



IIT MADRAS—an aerial view

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seventh annual number  
1971



alumni association  
indian institute of technology  
madras



# PRADEEP

*P. Srinivasan*

3/8/71

SEVENTH ANNUAL NUMBER

1971

Presented to Alumni  
Association

*P. Srinivasan*

12/6/2011



सहवीर्यं करवावहे

ALUMNI ASSOCIATION  
INDIAN INSTITUTE OF TECHNOLOGY,  
MADRAS-36.

## MESSAGE

*Since I sent the message for the sixth annual number of the "Pradeep", two important events have taken place in India which could have a vital bearing for the future of the alumni of our Engineering Institutions.*

*In the first place, the elections that took place in February-March this year have given an impressive majority to the party of the Prime Minister. This has eliminated the one great fear which many of us had in our minds, viz; the spectre of instability at the centre. Irrespective of whether one agreed or not with the totality of Smt. Indira Gandhi's programme, one had the assurance that the country knew where it stood and could go ahead with the assurance of stability in the central authority.*

*Unfortunately the scene has been darkened by threatening clouds from East Bengal. The Bangla Desh crisis is a crisis full of unknown dangers; no man can predict how this crisis will affect India in the next few years.*

*This is the background against which the young alumni from the I. I. T. Madras have to shape the pattern of their future. They are not free agents; and their fortunes will be buffeted by unknown dangers. But, with these dangers are associated equally impressive challenges. I am sure the young people graduating from the I. I. T., will meet these challenges with courage, fortitude and loyalty to the country.*

H. V. R. IENGAR,  
Chairman,  
Board of Governors,  
I. I. T., Madras.

7-7-1971



**Shri H. V. R. Iengar**  
*Chairman, Board of Governors*



Dr. A. Ramachandran  
Director

**INDIAN INSTITUTE OF TECHNOLOGY**

**MADRAS—36**

**Director's Office**

**July, 16, 1971**

*Technology is the essential ingredient to bridge the gap between the haves and the have-nots. The value of technology to society is that it generates the resources so necessary for social advance - educational programs, health programs banish poverty programs and housing. It helps in lowering the cost of doing things, better design, greater reliability, greater service and greater aesthetic appeal. The key to industrial renewal, development and growth is managerial. A national policy on technology which fosters innovation and growth is therefore essential. Technically qualified people occupy only a peripheral status in decision - making bodies involving national strategies compared to the power wielded by economists. The scientist, engineer and engineering manager has therefore great challenges to meet and upon his success will depend the future of our country for a better society.*

**A. RAMACHANDRAN.**





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## EDITORIAL

After seven years of existence, the Alumni Association is still to make any significant impact on the residents in the Campus- students and staff. Many of them do not know of its existence (except from information bulletins), some who know view it with indifference.

It is a sad fact that about 25% of the students who pass out of the Institute do not care to join the Association. A significant percentage of those who join do so on some sort of compulsion. This is real sad state of affairs.

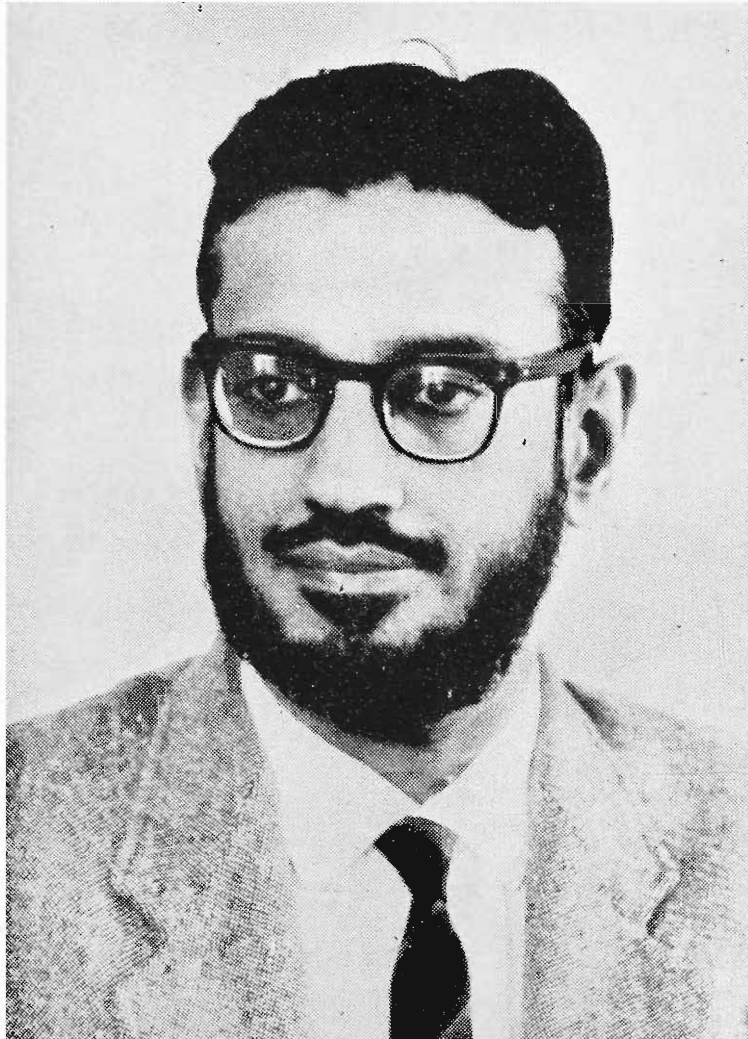
They say the Alumni Association serves as a social link between an Alumnus and his Alma Mater. If that is so, every one of the students should join the Association out of his own will and pleasure.

The efforts of the Association should be to inculcate in the students an interest in its activities. In other words, the Association should undertake, or participate in such activities as would make it leave an impact on the social structure of the Campus.

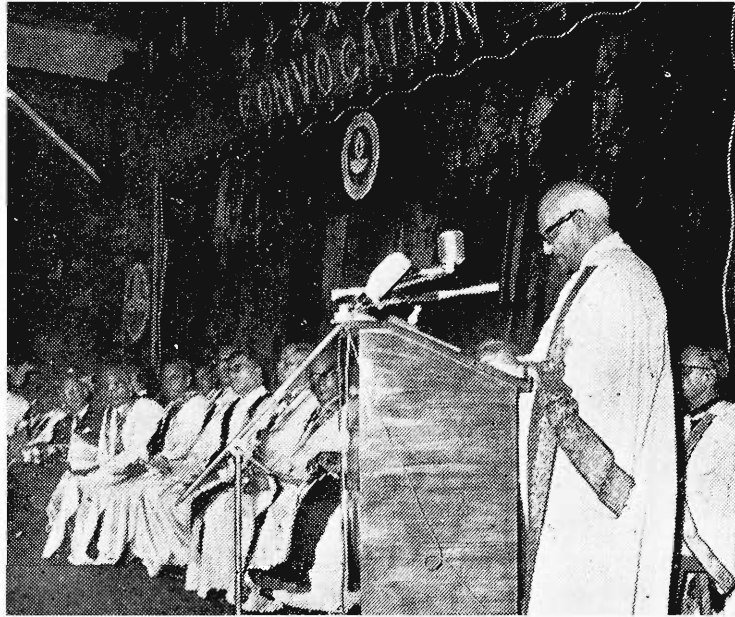
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There is a growing fear amongst many of us here, that the Alumni Publication, Pradeep, may become another of the Institute Publications with news about the Institute only. The highlights of the activities of the Institute, there should be, but the news about the alumni should find a more important place in this publication. 'Pradeep' should act as a forum for free exchange of thoughts and experiences of the Alumni. For this, the co-operation of each one of the Alumni is absolutely essential. This perhaps is a repetition of an oft-repeated request.

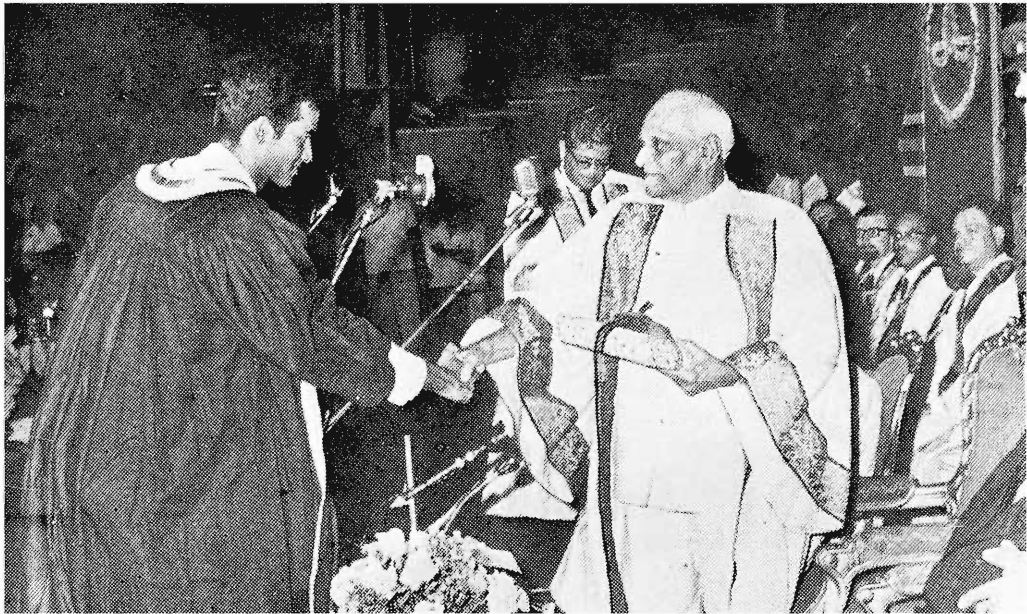




Prof. M. G. K. MENON,  
Chief Guest for the Eighth Convocation



President Giri addressing the Seventh Convocation



President giving away the Governor's medal to Sri M. M. Sanyal

## **PROFESSOR M. G. K. MENON**

Director, Tata Institute of Fundamental Research

Mambillikalathil Govind Kumar Menon, born on 28th August, 1928, received the B. Sc. degree from Agra University in 1946, the M. Sc. degree from Bombay University in 1949 and the Ph. D. degree from Bristol University in 1952. He worked at the British University during the years 1949-55. The scientists at Bristol were primarily responsible for developing the now well-known nuclear emulsion technique into a powerful tool for the study of cosmic rays, elementary particles and nuclear phenomena. Prof. C. F. Powell, who headed this group, was awarded the Nobel prize for Physics in 1950. Prof. Menon himself made a striking contribution to the development of the techniques, particularly the use of stacks of stripped emulsions and methods of mass determination. The resulting findings on decay modes and interactions of heavy mesons and hyperons are considered to be of great scientific value.

