনা।

যন্ত্রদানবের আধিপত্য মেনে নিয়ে — তা সেই মেনে নেওয়া ব্যাপারটা বাধ্য হয়েই হোক বা স্বেচ্ছায় হোক — এই সব দোষ দূরীকরণে টুকরো টুকরো ভাবে অনেকেই অনেক উপায় বাতলেছেন, এমন কি এই বিভিন্ন উপায় উদ্ভাবনই একটা স্বয়ং সম্পূর্ণ বিদ্যায় পরিণত হয়ে উঠেছে। কিন্তু সুফল তো কিছু দেখা যাচ্ছেনা। উপায় তাহলে কী? একটি মাত্র সংক্ষিপ্ত উত্তর ঃ দানবের বিরুদ্ধে মানবের জয়যাত্রা। কে সুরু করবে, কীভাবে এই জয়যাত্রা পরিচালনা করা হবে — এ-সব প্রশ্নের উত্তর দান স্বল্পপরিসর এই সমাবর্তন ভাষণে সম্ভব নয়। বর্তমান ভাষণের উদ্দেশ্য কেবল রোগনির্ণয়, নিরাময় নয়।

তবুও প্রশ্ন থেকে যায় ঃ যে পাশ্চাত্য জগতে এই আধুনিক বিজ্ঞান ও জারজ যন্ত্রদানবের কেবল উৎপত্তি নয়, প্রায় একাধিপত্য, সেখানেও কি এই জাতীয় মানবাবমাননা ও তজ্জনিত দোষরাজি এত পরিস্ফুট? এই প্রশ্নে দুটি উত্তর দিয়ে আমরা ক্ষান্ত হব।

প্রথম উত্তর ঃ আধুনিক বিজ্ঞান ও এই যন্ত্রদানব ও-দেশের মাটিতেই জন্মেছে, ও-দেশের মানবসংস্কৃতিকে অকস্মাৎ নয়, ধীরে ধীরে, পর্যুদস্ত করে, হঠাৎ কোনও বিরূপতা না জাগিয়ে নিঃশব্দে নিজের আসন গুছিয়ে নিয়েছে। এদেশে কিন্তু বিদেশী শাসক ওটা আমাদের উপর চাপিয়ে দিয়েছিল। প্রথম দিকে দীর্ঘ, সুদীর্ঘ, কাল ধরে ওর আধিপত্য নেহাৎ-ই স্বল্পপ্রসর ছিল। সমগ্র গ্রাম-ভারতের কথা তুললে এখনও বলতে হবে শিক্ষাজগতে ওর আধিপত্য অল্পই বৃদ্ধি পেয়েছে। ভারতের শতকরা ষাটজন বাসিন্দা আজও এই পাশ্চাত্য শিক্ষার আওতার বাইরে। অনেকের ভাষায়, তারা 'অশিক্ষিত'; আমরা বলছি, তারা পাশ্চাত্য শিক্ষা পায়নি। তাই ও-দেশের মাটিতে পুরানো মানবতার বদলে, কিছু অংশে বিকৃত হলেও, নতুন এক মানবতা গড়ে উঠেছে।

পক্ষান্তরে, আমাদের দেশে স্বল্পসংখ্যক লোকের কাছে এই নতুন মানবতার আভাস জেগে উঠলেও অতি-অধিকাংশেরই আস্থা পুরানো মানবতার উপর। এমন কি পাশ্চাত্য শিক্ষায় শিক্ষিত যে স্বল্পসংখ্যক ব্যক্তি নব-মানবতার পূজারী বলে নিজেদের জাহির করেন তাঁরাও ভেবে দেখুন সারাদিনে কতটা সময় তাঁরা নব্যপন্থী, কতটা সময়ই বা পুরাতনপন্থী। আমরা যদি বিপুল সংখ্যায়, অন্ততঃ শতকরা ষাট ভাগও, পুরোপুরি নব্যপন্থী হয়ে উঠতে পারতাম, তাহলে এ-সব প্রশ্নই উঠতনা। কিন্তু তা আমরা নই, অদূর ভবিষ্যতে তা হবার সম্ভবনাও দেখা যাচ্ছেনা। এইজন্যই যত নিগ্রহ আমাদের।

দ্বিতীয় উত্তর ঃ ওদের দেশেও এই যন্ত্রদানবকে নিয়ে প্রচুর ভাবনাচিন্তা আরম্ভ হয়েছে। পরিবেশদূষণ, ধরিত্রীর ভাণ্ডার দ্রুত নিঃশেষিত হবার সম্ভাবনা, অনুন্নত দেশ ও দরিদ্র মানুষের শোষিত হবার অবকাশের দ্রুত হ্রাসপ্রাপ্তি, ধীরে ধীরে সহজ নিয়মে ফিরে আসার ফলে আমদানি-রপ্তানি বাণিজ্যে বিপুল লাভের অবকাশসঙ্কোচ, বিপুল লাভের আশায় অন্য ব্যবহার্য বস্তুর পরিবর্তে নতুন নতুন জগদ্বিধ্বংসী অস্ত্রশস্ত্র নির্মাণ, এই সব অস্ত্র কেনাবার জন্য অতিজ্ঞাতসারে একদেশের লোককে অন্যদেশের লোকের প্রতি বিদ্বিষ্ট করে তোলা — যন্ত্রদানবের উচ্ছৃঙ্খল গতিপথে এই সব মারাত্মক দোষ উৎকটভাবে প্রকাশ হয়ে পড়ায় একে সংযত করার দিকপালেরা এখনও দানবশিল্পের বিকল্পরূপে কুটির শিল্পের পুনঃপ্রতিষ্ঠার কথা ভাবেন নি।

কুটির শিল্পের পুনঃপ্রতিষ্ঠার কথা ভাবছেননা, অথচ প্রযুক্তিবিদ্যা ও তার মূলগত যে আধুনিক বিজ্ঞান তার মানবতাবোধবিহীনতার কথা নিয়ে ও-দেশের অনেক অনেক চিন্তাশাল ব্যক্তি — দার্শনিক, সাহিত্যিক, কবি — পুরোদমে চিন্তাভাবনা সুরু করে দিয়েছেন। Phenomenologists, Existentialists, Humanists, Futurists এবং নয়া-খৃষ্টানদের অনেকেই এ নিয়ে মাথা ঘামাচ্ছেন। অনেকে আবার বৈজ্ঞানিক যুগটার উপরেই তিতিবিরক্ত হয়ে উঠছেন। তাঁদের অনেকে আবার যে-কোন প্রকার ধর্মীয় জীবনে ফিরে যেতে চাইছেন। যে-দেশে প্রাচীন আদর্শ হারিয়েই গেছে বলা যায় সেখানেই যখন হতাশা ও বিক্ষোভ ক্রমবর্ধমান, তখন আমাদের দেশে, যেখানে প্রাচীন ভারত জরদ্‌গব হয়েও বহুবিস্তৃত, সেখানে মূল দোষ নিয়ে ভাবনাচিন্তা করা কি সহজতর হবেনা?

ANNUAL CONVOCATION ADDRESS

By

PROFESSOR SUSHIL KUMAR MUKHERJEE D.Sc., FNA

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Mr. Chancellor, Mr. Vice-Chancellor, Members of the University and Distinguished Guests.

I am beholden to you for inviting me to address the Convocation of Jadavpur University. For any University it is a great occasion, especially for those who are awarded degrees and honours for proficiency and achievements. The progress is measured by the number so awarded, the new faculties brought into being, the knowledge generated and discoveries made. The University takes pride in them and the society feels assured.

A welcome feature of today's educational movement is the interest the society is taking in the objects of education. This interest originated from two important developments : (i) the policy of educating the majority up to late adolescence, and (ii) the rapid growth of science. From a mere appendage to a general frame of education, science has occupied a central position in any sheme of educational development.

Science is power, which can do good as well as harm. We have seen how in war those who had the best of education can become worse than any savage or barbarous nation. If, therefore, science is to take a pivotal position in an educational system, it must be that science which relates closely to the material and social aspects of simple and ordinary life, and linked appropriately with the other components of teaching. In explaining the social functions of science, Bernal points out two purposes of science teaching : "(1) to provide enough understanding of the place of science in society to enable the great majority that will not be actively engaged in scientific pursuits to collaborate intelligently with those who are, and to be able to criticise or appreciate the effect of science on society, and (ii) to give a practical understanding of scientific method sufficient to be applicable to the problems which the citizen has to face in his individual and social life."

We seem to have ignored both these objectives, having built a more or less closed system and immunised ourselves against social criticism or appreciation, judging our own achievements not against the touchstone which a conscious and educated society provides, but extolling them in a mutually satisfied framework. They are not thus properly assessed but prejudged. Our science teaching consists, as it were, in getting across as large a number of facts of science as possible but not the method of science which deals with both the aspects of discovery and

criticism. Here the teacher has to depend on his innovative skill acquired by long and dedicated thinking and experience, which no textbook can provide. This criterion applies equaly to all other branches of education.

Science transforms society, the society in turn is required to influence and direct and encourage science. Academics everywhere aspire for excellence, and academic institutions are extolled as centres of excellence. "Education", Prof. Bhabatosh Datta tells us in his 1980 Convocation address, "is both a consumer good and an investment good. As a consumer good it satisfies individual wants for a better quality of life and has therefore a basic welfare content. As an investment good, education increase the productive or creative power of the individual and therefore of society". But the big question is : Does excellence sell, and where, if at all ? Having noticed large scale erosion in the meaning of excellence and of shameless compromise with it, at every possible place where excellence is normally to be rewarded, there is complete loss of faith in our sincerity to put high premium on excellence or in making use of it in building our nation.

The Education Commission (1964-66) expressed its concern at the dearth of competent and trained manpower in nearly every branch of national life, and listed this deficiency as one of the biggest bottlenecks to progress. To quote from the Report : "Poor as we are financially, the poverty of trained intellect is still greater. We might do well to remember Whitehead's warning. 'In the Modern World the rule is absolute—any race which does not value trained intelligence is doomed'. Stretching this concept a little further one can say that compromise with excellence is suicidal."

Believing that talents are strewn amongst the general run of students and that they should be caught at the starting point of their career, a hunt was made, using the usual screen of examinations, howsoever sophisticated they may appear. Even though conceptually deficient, the talent search yielded some good results. But noticing that the scheme is financially lucrative, a large number of talents in science began to be selected. Coaching classes, shortcuts, questions and answers—the usual paraphernalia of success in examinations have sprung up. In course of time, the science talent search has compromised itself to a position of a common place examination of a somewhat different category.

The Education Commission (1964–66) writes in connect on with search for talent : "For obtaining the best results in quality, talent has to be located early and allowed to grow in the best atmosphere and under the best teachers". "It is not an easy thing to identify gifted students..... But as talent is the most valuable asset a country can have, the returns will be immense". "Best teachers" are, in fact, the best persons to locate talent, but where are they ? Can one expect them to be found amongst those who prefer private tuition to teaching in class, and let the students pass in the examinations not solely by their own efforts, or amongst those who write shortcuts, and questions and answers and offer sure methods and techniques of passing examinations ? Do they choose amongst his pupils, the best and the talents ? No, they are those

who pay handsomely in return of the services rendered. A purely commercial transaction. These institutions are the worst enemies of education and trying to undo what the Education Commission in its wisdom recommended in respect of talent search.

The Public Service Commision are bastions of quality and merit in their recruitment procedures. Writing in the Golden Jubilee Souvenir (1926–76) of the Public Service Commission in India one of the authors assets : "There is a firm recognition that the quality of the public service in India—has been maintained only because the Commission has so steadfastly adhered to the principle of merit. In a country with continuously expending education, and with so much educated unemployment, any deviation from impartiality in recruitment, and, indeed, even a small doubt about the impartiality, would have disastrous consequences". He writes in the same article : "However, certain doubts have been raised in recent years about the validity of the existing concept of merit. Should intellectual abilities be the sole or even the principal criterion of suitability for the public services ? And can even intellectual abilities be adequately tested through the sort of written examinations which are held by the Public Service Commission ?" The interviews, it is firmly believed, are too brief to judge the quality. Post-recruitment training, if imparted properly, may improve the situation. "But", as the same author says, "there are limits within which this can be done. There could be ruthless weeding out at the end of the probationary period, but the ethos of our society does not allow this to be done". This is an example of compromise with excellence at the top levels of selecting the best for administrative jobs. Added to this are the various kinds of reservations which nullify quality at any rate.

An analysis of the public examination results of candidates, many of them fresh from their colleges and universities is revealing. Many of them turn out to be specialists too early in their career, and it is feared that the "educational system is churning out candidates poorly equipped for life .... The wandering Jew, the nosey Parker in many fields of knowledge, the mongrel fo several disciplines is rare .... Unfortunately, the universities have not nurtured him in this way". In course of our search for the prodigy, the excellent and the talented, we reject a large percentage. Are they to be considered as wastes ? The impact of the accumulated wastes may be tremendours on the society, unless it is ready to accept them or recycle them, as is the prescription for industries, for the preservation of the environment and minimising social disparity and injustice.

Analysing the causes of ailment of a university a leading journalist of our country tells us that the university's search for the best in staff and students is a thing of the past. Except for 2 or 3 institutes within a particular university, "The rest of the university has gone thoroughly regional. For some years now a ten-mark advantage is given to local students, making their admission much easier. Attending lectures is no longer compulsory and the university's rules are so absurdly liberal with reexaminations, compartmentale, etc. that even the densest dunderhead finds it impossible to fail". The funding in this particular university is liberal, which may be one more

cause for degeneration. The faculty members and student leaders "have the utmost contempt one for the other". In such situations as these, the nurturing of excellence is a far cry.

The university referred to above, although not named, is not unique. It represents most of them in the country, whether more than 125 years old or established only a few years back. If we take any function of a university and analyse the trends over the years, it is to be admitted, albeit painfully, that erosion of quality is flagrant and calamitous, so much so that excellence has yielded its place to mediocrity and the ordinary.

Assessment and grading of answer scripts strictly according to the norms of good quality are set at naught if the percentage of pass is made low. Extraordinary considerations and allotment of general "grace marks" have to be suitably made in order to reach a respectable percentage of pass. This is not the end. Those who fail in spite of large concessions are still in good number, and they put pressures of all kinds to make further concessions. This becomes a matter of prestige issue for the party that sponsors such gherao, most often, of the Vice-Chancellor and persistence sometimes is rewarded and compromise becomes easy once it is yielded. All this at the cost of what and for whose benefit, we should ask outselves and find an answer.

Admission of students and what goes with it are equally unwholesome. The minimum marks have to be lowered in order to accommodate some influencial groups' candidates, as a result of which not only the total number admitted exceeds what can be managed but also the academic standard goes down. Apart from this, there are reservations of all kinds, which are always based on extra acedemic considerations. Such extra academic considerations are not new innovations. They were noticeable even in the earlier, so called golden days of university life. They normally originate from human foibles and follies, not unoften appearing as acts of deliberate mischief or corruption.

There are strong reasons for restricting admission to higher education, because it is not suitable for all. Unchecked expansion of student population at the higher stages has, according to a competent analysis, let to dilution of standard. The race for higher education is, however, a consequence of the higher premium and market value given to it by the prevailing socio-economic system.

The procedures of selection of staff may be similarly scrutinised. The qualifications have in course of a decade or so been toned down in order to accommodate the majority of the possible candidates. About the most prestigious of administrative services, namely, the Indian Civil Service it is said : "Once recruited only through the competition held at London, the Indian Civil Service got linked in course of time with several streams which began to feed it—and in the process even to dilute its distinctive features". In addition, there were reservations for the war-returned, and nominations none of which were based on merit. Top appointments, even in academic institutions, are subject to pulls and pressures of nonacademic nature. If excellence is eroded at the top what

is expected to remain lower down ?

Promotion to higher ramks, whether academic or nonacademic, is no longer based on merit, not, sorry to mention, even the merit promotion of academic staff. In fact, attempts to instil the concept of merit and excellence are resented.

The award of prizes, medals, and lectureships is not a straight forward matter. It is almost certain that it is not based on assessment of merit alone, as is loudly announced, but many other considerations go into the matter of choosing the candidates. It is not uncommon to notice that award of one kind or the other is bestowed on the same group of persons year after year. An analysis of these cases would be revealing.

The Scientific Advisory Committee to the Cabinet at one of its recent meetings discussed the question of cultivating excellence in scientific work, and expressed the view that unless aporopriate thrust is given in this direction the scientific community would not succeed in fulfilling its commitment to the society. It went deep into the various factors standing in the way of achieving excellence in science and how to remove them. The urgent need for promoting basic research was the starting point of the deliberations in the meeting ; the main task is to identify individuals and centres of excellence and nurture them, by creating suitable facilities, congenial climate, relaxing bureaucratic procedures and eliminating nonacademic interference.

The task of identifying excellence is a difficult one. Not only that we have very few who are in a position to do so, but also the criteria of excellence cannot be rigidly fixed. In that case extreme caution will be needed to withstand undue influence. Myopic considerations and inability to look beyond one's own group often vitiate right kind of selection. Contrary instances are there but as exceptions.