During 1952-53, Prof. Menon was Research Associate at the University of Bristol and from 1953 to 1955 he held the Senior award of the Royal Commission for the Exhibition of 1851.

Since 1955, he has been with the Tata Institute of Fundamental Research at Bombay, as Reader (1955-58), Associate Professor (1958-60), Professor and Dean of Physics Faculty (1960-64). Senior Professor and Deputy Director (Physics) (1964-66) and Director since 1966. During this period, he has played an important role in the development of the technology of fabricating and flying very large balloons under tropical conditions through the very low temperatures of the equatorial tropopause, enabling cosmic ray investigations to be carried out at high altitudes close to the geomagnetic equator; and in cosmic ray studies deep underground (Kolar Gold Fields). The neutrino experiment conducted at a depth of  $2\frac{1}{2}$  Km below the earth's surface led to the first unambiguous observation of the interaction of a natural neutrino.

Prof. Menon has written over 60 scientific papers. During the period of his work at the TIFR, he has provided leadership in a wide range of scientific activities and is chiefly responsible for the international reputation that this Institute enjoys as a Centre of research.

Prof. Menon received Shanti Swarup Bhatnagar award in 1960. The Government of India honoured him in 1968 by bestowing the Padma Bhushan on him. Last year, he was elected a Fellow of the Royal Society of London. He is the seventeenth Indian to become the recipient of this coveted distinction.

Prof. Menon is a fellow of the Indian National Science Academy and of the Indian Academy of Sciences. He has been elected Vice-president of the Indian Academy of Science for 1971-73. He is an Honorary Foreign member of the American Academy of the Cosmic Ray Commission of the International Union of Pure and Applied Physics.

He has recently assumed additional responsibilities as Secretary, Department of Electronics, Government of India and Chairman of the newly constituted Electronics Commission.

At the age of 43, Prof. Menon shines as a bright Star in the firmament of Indian Science. His intellectual qualities and attainments and the promise of his leadership augur well for the vitality and progress of the nation in the fields of science and technology.



## DO YOU KNOW

.....That the “ Be kind to Animals week ” was observed in the Campus for many weeks during last winter ? Many staff-members and students went to Guindy and gave their money to the horses.

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.....That at a Quiz Program the question was “ What was your mother’s name before you were born,” and the answer: “I didn’t have a mother before I was born”.

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. . . . .That at the time of the interview for the post of Photographer for the Institute the following transpired :

Selection Committee : “ Will you be able to make lifesize enlargements of pictures ”

*Candidate* : “ Yes, sir ”

Selection Committee : “ Just see this one.” It was a photograph of the Administration Building.

T. V.



**A Note on the**

**SEMINAR ON REORIENTATION OF TECHNICAL  
EDUCATION FOR INDUSTRIAL DEVELOPMENT IN THE  
DECADE 1970-80**

Prof S. Sampath, Dy. Director.

As part of the observance of the International Education Year in India, the Ministry of Education and Youth Services, Government of India, organized a Seminar on Technical Education during February 20-23, 1971. The Indian Institute of Technology was the venue of the Seminar.

Dr. A. Lakshmanaswamy Mudaliar, formerly Vice-Chancellor, University of Madras and Chairman, Board of Governors, IIT Madras presided over the Seminar, delivered the Presidential Address on the opening day and conducted the plenary session on the concluding day. Prof. V.K.R.V. Rao, the then Union Minister for Education, gave the Inaugural Address which provided the key-note for the deliberations of the Seminar under four distinctive Groups :

- i) Education and Training of Engineers for Research and Development Work.
- ii) Education and Training of Technicians.
- iii) Continuing Education and Industrial participation.
- iv) Management Education and Training.

After the inauguration, on the first three days, namely, 20th, 21st and 22nd, there were four parallel sessions relating to the four main groups. In each of these Groups, papers were presented and discussions were held sequentially in a number of sub-groups.

As many as 48 papers were presented in Group-I, 44 papers in Group-II, 27 papers in Group-III and 11 papers in Group-IV. The highlight of the proceedings under Group-IV was a leading paper contributed by Dr. L. S. Chandrakant, Joint Educational Adviser to the Government of India, on "Management Education and Training". Dr. A. Ramachandran, Director, IIT Madras was Chairman of Group-I, Prof. G. R. Damodaran, Director, P. S. G. College of Technology, Coimbatore was Chairman of Group-II, Dr. T. P. Antia, Managing Director, Union Carbide, Calcutta was Chairman of Group-III and Dr. K. S. Basu, Director, Jammalal Bajaj Institute, Bombay was Chairman of Group-IV.

The Seminar was noteworthy for the participation in it, over a period of four days, of a galaxy of Scientists, Technologists, Educationists, Administrators and Industrialists from different parts of India. The discussions were lively and frank and were productive of a set of recommendations which were placed before the Seminar participants, as a whole, on the concluding day and adopted as a set of documents containing guidelines for the reorganization of technical education, at the national level, in the interest of the country's industrial development in the years ahead. The Ministry of Education and Cultural Affairs, Government of India, proposes to bring out the complete Proceedings of the Seminar in printed form in the near future.

The recommendations that crystallised out of the Seminar as a result of the discussions that took place under the four groups are given below:—

#### GROUP I

### **EDUCATION AND TRAINING OF ENGINEERS FOR RESEARCH, DESIGN AND DEVELOPMENT WORK**

1. Engineers, whose professional careers will extend during the next three decades, will be educated during the decade 1970—80. All of us therefore face the challenge of providing the type of technical education which these students will need for at least ten to fifteen years after graduation. Reorienting technical education therefore requires information on the professional needs of the society, a detailed analysis of the existing professional curricula and a feed back of the results of the past curricula. The design and maintenance of a professional curriculum therefore necessitates a dynamic continuing process of formulation.

This Group recommends the establishment of an Educational Development Center to co-ordinate the various curriculum development centers that have been established as part of the Quality Improvement Program in technical education during the Fourth Plan period. It will also concern itself with the development of suitable text-book material, teaching aids, laboratory innovations and prepare a library of case studies on design projects. This Center should disseminate the information to all the institutions in the country. Each institution could use the material thus provided for formulating its own curriculum, laboratory and design courses and projects.

2. Emphasis in design and laboratory courses should be on inculcating a habit of engineering methodology, such as dealing with open ended problems, importance of decision-making, innovation and ability to use instruments properly, logical sequences in modelling experimentally, etc. Such an emphasis should culminate in undertaking pre-planned, viable small projects. In order to enable the Colleges to implement such programs, this Group recommends to State and Central Govern-

ments that, besides provision of faculty and establishment salaries, financial grants to the institutions, viz., recurring and non-recurring, should be increased to enable students to undertake project work both at the 'undergraduate and postgraduate levels. A National index should be evolved by the All India Council for Technical Education for this purpose, so that it does not vary from State to State. In the recurring grant to the Institutions, provision should also be made for supporting faculty research.

3. This Group reiterates that the first Degree Course in Engineering should be of five years' duration irrespective of the duration of school education and that the Master's Degree should be of two years' duration.

This Group also recommends that a three-year post B Sc. course in Engineering be offered in selected institutions and reiterates the recommendation of the AICTE that both five-year and three-year degree courses in the same fields should not be offered in the same Institution.

4. The objective of keeping technologically up-to-date is not beyond the reach of at least a majority of engineers. In order to avoid obsolescence, continuing education is a must throughout the professional career of engineers in Industry. This Group therefore recommends that facilities should be made available in at least twenty engineering institutions in the country for continuing education of engineers from industry. It is felt that engineers should come back to the academic environment, at least once in three years, for short duration courses extending from one week to four weeks. In order that this recommendation can be implemented by these institutions, additional faculty with some contingency grant may have to be provided for the same.

5. The Group felt that one of the serious impediments in the raising of the standard of technical education is the lack of academic freedom and autonomy in most engineering institutions in the country. There was a feeling expressed that some of the well developed institutions should be declared as autonomous colleges on the lines recommended by the Kothari Commission on Education. In order that technical education and research can be effectively developed in the coming decades, the Group felt that the establishment of a Technical University in each State, to which all the Engineering Colleges may be affiliated with varying degrees of academic freedom and autonomy, is desirable. The Group also recommended that an accreditation body be constituted by the AICTE to make recommendations to the State Technical University on the grant of autonomous status to well-developed institutions.

The Group recommends that the existing institutions which are already deemed to be Universities should not come within the purview of the State Technical

University. The State Technical University should deal only with graduate and postgraduate engineering education and research. It should not concern itself with Polytechnic education, which falls under the purview of the State Directorate of Technical Education.

6. The Group recommends that steps should be taken to promote effective teaching by the Faculty of engineering institutions. In order to promote effective teaching ability of the faculty members, a well-organized training program with emphasis on pedagogical skills, examination and evaluation techniques is of prime necessity in all the institutions. Teachers should be encouraged to evolve for their own benefit self-evaluation techniques. Promotion policies should take into account good teaching, design and development accomplishments and research publications on par.

7. Faculty members in engineering institutions should be given sabbatical leave to enable them to work in industry or National laboratories or in other technical institutions. The main objective of this programme is to facilitate the Faculty to engage in professional pursuits. The Faculty members should be permitted to receive honoraria from the organizations concerned during this period.

8. Short and long-term exchange of Faculty members between engineering institutions should be actively encouraged. Financial incentives should be incorporated in these bilateral exchange programs.

9. The Group discussed at length the role of Computers in engineering education. The Group strongly recommends the establishment of large Regional Computer Centers. Educational institutions in the region should be allowed the use of this facility. Necessary financial assistance to the institutions for utilising the computer facilities should be given on the following basis :—

- i. Rs. 53/- per undergraduate student per year
- ii. Rs. 100/- per postgraduate student per year
- iii. Rs. 200/- per Faculty member per year.

In addition to setting up Regional Computer Centers, this Group recommends that institutions should be provided with a small Analogue Computer and a small educational type Digital Computer for training purposes. It was indicated to the Group that the total cost of such a facility may not exceed Rs. 3.00 lakhs.

10. The Group recommends that the Science Departments in the technical institutions should be encouraged to do research in their specialities. In order that the Faculty of the Science Departments can interact with their counter-parts in the

Engineering Departments and to promote inter-disciplinary research, provision should be made for research fellowships/scholarships with suitable grants for contingencies in the Science Department of these institutions.

Engineering institutions should be provided with full time Research Assistants for carrying out research of interest to the industry.