The agencies funding education and research, such as the U.G.C. and the I.C.A.R. and the Ministry of Education have long been grappling with the problems of encouraging excellence in teaching and research and experimenting with several schemes such as the cente for special assistance, schools/institutes of advanced studies and a small number of clusters of centres aiming at the highest possible standards. There are also the schemes for faculty improvement by means of raising academic and research qualifications of teachers and their professional competence. The main objective of all these efforts is to generate a climate of excellence in academic life. Our schemes are well intentioned and also start on a note of high aspirations. Because of the additional facilities mainly in terms of money and equipment and what is more, the prestige associated with such schemes, there is a clamour for getting one, without perhaps deserving, just as it is so for admission, promotion etc. The result is that often undue pressures are brought to bear on the funding authorities, which are sometimes helpless in the matter of deciding quality in the face of such pressures. it is thus often noticed that the chose is not for the bettter one. Moreover, if a fund is made available, and the funding agency is unable to spend it

during the stipulated period it may be blamed for inefficiency. It has often been noticed that even though a scheme is not good enough for sanction or a candidate is not up to the mark for an award, the selection body is compelled to choose the best amongst the unsuitables.

Proliferation of schemes for centres of excellence or similar institutions is a contradiction in terms. Such schemes, by implication, cannot be large in number. If so, then one must search with discerning eyes and look for lapses in judging quality. If perchance they grow in number at a point of time, it becomes imperative to bring in stringent standards for judging quality. It is in this way that excellence becomes worthwhile and meaningful.

There is another factor, to be considered. The centres of excellence and advanced studies must be acceptable by the other faculty members if they are to succeed and inspire others to rise to the occasion. Otherwise, jealousy may prevail as has often been observed, and wipe out the very essence of excellence.

The Indian Council of Agricultural Research has been the first to operate schemes of Professor of Eminence and National Fellows, apperently following a recommendation of the National Commission on Agriculture to establish professorial chairs for fundamental research basic to agriculture. The scheme was started in 1978, but during the last five years, some crucial problems have arisen in the implementation of these schemes. The stipulations made in a bureaucratic framework, albeit engendered by scientists, in the matter of inviting applications, submitting projects, vetting of projects, life of the schemes and their evaluation, conditions of work and linkage with parent institutions, all these have caused many of the problems. One sort of problem arose because of the higher (than most of the Directors of research institutes) emolument, designation of Professor of Eminence and extra freedom allowed. These caused jealousy amongst colleagues, some of whom possibly failed to get the coveted professorship. Most of the appointed Professors of Eminence have, as a result, failed to deliver the goods and chosen either to leave or not to accept the professorship.

In respect of vetting schemes submitted by prospective applicants there was considerable lacunae, this important step being carried out routinely. It is surprising to note that those who were appointed to vet were not the best and also often not fully competent. Here also, as in many similar selections there was no alternative before the Selection Committee but to select the best amongst not the good or better ones. It is also true that there are not many who can critically examine such projects. In a recent review of the working of this scheme some of these lacunae have come up for rectification and modification. It is a pity that Professor of Eminence could not be identified, but had to be searched for in the usual fashion.

Excellence or lack of it in the sphere of education is reflected in the rest of our social activites. We are administered, taught and serviced not by the most competent, because we have compromised with excellence in making our choices for the administrators, educators and

professional people. The consequent suffering and damage inflicted on us are our doing. Our pious wishes are bogged up, our holy dreams are baffled and our perceptive visions get blurred because of such compromises. Why we do so requires a searching investigation. Unless we can instil, by example and precept, faith in our younger generation that we are pledged to maintain excellence and to promise that at no cost are we going to compromise with it, we may not be able to save the future from the degeneration that has set in.

Has professionalisation of science anything to do with this unfortunate situation ? Early in the development of science scholarly and intellectual apetite was not connected with a profession, it was hobby. Copernicus was not earning living by atronomy. Research was up to the 19th century entirely optional, and marginal to one's living. Robert Mayer was a physician, and Boyle was the owner of a London restaurant. Many other examples may be cited. But the scholar was admired and respected being always thought of as unwordly and peculiar.

Now professionalism is rampant. Gustav Hertz, Nobel Laureate, made all his instruments, but now all are push-buttons. Science is big business, harbouring institutionalisation and bureaucratisation.

Darwin, Mendeleev, Pasteur, Einstein, Rutherford and Bohr are edifice makers, but there are stone-masons who make a living out of research. A bulky Ph.D. thesis and a big bunch of research papers are the sole capital of a researcher, which, however, yield no practical results. But it may be of interest to note that it was the Ph. D. work of Marie Curie, Broglie, Perrin and Josephson that won for them the Nobel prizes, Pauli's exclusion principle was not published as a seperate paper. Now the need to publish is greater ; there are about 340,000 journals which publish annually more than 5 million papers. Is the knowledge or the quality of it proportional to the number ? Indeed not. The characteristics of a quality research worker are covered by what has been called the 5Gs. Geist (spirit, intellect), Geduld (patience, effort), Genauigkeit (rigour, precision), Gluck (luck) and Geld (money). Edison, known for his hardwork and patience used to say 99% perspiration and 1% Geist. But that one percent is indispensable for sustaining excellence. Let the students who are awarded degrees and honours to-day, and are going to be responsible citizens of tomorrow, keep watch on this one percent investment throughout their life and career.

ANNUAL CONVOCATION ADDRESS

By

DR. ASESH MITRA

MAY 1, 1986

Mr. Chancellor, Mr. Vice-Chancellor, Distinguished Guests, Teachers and Students of the University.

May I at the outset say how happy I am to be able to share with you some of the proudest moments of a student's life. To those who have performed brilliantly, let me offer my special words of congratulations.

This University started with aspiration and dreams of a few very distinguished patriots as early as 1906 at a time when technology was almost entirely foreign but science was beginning to emerge with the pioneering works such as those of J. C. Bose on microwaves. As it started combining science and engineering faculties on a equal footing, it began to acquire a special character that is now so clearly evident in the IITs : the growth and emergence of the science of technology. Note that I use the words **"equal footing"** for in the absence of an honourable position of science, we grow only conventional but not new technologies.

On this occasion, I would like to take the opportunity of giving you my own views on the role that national laboratories can play in the development of science and technology in Universities and the role that CSIR itself has played in the past or we would like it to play in future. The CSIR was constituted in 1942 as an 'autonomous' body and amongst its functions there are several that relate to the desired nature of linkage between the CSIR and the Universities. These are : establishment and award of Research studentships and fellowships, promotion guidance and coordination of scientific and industrial research in India, including the institution and financing of specific researches and establishment or development of and assistance to special institutions or departments of existing institutions for scientific study of problems affecting particular industries and trades. In pursuance of these objectives, CSIR has been awarding fellowships to Universities right from its inception and in fact it is rare to find a senior scientist of distinction who has not had the benefit of CSIR Fellowship in his initial research career. There are at least 3,500 Research Fellows and Associates working with CSIR support at various Institutions and IITs and each year roughly about 1,000 new Research Fellowships are awarded, costing something about 5 crores. In addition, the CSIR has been supporting Research Schemes in almost all important disciplines of science and technology in the Universities and outside through the various Research Committees constituted for that purpose. At the moment about 700 such schemes are being supported financially by the CSIR. There are currently about 40 CSIR Research Fellows and Research Associates and 16 research schemes operating in Jadavpur University with CSIR funds.

The question that has been raised is how effective is this linkage and should the linkage be limited to only the award of Fellowship or granting of a few Research Schemes. While the CSIR was the principal fund-giving body in the earlier years, there are now many organisations giving funds and therefore the role of the CSIR in providing research support in University system will have to be looked at from a different perspective. Can we, for example, think in terms of National Laboratories sub-contracting part of its work to the Universities ? NPL has given a work on electronic standards to the Electrical Engineering Department of Jadavpur University and has associated several scientists of IIT, Delhi, in the work of fabrication of satellite payloads for Gross Aeronomy Satellite, expected to be launched in 1987-88. Such cases are, however, not many and there is scope for examining the advantages and disadvantages of such a procedure. Or one could think in terms of opening up of major facilities of the National Laboratories for University participation. An excellent example, from the NPL with which I am familiar, was the opening of its high pressure facility to University community. This is a special centre built up with joint resources of NUDP and CSIR and provide unique opportunities of looking at the behaviour of the materials at high pressure and high temperature. Geologists of several universities are beginning to take advantage of this facility.

A third type of collaboration could be organisation of joint teaching programmes in which advanced laboratory facilities available in national institutions are made use of. An excellent example is the arrangement made by the National Institute of Oceanography with a number of Universities for teaching at Master's level on Marine Sciences. In some cases students actually spend a semester in NIO and use its very considerable oceanographic facilities including study cruises with the Research Vessel Gaveshani. At Calcutta, there are two important CSIR laboratories, the Central Glass and Ceramic Research Institute and the Indian Institute of Chemical Biology, which are available for participating programmes. An yet another linkage could be joint operation of centres of excellence in specific branches of science or specific areas of technology preferably at the University Campus itself much in the same way as Max Planck Institute of Federal Republic of Germany. One important requirement in such a joint programme would be the willingness of the Universities to offer faculty status to the scientists running such centres.

Indian Science and Technology are fast changing their relative status. Twenty years back Indian science was far ahead of the technology available in the country but it is no longer so, and we suspect that the situation will soon arise when the necessary lead-time that science should have over technology to generate and sustain contemporary development will not be forthcoming. While many factors contribute to this differential growth, an important element has been the gradual disappearance of University research in high technology or emerging new areas. Inspite of many years of efforts for example, there is no major involvement of University faculties with rocket or ballon or satellite-borne payload system excepting in the recent years with only one University. It is not merely lack of infrastructure or non-availability or research grants that is responsible for this but also the matter of not having genrated the culture of team work.

We are now in the process of finalising the plans for setting up a 2 MW radar of a very special kind called the Messospheric Stratospheric-Tropospheric radar to be located perhaps near Tirupathi. We are looking for serious involvement of some of the University Groups in this frontier level effort right from the stage of construction of the equipment. A similar attempt of involving University faculties from the initial stage is being made by the Ooty Radioastronomy Group now designing a Giant Metre Wave Telescope (the GMRT), which is expected to be first of its kind in the world. The Indian Institute of Astrophysics has already set up a 90" telescope at Bangalore as a national facility, where University scientists are welcome. The Institute of Microbial Technology, now under construction at Chandigarh, has already started advance courses on biotechnology. The Central Scientific Instruments Organisation has been for years running an Indo-Swiss Training Centre for high precision engineering workshop practices. It is clear, therefore, that we are fast entering into a very different scientific culture of high technology that was not available earlier to our scientists in University or elsewhere. How do we direct interest of University scientists to search large projects, instead of undertaking a wide variety of conventional minor programmes. The first element has to be awareness — awareness that such facilities are available for university scientists, that these provide windows for contemporary research of high quality and that a peer review is possible. To this end I would suggest that the Universities consider the possibility of bringing in Directors or such Centres for giving series of lectures to the University faculty and research students. The subsequent question of funding participation of the university scientists once interest is aroused can be arranged through a series of mechanisms including those available with the CSIR system.

I am one of those who believe that a technology soon reaches a plateau if it is based entirely on empirical approach. Quantum jump is possible only when simulations are initiated from fundamental concepts. I would like to urge the university faculties to seriously consider participating in national programmes from this angle of mathematical simulation; particularly because many of the major institutions or agencies being concerned with operational problems are increasingly giving less and less time for physical and mathematical simulation and in data handling. Even a decade ago Indian scientists were noted for their analytical ability and most papers published in standard journals were primarily the result of analysis of data that were obtained elsewhere. It is regretable that this ability has now diminished greatly. While we are now collecting large amount of data in many areas, we seem to be doing very little in the handling and physical interpretation of such data. We have a special opportunity for university scientists.

Sense of adventure has, however, in recent years reemerged. One example is our Antarctic Programmes. The Antarctic scientists are mostly young and when they return far more mature than scientists of similar age. I have recently had occasion to run a large International Assembly of Astronomers in Delhi. I gave the responsibility of trouble shooting to a few of our Antarctic Scientists. They came back to me only after completing the jobs. It is hearterning that some of these scientists came from Universities. One of these whom I knew personally, Miss Sudipta

Sengupta came from this University and I must congratulate the university for providing such a superb woman scientist for this programme.

We are often told that while Indian S & T manpower is the third largest in the world, its achievements and outputs are not commensurate with this large manpower. One must, however, note that of this very large S & T manpower only a very small fraction is available for R & D work and that some 9,000 papers per year published in standard journals for such a small community of R & D people is not quite bad. I believe the problem we are facing is quite different; I am afraid we might end up very soon in not having even this number in areas of basic sciences, not, at least, of the quality that we desire. While it has for some time been difficult to attract electronic, mechanical and metallurgical engineers, there is now a new problem of getting good quality physicists. For a good physicist is usually good in many other areas; in computer science, banking, management, and administration. This invisible brain drain in my view is far more dangerous than the more visible brain drain to countries abroad. What can we do about it ? Are these major programmes sufficiently attractive for the young bright minds ? there is a saying that "brains go where brains are". Can we provide the "brains" that will attract young minds sufficiently to go through the agony and ecstasy of learning how exhilarating science can be ? Our National Institutions still boast of many distinguished scientists and technologists; Indian scientists who are Presidents of three International Scientific Organisations and Executive Committee members of several International Unions. The base for quality science exists. The peaks that we look for over this base will have to come primarily from the University communities. I hope that will come soon. Let me end with this optimistic note.

ANNUAL CONVOCATION ADDRESS

By

SHRI MULK RAJ ANAND

GUEST-IN CHIEF

December 24, 1987

Chancellor, Vice-Chancellor,

Members of the Faculties of Jadavpur University, Dear friends :

I have put down a few stray thoughts, loud thinking about, broodings on the implications of the usefulness or waste, of 'hightech' for human civilisation.

The ultimate Technologies of today have already produced the nuclear bombs and are leading the so-called advanced world towards preparations for Star Wars.

When H. G. Wells, who was always showing possibilities for the 'Health, Wealth and Happiness of mankind', wrote some words which he called 'at the end of the Tether', he, who believed that Science and Technology would bring plenty to mankind, prophesised the end of all hopes through the use of ultimate technology.

Rabindra Nath Tagore, who had, in his early life, hoped like his Guru, Ram Mohan Roy, for the world to receive the blessings which the advance of knowledge in the West would bring, spoke bitterly about the brink to which Western civilisation, had brought the world through the mususe of science, by the making of improved weapons for the then threatened Second World War.

Mahatma Gandhi had told an interviewer, about the same time, that those who put their faith in more and more machines for the the building of the new world would be shattered by the demonaic forces, which the monopolists of political power would let loose through the machines.

Did Einstein deplore his discovery ? No one is quite sure.

But there is no doubt that today the hackneyed phrase 'Technology run mad' seems to describe the situation, if we go beyond the small talk about the usefulness or otherwise of the Super Computer technology, in depth, to our predicament in India as part of the modern world.

Of course, it is also quite clear that in a vast landscape such as ours, there is need for the improvement of tools beyond the earth-scratcher invented five thousand years ago. The Japanese small tractor certainly yields double harvests on little acres. The powerloom produces bigger

yardage per hour than the handloom per day. Many improved tools and machines are necessary to meet the demands for goods for our increasing hungry millions. In almost all the branches of our daily life, from removing and recycling growing waste, cooking food, convenient travel, avoidance of pollution of atmosphere, improving the environment, and for balanced growth beyond our closed traditional cultures, we have to accept science as integral to the life processes and as much technology as we can absorb.

But in the service of life ! Not for the spoilation and destruction of life ! And no technologies which may obliterate the air, water and land.

All creative arts, which release our energies for renewal, against the decay from neglect, of the body and the soul, and all scientific inquiry into the working of the universe, have their origin in the sense of wonder about life. *Rahasya,* the mystery of existence.

Self-sufficiency for domestic existence must be achieved to accord with the basic programme, devised by Jawaharlal Nehru, by keeping in view the vision which he had of a world in which human beings may evolve to some degree of wholeness.

The choice, then, is between *Vision* and *Pragmatism* in our approach towards the future.

This may sound simplistic. But, when the warring nations are piling up the final weapons for destruction, which may bring total darkness over the planet, the only inhabited planet, the choice has to be made between the arts and sciences which promote life, and those which prepare the doomsday.

The pragmatic approaches everywhere in the world have already saturated the world with a glut of goods for physical comfort, which are rotting in godowns, because inflation on prices has put them beyond the reach of the buying power of all except a few. And the vast number of underprivileged, in the three fourths of human kind, are bereft, through the expenditure of trillions on the high tehnologies of war machines.

The Nobel Laureate, Professor Sean Macbride, has put the economics of the armament building world in some telling words : I quote :

In 1984 humanity wasted over 800 billion dollars on the arms race.

In 1985 U.S.A. is inviting the world to engage in an arms race in space (for Star Wars), which will cost over a trillion dollars to the U.S.A. alone.

And this is when famine claims hundreds of thousands of lives in Africa.

Over 400 million suffer from maluntrition.

More than 300 millions suffer from anaemia. One hundred million children are on the verge of death from undernourishment and lack of vitamins.

30% of world's children do not go to school.....

After the first world war the earth appeared to the poet, T.S. Eliot, to have become 'Waste land'.

And another dreaming American, Hart Crane, wrote about the same time :

'O, I have known metallic paradises
where cuckoos clucked to finches,
above the deft catastrophes of drums,
while litters hailed the groans of death
beneath gyrating awnings I have seen
the incunabule of the divine grotesque.....'

Like Walt Whitman who wrote 'A Passage to India' to dream his way East (though he never got to our land), the modern poet Hart Crane said to a friend : 'I want to go to India and stay always.' Because 'Meditation on the Sun is all there is.' Away from the 'Cultivated storms' of young America, then urging onwards to world power, through the occupation of the world with the weapons of power and the gult of consumer goods.

Of course, both T.S. Eliot and Hart Crane hoped for resurrection, beyong the crushing of the individual in modern mechanisation', 'beyond the corymbulous formations of mechanics.....

And, wistfully Hart Crane thought of how the priests walked—slowly though Bombay.....

The irony of the situation is that since Hart Crane longed to tread the streets of Bombay, the high priests of the biggest industrial city of India have made it into very much like New York, with tall skyscrapers, with more than a hundred and one millionaires, running multi-national industries, in a profit-dominated society. There the imitationist American style capitalist, headed by Rubber Barons, like 'Steel Kings, Motor Kings, Soap Kings' of the 19th century, Rockefeller and Ford Pierpont Morgan are dominant. And our Bulls and Bears have consigned more than eleven million people to a veritable hell in the Sunshine in what was once Mumba Devi.

Our purblind apoing of the mechanical civilisation is, indeed, making worse hells than those in the West, because we are imitationists, who do not invent for our needs, but seek to impose life styles on our masses at prices they can't afford.

The visionary Jawaharlal Nchru, even though he was compelled to go beyond Gandhi's dream of a dominantly handicraft civilisation in the new India, did not want the use of machines without education about what machines were for, and without deciding how many machines we want, and for what purpose.

He wanted a sharing economy, enough production to distribute to each according to his or her need, in a world in which there would not be too many needs. He was not a mechanical materialist. He was a dialectical materialist. He did believe in the sciences, as eye openers to the beauty of the cosmos and for human understanding. He did not believe in an armament economy, through which the merchants of death may pile up fortunes for themselves and misfortunes for makind. He evolved the five principles of coexistence of people and nations from the wish to live and let live. He seldom had any money in his pocket.

He would have been apalled by the Chor Bazar, which the rich have made of every city of our land. He did not want the fruits of civilisation to be harvested by hig land lords of his own party some of whom own a thousand, two thousand to five thousand acres of land as, say, in Bihar. He did not want the 'spouting of malice', of the affluent, cash-nexus society, with wasteful private consumption by the few and the denial of collective social needs.

In spite of Gandhiji's inhibitions, Nehru had sensed the truth of Marx's prognostications that the worship of gods of the consumer society, makes men and women 'into things among things', *alienates* them from their inner human urges. In his book *Discovery of India,* though not accepting Shankara, he harked back to the forest books. He knew that : 'By air, as by thread, this world and its beings, are strung together'.

The choice is between the options : whether we must become strangers to ourselves, to our humanness, or become integral human beings ? Whether we wish for fulfilment through lowest motivations, by more gadgets and goods, or whether we wish to combine the pleasure principle with the reality principle : whether we wish the individual to grow to awareness of himself among others and the vast cosmos ? That is to say : whether we wish to live in alienation from ourselves, unconcerned, in the confused world, where the greed for more and more goods by some leads to envy, suspicion, hatred and fear—and ultimately war, or whether we want to put the whole world into ourselves.

The paradox of the human situation, in the face of the phenomenal growth of 'High Tech' is that the inventors seem to have lost touch with the private life of feelings, the human home, the love of children, the walk in the garden, the life of sharing. The atomic scientists in one of the biggest laboratories of the star wars are reported to be devoted so completely to research that they have become immune to domestic considerations. They are perfecting the laser ray which will destroy all enemy lasers. They are hired lands of merchants, who must make profits from weapons, which may kill them, and their own kith and kin, even as they may kill all foes and friends, in universal atomic death.

The people ignorant or knowledgeable, alike, are in a state of shock, numbed by news of what is being invented which they vaguely feel may end life.

Since India's liberation our intelligentsia has been Janus-faced, looking both ways : with nostalgia towards the past glorified as a rich cultural heritage, in spite of dark periods of decay, or with starry-eyed exaltation towards smart modernism.

From nostalgia for the past, our Gurus say : everything has been thought out in the forest books. One self styled Maharishi talks of Vedic Sciences. He says he had discovered 21 hitherto unknown Samhitas of the *Rig Veda* and 100 lost Samhitas of the *Sama Veda.* On the basic of these, he wishes to inaugurate a new era of 'Vedic Science'. This miraculous discovery certainly goes beyond the questions asked in the Rig Vedic Hymn of Creation, where the bard asked questions about how the world began, thought along, speculated about origins, but did not assert what the contemporary Maharishi is declaiming !

Some modernists want to join the Nuclear Club of the Super powers, which would, of course, mean the purchase of the high priced laser technology costing 300 trillion dollars.

Neither of these choices seem to be possible.

After exploding a nuclear device in Pokharan some years ago, India has so far abstained, in spite of mounting pressure from the chauvinists, from making the bomb.

Our country has ostensibly decided not to join the Nuclear Club.

In fact, we have been, so far, urging a convention to bar the use, and the threat to use, of nuclear weapons.

Extending the five principles of Peaceful Coexistence, as the precursors of non-alignment with the contending blocs, and other militarist cooperatives, we asked the U.N.O. in 1978, to resolve on a ban on the use, and threat to use, of nuclear weapons. We invoked the model of the 1925 Geneva Protocol, which had banned the use of chemical weapons.

Most members of the non-aligned movement accepted our resolution and it got one hundred and thirty two votes in the last General Assembly, Needless to say, fifteen Nato states opposed our initiatives. Australia and New Zealand decided to oppose, though they were sympathetic. Greece abstained.

In the ten point Indo-Soviet declaration issued at the end of 1986, we stand for the ban on the use, and the threat to use, of nuclear arms, unitl nuclear disarmament is achieved.

Such conventions imply that we want to look all the 'gift houses in the mouth', as the phrase goes.

The choice, then, is whether we should go with the Supers, starve our millions, and buy 'High Tech' and become willing partners in the preparation of universal death through advanced technology ? Our whether we should assimilate only the absolutely necessary machines to aid growth ?

By rejecing human concerns, most leaders of contemporary civilisation seem to accept superfluities, from the arrogance of power. We learnt from Gandhi not to desire superfluities.

If we go by the talk of the rustics gathered round the hookah under a tree in a village, in all their bereftness, deprivations and want, they seem to say, without many words, that life should not cease.

Do we want our new young to survive and live ? Live more abundantly, or perish in the nuclear death ?

ANNUAL CONVOCATION ADDRESS

By

PROFESSOR IRFAN HABIB

December 24, 1988

Mr. Chancellor, Mr. Vice-Chancellor, Members of the Jadavpur University, Young Friends, Ladies and Gentlemen,

It is most gracious of the Jadavpur University to invite me to address this Convocation, and I am deeply indebted to it for this signal mark of honour.

Very few Universities in India can claim such distinguished origins as the Jadavpur University. Your founding Council was established in pursuit of the cause of "Swadeshi" and "National Education", espoused in the great wave of national indignation against Curzon's Partition of Bengal. The vision of a self-reliant and technologically modernised country that these slogans conjured up was here supported by a down-to-earth practical measure—the setting up of the Bengal Technical Institute, later to be the Jadavpur College of Engineering and Technology. A great sense of dedication was needed before a subject country like ours could produce its own engineers and scientists : we may recall Rash Behari Ghosh's bequest of over a million and quarter rupees towards building the institution of his dreams. Jadavpur is a fitting memorial to the devotion and work of such public spirited men.

The conversion of the College of Engineering and Technology into a university in 1955 meant, I believe, not an altered, bt an enlarged objective for Jadavpur : contributing not simple to the technological development of the country, but to the whole range of its scientific and cultural progress. I hope this makes the theme I wish to dwell upon today of some relevance to the present audience—how to look at out cultutal heritage and the fight for modern ideas and values in today's India.

As Susobhan Sarkar has aptly put it, Bengal has been for the Indian Renaissance what Italy was for the European—its original base of diffusion. There was so much that the great figure of the Bengal Renaissance, Raja Ram Mohan Roy, brought home to us for the first time. He told us that respect for old traditions must be tempered with reason ; that "the lack of patriotic feeling" among Indians was due to "the distinction of castes" ; that women should have rights to property and education ; that widows had to have the right to life ; that idolatry had to be abandoned ; that

one should turn from traditional memorising of theological texts to modern "Anglo-oriental" education. Almost everything he said went against the prevailing culture and customs of the time. In this battle for reform, Ram Mohan Roy made use of whatever assistance he could obtain from older legal texts and the Upanishads, and tended to dismiss the ideas or customs he was opposing as later "arbitrary" innovations or coccuptions. But if Ram Mohan Roy heavily appealed to Brahmanical sources to reinforce his arguments against particular social or religious practices among Hindus, this was obviously done out of necessity. It does not mean that he saw Indian culture as confined to a simple Hindu heritage. In other contexts he would recall Kabir and Nanak, and quote Sadi and Hafiz. His very first tract on monotheism was written in Persian—the *Tuhfat-ul Muwahhidin.* He only quarried the past, as it were, to find whatever could be of service as building blocks of the future. There as no uncritical acceptance of our entire heritage or a narrow definition of it.

A second and more recent figure marked the apex of the Indian Renaissance—Rabindranath Tagore. Tagore saw many values created in the modern western civilization to be of universal significance—social equality, equal status of women, unrestricted quest for knowledge. In his writings here and there Tagore may have made certain statements which suggested a tolerance for the traditional inequities, but his main thrust was for a thorough renovation. Not for him "the India of the gentry" alone ; nor any "compromise between knowledge and ignorance". If like Gandhi, Tagore did sometimes speak exclusively in Hindu contexts, like Gandhi too he held that "if there is any such entity as India, Muslims must be a part of it".

This opening to modern ideas is surely the major legacy of the Bengal Renaissance : it involved a recovery of all that is best in our culture, and a continuously critical approach to it in the light of the constantly widening horizons of human thought. It thus carried a message, which is of as great a moment today—perhaps, even more—as when it was first delivered. For in the meantime, the votaries of tradition have also responded and in thousands of ways invoked past prejudices and utilised modern means of communication to sustain a contrary position : the defence and reinforcement of every parochial sentiment that was present in the past, such as of community, caste, and region, and the denial, with increasing stridency, of some of the most cherished values of mankind today, like social equality and human rights.

Let us take, first, the use that is being made of religion. It is true that the leading lights of the Bengal Renaissance (Derozio, with his suspected atheistic rationalism, represented a largely isolated though heroic segment) accepted religion as a major factor in human life, and then sought to ascribe to it all the values that modern thought brought home to them. In a similar way, Gandhi ascribed to Hinduism the values he had so obviously, and with full acknowledgement, absorbed from Tolstoy and Ruskin, and then tried to use Hinduism, so enriched, in order to carry out measures of reform that struck against almost every tenet of its traditional conception. One can almost be persuaded to see that this dual relationship between religion and enlightenment was inevitable, if the enlightenment was to have any practical consequences.

But the relationship, inevitable or not, involved conceding to religion a role which is in absolute contradiction to the secular view of society and polity, itself so crucial an element of modern culture, in turn, the very essence of the Indian Renaissance. More, once this position is conceded, the religion that occupies it, is not necessarily of the kind that Ram Mohan Roy, Tagore or Gandhi had owed allegiance to, but something quite different, namely, an assemblage of all the old prejudices that would for ever divide and oppress us.

I hope that I am not musunderstood. I have great respect for people who sincerely hold religious beliefs and harbour a personal allegiance to the Deity as they see Him. It is a matter involving the innermost soul of man, and I have no wish to speak lightly of it. But the question is whether religion, the private concern of individuals, can be invoked to control social ethics, practices and laws. And that is a matter which must call for critical reflection.

An excessive emphasis on the religious aspects of our culture must surely lead to divisiveness. The Jesuit father Monserrate said insightfully that Akbar, while pursuing a tolerant policy, failed to see that "in allowing every one to follow his own religion, he was in reality violating all religions". One may dispute this as too absolute a statement ; but that it has at least a modicum of truth, I do not think many would deny.

That it is partially true, is shown by the way eminent men have been led to identify our culture with a single religion and to see all devisions as the necessary result of the intrusions of other unwelcome faiths. The late Professor R. C. Majumdar in his essay on the Bengal Renaissance, insists on the insurmountable divisions between Hindus and Muslims ; and, overlooking the catholic and liberal spirit of the Bengal Renaissance, sees it as an essentially Hindu phenomenon. In a major collective work on Indian history, generously patronised by the Government of India, that he edited, he gathered together references to the atrocities that Muslims have ever committed on the Hindus in order to proclaim that "the twain" can never meet. It was inevitable that his conception of Hinduism would be far distant from that of the leaders of the Renaissance. To him its two main sources were the "temples and monasteries" and the Brahmans, and it could only flourish where these flourished. When the editor of a leading national newspaper the other day identified India with "Hindudom", he did not have the tolerant egalitarian Hinduism of Gandhi in mind, but clearly something of the sort that Professor R. C. Majumdar presents to us. The circle is thus completed ; and the Renaissance might not ever have taken place.

A complementary assertion of the Muslim "identity" rests on the view of pristine Islam as an all-embracing system of social organisation and as a total intellectual and cultural determinant. This has proceeded so far that respectability has come to be attached to such fantasies as "Islamic banking" and "Islamic science", The claim for a totally separate entity for Muslims is backed by a massive ideological structure, uncompromising alike in its scorn for modern progressive values and its rejection of the ideas of people like Shibli and Azad, who had partaken

of the light of the Indian Renaissance. One could trace similar processes of thought in an even more acute form is Sikh separatism.

The environment in the country today is decidedly conducive to the resurgence of revivalist ideas. One is tempted to trace them to processes such as "Sanskritization" analysed by M. N. Srinivas, the noted sociologist. As castes lower in the scale become affected by modern conditions, they begin to aspire to recognition to a higher status, within the traditional hierarchy ; and this aspiration they meet by Sanskritization, i.e. the adoption of the beliefs and customs of the higher castes, even to the extent of introducing seclusion of women, abandoning widow remarriage, and so on. As a result the traditional religion, far from being shaken by modern condition, continually receives a new infusion of blood. (Among Muslims the sociologists have detected an anologous process of "Ashrafization"). The process is particularly reflected in the rejuvenation of the caste system in a remarkably assertive form in almost all parts of the country. The intolerable growth of the dowry system, the exaltation of the sati, and proclamation of the sanctity of sectarian "personal law", whatever its inequities, are all reflections of this all-embracing growth revivalism.

The revivalist trend is being fed and furthered by a steady erosion of official secularism. The open award of Government patronage and public funds to activities of a purely religious nature has grown to an extent that could hardly have been imagined in the first decade of our Constitution. The relentless pursuit of Mythology on our national television, when television is no longer an elite possession, but reaches millions, cannot but affect the making of the people's minds.

Finally, there are the official concessions : the forcible occupation of a disputed religious shrine by Hindus, displayed on national television, is sought to be counterbalanced by a legislative overturning of a Supreme Court judgement in favour of Muslim women so as to placate the Muslim orthodoxy. Even adopted children cannot be protected in this country because of the fear of infringing a community's personal law. The excessive regard paid to the Hindu joint family has long been an obstache in the way of providing a truly unified civil code and a meaningful protection of women's rights. In the realm of daily realities, we have an unabated officially tolerated persecution of the Harijans and tribale by the landowners or upper castes. Communal riots, the reflection of a deep, haunting malaise in our society, never seem to end, and their perpetrators appear effortlessly to escape all punishment. (West Bengal under an enlightened State Government provides a welcome exception to some of these disfigurements of our national life).

The present situation sets a challenging question to all those who acquire higher education. Are they to conform with the old, divisive structures of beliefs, now so heavily reinforced as well as distorted, or are they to be the transmitters of modern ideas, of scientific temper, rationality and equality, which the Indian Renaissance and the National Movement first introduced to us ?

One is heartened immeasurably when one reads or hears of young men and women taking up cudgels on behalf of the victims of social oppression : the slain and revaged harijans in the

villages of Bihar, the forcibly immolated dowry bride, women deprived of their rights, people marked down by terrorists in the Punjab for daring to speak up for unity, and so on, an endless stream of humanity calling for succour and support. There are also young people, who have dedicated themselves to spreading the message of science in our villages and towns by voluntary effort, sometimes sustained by welcome Government subsidies. Above all, there are those who reach out to field labourers, peasants and workers, and by bringing them in common organisations for common causes invoke new bonds of brotherhood. It is this kind of effort which in its cumulative effect has helped retard the complete submergence of our modern values under the revivalist resurgence. What is urgently needed, however, is a multiplication of the ranks and a fuller sense of direction and purpose.