11. The Group is of the view that collaboration between institutions, industries and National Laboratories should be actively encouraged. In order that this may be achieved, the Group makes the following recommendations :—

(a) Co-operative undergraduate and postgraduate programs in some selected institutions.

(b) Faculty consulting for industry at all levels should be encouraged. There appears to be a need to liberalise the rules governing faculty consultancy. Institutions should be enabled to credit, any funds received for sponsored projects from industry, to a separate Industrial Liaison Fund, which could be utilized for developing new facilities. It should not be taken into account as receipts for purposes of arriving at annual grants to the institutions.

(c) Industry—Education interaction can be advanced by instituting a program of residencies in industries. The faculty member should occupy a position as paid employee of a Company for periods ranging from three months to one year, in close association with senior engineers whose positions involve decision-making. This may also be extended to National Laboratories.

(d) The Group recommends appointment of Visiting Faculty from industrial organizations and research laboratories. The visiting faculty members should be permitted to direct design/development/research projects.

(e) Engineers in industry should be encouraged to return to an academic environment, on what might be termed industrial sabbatical leave.

(f) Scientists and engineers in industry should be enabled to do their Master's and Doctoral dissertation in industries or National Laboratories, where specialised facilities exist. They could be guided in their dissertation work by joint-guides, one from the industry and the other from the academic institution concerned.

(g) Assistance to industry by technical institutions can also be facilitated by organizing inter-disciplinary research and development groups in specific areas. These Research and Development panels can discuss with engineering teams from industry, identify problems requiring solution and undertake collaborative programs.

Engineering institutions should extend library and bibliographical facilities to industries.

## **GROUP II**

# **EDUCATION AND TRAINING OF TECHNICIANS**

## **General Recommendations**

Throughout the discussions the autonomy and freedom of polytechnics, the reform of examinations and industry- institute partnership were the recurring themes. The group recognises that ultimately polytechnics should have freedom to develop curricula to foster industrial partnership and to assess and evaluate their students. All efforts must be made to develop polytechnics towards the ultimate standards needed for autonomy. At the state level there is a need for a body which will keep a watch on standards of faculty facilities and performance of polytechnics and to maintain the standards of assessment and evaluation.

In view of the general importance of technician education at the national level it is recommended that a Technician Education Committee be constituted to advise the A. I. C. T. E. on all matters relating to the development of technician education in the polytechnics. The functions of this Committee may be :

- a) to plan and keep under review the development of a unified national pattern of technical education for technicians in industry and commerce.
- b) to advise the A. I. C. T. E. on the establishment and development of suitable courses and the assessment of the standards of performance of various institutions.

A Technician Education Committee may be constituted with not more than 15 to 20 person drawn from those interested in technician education, experts from industry and commerce and representatives of professional bodies.

## **Specific Recommendations**

### **(a) Diversification of Diploma Courses**

1. The diversification of Industrial activities and the changing pattern of technology demand technicians with greater depth of knowledge and skills in certain areas. Hence diversification of courses within the broad branches of engineering and provisional studies is therefore essential.

2. Diversified courses may be introduced on the basis of scientific analysis of the needs of industry and of employment opportunities.

3. Diversification should not lead to narrow specialization. Diversified courses should generally be broad based with groups of electives offered in the final year of study. This will ensure that the horizontal mobility of technicians is not impaired.

4. The structure and the content of the diversified courses must be constantly reoriented with the changing need of industry and commerce in the region. However, there is ample scope for functional specializations in the fields of chemical technology, petro-chemicals, instrumentation and control, man made fibre, electronics, etc.

5. The broad spectrum of the structure courses must include full time regular, full time sandwich, part time, evening and full and part time post diploma courses. Special courses have to be devised for persons working in industry and for those who come through I. T. I's.

6. Diversified courses should be started in those institutions where the need for such courses is fully established.

7. The success of these courses will greatly depend on the freedom and flexibility given to the institution in the matter of offering courses, curriculum planning, examination and evaluation.

### **(b) Sandwich Courses and Practical Training**

1. The present polytechnic courses are not effectively supplemented by practical Training in industry to equip the diploma-holder to shoulder professional responsibilities in industry and commerce. Sandwich courses will be able to rectify the present situation to a very large extent and hence the importance of organising Sandwich.

2. Besides introduction of sandwich courses where possible, attention has to be paid to improve the quality of practical training given in the polytechnics by way of

(a) Accent in developing innovative skills in the technician by setting up simple projects related to industrial situations.

(b) Making the staff members themselves get acquainted with live industrial situations and encouraging them to solve these problems.

(c) Arranging industrial training for teachers.

- (d) Employing part-time faculty members from industries.
- (e) Providing greater facilities, especially consumables, for effective conduct of basic workshops training.

3. Sandwich courses should be started after specific study-in-depth about the adequacy of the industrial co-operation available at any proposed location. They should be so organised that the industrial training is effectively supervised and coordinated by the polytechnics and the industry.
4. A placement and training Officer and other staffs with sufficient industrial background should be created in all polytechnics.
5. The curricula and contents and sequences of the industrial training periods of sandwich courses should be carefully worked out by a body consisting of the Faculty of the Polytechnics, representatives from industry and Academic Experts in the field.
6. The duration of sandwich courses may not normally be less than three and half years. However, the polytechnics should have the freedom to determine the duration, content, sequences and arrangements for the sandwich courses within certain general guidelines and standards.
7. Facilities should be provided for suitable residential accommodation to the students during their training periods, where the industry is situated within easy travel distance from the polytechnic, suitable arrangement for transport must be made.
8. Where the final period of sandwich course happens to be an industrial training period the final assessment and evaluation should be made after the completion of the industrial training.

9. The success of sandwich courses is entirely dependent upon the close collaboration and co-operation of the industry and polytechnics. There is sufficient indication that such co-operation will be forthcoming. However, to speed up the involvement of the industry, efforts must be taken by all concerned including the polytechnics, and Government by way of publicity and persuasion. Incentives may be given to industries for setting up training programs. The existing industrial apprentice training act may be extended to include the training of diploma students.

### **(c) Curriculum, Instructional Materials and Training of Teachers**

#### **Curriculum**

1. The curriculum must be built on the basis of clear definition of the broad objectives of technician education, and the specific objectives of the course.



2. The curriculum must be flexible to permit alterations depending on the varying needs of industry and changes in technology.

3. Activity analysis of technician occupations and functions is important in framing curricula. The TTTIs have an important role to play in this regard.

4. The syllabi of polytechnic courses should be regularly reviewed to meet the changing requirements.

5. The involvement of representatives from industries is essential in curriculum design. Collaboration between several engineering colleges and polytechnics existing in proximity, could be very valuable in formulating sound programmes.

6. Attempt should be made in all teaching to infuse industrial orientation :

- (a) The study of basic sciences should be oriented towards application.
- (b) The study of English should be emphasised as an effective tool of technical communication.
- (c) Laboratory work should be designed to develop the ability in the use of the experimental approach to problems solving and in the practical use of tests and test results.
- (d) Workshop practice in basic skills should develop appreciation of the use of skills and tools in production techniques.
- (e) Attempts must be made to draw upon actual industrial situations, problems and practices.

7. Wherever appropriate new teaching techniques such as the problem method, project method, tutorial method, programmed learning etc., should be used.

8. Project work involving design and/or fabrication and based on real problems of industry or commerce should find an important place in the final year of the diploma course.

### **Teaching Aids**

9. Wherever possible verbal teaching should be supplemented by audio-visual, aids and polytechnics should be provided with audio-visual facilities.

10. The TTTI's should take the initiative in developing teaching aids and disseminating information on them to all polytechnics.

### **Text books and course materials**

11. Incentives must be given to teachers and other suitable persons in industry to write text books and develop course materials suitable to the needs of different courses.

### **Library**

12. There should be a well equipped library in each polytechnic to be used as a source of information and reference by students. The students must be encouraged to develop the habits of self study and trained in the proper use of library facilities.
13. To guide and assist the students well qualified and well paid librarians should be appointed in all polytechnics with necessary supporting staff.

### **Faculty**

14. All teachers should have adequate industrial experience besides training in the art of teaching.
15. Crash programs must be organised by way of summer programs, seminars, short courses, secondments and training in industry in association with educational and Industrial organisations and the TTTI's to provide teachers the necessary industrial and pedagogical training and to train them in the development of curricula, methods of evaluation etc.

### **Evaluation and Assessment**

16. The assessment of a student should be continuous and should be the ultimate responsibility of teachers themselves. An immediate and complete switch over to purely internal assessment, even though desirable, may not be feasible in our present set up. To start with therefore, internal assessment could be introduced as an adjunct to the Final examinations.
17. Internal assessment must be systematic, scientific and records must be maintained. The overall internal assessment of a student's performance and progress should take into account his achievements in assignments and periodical tests.
18. It is necessary to provide courses in the methods of assessment, evaluation and grading for teachers in the form of short training programs, summer courses etc.

## **Guidance and Counselling**

19. Guidance and counselling are essential in a polytechnic to give direction and purpose to the aspirations and activities of students. It is a continuous process aimed at assisting the student to make decisions and adjustments from time to time in respect of his academic, family, social and vocational problems. To begin with, a few guidance and counselling centres at selected individual polytechnics or for a group of polytechnics may be organised. Depending on the results the scheme may be extended to other polytechnics.

Each Counselling Centre should have a guidance and counselling officer who may be an educational psychologist or a masters degree-holder in Education. The Centre should have suitable facilities and supporting staff for testing, assessment and diagnosis of students' abilities and disabilities.

### **GROUP III**

## **CONTINUING EDUCATION AND INDUSTRIAL PARTICIPATION**

### **(a) Apprenticeship Training and Industrial Participation**

Taking the view that the present content of technical courses has to be given a practical reorientation to cater to the needs of professional requirements and that to achieve this end both the students and teaching staff should be provided with necessary industrial exposure/experience :

The seminar desired better industrial participation in all stages of technical education and training, with appropriate assistance through the machinery of the Ministry and the existing autonomous Regional Boards of practical training. The latter may be strengthened in order to take on the tasks of assisting :

In planning and effectively improving industrial training before, during and after the Institutional courses. In the case of Small Industries which cannot afford to have separate training staff of their own, they may be persuaded to group together for this purpose or make arrangements with larger units in that area to train the stipendary students whom they have agreed to employ after suitable training ;

In the work of curriculum development in collaboration with institution ;

in the promotion of continuing education ;

and in organizing industrial training of teachers.

Adequate funds and personnel should be provided for the proposal on the advice of the Boards.

The Seminar was of the opinion that adequate and appropriate association of local industry and the institutions also is necessary for the Boards to effectively ensure industrial participation to cater to the institutional aspirations. Industrial liaison Units should be provided in all Technical institutions.