We have to be clear in our minds that while we must preserve and safeguard our cultural heritage, we have to liberate ourselves from all bondage to the antiquated or revived inequities, however sacred their sanction. Such a task is the pre-requisite for any progress towards the realization of a truly democratic society, equality and socialism. Once again, as in Ram Mohan Roy's time, but on a much larger and portentous scale, there is a battle of ideas. From one side it has barely been joined. But if we are to march with the world, if we consider ourselves one with all humanity, then revivalism in all its forms (fundamentalism, communalism, etc.) will surely have to be confronted with an open, uncompromising assertion of the values of modern civilization with secularism as a crucial compenent.

Jadavpur was created to meet a specific challenge the country was facing under foreign rule, viz., the suppression of national industry and lack of scientific development. We are faced today with a different challenge, this time unluckily of our own making, the one posed by the growing stranglehold of the obsolete values of our old culture. In meeting it, the role of this university, as of all universities in India, could be decisive.

The contribution that the universities and those who pass through them could make in this struggle for minds will not be determined by the amount of money that is spent on the universities, but by the content of instruction that they impart. In much of the debate over the educational policy of the Government, this aspect has been largely overlooked, the focus being put on modes of appointments, emoluments, promotion, monitoring, autonomy and so on— matters that are important, but not exclusively so. One is depressed to see how much sectarian atmosphere is allowed to permeate our colleges and universities, which are supposedly secular institutions. The textbooks in use in History and Humanities generally are not only often obsolete, but quite as often replete with communal and obscurantist distortions. The situation is only worse at the school stage. No policy or critique of a policy for education can demand serious hearing unless it tackles this important defect in our educational system. Remedying this defect is part of the struggle against Revivalism, and I hope that, as in many things in the past, West Bengal will show us the way here too.

In spite of the fact that the gathering clouds are dark and forbidding, and every day the newspapers bring news of how so many of us have lost even an elementary sense of humanity, one can still see many signs of hope. There is defiance of injustice from the most unexpected quarters, and example of a quiet but firm allegiance to the spirit of our republic from people who have never received any tangible benefits from it. Surely this makes it even more obligatory on us, who have been so especially favoured by being given access to education, if not by anything else, to stand up in defence of a really secular, democratic and scientific India. We may then be able to contribute to the retreat of revivalism, and so help to enable our country to take a step forward towards that "realm of freedom" which can only beckon to a conscious and awakened people.

Thank you.

Irfan Habib

ANNUAL CONVOCATION ADDRESS

By

Dr. Ashok Mitra

Guest-in-Chief

December 24, 1989

Mr. Chancellor, Mr: Vice-Chancellor, Members of the University, My Young Friends, Ladies and Gentlemen :

The University has done me honour by its invitation to address you on this very special occasion. Jadavpur University encompasses greatness of a kind. Even the right to dream was subject to proscription under imperial rule in the early decades of this century. The National Council of Education flouted that veto; it dared to dream. And those who came together to form the Council did not allow the audacity of their vision to be waylaid : the pursuit of national self-reliance had to be linked to the cultivation of science and technology, and the specificity of scientific and technological explorations must be determined by the nation's own priorities. That was how the institution, which later grew into this university came into existence.

As the university expanded, it recognised another major social reality : the flowering of talent in science and technology is strongly correlated with the stock of imagination in society. Literature and philosophy and the humanities in general should accordingly be an integral part of the curricula of an institute of advanced learning even were its primary focus is on science. Tributes are due to the university for the strides it has made towards achieving such an integration.

This day by tradition belongs to the graduates who pass out and are offered degrees and awards. I have to address myself to them. This I do with some trepidation. In terms of intellectual equipment, the new generation is miles ahead of those who belong to my age-group. I must therefore stay away from pontification. As behoves old men, I should rather talk of the past, hope that, somehow, themes from time past will mesh into time future.

When, fifty-years ago, the National Council of Education laid the foundation of the institution which later became this university, it had already been able to scrape together some funds, but, let there be no mistaking, its major capital assets was passion, love for one's country. The morphology of what constitutes passion can be, and is, subject to endless speculation. While we were electing our national representatives last month, a nonagenarian lady died in Spain. Little notice has been taken of her passing. And yet, some fifty years ago, she, Dolores Gomez Ibarruri, *La Pasionaria*, as she was better known, epitomised for a large part of the world what passion is

or ought to be : patriotism, fealty to one's people, suspension of all desiccated accounting of subjective gains and losses, an indomitable spirit of resistance to the recognised forces of evil. Many of us, then in our callow youth, discovered the majesty of passion in what she said and did; her country was about to be taken over by uncivilised vandals; she did not allow herself to be a victim of frustration; the patriotic masses must rally back, they must fight, and fight again; *no pasaran*, the enemy shall not pass. Wherever we were, irrespective of the country we belonged to, that invocation became our emotional asset too. Spain lost that war, but the magic flame set ablaze by *La Pasionaria* continued to burn. Each of us, who belonged to that generation, learned to chant : *no pasaran.*

Perhaps such rhetoric will now sound jaded. Idealism of that old variety will be considered an embarrassment. And yet, I am not sure that, in a just society, passion and ideology should be segregated from the commerce of daily living, and from the system of education too.

Let me illustrate what I have in mind. The quality of performance in our universities, technology centres and other such institutes of higher learning evoked wide admiration. Scholars in these institutions have succeeded in reaching pinnacles of scientific and technological achievements despite their working in an environment where resources are permanently short. There is naturally a surging of pride on account of such tremendous achievements. But this pride is also often accompanied by a guilt complex. Can we put our hand to our heart and claim that our priorities have always been right, the allocation of resources between education and other areas, or within the different sectors of education itself, has always been the most appropriate? There is of late much discussion on so-called areas of relevant concern; special missions have been set up to hasten the pace of development in these areas. How does one still deny the lack of coherence in much of what is happening around us? Four decades and more after independence, and notwithstanding the nobility the universities and technology institutes have collectively attained, close to two-thirds of the nation remain without the benefits of even elementary education; the proportion of the functionally illiterate is in fact much higher. Most other basic needs too continue to be beyond the reach of millions of our countrymen. Must we banish passion, should not the contradiction between excellence recorded at the highest educational levels and the primeval darkness which defines existence for a majority of our countrymen stoke at least some indignation somewhere?

Allow me to drift into another, but related theme. Science and technology are supposed to lead us to the ethereal valley of reason and enlightenment. Even as we grapple with this nation's immediate overriding problems, tidings reach us of a new civilisation which high technology is to usher in, which humanity is about to create for itself, which will provide a kind of finale for the hitherto interminable tussle against nature. Give or take a couple of decades, researches into various aspects of food technology, we are assured, will rid the earth of the irritant of famines, genetic engineering will eradicate pestilence and disease, fuel technologists will unlock the secret

of cheap, even renewable sources of energy; we will supposedly end up with so much of extra resources that enough will be available for each and all, and even class war will be in danger of becoming dysfunctional. Leisure will be at everybody's door, modalities for filling that leisure will be equally common-place, sports, poetry, films and music will be our daily unending fare. Our universities and institutions of higher learning are, quite legitimately, a part of this great global adventure that is on. But, which all this excitement goes on, are we not, in this country, at the same time systematically proceeding in a contrary direction and marching, so to say, against time? We watch, almost helplessly, the spectacle of revivalism suddenly threatening to overrun the nation. Some of the episodes and incidents that have taken place in recent weeks are replete with frightening irrationality : even the established government of the land appeared, at least on occasions, to be atrophied by these developments. What is still more disconcerting, few, very few, from amongst those who constitute the nation's *literati,* including alumni who pass out every year, in their thousands, from universities and other higher educational bodies, have cared to take umbrage at this blackmailing of reason by the emissaries of unreason. Few have forgathered, whether severally or jointly, to protest against the forces which are bent upon despatching the nation into the abattoir of medieval darkness. There have been even attempts at rationalising this attitude of *laisse-passer* : live and let live, practise tolerance, this is a country which places a premium on faith; faith, who does not know, moves mountains, and since there are people who want to be fiercely loyal to the forces of primitivism, why bother to hurt them?

That, however, is precisely the point. The revivalists do not believe in the proposition of live and let live. They will not rest unless the rest of the nation could not, seemingly, care less.

There is scope for much sadness here; let me however also mention something else. We try to keep ourselves posted of the technological breakthroughs our scientists had made in the areas of space and nuclear research. A successful series of implosions of fissionable particles, or a successful programme of launching of space rockets, connotes major advances along the road to self-reliant technological growth. But, then, I will be a hypocrite if I do not confess to a doubt which immediately assails the mind. Once again, have we set our priorities right? It will perhaps be most ungracious to deny our brilliant scientists the resources they want to be continuously provided with so that no interruption takes place in the experiments they are engaged in. They want to establish a basic point : they have taken the challenge, they can help the nation develop an independent nuclear capability as also an efficient delivery system. Environmental issues apart, is that a denouement a poor country, and a country supposedly wedded to a policy of peace and coexistence with one's neighbours, should still take pride in, or assign the first priority to? While money disappears in the endless pit of space and nuclear research, what about allocations for research into industrial processes or farm technology or similar explorations allocations for research into industrial processes or farm technology or similar explorations which have a direct bearing on meeting the community's more obvious current needs? Besides, should

we only learn to arm, and forget to disarm? The major powers, for whatever reason, are dismantling at least some bits of their insensate weaponry of destruction. Why must we then stick to rigid attitudes and spurn proposals for even a limited lowering of tension in our respective regions? Why is it that even innocuous academic discussions of such matters are sought to be stifled through invoking the commandments? Why should it be left to conventional politicians or carrer civil servants to define what patriotism consists of? Why must not thinkers and scholars on their part do some pre-empting of thought? Each one of us have the right to speak out of turn where the issue involves the survival of civilisation.

Lest it be said I am once more backtracking into ideology, let me pass on to one mundane problem which directly touches many of those assembled here. The young men and women, who leave the universities and institutes of higher learning every year, belong to the luckiest decile of our community. The rest of the nation sets aside resources so that universities could be built and maintained, libraries and laboratories equipped, the software and the hardware put in their places. True, none of us are our brother's keepers. We are, each of us, free entities. On graduation, a fair proportion of our graduates from the universities and technology institutes go away to countries overseas. They have, it will be said, every right to do so. To suggest that least some of them be obliged to stay back would, it will be argued, amount to gross interference, more so since this nation is often unable to offer them employment of a gainful nature. And I must not be unfair : it is not always the temptation of a comfortable living which beckons our young people to the lands, it is their anxiety to expolore still higher levels of intellection and creativity; rich foreign lands provide the ambience and facilities their own country is unable to provide them with. Our migrating youngsters are, in many instances, reluctant journeymen.

How do we still fail to take into account some of the other basic considerations? Those who go away pack into themselves the investment the community had sunk through the years to develop their skills and to widen their span of knowledge. From the nation's point of view, this investment is now a total waste. The resources congealed in this investment represent, as the bread-and-butter minded economists would say, an opportunity cost; with these resources, the nation could have set up so many extra thousand primary schools or primary health centres, provide so many extra thousand sources of drinking water, permanently irrigated so many additional thousand hectares of land, laid so many extra kilometres of roads or rail, built so many extra kilometres of drainage to pump water out of land threatened by submersion, created so many extra thousand megawatts of extra capacity for generating electricity. Can a nation placed as we are, with a per capita income about the lowest in the world, and a rate of economic growth which too is about the lowest, afford the luxury of this waste? Are not our scientists and technologists puzzled at this extraordinary instance of systems failure — while challenges wait to be taken up and yet knowledge and skills, despite being available, are not harnessed?

I know that there are many contrary winds blowing. Yet, on this issue, I have to, with due humility, stick to my ground. The nineteenth century notion of concentrating on an individual's

self-interest alone, even should the rest of the world go to blazes, is no, one would have thought, entitled to any re-interment. The world is however is a turmoil; much topsyturviness describes the current scene. The poll tax, for example, has made its re-appearance, after more than a century, in one or two countries; the rich and the poor are once more being weighed on the same scale. Considerations towards those more disadvantageously placed in society are being described as vapid sentimentalism. A creeping cynicism is about to spread its empire.

Must that be the final judgment though? Should all passion, the passion which National Council of Education exemplified, the passion *La Pasionaria* had set my generations flame with, be regarded as dead? Is not her at least practical aspect of the matter few amongst us can afford to ignore? We may not care for the rest of the nation, and choose to confine ourselves to the snooty promenade we assume we have a natural right to stroll along. This stance may however come rudely in conflict with graver social realities. We are not our brothers' keepers; we may even refuse to recognise them as our brothers. But they exist, as part of the nation, as part of the datum, and they have the ability to destroy the smooth texture of living of the comfortably placed. They, whom we, for our convenience, synoptically describe as the dumb millions, have that kind of power. They have the strength to overturn settled systems; they may even derive a certain pleasure in destabilising an established structure. Why should an arrangement which has provided them with like little, very little, deserve, they will furiously argue, not to be destabilised?

This again only illustrates the inter-dependence of phenomena science talks of : a handful may choose to migrate to other lands, but the rest of us have our destiny inextricably linked to that of the nation. It is therefore for their own sake that the young graduates who pass out today, whom we have gathered to greet, will have to worry over how this nation's priorities are decided upon. They have every right to point out that if the country is in a horrible misshape, the responsibility for that does not belong to them, but to the old fogeys who have made a mess of things during the past four decades. They could not be more right. They should now tell the ancient sinners to disappear from the scene, and themselves take charge.

May I thank you for your forbearance?

ANNUAL CONVOCATION ADDRESS

By

Professor Dr. Wei Zhang,

PRESIDENT, TSINGHUA UNIVERSITY, BEIJING, CHINA

GUEST-IN-CHIEF

December 24, 1990

ENGINEERING EDUCATION AND ECONOMIC EDVELOPMENT IN THE THIRD WORLD COUNTRIES

Your Excellency. Respected Chancellor Prof. Nurul Hasan, Respected Vice-Chancellor Prof. Sen, Dear Colleagues, Ladies and Gentlemen,

At the invitation of the Vice-Chancellor Prof. Sen on behalf of the Executive Council, members of the teaching and non-teaching staff, students and research scholars of this distinguished university, I am privileged to have an opprotunity to visit this world-famous institution, attend the Thirty-fifth Annual Convocation of this University, and learn from my Indian and other colleagues. I fell especially honoured to be able to speak on this solemn forum and share with you some ideas about Engineering Education in Third World countries. This is an honourable event for myself as well as a very friendly expression on the part of the Indian academic world towards their Chinese academic colleagues. Please allow me, therefore, on my own name and on behalf of the Chinese Higher Education Circles to express our hearty thanks for your kind invitation. We wish your Thirty-fifth Annual Convocation a great success.

China and India are two great countries. Both nations have a glorious long history and a highly-developed civilization. Since ancient times, we have maintained a historical tradition of friendly intercourse and cultural exchange. From India and Nepal, China learned Buddhism, which has exercised a profound influence on our political, social and cultural development for nearly two thousand years. It was only in recent times that such an exchange became weakened as a result of the invasion and domination of our countries by western imperialism.

In the history of mankind, social development has always been closely interlinked with engineering achievements. Indian engineers and architects have enriched world architecture with the most magnificent mounmental works of Taj Mahal and others.

As to China, our people mastered the technique of metallurgy more than three thousand years ago, as withnessed by the metallic tools our ancestors used for production. This was a great leap for mankind in production technology. About nineteen hundrd years ago, Cai Lun of the Han Dynasty invented the paper-making technique wich brought about a revolution in the means of disseminating culture and knowledge. In the field of civil engineering, Li Bing and his son designed and constructed two hundred years before Christ, the Du-Jiang Dam irrigation system in Guan County in Si-Chuan Province which irrigates even today nearly one million hectares of rice field. The Great Wall and the one-thousand-kilometre-long South and North Grand Canal are other two renowned engineering projects built by our forefathers.

But in the last few centuries, India was ruled by British imperialism and China was invaded and dominated by several foreign Powers. The economic development of our two countries was severely hampered so that it lagged behind that of the Western World. It is not surprising that engineering education for the training of engineers and technicians badly needed for the economic and social development of our countries should remain in a backward state.

Let us now consider for a moment the history of the development of engineering education in the world. Accompanying the industrial revolution, the developing countries have, in nearly two hundred years, built up their engineering education step by step from the apprenticeship system through technical schools, polytechnics to higher engineering institutes. The Ecole Polytechnique in Paris played a pionner role in this development. During the first few decades of the nineteenth century, the various Kingdoms of Germany which were at that time still a backward agricultural land took the French Fcole Polytechniques as a model and set up a number of technical schools with a clear emphasis on laying a sound foundation for the basic sciences. During the later half of the nineteenth century, these technical schools advanced one after another into the so-called Technische Hochschule in the course of their industrialization to meet the needs for well-rained and qualified engineers. After long hard struggles with the conservative academic circles, these Technische Hochschule acquired at last the same academic standing and right of conferring the doctorate as the traditional universities. Engineering education in Great Britain and that in the United States have adopted somewhat different patterns respectively. However different all the systems of engineering education have gradually grown up in accompaniment with their own country's industrialization.

The reason why I have stressed so prominently the particular feature of the close relationship between engineering education and their industrialization in the developing countries is due to the historical lessons we in China learned at our expense both before Liberation in 1949 and after it, in the establishment and development of our engineering education. The negative lesson is the separation of our engineering education from the actual circumstances in China and the indiscriminate mechanical copying of the system, the model and even the contents of other countries.

In old China, engineering education began in the nineties of last century. In the following fifty

years, we borrowed mainly from the United States her model of engineering education. We adopted her educational system, her set-up of departments, curricula and even textbooks. I studied Civil Engineering in the university. I learned Geology and the properties of engineering materials of the United States from American textbooks. As a result, I knew pretty well the mechanical properties of the Oregon pine but had no idea of the properties of Chinese timber. We engineering students in China used at that time American specifications for steel structural design and the Carnegie Steel Handbook. In those days, there was no technical terminology in Chinese, not to speak of engineering textbooks written in Chinese. Engineering graduates brought up in such a way were doomed to be divorced from the Chinese reality.

After 1949, we standardized for the first time in our history the Chinese terminology of science and technology, and compiled textbooks in Chinese for all courses of science and engineering. The indiscriminate transplanting of foreign educational system and teaching materials mentioned above finally came to a stop.

Yet in 1952, and the following years we adopted the Soviet educational system and carried out a nation-wide educational reform. The whole set of the Soviet higher educational system was mechanically imitated in Chinese universities. Although this helped to raise to some extent the quality of our engineering education for which we are indebted to the Soviet Union, we suffered once more from the mistake of copying indiscriminately the experience of other countries.

Now we countries of the Third World, are all entering a new epoch in world history and are entrusted with the historic mission of developing our national economy and engineering education. Some countries may have performed this task better than we did in China. I sincerely hope we can swap experience with each other and shun the mistakes we made in the past.

Today, we are witnessing a world moving towards detente. Peace and development have become the main trends, iffering unrivalled opportunities to all nations, both developing and developed. Progress in education, science and technology, knowledge and intellectual resources have become the driving force propelling this new trend forward. These are vital factors affecting a nation's economic development and social well being. To the developing countries, the next few decades will be especially important. After having shaken off the yoke of foreign rule, we are now faced with the historic task of developing our national economy and changing the state of our poverty and backwardness. Countless facts have proved that political independence will remain an idle talk if there were no economic independence by keeping the initiative in one's own hands. Since the Second World War, the rapid development of science and technology has caused them to become an ever-increasingly key factor in the economic development of a country. In order to give full play to modern science and technology in the national economic development, we need an abundance of human resources who master them. We must, by all means and ways, train a large number of qualified technical personnel who are ready to devote themselves to their own national economic construction. Consequently, to establish and develop engineering education that suits our national conditions is becoming the foremost problem in the process of industrialization of the Third World countries.

We must admit that the developed countries are taking the lead in engineering ion. Their engineering education has evolved and been improved in the course of t ation's industrialization. These two factors, namely engineering education and industrialization, have been influencing and mutually promoting each other. The developed countri naturally have a lot of knowledge which is worthwhile for us to learn. Yet, the important issue is t o combine what we learn with our own conditions and draw selectively on the good experience of other countries. In my opinion, there are two points which need to be taken into consideration. One is that we must not only concentrate on the present state of engineering education in the developed countries, but also find out their historical past and the process of evolution of their educational system. We must not only know what was and is going on, but also ask why it was and is like that. This i because we Third World countries are now in a stage of economic growth and indsutrialization different from that of the developed countries. To copy the existing curricula of Western universitie is not necessarily suitable for us. The other point is that we must investigate and understand th mutual relationship and influence between engineering education and indutrialization and economic and social development of the developed countries during their different historical stages. The industry and society of these countries have raised demands and made suggestions to engineering education which have, resulted in the improvement and reform of the teaching of engineering in the universities. In return, the universities have turned out more and better qualified technical personnel, so as to fulfil the requirements of industry on technical staff, which in turn stimulates the further development of industry. It is this process of mutual influence and promotion that has enabled the developed countries to be transformed from agricultural countries into industrial ones over a period of more than a hundred years. This mutual promotion applies to all stages of development, whether in the steam engine era, in the electrification era or in the nuclear energy and the computer era. When mankind enter the twenty-first century, engineering education and industry will still exert upon each other a promoting influence.

In the Third World countries, our task should not be to move forward slowly and also sped over a hundred years in developing our national economy and realizing our industrialization. Time does not allow us to tarry so long. We ought, on the other and, to achieve this magnificent goal and arduous task as early as possible within the next few decades.

To develop our engineering education, one should proceed from the short and long-term national economic requirements and consider the conditions of natural and human resources financial and material capability with reference to the international trends in education, science and technology, so that a feasible plan can be drawn up. Such a plan may consist of the nationa requirement for technical personnel both in quantity and in quality, the disciplines in science an technology including management that are needed in economic construction, the rational distributio and suitable size of engineering institutes, the sources and ways of recruiting teaching staff, th

source of funds and endowments, as well as other factors. We should have the confidence that we, people of the Third World countries, who succeeded in creating so brilliant a culture in ancient times and in winning through hard struggle political independence in modern times, will certainly be able to establish and develop an engineering education to suit our own national circumstances while developing our national economic construction and, making new contributions to the culture and civilisation of mankind, just as we did in the past.

In considering the development of engineering education, we should be aware of our own circumstances as well as keep an eye on the whole world and on the future. We must recognize the diversities of nations, the interdisciplinary character and globality of various engineering branches and the impact of high-technology on engineering education. In order not to take too much of your time, I am not going to elaborate on these points.

I understand the term engineering education in its broader sense. It includes educational institutions from technical schools for training skilled workers, through technical vocational schools for training technicians, to polytechnics and higher educational institutes for training engineers. Furthermore, we must not lose sight of continuing education which, since World War II, has emerged as an indispensable link in the educational chain in its function of helping to refresh to professional knowledge of those engineers and technicians who have served a number of years in their career after their university or vocational education.

To our Third World countries, vocational education is of special importance. This is easy to understand. In view of the real circumstances of our countries the number of secondary school graduates who can be educated up to the university level cannot, in my opinion, exceed 10% of the total number of youth for each year. This means over ninety percent of our youth will have to receive a professional training after their compulsory educations. They make up the lower part of the pyramid of our labour force. Among them, a greater part will be skilled workers and technicians. Their proportion in our total manpower is very big. Hence, we must stick steadfastly to the policy of developing vocational education in our countries and not overlook its important role in our national economic construction. In our planning of the ratio of higher and vocational education, we should benefit by the lessons that has been learned by the developed countries in this matter. These countries greatly expanded their higher education, especially in engineering, in the sixties, from an over-optimism in their economic growth, so that in the eighties, they found themselves in difficulties to finance their universities, to maintain a high quality of their teaching staff and to find an adequate supply of candidates to be enrolled.

In engineering education, India has accumulated a wealth of valuable experience which is well worth learning by China. At the same time, our two countries ought to make efforts to promote the exchange of experience among the Third World countries in order to enable all of us to develop our engineering education faster and more healthily.

Respected chancellor and Vice-Chancellor, Dear Colleagues, Ladies and Gentlemen ! Before I finish my talk, I would like to thank all of you sincerely for your partience in listening to my humble presentation. I look forward to hearing your comments and critical opinions.

ANNUAL CONVOCATION ADDRESS

By

Professor Hiren Mukerjee

GUEST-IN-CHIEF

December 24, 1991

Mr. Vice-Chancellor, Members and Guests of the University, Friends :

I am grateful for the honour of being asked to address the 36th Convocation of Jadavpur University. Yours, I dare say, is a University with a difference, for just being here is a spur to patriotic reflection. Shedding the easy-to-wear mask of snooty superiority, 'let us praise our famous men'—Rabindranath Tagore and Aurobindo Ghosh, Subodh Mallik and Sakharam Ganesh Deuskar, Rashbehari Ghosh and Taraknath Palit and the patriot-philanthropists of Mymensingh, Hirendranath Datta and Satish Chandra Mukherjee, Gurudas Banerjee and Asutosh Chaudhuri and A. Rasool, Benoy Kumar Sarkar and Taraknath Das, more lately Fazlul Huq and Bidhan Chandra Roy and Hiralal Roy—a galaxy of genius whose gentle glow survives in Triguna Sen and Hemchandra Guha. These men set up in the *Swadeshi* phase of India's freedom struggle, the Council of National Education that has grown into the University. It is a privilege to hail the recipients of degrees and other honours. May I be permitted to wish them further successes and happiness also.

I remember, with a start, that these days in India as well as the world over, it is a tall order to wish happiness to anybody. Are we not having it dinned into our ears that revolution and socialism "fitting out our planet for happiness" (as Mayakovsky once put it) has come a cropper, connoting the death of hope for "the wretched of the earth" and the majority of mankind for the devil knows how long ? I remember also Nietzsche's tremendous gibe, aimed at utilitarian thinking : "Who wants happiness ? Only the Englishman does !" And it impels me to tell the young people in my audience to take to heart the grand old Sanskrit saying : *"Nalpe Sukhamasti ; bhoomaiva Sukham"* ("There is no happiness in little things : only in plentitude can there be happiness"). That will not come either to the weak or to those who only flaunts slogans (*"Nayamatma Valaheenana labhyah ; nayamatma pravachanena labhyah").*

Let me not be blamed for the usual platitudinizing ; after all, when degrees and diplomas ae conferred, certain disciplinary injunctions might even be in order. If the Hippocratic oath can be administered to those entering the ranks of healers of the physically sick, why not a few noble

expostulations like *'satyam vada', "dharman chara', 'Satyanna pramaditavyam, dharmanna pramadivyam. Kushatanna pramadativyam'* on such occasions as the present ?

There is in it some hypocrisy involved, but, after all, hypocrisy is the homage that vice pays to virtue, Youth, in any case, is that segment of society whose role is—as Pericles said 2500 years ago—that of the spring in relation to the year. They have an urge for "the good life" which, Bertrand Russell once said, "is inspired by love and guided by knowledge". No cynicism can mar this perception and whatever mordant wit might suggest, young people will never cease to dream dreams and see visions. Let the alumni of Jadavpur and other Universities where only a small minority of comparative fortunates have access, imbibe the right kind of vision that will not only help explain the world around us but also to transmute and transform it nearer our heart's desire.

As one who is in the over-eighty age bracket and lives therefore on borrowed time. I have hardly the right, from today's youth, to anything but the order of the boot. I recall however, an Oxford meeting some sixty years ago, when George Bernard Shaw, berated by an undergraduate for the failure of Shavian presciptions for the remedy of the then world's ailments, replied with a twinkle in his eye that if the old solved all problems the younger generation would be unemployed ! The likes of us have much to answer for. But the cross will have to be borne by those who are young, never forgetting—if you permit this slide into solemnity—that "Freedom's battle once begun/Bequeathed from bleeding sire to son/Tho vanquish'd oft/Is ever won !"

If I am not mistaken, the special feature of Jadavpur has traditionally been a conscious stress on science and technology. I am old enough to remember the time when braving problems of privation, young scholars would study abroad, and then come back, not to cushy jobs but to further assignments of service to the people. Things are different now, and young people, born and brought up on the Scarce resources of Mother India, are often lured away to affluent countries, the "brain drain" costing us hardly less then the earlier direct imperialist exploitation of our people. The current craze that drags some of our finest pupils abroad cannot be wished away, but it needs to be consciously resisted. Of course, learning knows no barriers and international intellectual intercourse is a must. But India cannot afford so much of her best talent to be spirited away when her own needs are so glaring. No doubt the defaults and degeneracies of our educational practices and the diseased socio-economic context of our life creates an atmosphere where promising graduates are driven to prefer migration in anticipation of better and freer facilities for intellectual work and for much higher financial rewards. Have we not already gifted to the United States at least two Nobel laureates in science and battalions of brilliant people who, in general, are too busy to think of the plight of the land of their birth and the pious obligation they owe to her ? How can it be that, with exceptions no doubt, they seem to forget that our roots touch different soil, that 'pile-up-profit-or-perish' philosophy is self-defeating, that, Non-Resident Indian wealth adds up now to an estimated total of 300 billion dollars (about Rs. 7,80,000 crores), that is, more than the sum generated by 98% of India's total population, while our frantic effort to attract some of that 'filthy lucre', even by laundering balck money, remains a pitiful failure ? All

this at a time when, thanks to cunning, long calculated, counter-revolution in Eastern Europe, 'perestroika' professing once to smoothen the path of revolution, turns out to be a transition to the exit of communism (without even the lately fashionable 'golden handshake' !), and as a result, the world balance being upset, a country like India is driven to scurry for cover and live on the mercy of Big Money and sign on the dotted line new 'subsidiary alliances' with the World Bank, the IMF and what have you. And we cower before the 'chancelleries of the West' when, as the Delhi Asian Conference had resolved in 1947, this country was 'no longer to be petitioners'. Where else than in Jadavpur should one call for an end to this predicament before we go too far down.

Spinoza said long ago that when History brings "shocks", it is time "not to laugh, not to cry, but to understand". This is a tremendous task, not for us alone but for every people, disoriented during a decade and more of flight from first principles, of deideologization, presaged, in the seventies for example, by 'New Philosophers' in France, Michel le Bris languorously announcing in 1978 : "God is dead, Marx is dead, and I am not feeling too well myself !" This superior, smirky intellectual *insouciance* can be dismissed as pitiful, but the peril was there. Defaming, denigrating, destabilizing of what was called 'real, existing socialism' moved merrily, however, and its shadow fell everywhere. I remember here in 1952 Jawaharlal Nehru said that a political party without an ideology was little more than "a drinking den". Believe me, I mean no harm and I have no malice, but look at the picture of politics today. The Western press is replete with reports about politics being a dirty word and politicians too often being not just "pompous asses but loathsome crooks". Perhaps, we are a little better off but I fear only a little better off. Quite often these days I have a feeling that we are not worth our salt. How the salt can again be savoured is a query I can only place, humbly and not too hopefully before you.

Forgive me a personal refernce as I recall criticism of the then Finance Minister T. T. Krishnamachari over the Mundra scandal when I had said in Parliament (1957) that we could "not trust the minister with the finances of our country and with the honour of our India". Today we have a finance minister who, for the sake of a Rajya Sabha seat affirms solemnly that he is a resident of Assam, who swallows his own formulation, as the chief spokesman of the South Group of countries, in regard to the need of a New International Economic Order, and urges acceptance of abrogation of sovereignty and of new "subsidiary alliances" with G-7 (Japan being in it as honorary white as she was a 'honorary Aryan' in Hitler's Anti-Comintern Axis.) Our parliamentary opposition can do little more than asking to know the "terms and conditionalities" of World Bank-IMF benevolence, already well enough known in these days of electronic excitement when the quickest means of communication are no longer only three, namely, "telegraph, telephone and tellawoman". My hope's sole prop is Marxism-Leninism and the Left movement, invincible in the long run because the heart of the people everywhere is on the left even as their pocket is on the right. But I am dismayed that while we have rallies and *bandhs* and *jail bharos* and what not, enormous mobilization of our people's strength recurs often in Calcutta's *maidan* and elsewhere, demonstrations apparently powerful enough to bring down many Bastilles, but they almost fizzle out in pettifoggeries and

mounting miseries. I do not and cannot ask for the moon, but perhaps our people deserve a better scenario.

Meanwhile, the peril to our country grows and the West that has never forgiven India her freedom, enjoys and fuels failures of Indian statesmanship, whether in Punjab or Kashmir or elsewhere, with treason stalking unashamed, hoping that "if it doth prosper it will be no longer treason". With our neighbour countries we have not evolved amity yet. I remember our ambassador K.P.S. Menon's interview with Stalin in February 1953, when the latter remarked on the "crudity" of partition on the plea of "religion" and wondered if India contemplated a confederation to repair the damage. On top of everything, unashamedly communal-chauvinist forces are at this moment staging a *Yatra,* presumably for India's Unity ('Ekta') but as a body-blow at not only the stability but the historically evolved entity of a multi-cultural India, a repeat performance of last year's *Ram Rath* that began as perhaps a pantomime but turned to be the sinister signal of sustained assault on the 'unity-in-diversity' which, however today's academic conceptualizers may scoff, has been the glory of our emerald country.

It will not be inaccurate to note that the present-day moral-political atrophy is a world phenomenon, emanating from what I repeat has been the sophisticated, surreptitious and to that extent more sinister counter-revolution which made Gorbachev a hero in the West ("Man of the Decade" and Nobel laureate), then a prim little poodle petted first and then smacked hard enough to stop even its whines as the Soviets collapsed and malevolent mavericks dangled before the people the uncertain goodies to be made aplenty by the market economy, through which repentant socialism gets reintegrated into 'civilized' life and waving the flag of 'non-confrontation' waits for the reign of 'universal human values'. Maybe, there is some honest naivete about it. No doubt, also, deadly distempers had eaten into the body politic, even as hostile forces had never ceased many-pronged assault and friendly Third World movements fell short, the result being demoralization which only the oxygen of Marxist principle could cure. Thus, the once proud Soviets were found to beat their breasts, repudiating the legacy of Revolution (whose glory even betrayal cannot diminish or besmirch), pleading it was puny and feeble before a world that had come to know (and fear) its people as ten or at least eight feet tall ! A stunned world is told that what was known, on the most credible testimony—of Rabindranath Tagore and Romain Rolland, of Bernard Shaw and Sidney & Beatrice Webb, of Paul Robeson and Charlie Chaplin and Pablo Picasso and so many, many more of the world's summit—had been abracadabra, that here was History's most extraordinary 'Confidence Trick'. However faulty and frail the socialist countries in Eastern Europe, they also had great accomplishments to their credit, but the moral debacle in the Soviets was a godsend to the West—not accidental but long assiduously prepared—which had targetted that 'focus of evil' and brought about the dismantling of socialism. One must wait for a thorough study of the phenomenon but meanwhile suffer a 'counter-revolution' and its spreading venom. Even if history has been retarded by perhaps half a century, let me say with the great Afro-American W.E.B. du Bois : "The only possible death is to lose belief in the truth of socialism, simply because the great end comes slowly, because time is long."