### **(b) Technical Teachers' Training**

To produce a trained body of competent and adaptable teachers, and to meet the rapid changes in industrial education, the seminar recommends the following :

1. A well structured teachers' training program of a long term basis incorporating technical, industrial and educational studies to be designed so that the end products would be considered to have a full professional status.
2. A post professional program involving key and senior experienced teachers for educational research, curriculum development, and production of resource materials, must be instituted.
3. In addition to the normal activities (viz. 1 & 2 above), the Technical Teachers' Training Institutes should institute crash program for all faculties of technical institutions in the areas of teaching methods, laboratory techniques and examination and evaluation techniques.

To hasten the process of training, the existing and other institutions which have developed or have the potential of developing the necessary expertise be identified and assisted for conducting the above programs.

Short programs should also be instituted —

- 3 (i) in the design and construction of demonstration and laboratory equipment to supplement class room teaching and in the design of effective laboratory experiments and practical projects.
- (ii) for the preparation of tests and problems for use in the class rooms, tutorials, laboratories and workshops.
4. In order that the students coming from schools be given some orientation in English which is the medium of instruction in technical institutions, teachers of English in these institutions be afforded programs suited to meet the above situation.

5. Courses are to be instituted at the CTIs for teachers who are involved in workshop skill at the technical institutions.
6. Plans should be drawn at the regional, state and institutional levels for the training of teachers. This would help the programming of courses to suit the specific needs of the individual teachers sponsored by the various institutions. Due recognition be given to the usefulness of the in-service programs so that the teachers are sufficiently motivated for better performance after graduation.
7. To make an effective contribution to changes in the educational structure and to employ a degree of geographical and institutional mobility in the profession by key people, a pool of professional teachers at the National level may be created. They could be attached to different institutions in the country to effect the desired change in the teaching situations
8. The seminar recommends that senior technical teachers should be deputed to Industry from time to time, and senior persons from Industry to the Institutions, so that there is constant exchange of ideas and resultant improvement in each others professional competence.
9. The seminar recommends that each industry may be requested to designate a technically qualified officer specifically to evolve, supervise and evaluate teacher trainees deputed for industrial training.

### **(c) Manpower Assessment**

The group, recognising the need for realistic manpower assessment in the context of technical education development in general and of continuing education in particular, and taking note of the present efforts being made in this regard, recommends as follows :

1. Detailed manpower assessment should be made immediately at decentralised levels in major industries, in States and by specialities of engineering and technology and skills.
2. Such an assessment should endeavour to analyse the engineering occupations in industry by requirements of knowledge and skills at different levels of responsibility both as at present and, if possible as in the near future. There should be properly determined job-specifications in industry which should provide the base for realistic manpower assessment.

3. Attempt should be made to identify and define the contents of jobs in terms of competences including knowledge and skills not only at the point of entry of an engineer in industry but at every subsequent point of his career development. The quantum and quality of educational and training in outs should be derived from such a study of contents of engineering jobs.
4. A coordinated approach should be made to the evolution of a skill generation system which will include technical institutions, training organizations in industry and professional societies. A variety of institutions and agencies is involved in manpower planning. Each of them should accept its responsibility and the Government should encourage and promote manpower planning at the micro-unit levels.
5. Manpower assessment should be made on a continuing basis so as to provide for effective feedback to the technical education system.

#### **(d) Continuing Education**

1. Continuing education should be accepted as an essential activity of the technical education system and of the industry. The objectives of such education should be (a) to enable betterment of qualifications of person employed in industry and elsewhere (b) to promote horizontal and vertical occupational mobility (c) to improve the performance of an individual in his job.
2. It would be necessary to organise continuing education courses in a number of selected centres suitably located near industrial complexes.
3. There is no single form of continuing education to be provided. The nature, level, and organization of continuing education depend upon the specific objective of the industry and individual concerned.
4. Language courses, extension lectures, management courses at different levels preparatory courses should be offered in selected institutions and workers from industry should be invited to join these courses, either in the evenings or on time release basis. The industry should be invited to join these courses designed to train their own men to meet the changes of future technical advancement.
5. Continuing education should be formulated in close cooperation between technical institutions, industry and universities so as to provide alternative educational courses to obtain higher technical educational qualifications, professional membership for liberal education.

6. This Seminar attaches great importance to the visit by every Faculty member of Polytechnics, Engineering Colleges and other technical institutions to nearby industry as a part of continuing education and attainment of professional competence. Having realised the importance of continuing education both for the teachers in the technical institution and persons working in the industry, the seminar recommends that a suitable scheme may be drawn up by the Government.

#### **GROUP IV**

### **MANAGEMENT EDUCATION AND TRAINING**

#### **(a) A Study of the Managerial Manpower Requirements by Experts**

Though on an earlier occasion a Committee went into the question of managerial manpower requirements of the country, a professional study, both comprehensive and intensive in scope, covering all the sectors—business and industry, defence, public utilities, local self government and public administration—is necessary to assess the needs for the 70s. Sufficient expertise is now available in the country to undertake a study of this nature and magnitude.

Further, since this work is to be completed within a short period of a year or so requiring full-time involvement of various categories of experts sufficient funds should be provided for such a study. Separate task forces and expert groups will have to be set up to facilitate completion of the project in time.

Meanwhile action on the following lines be initiated.

#### **(b) 1. Management Education**

In addition to the pre-career education and training (full-time post-graduate programs) it was felt there is need for expanding the facilities for continuing education for practising managers by way of post-graduate part-time evening programs and Executive development programs of shorter duration. It was, however, felt that the current executive development programs need to have more educational content.

To these ends it was suggested that

(i) further expansion of management education and training should be in the Universities also. The design suggested here is of management school in universities and institutes of technology with considerable freedom of operation within broad framework of university policies. It is necessary that policies regarding management education should be adopted by universities/institutes of technology in consultation with an advisory council composed of representatives of business and academics.

(ii) the universities should continue the evening programs.

(iii) without in any way affecting present commitments, it is recommended that adequate additional allocations be made to provide for expansion and maintenance of quality in management education. This additional allocation should be expanded in institutions most likely to produce good results with the most economical utilization of resources.

(iv) out of the universities now offering management programs a few be selected as advanced centres for management education so as to facilitate their qualifying for grants on the same basis as other advanced centres.

(v) A few management subjects be introduced in the under-graduate curriculum of degree courses in engineering, technology, and social sciences.

(vi) Where feasible required management content be introduced in engineering curriculum to give the students necessary attitudes and skills to develop them for entrepreneurship.

## **(b) 2. Faculty Development**

One of the major problems facing Management Education, Training and Development—both in the institutes and universities—is the paucity of faculty both in number and quality. The Seminar makes the following recommendations to improve upon the existing situation and to make faculty positions attractive :

- (i) extend the system of personal pay and special pay, as is now in vogue at the Institutes of Management, to universities also in order to attract executives from industry for teaching ;
- (ii) improve T. A. and D. A. rules to enable faculty to undertake travel extensively for academic work including case development ;
- (iii) extend sabbatical leave provision to institutions where it is not provided at present ;
- (iv) liberalize recruitment policy by way of eliminating or reducing such of those academic restrictions which have their basis in conventional university standards but which are irrelevant to professional courses ;
- (v) make recruitment procedures more flexible ;
- (vi) liberalize consultancy rules so as to make it sufficiently attractive for persons coming from industry with high income to take up teaching and research ;



- (vii) encourage institutional and team consultancy in preference to individual consultancy work ;
  - (viii) encourage faculty to spend sufficiently long periods in industry by providing for ;
    - (a) placement of faculty in industry during vacations for specific project work, including case development and writing ;
    - (b) faculty spending six months or more in industry on specific assignment involving staff duties.
  - (ix) in case of sponsored and externally financed research/survey projects faculty members connected with these projects be given honorarium/compensation from the funds of the funding agency.
  - (x) provide fellowships of suitable amounts for faculty members for study/research work in areas of their interest at universities/institutions abroad for limited periods.
  - (xi) to increase the availability and utilization of visiting faculty from industry special training courses are needed to improve their communication and pedagogical skills as well as theoretical knowledge of those who have potential to be developed for teaching ;
  - (xii) invite executives from industry with outstanding record of managerial performance to hold professional positions for specific periods for writing, research and other academic work.
  - (xiii) recognize outstanding contribution of people to management education and training by associating them with government policy committees and by considering them for national professorships.
- (c) Research, Curriculum Planning & Development and Teaching Material.**
- (i) introduce doctoral programs with attractive fellowships and also provide for expenses for field work. This is already being considered for the institutes of management and may be extended to universities and other institutions.
  - (ii) grants for carrying out research in the different areas of management be provided ;
  - (iii) funds for case development be allocated;

(iv) hold case workshops (similar to those at the Administrative Staff College) for teachers, case writers and visiting faculty;

(v) provide supporting staff to convert the output of consultancy project and field work into cases;

(vi) reserve a few full-time faculty positions for fundamental empirical research and for writing books on management and other related areas;

(vii) provide funds for workshop seminars for curriculum planning and development in different areas of management;

(viii) encourage experimentation in curriculum planning, teaching methods etc. to develop indigenous concepts and methods to meet our requirements.

(ix) explore possibilities for conducting sandwich courses in co-operation with industry; and

(x) establish a clearing house for collection, classification and distribution of cases developed in the country.