Last year this Convocation was addressed by a distinguished Chinese academician, and only the other day we had the welcome visit of China's Prime Minister Li Peng. It seems Li Peng was once asked if with Marxism-Leninism cornered and thwarted, China, adhering to her faith, felt "lonely". He answered that with 1.1 billion people at home he had no call to be "lonely", and he had no doubts about socialism's future. Even Zbieginew Brzezinski (how unpronounceable the name !) who lately rejoiced in *The Grand Failure : Rise and Fall of Communism in the 20th Century* could not fail to note that the masses everywhere still respond to communism's call and much of the intelligentsia have sympathy for it—recognition this of the invincibility of this world-idea. Didn't Lenin once say that "Russia, India, China etc." comprise the world's majority and will one day change life for all people ? If Russia defaults, there is not need for panic, since the spirit enkindled in Cuba and Vietnam and wherever "the wretched of the earth" are preparing to rise to freedom and fulfilment have heard the Marxist evangel and know they must "march breast forward/never doubting clouds would break/sure that we fall to rise/are baffled to fight better/sleep to wake". Brzezinski's native Poland, reconstructed but reeling, has, one learns, a Beer Drinkers' party with sixteen members in Parliament ! Let that be, but what Marx described as "the filth, the shame, the inhumanity of capitalism" is writ large on the map of the world's experience. "Never forget the class struggle" is a Mao Tse-tung dictum to forget at our peril. Stalin's prognostication, rather thoughtlessly shunned, about the accentuation of class struggle with the advance of socialism, needs also to be assessed in view of the changing reality. I hope the relevant Faculties here and elsewhere, with some direct experience of low 'Marxology', 'Sovietology' etc. have worked in Western academic and ruling circles will help in unravelling a purposefully tangled scenario.

In the Third World which, though presently immobilized, must turn soon, we are, as Indira Gandhi said in her Prebisch Lecture in 1983, "the step-children of the Industrial Revolution" suffering attack, she added, from "surrogate colonialism". Our problems can never, never be solved till socialism takes over. How apt it was when Fidel Castro, whose slogan 'Socialism or Death' gives vent to a new elan told an international meeting that if a minute's silence is observed in memory of each of the millions of infants dying in any year on account of hunger and maluntrition, they would have to keep standing even when the 20th century ends and the 21st makes its entry ! How can mankind's future be safe in the hands of the dominating 'West' that dropped the atomic bomb on Japan, waged germ warfare in Korea, sprayed chemical death in Vietnam—the victims, let it be noted, non-white countries. There are numberless decent good souls in the Western countries, but in the vocabulary of power the 'West' has a certain connotation. It was this 'West' that highjacking the United Nations, moved recently to secure grip on the world's most strategic area, the Middle East, by teaching a lesson, not only to Saddam Husain's refractory Iraq but to all countries, when the latest instruments of super-technology and electronics were experimented with, spectacularly. We are "without the pale", our kind of country (Iran and Iraq were called "five letter countries" by the London 'Economist'), and so during the United States' strike on Iraq, there

was a tank 'war' in the desert where 2000 Iraqis surrendered before enormous American tanks with ploughs and bull-dozers in tow and as many as 6000 or more were just buried alive in their trenches ! Maybe the 400 year-old bones of Hugo Grotius, father of international law in war and in peace, turned in the grave, but with so much of the dreary drip of democratic drivel all around, neither the world's politicians nor the press stirred to curse such enormity. With the world balance we could tilt from time to time now gone with the wind, our globe is perhaps now safe for the Heavenborn exploiters and tormentors of humankind. Perhaps India's one-time occupation as the unofficial, if unacknowledged, conscience-keeper in world affairs is gone for ever.

In cannot be and it must not be, with India-China coming nearer each other, with the Middle East more aware that the 'West' is bent on following up British premier Lloyd George's wicked exhilaration in 1918 about World War I being, in that region, "the last and the most triumphant of the Crusades", with debt-trapped and virtually death-doomed country after country learning what is what, things will change and must—and the sooner the better. Can our country not play a role in this precarious but pregnant moment of history and will not our youth rise to the occasion ? A moral-political upsurge is what the world needs and India must be ready.

In Marx's *Capital*, there is a passage that "when Money appears it has a congenital stain on its cheek but when Capital emerges it drips with blood and dirt from every pore". An almost exact anticipation is in *Shantiparva* in Mahabharata : "Big Money cannot be made unles you tear the heart of others, unless you are ready for vile deds, unless you can kill like the fisherman kills his prey". Parallel to our ancient Indian stress on plain living and high thinking, Marx condemned consumerist excesses that are typical of our times—he condemned "inhuman, sophisticated, unnatural and imaginary appetites", for "private property does not know how to change cruder need into human need". The cult of avarice, of money as "the one unambiguous criterion of success" promotes "in human" appetites, whether for drugs or for instant passports to bliss through *gurus* and God-men and what not, while Marx expounded "the *wealth* of human needs" under socialism, "a new manifestation of the forces of human nature and a new enrichment of human nature". If like David, we collect stones for our weapons from our own Indian brook, we find how near and kin to Marx is our land. When shall we cease to be derivative and secondary and imitative in the world scene (this is a lurid legacy of subjection to Britain), when shall we move mountains to go ahead ?

In his comparatively mellowed response to *A Million Mutinies Now* (Heinemann 1990) in India, V.S. Naipaul, struck earlier by our kind of country to be "full of primitive people who tell virtuous lies", relents as he points out, less acidly : "the destructive chauvinism of the Shiv Sena, the tyranny of many kinds of religious fundamentalism (people always ready in India to let religion carry the burden of their pain), the film star corruption and racial politics of the South, the pious Marxist idleness and nullity of Bengal". The sting is in the tail, but it should not provoke us. Let us rather contemplate the best in our people to rejuvenate our faith, if that is our fait, that India's glory is not that she survives, almost, as E.M. Forster once wrote, as "some low but indestructible

.orm of life". We are a people who have bidden defiance to Time (as Romain Rolland rejoiced) and are determined to hasten the world's great new age. Please forgive certain "words of learned length and thundering sound" that I might have imagined appropriate for Convocation addresses and give an old, somewhat weary but yet unbowed, servant of his people the assurance that our youth will not go astray and even if many shrink and sneer, they will keep the flag of freedom and fulfilment flying high over our India.

Myay rahoon yāna rahoon, iss chaman ābād rehey. (No matter if I am here or not, may this garden continue to blossom !')

ANNUAL CONVOCATION ADDRESS

By

Professor S.K. Joshi

DIRECTOR GENERAL

Council of Scientific & Industrial Research

December 24, 1992

Mr. Chancellor, Mr. Vice-Chancellor, distinguished guests, teachers, graduates of the year and friends :

It is indeed an honour for me to have been asked to deliver the 37th Convocation Address of this university today. I congratulate young men and women who have received their degrees. You would soon enter a new phase of life. This university would feel proud of you if you entich the nation through your contributions, whatever be the sphere of your activity.

The university has had a continuous stream of dedicated teachers and students. Calcutta reminds me of the great pioneers of science who worked here : C.V. Raman, J.C. Bose, P.C. Ray, Meghnad Saha, S.N. Bose, K.S. Krishnan, P.C. Mahalanobis and many others. Sir Ashutosh Mukherjee made Calcutta Universiry famous by inviting distinguished scientists and scholars from all parts of the country to occupy professorial chairs and he provided them conditions conducive to their work. In fact, Calcutta also provided the first home to CSIR to which I being. The first unit of Council of Scientific and Industrial Research (CSIR) started functioning under the guidance of Sir Shanti Swarup Bhatnagar in the Alipore Test House, Calcutta.

We are meeting at a time when the country has just been shaken by catastrophic incidents of Ayodhya and its aftermath. These incidents have badly tarnished the secular image of India. Indian state is based on fundamental commitment to secularism. We are a multicultural, multiethnic nation and there is no future for us if we leave the path of secularism.

We have to build the spirit of brotherhood, tolerance and compassion. We have to generate an environment in which followers of different religions live in peace as brothers. We have to promote spirit of harmony and cooperation, the spirit of accord and understanding, the spirit of tolerance and countesy. Communal madness is a sure path of destruction for us and for everything India stands for. Let us not loose hope. India has weathered many storms and absorbed great shocks. Let us all join hands in strengthening the pillar of secularism of the Indian state.

India is the country with the second largest population in the world after China. We are today

saddled with problems of population, poverty, unemployment, health, shelter and illiteracy. Science and technology in today's world are the keys to development. But in the Indian context we have not done as well as we should have. We have got used to looking towards developed countries for science and technology. Every country is concerned with its own problems and since conditions are different in our country from those in the advanced countries, it is not easy to find answers to our problems in the research work done elsewhere. We shy from working on problems which are our own. Indian R & D should be imbued with the social goals of India. Our science should be meshed more closely with our major developmental efforts. Our future lies in developing innovative technologies relevant to our needs. We shall have to invest in innovation.

Science and technology in India cannot divorce themselves from rural needs. Two thirds of our people live in villages. A large number of our people live below the subsistence level. We cannot ignore their expectation for a better life. We should think how science and technoogy can percolate to these people and help the nation in improving their lot. For finding ways and means of reducing unemployment, we should look at available resources and develop rural technologies which harness these resources like plants, minerals waste etc. Local crafts in villages must be upgraded in terms of output per person and lessening of drudgery. Drinking water and sanitation are areas where scientific inputs would be needed. We have to participate in the process of development.

The Government has announced various policy changes with a view to modernize the economy and make the industry conpetitive globally. The rupee has been de-valued and made partially convertible. The new policies have created several opportunities for science and technology to play a dynamic role in our technological advancement. In the new industrial policy, industrial licensing has been abolished for all projects except for a short list of industries related to security and strategic concerns and social reasons. Approvals for direct foreign investment upto 51 per cent foreign equity in high priority industries are given speedily. With regard to public sector undertakings, the policy changes envisage greater thrust on performance improvement.

Liberalized policies prima facie appear attractive for the import of technologies. However, it must be recognized that latest technologies are never available for importing, and technology imports have become costly. In view of these, it has become all the more important to indigenously develop technology. Indigenous technology would have to compete with available technologies from anywhere in the world. We therefore, have to develop globally competitive technologies. CSIR laboratories have realized that the days of protectionism are over and we are working in the midst of a market driven economy. Our laboratories are also exploring the avenues for exporting our technology and skills to other countries.

In the Council of Scientific and Industrial Research, we are trying to improve our linkages with industry. We have to develop a symbiotic relationship with industry. We are concentrating mainly on projects which are needed by industry. We are making special efforts to make our research more marketable to industry. Developing technology is a group effort. As a people we tend to be

individualistic in our outlook and our scientists and technologists are not wholly immune from this tendency, often preferring to work by themselves. This also presents problems.

We have failed to respond adequately to an increasingly competitive world. We are tolerant to inefficiency and imperfection. The zero error system, vital for achievement is not in our ethos. Deadlines are never dependable. Time schedules are compromised. Our products lack the touch of the class, so vital for the global market. Inflexible standards are anathema to us. We are not accustomed to strict accountability with attendant rejections and punishments. Outside our own land, Indians are regarded to be the most hardworking and intelligent people. This is so because there they work in an environment where there are rewards for hard work, intelligence and integrity, and punishment for failure.

In any sphere of our activity we have to nurture excellence if we have to survive. Excellence demands discipline, tenacity of purpose and will to win. Ordinary men are envious, they resent superiority in others and will work against eminence at every opportunity. We must accept and make our colleagues accept that innequality is healthy if it leads to excellence. One main obstacle to excellence is prevalence of influence and privilege. The word nepotism comes from 'nephewism' and it explains why we are ridden with unproductive manpower. We too often hire wrong people on wrong considerations. Our institutions should not hire people on considerations other than merit.

Our attitudes also are conservative and anything new seldom gets a chance. The work on solar energy at the National Physical Laboratory (NPL), New Delhi was started in early fifties by Dr. Krishnan and Dr. Ghai, when there was not much interest in solar energy anywhere else in the world. This work was criticized and later dropped. Today solar energy is being investigated vigorously all over the world as one of the alternative sources of energy. For India, with plenty of sunshine, solar energy should be tapped much more and there is plenty of scope for its exploitation by us. The feeling that anything made and developed in India is inferior to what is done outside should disappear from our minds.

There has to be greater degree of collaboration between universities and the national laboratories. These two institutions complement each other. Generally universities would be the places where basic research work of the highest quality should be pursued and the laboratories of CSIR has a mandate to develop techlonogies and new processes which are needed by industry. CSIR is eager to intensity its collaborative programme between scientists working in universities and laboratories. CSIR has been collaborating with universities to offer formal undergraduate and postgraduate programmes in specialized areas of value to industry, for example post-graduate degree programmes in foot wear science and technology ; diploma courses in prescision instrument technology ; flour milling ; industrial electronics etc. There are also short term programmes in specific areas like allergy and immunology, assay of drugs, toxicology, metal finishing, electro-metallurgy, fuel combustion, road construction technologies etc. CSIR spends about 10% of its budget in supporting research in universities. There are associateship schemes

which support visits and extended stays of university researchers in CSIR laboratories for collaborative work. It is desirable that university researchers make use of these in order to use sophisticated and costly facilities which are available in national laboratories.

I have spent a major part of my life as a university teacher and I fully realize how CSIR laboratories would gain by improving contacts with universities. Universities are nerve centres of intellect and learning. Unfortunately those institutions are not being properly funded and nourished tday. Universities have to be strengthened because it is there where we train our young people.

The standards of education in many of our universities have gone down. I am sure the university community here is striving hard to fight such a trend. The quality of our education is decided by the atmosphere in which the academic community operates. Let us create an atmosphere of openness, of magnanimity, of recognition of merit and quality, of objective and rational thinking, of unselfishness and team work. Let us respect differing thoughts. Quality must be recognized and cultivated as something precious.

Any university is known by the teachers it has. Teachers should have an infatuation for their work and should inspire students. The respect for the teacher is due to his selfless devotion t duty, intellectual vigour, purity of life and nobility of thinking. He should set an example of what is best and what is highest in human values.

I would implore the students of this university to develop a greater sense of devotion to duty and hard work. The force of character, mind and heart that a man can put into any work is the most important factor for success. The greatest danger that we face in our country is the breakdown of will to work and courage to work. You are not made for leisure. You should be known for your efficiency, your sense of responsibility and your capacity for work. You should have an ideal to achieve and should strive for it. There would be severe trials and frustrations but these ought to be faced.

On you, our young generation, will depend the future of India. You would soon join some prefession. You should not shirk any work you undertake. Honour lies in honest toil and diligent devotion to duty. Success comes to those who are not afraid of hard work. As Ruskin says, "If you want knowledge, you must toil, if food you must toil for it, and if pleasure you must toil for it, toil is the law."

If you honestly and diligently pursue your work success will be ultimately your and you will enjoy it more because it has been won after a struggle. Do your duty according to your conscience and do not be afraid of criticism. Criticism is generally directed against those who achieve something. Nobody cares about a dead dog.

Very soon the year 1992 will yield place to the New Year 1993. I wish you happiness and satisfaction through your work during the coming year. I again thank the authorities and all of you for giving me this opportunity to be with you today.

ANNUAL CONVOCATION ADDRESS

By

PROFESSOR U. R. ANANTHA MURTHY

GUEST-IN-CHIEF

December 31, 1994

Mr. Chancellor, Mr. Vice-Chancellor, Members and Guests of the University and Friends :

I am deeply honoured by your invitation to address this year's convocation when your university is launching a number of bright young people to face life. Living the life given to us has never been an easy task : but it would not be a truism to say that in our time it is harder than ever before. I mean by this not only the threat of shrinking opportunities for meaningful employment for the young, but the anxieties created by a fast changing world which appears to have no patience for an inward looking thoughtfulness or contemplative tentativeness. It is a world of hard-sell. What counts is speed. Most tests for admission to prestigious institutions are passed by students who have mastered speed. There is no room for inwardness which has to struggle for sensitive articulation if you want to get on. Also, everything sems to become obsolete very soon : In this age of consumerism one has to constantly catch up with the latest trend not only in fashions, but in theoretical formulations as well. In the words of a poet, no time now "to stand and stare". not for leisurely absorption of the world around us in "wise passiveness".

Yet I speak today with some hope, for you belong to a great civilization which has cherished continuity of memory, memory enshrined in your rich language. No other province in India or any other place in the world has chersihed poetry or music more than Bengalis have done. Hence for the rest of India you will remain a model, as you were in my own formative years in school and college in the remote Sahyadri region of Karnataka. But it is needless to say you will remain so only it the temptations of a capitalist oriented globalisation doesn't result in a state of cultural rootlessness and mindless cosmopolitanism for you.

I say this, however, with some trepidation. Some of my best friends among your writers are apprehensive that the elitist temptations have begun to affect Bengali families also, who bring up their children in English medium schools. It would be a sad day when some of the best minds in Bengal whether in science or humanities are incapable of expressing their subtlest and most complex thoughts in Bengali. Such an eventuality isn't progress but a regression so far as Bengal

is concerned. Not only the great Tagore, but some of your great scientists and historians and philosophers have enriched Bengali in the past and have been models for a Kannada writer like me, coming from the South. Therefore I appeal to the young who are graduating today, never to lose their capacity to use Bengali also as a medium of their complex and profound thoughts ; I say "Bengali also", because in the world that we have to live who can ingore the ambiguous gift that Macaulay brought us ? And also isn't it English education, the passionately desired gift of the great Raja Ram Mohan Roy, which ushered in modern civilisation and created a new temper of mind in our land ?

And are we not, even those of us who are critical of westernisation, beneficiaries of this ambiguous gift ?

As a writer in one of the Indian languages, I have now shared with you my greatest anxiety, I need harely spell out the political and economic forces at work which are inimical to decentralisation and pluralities of culture. The disease lies in our uncritical and unwise worship of development at all costs. Our forefathers who advocated "modern civilisation" and entered into a spirited *vagvad* with Gandhiji never would have suspected that modernisation would result in a blind worshipful imitaiton of the West. And such large scale brain drain, particularly of the young people who receive expensive education in elitist institutions, could not have been visualised by the patriotic advocates of modern western civilisation.

Marx said that the beginning of all criticism is the criticism of religion ; this was very true for the 19th century. What is true for our times, as Simone Weil has observed, is that there is new thought possible without a criticism of the dream of limitless development which modern technology has made possible. Your great university which can truly be pround of having achieved excellence in the fields of engineering, science, and humanities should be able to give the nation a lead in raising a country-wide debate on this issue which will result in a critique of development. I must add here that it must be a reponsible and informed critique from the point of view of a nation like ours which is still plagues by poverty, ignorance and subsistence economy which brutalise life. Poverty, like thoughtless development, is also a polluter.

I am encouraged to raise this issue of a critique of development today in your convocation, for a good reson. Your university is a unique institution ; it grew out of the Council of National Education. And the Council itself, was the creation of the great visionaries of the Swadeshi phase of India's freedom struggle. You are, as an academic community, very alive in your political, scientific and cultural engagements with the present. Otherwise, you would not have been asked to host the Science Congress, the meeting of some of the best minds in our country. As a writer an teacher of literature myself, I have friends in your university from whom I have always learnt and drawn inspiration. I will share a secret with you. When my own university would not find a place on its syllabus for a novel of mine you were the first, several years ago, to teach the novel. The others followed you later.

May I now raise another issue which is in a way connected with what I have been rambling about ? This is about excellence in education. As vice-chancellor in a university of Kerala, I had observed that the passion of the political ethos in Kerala was for levelling, and an outcome of this passion which as a socialist I too shared, was an indifference to excellence with which I could not sympathise. The indifference to excellence which was certainly not a conscious hostility to excellence, distressed me. I kept talking about this with my leftist friends. Can we not combine our passion for an egalitarian society, which I believe is the intensest spiritual driving force of our century, with a concern for excellence ? For, can we ever be authentic in our pursuit of knowledge unless we care for the best ?

This takes us directly to a problem which may be inherent to parliamentary democracy. Political parties in search of vote banks are tempted to make cheap populist appeals. They begin to compete with each other in false promises. Take for instance how political parties are vying with each other on the eve of elections, on the issue of reservation. The hypocrisy involved in this exercise is appalling to anyone who is passionately committed to the creation of an egalitarian society. Reservation as affirmative action in the interest of the disabled, should be *one* of the measures, and not the *only* measure. On the one hand, we decide to opt for privatisation and thus reduce opportunities for employment in places where reservation can be implemented ; on the other hand, we do everything we can to increase inequality between the children of the fortunate and the backward sections of the people by creating different kinds of schooling. While in English medium schools for the rich there are computers, there is no teacher or even blackboard in many Bhasha medium schools in at least my part of the land, for the backward. Would any amount of reservation, however generous, ever be able to create equality among students after having deliberately created inequality of skills ? We do not yet know what potential there is among the backword people of India who have remained for centuries without the gift of literacy. How can we ever harvest excellence from our people unless we spread the net far and wide in the ocean of humanity that has lived in the dark and never entered into the mainstream of history ? We have for centuries fished in small ponds of upper castes for talent. Hence neither populism, nor its opposite elitism could help us in our search for excellence. The plain truth is this : if we are passionately concerned with social justice and an egalitarian society we should have the same school system for all children. Do not make any differences among children at least up to the tenth standard. If found necessary, they can go to different kinds of institutions when they have had an equal opportunity to blossom. The medium of instruction for all children should be the language of the region. And there should be reservation only for the first generation of the backward. Only in India do we find the absurd situation that while one may be exquisitely literate in an international language, one can also be illiterate in the language of the immediate environment. And this makes him or her very proud and special. This is not yet true of Bengal—but for how long ?

I feel profoundly honoured that I am associating myself with your convocation which is conferring honoracy doctorates on two of the greatest cultural figures of our sub-continent. Shri Shamsur Rahaman is not only a great poet and the conscience of Bangladesh, but a relentless fighter for the language of the region, and I am delighted that in his own person he embodies fully what I have been trying to speak here in my inadequate English. Only those like Shri Shamsur Rahaman who cherish a specific culture can become genuinely universal. Writers like him go beyond national boundaries. Shri Sombhu Mitra is a living legend in the whole country. Karnataka, from where I come has a living theatre now, and Shri Sombhu Mitra has all along been a model for the great practitioners of theatre there. I greet him on this occasion on behalf of his numerous admirers in my land.

Let me greet all the young people graduating today. Along with your teachers and the administrators of the university you have also contributed to the life of the university and thereby you are leaving behind you a model for your juniors to follow. This is how great living traditions are created where freedom of thought and opinion, courteous conduct, and vigorous discipline without which there is no learning, are not seen as antagonistic.

Any university at its best creates *acharyas, acharyas* who master the learning which is handed down to them. But there are some who question the entire knowledge system, and create new thought. These are the *rishis* and they are rare anywhere in the world. We may not become *rishis*, but all of us can strive to become *acharyas—acharyas* with an open and receptive mind who can listen to a *rishi*, however unsettling such an experience is. I wish you all not mere contentment with what you have mastered, but disturbing encounters in the adventure of knowledge.

ANNUAL CONVOCATION ADDRESS

By

Dr. Romila Thapar

December 24, 1995

Mr. chancellor, Mr. Vice-Chancellor, Distinguished Guests, Students and Colleagues.

It is indeed a great honour which the Jadavpur University has bestowed on me in inviting me to deliver the convocation address this year. I am deeply appreciative of this gesture, especially as it comes from a university which has established itself among the best in the country.

I would like to take this opportunity to argue that although serious study of the early past of our society is on the decline with students preferring the lush pastures of science and commerce, nevertheless it remains a crucial area of investigation as it is intimately linked to the present, and more so in the context of our immediate concerns.

It was only recently proclaimed that the end of history had arrived with the victory of global capitalism over socialism. Yet within the short span of these last few years we have witnessed and are continuing to witness, the most dramatic resurgence of ideologies and aspirations which have a distinctly nineteenth century feel to them. These have brought back history if ever it had indeed been ended with a disquieting resonance. I am not referring only to the ethnic confrontations in former Yugoslavia, but more widely to actions motivated by theories of racism and of ethnicity, and of the permeation of religion into politics. Such actions are more than visible in the heart of global capitalism as they also are in the societies of our sub-continent.

The intellectually fashionable periodisation today, speaks of history in terms of the pre-colonial, the colonial and the post-colonial. The latter two are familiar and subject to much discourse. But pre-colonial history in India, is largely unfamiliar to those who conduct this discourse. Nevertheless generalisations are made about the pre-modern tradition in India and these frequently derive from what is assumed to be the tradition, an assumption often based on the negation of that which is held to be characteristic of modernity. There is little hesitation in using colonial constructions of "tradition" or "community" or "culture" in speaking of an earlier historical heritage. A familiarity with the various pre-colonial associations of these concepts is regarded as unnecessary. If, as some historians assert, cultural concepts are to be given priority in historical explanation, then surely these concepts have to be viewed from a historical perspective. It to me that this is all the more necessary in a society which even today carries so many "cultural survivals" from

earlier times. Part of the reason for this unconcern with earlier history is the theory, disturbing for the historian, that all historical moments are isolated, fortuitious and contingent. The logic of this would justify even the rejection of history and if the historical moment belongs to a post-colonial situation, its antecedents or mutations from a pre-colonial or a colonial time would be regarded as irrelevant. From a historian's perspective, this is unacceptable.

We are being encouraged today to take a fragmented view of ourselves and of our past, where the fragmentation follows from the premises of nineteenth century interpretations of our past, and which had hopefully been replaced by a holistic view when we terminated colonial rule. In speaking of a holistic view I am not endorsing the claim of ruling groups to represent the whole, but am insisting that the relationships between various groups which constitute society be included, even where some of these are confrontational. Fragmentation has returned in many forms, the most prominent being religion-based nationalism, the kind of nationalism which we had believed had been laid to rest at the time of independence. Added to this is caste and regional chauvinism. Some would view all these as products of the nation-state and argue that once the nation-state disappears so will these, but how this is to happen and what will replace the nation-state remains unclear. For the moment, the national at least, is visible and apparent. It is more realistic for us to ensure its well-being through actions which we regard as instrumental for the common good.

The return to a holistic view requires a reassessment of the relation of civil society to the nation-state. In this the secularising of our society as part of the process of change envisioned in modernisation, becomes a central issue. I would like to argue that this is not matter related only to religious identities and religious nationalism but has implications for the totality of social change. Further, that although it differs from our pre-colonial past, such a secularising is not an attempt at alienating ourselves from our tradition, since the pre-colonial past has, in ample measure, ideas and institutions conducive to the secular.

Secularism in Europe has its own history. Its association with the separating of religion from civic life, is only of recent times accompanying the advent of the nation-state and the historical process of modernisation. The meaning of the word has changed in European intellectual history and therefore its exact translation cannot be sought in non-European languages, but as a concept it can be located in cultures where this historical process is taking place. For the Romans "secular" meant a specific period of time, generally a hundred years, marked by holding games and worshipping the gods. Because of its association with a long temporal duration it came to be used gradually as a description of the world which has existed for a long period. This was later contrasted with the Church which had a briefer life. Secular was initially taken in this sense as that which pertained to the world and not to the Church.

To speak of secularism as a western concept superimposed on India is historically incorrect, for it is not confined to the question of the relations between religion and the state derived from the experience of the Christian Church. Within the Christian Church there was a substantial difference between the Protestant induction of some aspects of secularism and the Catholic confrontation with it. The Lutheran Scandinavian countries had few problems with secularising their societies, the Catholic priests of Italy and Spain, not to mention Latin America, are still battling with it. The crux of the confrontation is not around the religion of the individual or its negation but over the question of the authority of religious institutions or institutions inspired by religious identities over civic life.

By the mid-nineteenth century the definition of secular focussed on the question of ethics. It was stated that social morality, central to the secular, should have as its sole basis the well-being of mankind to the exclusion of considerations stemming from a belief in God or in a future condition. The key elements of this morality were legal order, political freedom, individual autonomy and material well-being. These are elements endorsed even by those that find modernisation antipathetic. The emphasis therefore is not on a hostility to religion but on rational and moral principles governing society, or the absence of social ethics. Yet there is a persistence in arguing that the secular hinges solely on the conflict between Church and State. In the definition of secularism, the state is not the arbiter of conflict or co-existence between religions, nor is seculrism the ideology of statehood. If we have conceded this to the state then this will need to be corrected by the state having to adhere to the values and ethics of secularised society.

Where secularism is so interpreted, the evidence from pre-colonial India points to a relationship far more nuanced than it was in Europe and in some ways, dissimilar. This was in part due to the multiplicity of religions from early times and in part to the nature of Indian social organisation which was entirely different from Europe. There were certainly rituals to consecrate a Raja and these were moments of intense religiosity. A new Sultan was announced by having the *khutba* read in his name in the mosque. Interestingly however, state patronage was bestowed in substantial amounts to a range of what may otherwise have even been conflicting religious sects and institutions. The Mauryan emperior Ashoka encourages respect for both the brahmana and the shramana although elsewhere the relation between the two is compared to that between the mongoose and the snake. There is an on-going controversy, as to whether Harshavardhana of Kannauj was a Buddhist or a Shaiva given his endowments and support to both and this was soon after the time when the Shaiva sects of Kashmir has destroyed Buddhist monasteries and killed Buddhist monks. The Chaulukyas of Gujarat built a mosque for the Arabs trading in western India, which mosque was destroyed by the Paramaras of Malwa compaigning against the Chaulukyas. Mughal endowments to *brahmanas, jogis,* and temples are recorded, even those of Aurangzeb.

Cultural pluralism and its protection was accepted as the duty of the king. His protection of *dharma* was not religion in the modern sense for it enveloped the entire range of social obligations of which religious ritual was a part. This however is not what is meant by a secular society. Secularism is not expressed merely by the state protecting and ensuring the co-existence of religions. But, where there is evidence for this from the past it increases the potential for locating those historical activities which would be conducive to the encouragement of the secular today.

The notion of a state religion in pre-colonial India also becomes somewhat meaningless when it is apparent that political power was relatively open throughout Indian history. Ruling families frequently came from groups ranked as socially low or from obscure families, where some made an effort to cover this up with fancy origin myths and claims to *kshatriya* status. But in the process of becoming politically established they tended to carry their religious cults with them and these had then to be recognised as part of the established religion. They entry of Shaktism into upper caste practice was in part due to this process. Where such kings could eventually claim to be the *avatara* of Vishnu, the centrality of a God as a focus of power, begins to pale.

Alternatively, an existing state sometimes had to extend its patronage not only to the established religious institutions but even to a cult of the marginalised groups in order to strengthen its authority. Although such cults are sometimes brought on par with upper caste religion, their local roots and specific meaning remain and distinguish them from other such cults. Thus the worship of the hero-stone among pastoralists in Maharashtra was mutated into the cult of Vithoba, the Yadava dynasty encouraging its identity with Vishnu. this resulted in Yadava control over large tracts of the less fertile parts of Maharashtra. The same process has been sketched for many other areas especially at the turn of the first millennium A.D.

If one takes a long view of the past, human societies have moved from the palaeolithic to the neolithic to the chalcolithic to urban civilisations and much more. Each change brought its own anxieties and bewilderments where power and authority were conceded by some and contested by others. As far back as 500 B.C., emerging kingdoms in the Ganga plain began to supersede the clans and the beginnings of urbanisation brough further change. There was at this time a strong endorsement of social ethics. Buddhist thought maintained that ethical behaviour was socially determined and did not derive from deity, a clear separation of ethics from religion. The centrality of social ethics is a significant part of our cultural inheritance.

The history of religion in India has generally been viewed from the perspective of both the Hindu and the Muslim upper castes. Such religion was directed to a specific deity or deities and had institutions for channelling worship. Sacred space was demarcated by the temple and the mosque. Sometimes this was extended to the *matha* and the *khanqah*. Temples and *mathas* were closed to some lower castes and to untouchables, mosques and *khanqahs* were open but

nevertheless the clientele was discrete. There were orders of priests and monks, there were *ulema,* there were texts held sacred, and there was a competition for wealthy patrons particularly royalty. These were all characteristics of Christian Europe as well. But there at the lower levels of society there was an enforcing of support for these institutions, whereas in India such support was garnered but did not prevent the existence of alternative religious identities by the same people. The lower castes viewed as servants of the temple would have performed the requisite services but would not invariably have been included among the worshippers. Their religious practice lay outside these institutions and was bounded by social codes of behaviour. Since these castes, whom we now arbitrarily label Hindu and Muslim formed the majority of the population, their religion has to be recognised as distinctive.

The religion of this majority was a mixing and merging of belief and ritual drawn from a variety of religious experiences, in which the formal differentiations of upper caste religions did not generally prevail. Frequently the religious practices of these groups were unacceptable to those who defined Islam and Hinduism. Thus, *brahmanas* shrank from libations of alcohol and offerings of flesh and *mullahs* could not prevent coverts to Islam continuing to worship idols. The recognition of these religions as central to the assessment of religion in India, is a recent interest, having been substantially ignored in the Orientalist construction of Indian religion.

The claim that there was religious tolerance in Indian society is defended by recourse to texts. In fact it was the juxtaposition of various kinds of religious practices and beliefs tied closely to social organisation which was the basis of both a relative religious tolerance and a heightened intolerance based on social outcasting. Religious practices and beliefs could overlap among adjoining castes but social distinctions, were firmly demarcated. Religious tolerance was possible because of the enforcement of social boundaries, but when these transgressed or seen as competitive, as for example, between the Shaivas and the Jainas in Karnataka, the tolerance disappeared and the conflict took a religious form. Violent forms of religious intolerance were local and did not develop into *jehads* and crusades. The co-existence of religions is again described as secularism but this is not a sufficient description of secularism.