#### **(d) Industrial Engineering : Education and Research :**

It was observed that facilities for training in industrial engineering are totally inadequate considering the needs of the country. As against one industrial engineer for every 50 employees available in some western countries, if we were to consider even one industrial engineer for every 1,000 employees in our country, we will need several thousand industrial engineers. At present not even fifty industrial engineers pass out of our institutions annually. Therefore it is proposed that

(a) industrial engineering subjects should also be offered at under-graduate level ;

(b) at post-graduate level also industrial engineering program. be offered and where existing it should be expanded ;

(c) research and doctoral work should also be initiated ; and

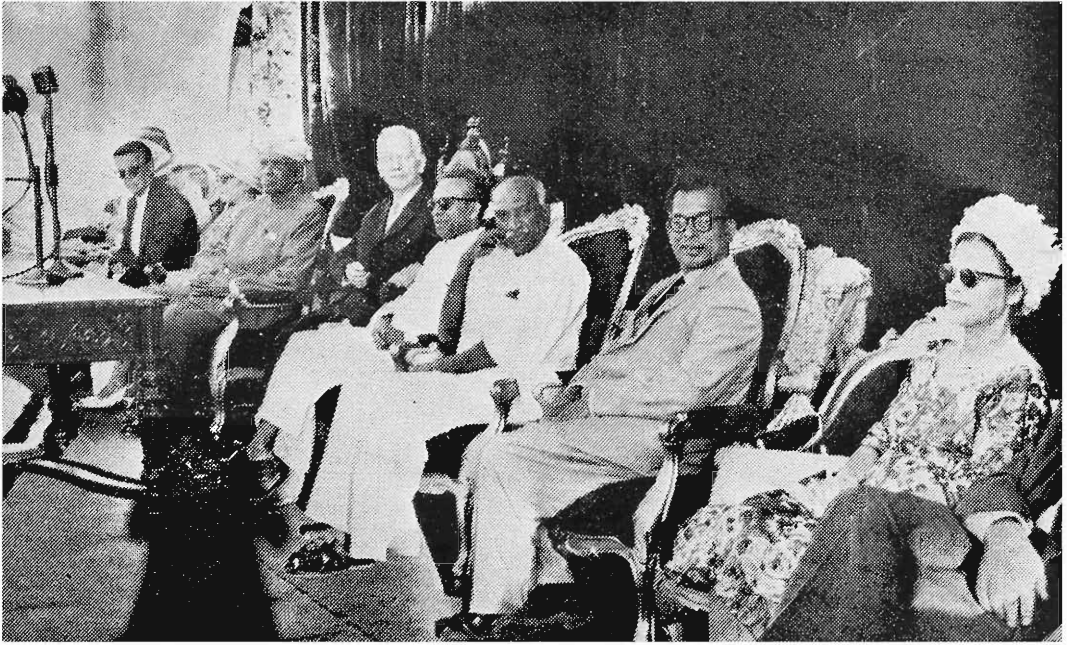
(d) funds should be provided for the development of standards, teaching materials, and for writing books.

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## PRESENTING THE PAST



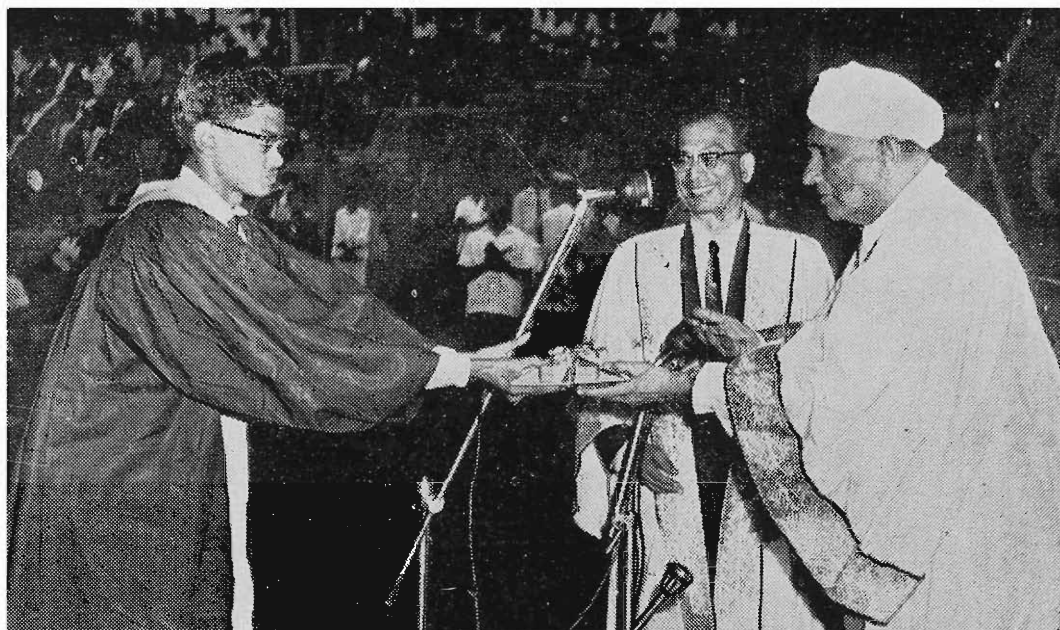
3-2-1962—Laying of the foundation stone of the administrative building. Dr. Heinrich Leubke and Mrs. Wilhelmine Leubke honoured the Institute by thier presence.



11-4-1964—The first Convocation : Dr. S. Radhakrishnan was the guest of honour.

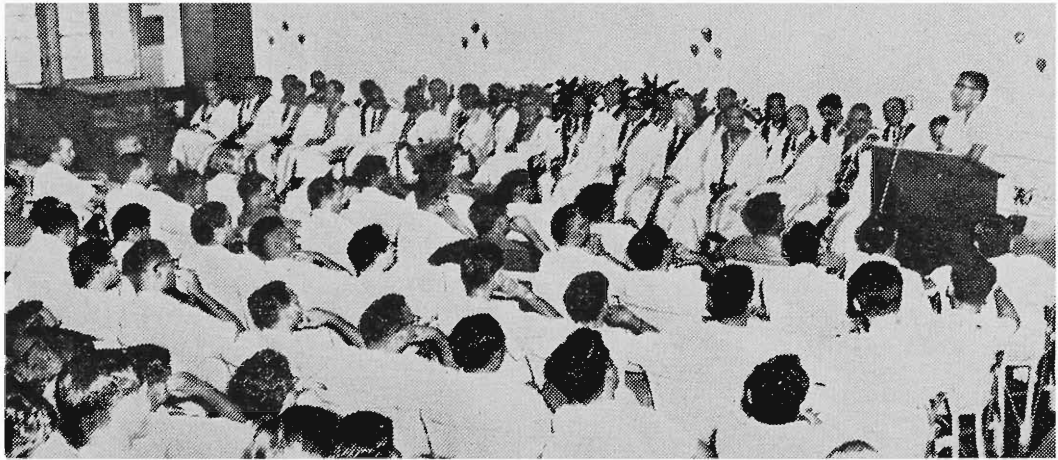


December, 1965—The Third Inter IIT meet. Nawab of Pataudi, who inaugurated the meet is seen with Prof. S. Sampath and Mr. R. Natarajan.

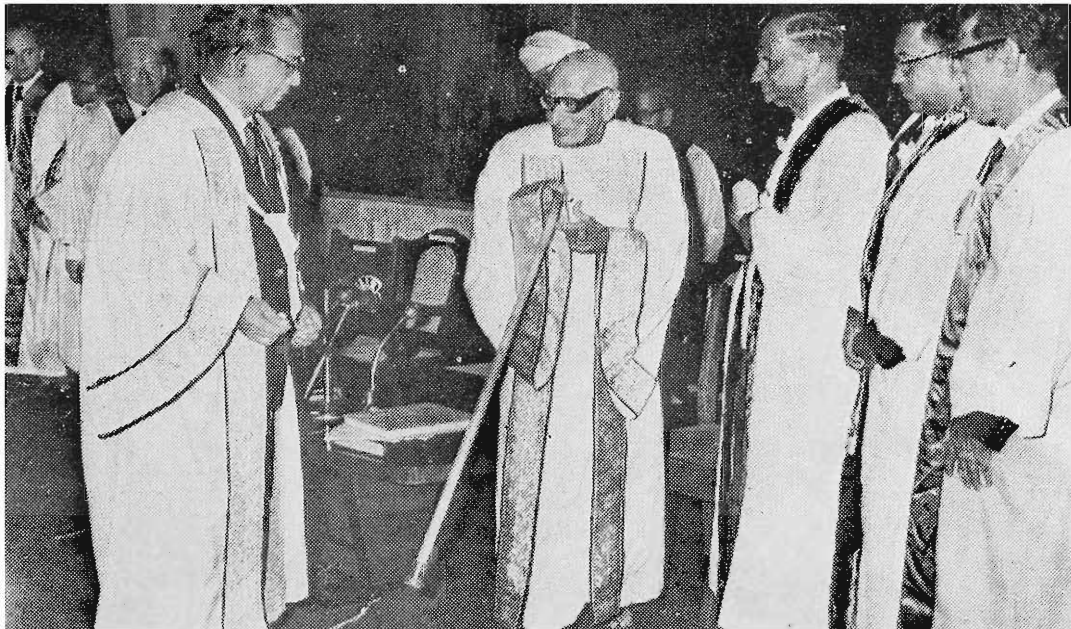


30-7-1966—Late Sir C. V. Raman who delivered the third Convocation address presenting a prize on the occasion

IMMATRICULATION-1967-68  
3. 7. 1967  
WELCOME TO NEW STUDENTS

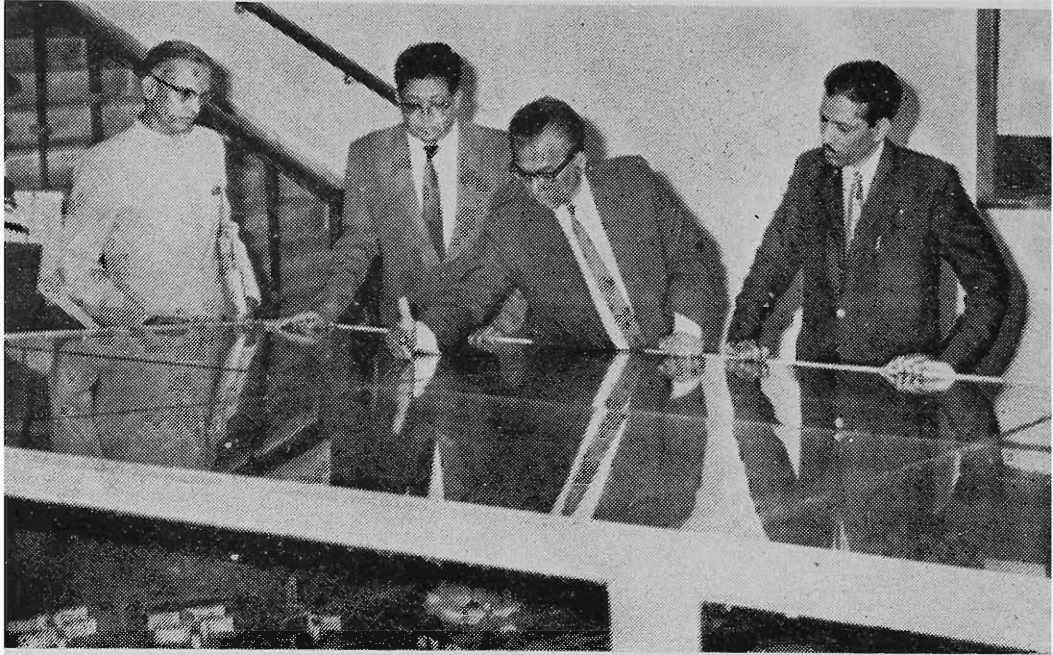


A thing of the past!