The religious reality in the past for the majority of Indians has been the recognition of a multiplicity of religions drawing marginally perhaps from the established ones, but far more rooted in local cults, beliefs and rituals and identified less by religion and more by *jati* or by *zat.* This gave them a certain freedom to worship a stone, an icon or a deity with which they alone had a dialogue. These were groups entwined by social regulations but of a local kind. They maintained a distance from the *brahmanas* and the *ulema* for they were essentially unconcerned with norms of the *sastras* or with *fatwas,* governed as they were by their own customary observances. This distance was not an idyllic or archaic freedom but resulted from the segmentation of *jati* which

kept them apart. The distancing in religious belief and practice, however, did not prevent an oppressive proximity in areas of civic concern, in the control exercised by those in authority over such groups. Within the *jati zat* there was a degree of egalitarianism. In the absence of democracy the ranking was held together by the coercion of those at the top and the acquiesing of those at the lower end. More often than not, within each broad category there was a certain consensus and some manouevrability. With the coming of democracy the coercive aspect should ideally fade away but this will not happen easily and quickly, given the force of historical conditioning.

Caste as *jati* combined in itself kinship systems, occupation and access to resources, and rituals and beliefs. Further removed socially were the untouchables and the tribals whose religious practices were yet more different. There was therefore an immense diversity even in religions believed to be uniform such as Islam and Christianity. Worship at temples and mosques was formal but the perfect worshipper was the *bhakta* who chose his own deity, his *guru*, his form of worship. Religious belief was bound by individual inclination but religious practice conformed to that of the *jati*. The pressures to conform were pressures of society and did not emanate from a Church.

As in most pre-modern societies, hierarchy bound the segments into a whole but it was not an immutable hierarchy. Osmosis between close castes did permit of some mobility although this was dependent on the historical situation. Recruitment to upper castes in the case of *brahmanas* and *kshatriyas* took the form of incorporating new groups and assigning status. Inscriptions of the post-Gupta period from Bangladesh mention an increase of *brahmana gotras* which have been explained as resulting from the incorporation of people from local Societies who were then given *brahmana* status. This becomes a feature in many areas where there was an expansion of the agrarian economy and state power. In the case of Ashrafs and Saiyyads who claimed higher status because of foreign origins, and frequently had high administrative positions, their ranks could also increase when after a few generations indigenous converts made the same claims. A change of status required a change in the way of life. Therefore only those who could invest in this change were able to make it. Others sought to alter the ranking or express their dissent by initiating a new religious sect which, in negotiating with other social groups, either negated or ignored caste-ranking, but more often than not was transmuted into a caste. Both these features make a consistent pattern throughout the Indian past.

This does not make Indians more embedded in religion. But it requires that we investigate the relation between religion, politics and society in the pre-colonial period in terms different from the established ones. Monolithic, homogenous, religious communities claiming to represent either the majority or the minority provide little explanation of the antecedents to the present functioning of Indian society. They only foster the aspirations of some present day political parties. But at the

same time, the contemporary ideology of religious majoritarianism not only moulds religion into a new homogenous and militant form to enable it to function as an agency of political mobilisation, but it also makes a mockery of democracy by giving to the majority a pre-determined identity. The fears of those labelled as minorities are also sought to be allayed by encouraging them to resort to uniformity and militancy.

This is not to suggest that there was an absence of communities in the past, but that the community identities were many and drew on caste, location, language, religious practice and belief, some of which intersected. These were not communities identified across the sub-continent by a single, recognised, religious mould. Communities are in any case constructed, which is why there can be intersecting identities and these identities can disappear over time or survive in variant forms. The current recognition of monolithic religious communities is also a construction which grows out of the way Indian society was perceived in the colonial period. Social memory is also influenced by historical perceptions.

The induction of the secular into a society cannot be a partial experience, revolving around religion. It is a component of a bigger change involving primarily the introduction of democracy, but also of new technologies, and the emergence of a new social group, the middle-class, which breaks away from earlier social identities. There is inevitably a search for new identities and in the Indian situation of recent times, encouragement has been given to religious identities, on the basis of a particular interpretation of what is regarded as the Indian tradition and Indian history. Secularism is no more a western concept than is the middle-class or the nation-state, even if all these are changes introduced to the world as a result of capitalism or colonialism.

The recognition of the secular relates to specific historical changes experienced by a variety of societies and may well in the next century result in varied manifestations. In Europe this change was associated with societies which had been confined to a single religion which evolved as a focus of power and therefore came into confrontation with the state. In India there has been a multiplicity of religions and the state did not need to confront these. This pre-colonial experience should make it easier for us to secularise our society provided we can cut our way through the impositions of the last two centuries. Religion in India, even if viewed in terms of Hindu and Muslim, has had a strong personal component and has not been dependent on a Church. It would therefore be regarded as natural that religion be a personal matter, a matter of faith, and neither the concern of the state nor of the self-appointed theologians of any majority or minority community. To draw on a secular tradition from the Indian past would have less to do with religious identities and more to do with the questioning of social boundaries.

The problems of the monolithic religious communities, created and endorsed by colonial and, to some degree, nationalist opinion, remains with us. If the nation-state has accepted these

identities, then the failure lies with civil society acquiescing in this acceptance. We are hesitant to recognise the elements of a different tradition which I would argue is the historical heritage and which although not secularism, would nevertheless legitimise a secular social ethic. This in turn would empower civil society to strengthen democracy and prevent authoritarianism by the state. Secularisation creates new categories of cohesive social relationships which can monitor the activities of the state. The monitoring is not necessarily a self-conscious act for it is written into the legislating of human rights. These are opposed to any identity used for constructing monolithic, homogenous, religious communities, or for that matter even communities identified by race and ethnicity. Such identities are only too present in various parts of the world and are by no means absent in the subcontinent where they have become the major source of opposition to the rights necessary to an enlightened society.

The secularisation of society is neither an easy nor a rapid change. The requirements of social justice and of social welfare, with precedence for subordinated groups and gender justice, have not been given priority in Indian development and are likely to be brushed aside by the demands of global capitalism. To try and hold back modernisation is now a fantasy. But we cannot be passive recipients of modernisation. In the absence of the practice of human rights and social justice, a modernised state can become merely another oppressive state; and where it appropriates the kind of nationalism which creates ghettos, it becomes a fascist state. Ideologies of social welfare and social justice can be effectively put into practice by the state, but their continued existence if not enhancement, should become the essential concern of civil society. This implies not just an expectation from the state, but more importantly, the ensuring of their presence in our institutions. It is only through empowering that which is secular in our society that we can hope to live with dignity.

ANNUAL CONVOCATION ADDRESS

by

Prof. Dr. Man Mohan Sharma, F.N.A., F.R.S.

Guest-in-Chief

December 24, 1996

Mr. Chancellor, Mr. Vice-Chancellor, Guests, Students and Colleagues :

Technology will play a pivotal role in the economic well being of our country. Technology constitutes the big 'C' of the capital and is very difficult to acquire. In recent years, notwithstanding liberalisation, there is a clear evidence of denial of technology even in purely civilian activities. There is a definite trend towards world leaders and in major areas just a handful of players, typically 4 to 5, matter. Thus entry in such areas is extremely difficult and, with import barriers vanishing or being of small value to be inconsequential, competition becomes extremely difficult, if not impossible. We may also ask a question whether exports are indeed on a totally rational basis. It is thus abundantly clear that the self pride of a nation will critically hinge on having global leadership in some selected areas and technological capabilities across the entire spectrum. India is emerging as a country where a large number of highly talented engineers and technologists can be located and here the Universities play a crucial role.

Young students have a passion to take up courses in engineering and technology after their H. Sc and indeed most merit holders, if not all, gravitate towards engineering and technology, medicine and sometimes commerce. Thus we can count on high calibre students unlike many developed countries. What next ? What are our strengths and malaise ? We have a limited number of really good institutions in engineering and technology. In early 80's we saw a major change in the policy and privatisation was ushered in with unusual vigour and if I might say with undue haste. Today we have an annual intake in all branches of engineering and technology taken together, at degree level, of about 1,10,000 and you may like to see this in the context of a number around 70,000 in U.S.A, the most developed nation. Of course, we are a nation of over 900 million people *vs* some 250 million in U.S.A. Are engineers going to do jobs far below their calibre and training ? Are some entrepreneurs going to emerge ? I am unable to reconcile myself to gainful employment for such unusually large numbers, even accounting for a decent number who would work overseas. However, my real worries are on a different front, namely, educational institutions. Are we really geared to teach such a large number of undergraduates ? Do we have any pedagogy for having good teachers ? Is teaching profession rewarding and exciting ? What would be the quality of instructions in the absence of any graduate studies or teachers engaged

in such pursuits on their own, along with consultancy ? These questions haunt me in several ways, having spent my lifetime in a university. There is a mistaken notion that a person with merely sufficient financial resources can create quality institutions. What about intellectual resources ? Are we going to be content in these new institutions with fresh graduates as teachers or retired teachers with a 'fresh' lease of life ? I am terribly concerned with the state of affairs we are witnessing in a very number of these new institutions, which now dominate the scene, with a decent margin.

Teaching and research in an academic institution can be really stimulating, exciting, rewarding and pleasurable. I, for one, have made a living doing exactly what I wanted to do and would be only too happy to do it all over again. Teaching can be very creative and there is thrill and satisfaction in transmitting thoughts to talented young, bubbling but disbelieving students. Designing new experiments, with frugal financial resources, but rich intellectual background, can be a very rewarding experience, on a continuing basis. Universities are acknowledged as cradles of innovation where research can be pursued in a fearless way, without management pressures. Indeed 'risky' projects can be merrily undertaken and there is an unmistakable experience that success lies in the lap of those who are willing to gamble with ideas which have a sound basis. However, research demands a deep commitment and has to be like a passion or even an infatuation. Working for long hours, including holidays and Sundays is a norm as one derives pleasure in real sense. The cost effectiveness of research in academic institutions is widely acknowledged throughout the world. Here research students work for 70 to 80 hours per week for a pittance, without holidays. If all that I have said above makes sense then what is our malaise ?

Engineering sciences offer the unique opportunity of combining engineering skills with a scientific base. This fusion often generates excitement which may transcend the "creative pleasure" of developing an abstract theory or the exhilarating feeling associated with successful empiricism. The injection of physics, chemistry and mathematics into the analysis of phenomena, traditionally considered to be 'engineering', provides a formidable basis to attack real life problem.

Academic environment provides an optimal setting where teaching and research can flourish in a symbiotic synthesis because of the insulation against managerial/commercial pressures; in a technological context the "realness" of the problems being investigated is an insurance against solving non-problems and in any case the relevance of problem enriches rather than detracts the value of academic research.

Teaching is not just a mode of transmission of knowledge to a raw, disbelieving audience. For the teacher it breeds new insights which are usually the outcome of inter-action with students—their fundamental queries, construction of interest generating examples in the class *etc.* This activity also has a humane angle and opportunities are wide and varied often difficult to describe. For the taught, the pleasure is not restricted to the exploration of the novel; more than that we

should be able to convey to them a whole, analytical way of thinking which nurtures curiosity, provides inspiration and creates a problem–solving temperament. We should be able to excite students to probe deeply the subject. Teachers should encourage students to think independently and express their views freely and such thoughts should be carefully considered and enmeshed in a "composite" way.

Research has an intimate, beneficial relation with teaching since each changes the other in useful ways; course material often evolves out of successful research programs whereas teaching may provide unexpected clues for research. Research is inherently exciting in that it provides the avenues for creative speculation, model building and model testing. Often it also leads to interactions with industry (the actual battlefield) in various beneficial ways.

In resource constrained environment of developing countries like ours it is all the more essential that we possess an armoury full of excitement, infatuation and involvement towards teaching and research in order to overcome and rise above the handicaps due to lack of resources. It is truly amazing what can be the result, when we have nothing to use, but our brains. Often denial of some highly sophisticated facility may result in designing simple powerful experiments. The genius prefers homogeneity of an individual than heterogeneity of a group. Only this can see us through with optimism and healthy productivity. Knowledge engineering is a powerful resource and technology is an expensive equity capital.

The most serious deterrent to quality education in engineering and technology will be the availability of competent and dedicated teachers. expect this problem to remain acute at least for next 10 years and by that time a lot of damage, perhaps to a considerable extent irreparable, would have been done. The reservation of teaching posts, even at professorial level, for backward classes, has further aggravated this problem in a very serious way. It has badly affected Readers to the extent that they feel demoralised. The salary scales have no relationship with the market value of good engineers and are so low as to deter even persons on the fence. Some drastic measures are required to redress this situation.

The combined prowess of teaching and research in academic institutions has not been duly appreciated. Apart from research being very cost effective, it bestows three distinct layers of benefit : value of research; impact on post graduate education; indelible effect on undergraduate education. There is lip service given to academic institutions and when it comes to supporting the funds run "dry". Although very valuable support is being provided by the UGC through the Special Assistance Programmes and COSIST, and by the DST through SERC, the total support is grossly inadequate and sub-optimal. Further the State Universities are in even greater difficulties as the mechanism to accept and execute projects is weak. I doubt if any University has a clear budget head, on its own, of research of any significant magnitude. The funds required by he Universities are relatively very small and the Government of India should come forward to buttress research

budgets substantially.

Notwithstanding shortage of academic staff, it is common to find a large number of vacant posts which are not filled for unusually long periods. I hazard a guess and say that this may be at 25 to 30% of the sanctioned posts and this further erodes our contributions.

There is an erroneous impression in the minds of many politicians and bureaucrats that the postgraduate studies can be done by private funding. Private funds can, at best, supplement efforts and it is hard to imagine how it can take the entire burden, even by a long shot.

As an optimist, I do see opportunities in any new difficulties, but we seem to be reaching an impasse where quality will be sacrificed at the alter of quantity and we will have vanishing member of really well trained engineers. We must arrest this trend and at least go back to our somewhat glorious days.

Honoris Causa

1 9 5 8

1.	Dr. Mokhagundam Visveswaraya	D. Engg.
2.	Prof. Satyendra Nath Bose	D. Sc.
3.	Prof. Kariamanikham Srinivasa Krishnan	D. Sc.
4.	Prof. Geoffrey Chevajir Cheshire	D. Litt.
5.	Sri Rajsekhar Bose	D. Litt.

1 9 6 1

1.	Sir John Philip Sargent	D. Sc.

1 9 6 9

1.	Dr. Ramesh Chandra Majumdar	D. Litt.
2.	Dr. William Norman Brown	D. Litt.
3.	Dr. Tarasankar Bandyopadhyay	D. Litt.
4.	Dr. Debendra Mohan Bose	D. Sc.
5.	Prof. Priyadaranjan Roy	D. Sc.
6.	Prof. Hem Chandra Das Gupta	D. Engg.
7.	Prof. Satish Chandra Bhattacharya	D. Engg.

1 9 7 3

1.	Sri Balai Chand Mukhopadhyay (Banaful)	D. Litt.
2.	Sri Prabhat Kumar Mukhopadhyay	D. Litt.
3.	Late Prof. Gopal Chandra Sen	D. Engg.

1 9 8 0

1.	Sri Satyajit Ray	D. Litt.
2.	Mother Teresa	D. Litt.

1 9 8 1

1.	Dr. Triguna Sen	D. Engg.
2.	Prof. Nilratan Dhar	D. Sc.
3.	Prof. M. K. Menon	D. Sc.
4.	Dr. Raja Ramanna	D. Sc.
5.	Sri Biren Roy	D. Sc.
6.	Prof. Subodh Chandra Sengupta	D. Litt.
7.	Dr. Uma Sankar Joshi	D. Litt.

8.	Prof. Susobhan Chandra Sarkar (Posthumous)	D. Litt.
9.	Prof. Hem Chandra Guha	D. Engg.
10.	Prof. Sudhir Chandra Chakraborty	D. Engg.
11.	Dr. Ajudhia Nath Khosla	D. Engg.

1 9 8 6

1.	Late Indira Gandhi	D. Litt.
2.	Gabriel Garcia Marquez	D. Litt.
3.	Prof. Bhabatosh Dutta	D. Litt.

1 9 8 9

1.	Prof. Sukumar Sen	D. Litt.
2.	Sm. Ashapurana Devi	D. Litt.
3.	Prof. Gourinath Sastri	D. Litt.
4.	Sri. Asesh Prasad Mitra	D. Sc.

1 9 9 0

1.	Mr. Nelson Mandela	D. Litt.
2.	Prof. Amartya Kr. Sen	D. Litt.
3.	Radharaman Mitra	D. Litt.

1 9 9 3

1.	Sri. Gopal Halder (Posthumous)	D. Litt.
2.	Sri. Utpal Dutta (Posthumous)	D. Litt.
3.	Prof. Jyotsna Kr. Chaudhury	D. Engg.
4.	Prof. Pratul Chandra Rakshit	D. Sc.
5.	Prof. Shyamadas Chatterjee	D. Sc.

1 9 9 4

1.	Sri Sombhu Mitra	D. Litt.
2.	Sri Shamsur Rahaman	D. Litt.

1 9 9 5

1.	Sri. Durga Das Basu	D. Litt.
2.	Prof. Jitendra Nath Mohanty	D. Litt.

1 9 9 6

1.	Sri. Mrinal Sen	D. Litt.