22-7-1967—Shri C. Rajagopalachari addressed the fourth Convocation.





11-12-1967—Prof. Sengupto explaining the layout model of the institute to Dr. Ramachandran, before handing over charge.



\*Goofy's magic !  
[\* with apologies to Mr. Gopal Ramachandran---Ed.]

# **INSTITUTE'S ROLE IN DEVELOPMENT OF ENGINEERING EDUCATION**

**Dr. D. VENKATESWARLU\***

Phenomenal progress has been made in the expansion of technical education during the first three plan periods. But it is generally agreed that adequate attention has not been paid to the quality of education. Standards of engineering education depend upon curriculum, laboratory facilities and calibre of faculty members offering the instruction. A new phase of activity during recent years at the Indian Institute of Technology, Madras is the organisation of programmes for the qualitative improvement of engineering education.

The programmes organised by the Institute include the following :

1. Sequential and advanced summer schools financed by the Indian Society of Technical Education (ISTE), formerly the Association of the Principals of Technical Institutions (APTI).
2. Programmes of the Ministry of Education
  - (a) Technical Teachers' Training Programme
  - (b) Quality Improvement Programmes (QIP)
  - (c) Curriculum Development
3. Other programmes.

## **ISTE Programmes**

The following programmes financed by the ISTE are organised by the Institute :

1. First sequential summer school in Mechanical Engineering (Summers of 1967, 1968 and 1969)
2. Sequential summer schools in Civil Engineering and Mechanical Engineering (Summers of 1969, 1970 and 1971)
3. Second sequential summer school in Mechanical Engineering (Summers of 1970, 1971 and 1972)

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\* Dept. of Chemical Engineering.

4. Advanced summer school on 'Development and Design of Chemical Process Equipments' (May and June, 1959)
5. Advanced summer school on 'Measurement Techniques in Mechanical Engineering' (June, 1970)
6. Seminar on 'Particle Technology' (January, 1971)
7. Advanced summer school on 'Process Equipment Design' (May, 1971)
8. Advanced summer school on 'Tribology and Machine Dynamics' (June, 1971)

The participants of these programmes have been paid travelling and other allowances and supplied with text books, instructional materials etc. from the funds made available by I.S.T.E. For some of the programmes, experts from industry and other educational and research institutions have been invited to deliver lectures on specified topics. U.S. consultants whose services were secured through the courtesy of National Science Foundation and USAID, have been associated with some of the programmes.

Members who satisfactorily completed the sequential summer schools were considered for admission to the second year of our regular M.Tech. programmes.

### **Technical Teachers' Training Programme**

During the period 1965-70, the Institute actively participated in the scheme for training of technical teachers. The objectives of the training programmes were acquisition of professional knowledge and experience, appreciation of the principles underlying sound teaching methods and work leading towards a higher degree. Forty one engineering college teachers were awarded degrees under this scheme.

### **Quality Improvement Programmes:**

These programmes include the following for serving teachers :

- (1) Two year M. Tech. degree course
- (2) Doctoral programmes
- (3) Short-term in-service training.

Under this scheme, 13 teachers (10 from southern region, 1 from Jammu and Kashmir and 2 from Madhya Pradesh) were admitted last year to the M. Tech. degree courses and six teachers for the Ph.D. programmes. It is proposed to admit this year 20 teachers for M. Tech. and 10 for Ph.D. Judged from the number of applications received, the response to this programme is very good.



The short-term in-service training courses were organised in the following areas :

1. Fluid Mechanics (Nov. — Dec., 1970)
2. Heat and Mass Transfer (April — May, 1971)

Other in-service courses scheduled for 1972 summer are :

1. Engineering Design
2. Automatic Process Control

### **Curriculum Development**

Curriculum Development cells in Mechanical Engineering and Chemical Engineering have been set up with the following objectives :

1. Development of curriculum, laboratory experiences, instruments Demonstration experiments and evaluation procedures including examination reform
2. Study of appropriate learning situations and teaching methods, of interaction between teaching and research and of interaction between industry, research and education
3. Processing of information and data
4. Analysis of equipment in relation to laboratories and training
5. Integration of the educational process in relation to humanities, engineering and science
6. Preparation of instructional materials, laboratory guides and text-book materials.

Under the Curriculum Development scheme, a one-week workshop in curriculum development in Mechanical Engineering was organised from January 18, 1971. The number of participants in this workshop was 47 from 25 engineering institutions.

Programmes envisaged for this year by the Chemical Engineering Curriculum Cell include the following :

1. Seminar on Chemical Engineering Curriculum Development
2. Seminar on 'Use of Indian Standards in Chemical Engineering'
3. Workshop on 'Effective Teaching Methods'

## Other Programmes

Other programmes in the development of engineering education organised at the Institute are the following :

1. Seminar on ' Collaboration between Industries and Institutions in the field of Technical Education ' (organised by the Institute of Applied Manpower Research in June, 1964)
2. Symposium on ' Training of Technical Teachers ' (organised by the Ministry of Education in February, 1967)
3. Seminar on ' Design Project Experience ' under the auspices of the U.S. National Science Foundation in September, 1969
4. Refresher course on SI Units in December, 1969
5. Seminar on ' Reorientation of Technical Education for Industrial Development in the Decade 1970-1980 in February, 1971 (Organised by the Institute under the auspices of the Ministry of Education)

First National Heat and Mass Transfer Conference is scheduled for December, 1971. Several agencies like UNESCO, National Science Foundation (Washington), National Academy of Sciences, Defence Science Organisation are likely to provide financial support for this Conference.

In conclusion, it may be stated that the Institute is taking an active part in the Development of Engineering Education and these activities are likely to be intensified during the next few years. *Alumni of the Institute are invited to send their views on Development of Engineering Education to the Coordinator, Quality Improvement Programme, of the Institute.*

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When you are in IITM,  
Keep slim and trim,  
With a trip a day in KANCHANJUNGA.

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## SOME MEMOIRS

C. V. KRISHNAN\*

Pleasant are my memories of this Institute and the thousand odd days I spent here.

Oh, how informal and jovial were some of my teachers ! I vividly remember the incident in my first year. The lecturer had just finished explaining Newton's law of attraction saying that the reason for an object falling down on earth was the attracting force between the object and the earth. One of my friends asked, "Sir, suppose you hold a chalk piece in your hand, the force still exists between the earth and the chalk ; the chalk doesn't come down. That means the earth must go up, but why does not that happen ?" The teacher quipped, "Don't bother, my friend. People on the other side of the earth will also be holding chalks".

One sunny afternoon, all of us stayed away from a class. Clever as he was, the next day, the lecturer came and said in an apologetic tone, "Sorry gentlemen, I couldn't come to class yesterday afternoon due to some urgent work".

Another lecturer was famous for his real bright jokes. I cannot resist the temptation of quoting one of his 'original' ones. A famous play-girl was asked, "Do you accept gifts from perfect strangers?"

"No" replied the girl, "I do not accept gifts from *perfect* strangers. But then, who is perfect in this world ?"

In the midst of the periodicals, tutorials, laboratory records and the inevitable viva voce, if an IITian had any bright and enjoyable moments, they were during the inter-hostel competitions, cultural week, hostel day, the Institute day and above all, the Saturday nights. To see Frank Sinatra chasing the 'Von Ryan's Express' or Peter O'Toole 'Stealing a million dollars' in the Open Air Theatre were occasions which can never fade out of memory. The pageant shows at O.A.T. during the Convocation, though outdated and odd, were really a spectacle to watch.

Next to O.A.T. comes the Gajendra Circle to my memory. Ironically enough, the Gajendra Circle is surrounded by the administration block and the guest house, the library and the Coca-Cola stand. Recently, a few 'speed breakers' around its neck have been built as if to stop the fleeing elephants.

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\* 1971 B.Tech. (Chemical).

The IITians who will remain in my memory for long are : Thomas Victor, Lionel Paul, Rathindra Roy, Gopal Ramachandran, Murali and Jagadeesh. Their names will go down in the history of IIT. The Campastimes, in spite of its shortcomings, was easily the best college paper and we will cherish for long the issue "Seven years of Campastimes". Of course, the jokes of Sankar, Roy & Co. the bang of the 'B-Text' and the melody of Murali and Cash will be ringing in our ears for years to come.



*With the best compliments from :*

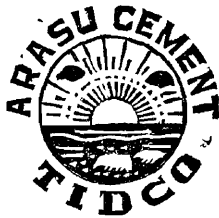
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## WHY FUNDAMENTAL PARTICLES ?

BY

Dr. P. ACHUTHAN\*

In this article we would like to discuss briefly as to why work on the fundamental (elementary) particles is important and useful. While the subject is highly technical and obviously involves extremely intricate mathematics and physics, it will be the endeavour here just to elucidate certain basic features of this most challenging field of scientific activity.

First of all what is a Fundamental Particle? In popular language, 'Fundamental Particle' signifies the ultimate constituent out of which all matter can be considered to be made up. Actually the usefulness of the concept depends very much on the state of knowledge at the time, the hierarchy of interactions with which one is dealing and the order which is introduced into the description of the experimental facts.

Grading from the galaxy down to the molecule, atom, nucleus and the subnuclear world, we have over two hundred fundamental particles now as against half a dozen some thirty years ago. Their exact nature is not well understood. Since the advent of the theory of relativity and quantum mechanics, much work has been done in the past few decades in explaining and interpreting the interactions—(in the increasing order of strength) gravitational, weak, electromagnetic and strong—between these particles, viz; graviton, photon, leptons (electron, neutrino, muon) and hadrons (strongly interacting particles like the mesons, baryons and resonances). Both on the theoretical as well as experimental fronts tremendous amount of effort is continued to be put into such studies. Rather than entering into the question of detailed calculations, we shall indicate now why and how the work on fundamental particles and their interactions is necessary for human progress.

From their very nature, being extremely small, almost transient and fast moving any meaningful work on fundamental particles demands very high energies. The discoveries in this field, which is in the frontier of science today, contributes most to the advance of our deeper understanding of the structure of matter. Although far beyond our daily experience (except possibly when cosmic rays interact with matter), this subject has the highest and very direct intellectual appeal since it is the most basic field of knowledge in the physical world.

Study of the fundamental particles is essential in order to discover the basic principles which underlie the multitudes of all natural phenomena. Frequently the

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\* Dept. of Mathematics

studies in particle physics have given unexpected insights into even the existing ideas. For instance, the investigation into the decay of K-mesons made it likely that parity is not conserved always. This led Lee and Yang to their famous discovery about parity violation in weak interactions. Recently it has been found that even the reversibility of time may not be satisfied. Thus particle physics touches on the truly fundamental concepts of space and time.

One of the excellent features of a highly cultured human society lies in the inner thirst to invent more and more--an expression of the noblest spirit of civilization, the exploration of nature to all its limits. It can well be said that this spirit is the central motivation for a fuller understanding of the fundamental particles, the finest building blocks of nature.

Lack of a unified theory to deal with the various particles and their interaction is currently the strongest challenge. Perhaps this itself is the chief cause for the greatest charm in the subject. Viewing particles through various mathematical models as moving poles of meromorphic functions, irreducible representations of groups, proper combinations of fractionally charged quarks, partons, limiting fragmentations and so on, one can possibly approach the real and true. However, in spite of all the efforts from several quarters for the past several years, the day when the particles will fully be understood seems not to be in sight as yet. This readily indicates how imperative it is to direct greater attention for work in this area.

At the present time, work with the various medium and high energy accelerators in the United States of America, Russia, Federal Republic of Germany, England, Switzerland, Italy and France show that there is really a great wealth of information that should be expected from a detailed analysis of the empirical results obtained from the varied experiments. Problems concerning the apparent order in the properties of the particles, the underlying basis of their interactions, the main relationship between the micro-and macro-levels clarifying their cosmological content and character of matter and many others still remain awaiting satisfactory solution. Meanwhile more detailed mathematical and experimental study on these and other related questions must be carried on.

Thus in the foregoing we have examined in rather qualitative terms the relevance and need for a serious attempt to understand the ultimate constituents of matter. It is to be hoped that the future efforts will surely nurture the knowledge of nature especially through further investigations on the fundamental particles.

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## **FUN, NOVELTY AND PLEASURE**

**HA ! HA ! HA ! HA !**

**K. S. HARIHARAN\***

Here are some problems for you

1. Five men and a monkey were shipwrecked on a desert island, and they spent the first day gathering coconuts for food, piled them all up together and then went to sleep for the night.

When they were all asleep one man woke up, and he thought there might be a row about dividing the coconuts in the morning. So he decided to take his share, by dividing the coconuts into five piles. He had one coconut left over, which he gave to the monkey, and he hid his pile and put the rest all back together. The next man woke up and did the same thing. He had one left over, which he gave to the monkey. And all five of them did the same thing, one after the other; each one taking a fifth of the coconuts in the pile when he woke up, and each one having one left over for the monkey. In the morning they divided what coconuts were left, and again one was left over and that was also given to the monkey. To their surprise they found all of them have got equal shares totally. Of course each one must have known there were coconuts missing; but each one was guilty as the others, so they didn't say anything. But the problem is how many coconuts were there in the beginning? How is it possible to have equal shares, if the coconuts were to be divided in this manner?

2. Sammy jumped on to one end of a piece of tree trunk lying on top of a hill. The log was exactly 13 feet long (unlucky for the boy), and the impact caused the log to begin rolling downhill. As it rolled, Sammy managed to keep upright and slowly walked across the log to the other end, which he reached just as the log came to rest at the bottom of the hill, 84 feet from where it began to roll.

The log was 2 feet in diameter. How far did Sammy actually travel? How far would he have travelled had the log been 3 feet in diameter?

### **3. Before and After**

Here is a simple question with a YES or NO answer. It happens to be couched in complex phraseology, but that shouldn't disturb you if you can find a way to reduce it to the fundamentals. This can be done in three steps, leading to your rephrasing the question in such simple terms that the answer is immediately apparent. Go ahead:

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\* 1971 B.Tech. (Mechanical).

“If the puzzle you solved before you solved the puzzle you solved after you solved the puzzle you solved before you solved this one, was harder than the puzzle you solved after you solved the puzzle you solved before you solved this one, was the puzzle you solved before you solved this one harder than this one?”

Take a pencil and paper if you care to, and make sure of your analysis of the above question, before you check the proper answer below :

YES.....

NO.....

#### 4. Steppe by Steppe

...

##### A LITTLE ADVENTURE IN SOVIET GEOGRAPHY

1. It's as far from OMSK to UMSK as from AMSK to MONSK.
2. It's as far from MINSK to MUNSK as from MANSK to MONSK.
3. MONSK is on a straight road north from MINSK to UMSK.
4. MONSK is on a straight road east from OMSK to MUNSK.
5. AMSK is 8 miles north of OMSK and 8 miles west of UMSK.
6. MANSK is 6 miles south of MUNSK and 6 miles east of MINSK.

HOW FAR IS IT FROM OMSK TO MINSK ?

HOW FAR IS IT FROM UMSK TO MUNSK ?

You can draw a diagram, which will help you a lot in solving this problem particularly if you consider the top of the page as NORTH.

#### 5. Hear Ye ! Hear Ye !

Show this newspaper quotation to your lawyer telling him that if he answers the two questions correctly in five minutes, you'll make him the Chief Minister for your estate.

“The U. S. Supreme Court today vacated, as improvidently granted, a writ of certiorari which it had previously issued to review an order of the Court of Appeals, of the District of Columbia denying a motion to vacate a stay, pending appeal to that Court, of an order of the District Court of the District of Columbia enjoining the Comptroller General of the United States from refusing to audit a claim of the Sanka Steel Corporation against the United States”

##### The Questions

1. Was the Sanka Steel Corporation pleased, or not ?
2. What is normally the next step in the litigation ?

For answers please see page 45



## **THE OPINIONS OF ONE WHO IS STILL LEARNING**

V. S. KUMAR\*

Sometime ago a few student friends wanted to know what I thought of student-teacher relationship and the present teaching methods. We had a lively discussion resulting in certain conclusions which I promptly noted down on a piece of paper. This piece of paper was gathering dust, when the editors of Pradeep, always starved for material (I say this after some experience), flattered me by snapping it up. So here we go.

The student response depends on a whole set of factors :

(a) The most important, of course, is the teacher's ability to gauge the students' requirements and teach accordingly. He should not talk down to the students but treat them as equals. The tutorials offer the best opportunity for the students and the teachers to get to know one another as individuals. Less teaching and more discussion in these tutorials would improve matters to a great extent.

(b) No course should be text-book-or examination-oriented. Otherwise the teacher merely interprets or misinterprets a set of books. The students' response in this case is mechanical. They absorb only so much as will help them get good grades in the examinations. In this system anything beyond the transfer of bookish knowledge via the teacher to the student becomes a burden to both. A seminar/discussion-oriented course may take hours and hours. Still the burden will be light. Nobody will complain of overloading.

(c) A teacher who is brilliant where his specialisation is concerned is still not a teacher if he does not bother to know what his young charges are thinking, what their aspirations are and what values they cherish. To know them he need not be like them or like what they like. He can read of what they like and meet them half-way. There is no fixed method of teaching. It varies from subject to subject. One can always try out two or three methods and then adopt the one that evokes the maximum response.

(c) The students are, I think, adults. If they like what they were being given in the class there won't be any problems of discipline. If a student often absents himself from a class it should not be taken personally by the teacher. The Important thing is that the student should learn what he has been asked to learn. If he is able to do so by reading at home or in the library the teacher should be happy. Mere attendance in the class is no indication that knowledge is being successfully transferred

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\* Dept. of Humanities.

(e) Extra-curricular activities are the second side of the coin—education. They should be given all encouragement. But if in the teacher's *considered* opinion, a student is making his participation in these activities an excuse not to attend to the equally important studies, the teacher has a duty to point this out to him. It is the student's responsibility to convince the teacher that he is not neglecting either at the expense of the other. An ideal teacher would be one, who without detriment to his academic excellence, himself participates in extra-curricular activities. I think he will then really earn the students' respect.

(f) Every one, including the teacher, lacks something. Academic responsibilities and social graces cannot be and should not be taught. They can be improved only by an inter-play of forces—a process of mutual learning. Between teacher and teacher and between student and student and between teacher and student, this process is always going on. What is required is understanding and not recrimination.

(g) Every teacher hankers after the respect of the students just as every student wants good grades. Neither can claim these as his right. Only earnest work can earn them.

I have said nothing new, I am afraid. You may even accuse me of resorting to platitudes and you will be right. The mighty question is, 'So I mean what I say and if I do how far have I succeeded?'

Some of my colleagues with whom I discussed the matter agreed with me and this prompts me to *invite the Alumni to send in their opinions in the matter*. I am sure those who are pursuing higher studies abroad can offer a lot by way of suggestions since they have the opportunity to compare two diverse systems.

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"Those who wish to go to heaven", said the teacher, "should raise their hands".

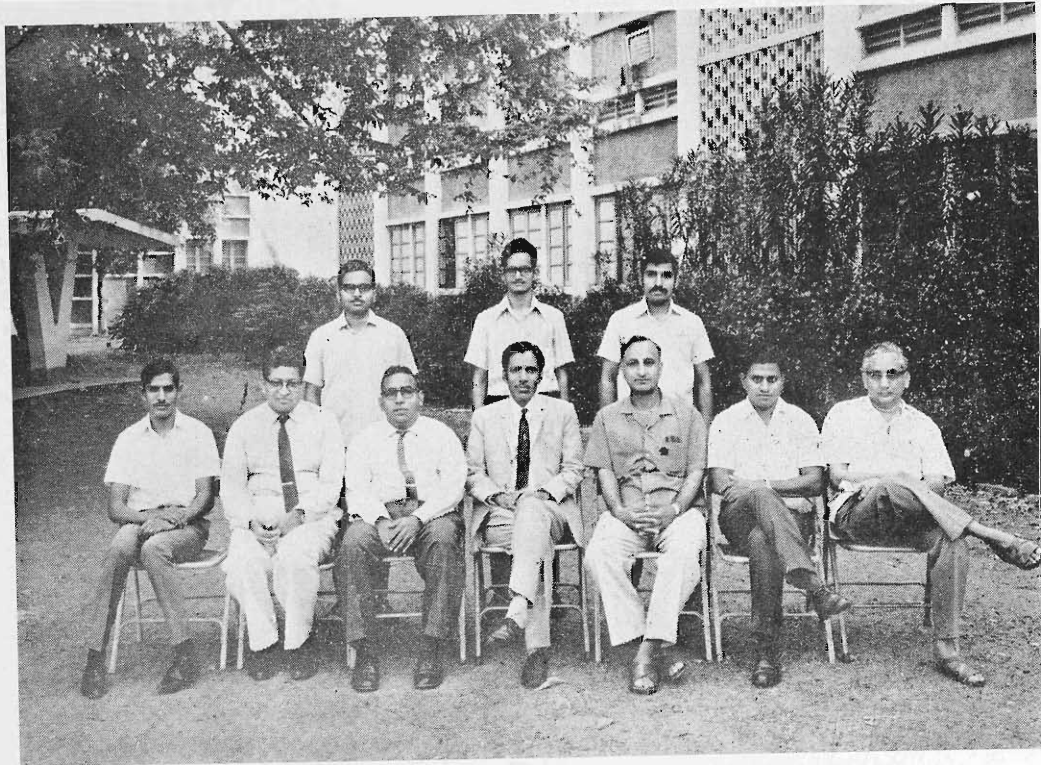
Everybody did so, except John.

"What, John, Don't you wish to go to heaven?", asked the surprised teacher.

"If" replied John, "the other 51 students are going to heaven, I would prefer Hell".

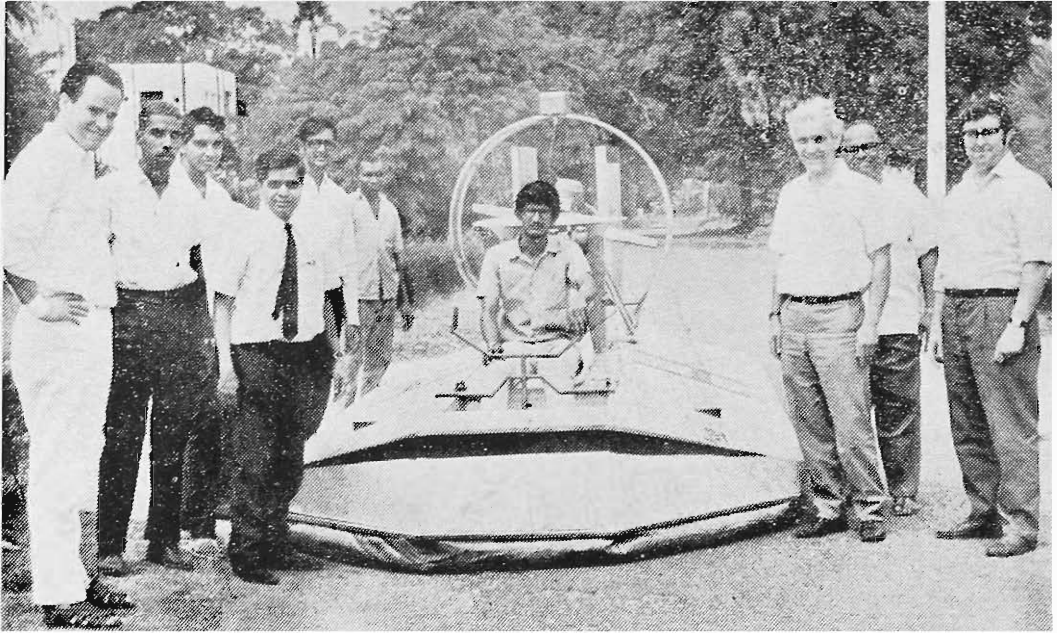
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THE EXECUTIVE COMMITTEE AND THE EDITORIAL COMMITTEE

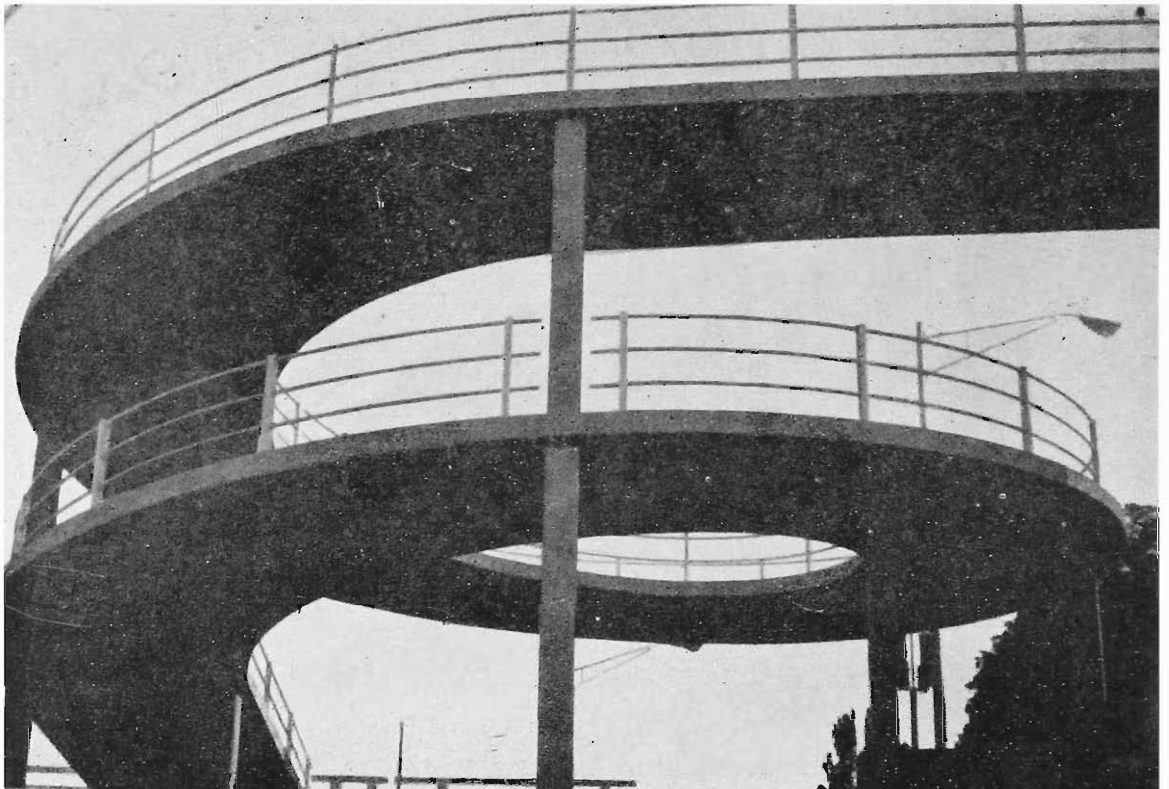


**Sitting : ( L to R )** Mr. Gaj Raj Singh Sachan, Prof. S. Sampath, Dr. B. Ramaswamy, Dr. A. Ramachandran, Dr. E. G. Ramachandran, Dr. G. V. N. Rayudu, and Dr. P.Venkata Rao.

**Standing : ( L to R )** Mr. K. Satyanarayana, Mr. C. V. Ramamohan and Mr. M. P. Krishanan Unni.



**The two-seater Hovercraft "Rajani", designed and fabricated at the I. C. Engines Laboratory.**



**Spiral pedestrian overpass in Iowa City.**

## **HOVER CRAFT AT I.I.T., MADRAS**

The hover craft 'Rajani' weighs about half a ton and is powered by two 173 CC 7.5 bhp Villiers Engines. During the brief tests at I. I. T. and at the airstrip the craft carried a single person at an average speed of about 15 k.m.p.h.

Plans for the construction of the second Hovercraft at the laboratory are nearing completion. The laboratory has already acquired one Jeep and two Tempo-Viking Engines for the purpose. It is planned to construct a five-seater amphibian capable of high forward speeds. The structure will be of fibreglass/Aluminium. A theoretical study into the principles of the Hovercraft and model studies are planned during the course of the year. The Hovercraft team has two new entrants in Ramachandran and Venkataraman besides Pradeepa who is expected to join us for a post-graduate course.

*Courtesy :* DR. B. S. MURTHY

Dept. of Mechanical Engineering

## **SPIRAL PEDESTRIAN OVERPASS IN IOWA CITY, U.S.A.**

Photograph, on the left shows the spiral span that forms final link of the pedestrian overpass (composite welded steel girder bridge) across the Iowa State Highway 218 and along the Burlington street in Iowa city. Dr. K. M. Kripanarayanan (B. Tech. Civil 1965) participated in the design phase of the spiral section of this project.

The design consists of a helicoidal concrete slab resting on steel columns that are carried to foundations resting on solid rock. The concrete slab is 10' wide and 9½" in thickness and is centered on a helicoidal radius of 17'. Powers, Willis and Associates of Iowa City designed the total project for the Iowa State Highway Commission. The consultant for the spiral section was Dr. Branson, D. E., of the University of Iowa.

This structure recently won an award for structural design in the State of Iowa

*Courtesy :* Dr. K. M. KRIPANARAYANAN  
C-39, Carol Ann Apts,  
Coral Ville, Ia 52240. U.S.A.

India's Future and the Computer



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# IBM

# A FEW RETROSPECTIVE THOUGHTS ABOUT IITM

By

A. PARASURAMAN\*

The other day I had been to I.I.T., Madras, almost a year after I had last been there. However to my pleasant surprise, as soon as I entered the campus I found that memories about the good old Institute were still fresh in my mind. Memories about the entertainment programmes, the O. A. T. movies, the debates, the periodicals etc., came vividly back to my mind. I realised that almost every event that took place at I.I.T., Madras will remain treasured within me for a long time to come. I am grateful to the Institute for the sound training, at times rather rough and tough, which it gave me during the five years that I spent there. I am sure that my life at I.I.T., Madras has laid a solid foundation which can take up any weight that may come on it later on in my life.

However, among these pleasant thoughts lie scattered a few thoughts about 'what might have been' and 'what more I. I. T., Madras could have given me'. I do have a few criticisms to offer about the system that was being adopted when I spent my five years at I. I. T., Madras. These criticisms are based entirely on what I felt about the system and anybody desiring to disagree with me is welcome to do so. After all it has only been a year since I left I. I. T., Madras and I may not be 'competent' enough to comment on the system. However, I feel that I must express my feelings in words.

First of all, I felt that most, if not all the courses at I.I.T., Madras were 'examination-oriented'. By this I mean that most of the topics were studied by the students with a view to answering questions in the examinations rather than with a view to thinking about their applications in real life. Even though the students are partly to blame for this, I feel that the method of teaching itself is such that there is no interest or incentive for the students to pursue in depth the practical applications of what they study. It is all very well to derive sophisticated equations or formulae. However, for a useful understanding of a subject like engineering I feel that it is the applications of these equations and formulae to actual problems rather than their derivation, which is of importance.

If I am permitted to digress a bit, I have now completed one year at the Indian Institute of Management, Ahmedabad, where they follow the 'Case Method' of teaching. The Case Method, in short, means that the various topics in management, be it personnel, marketing or any other area, are taught through discussion of real life problems in the respective areas, by the students. So the students at I. I. M., Ahmedabad are supposed to be very much aware of the problems in real life rather than in theory per se. However, despite this fact, from my own experience and that

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\* 1970 B.Tech. (Mechanical).

of some of my friends who went into industry recently for two months' training in summer, I would say that it is not all that easy to apply management tools straightaway to real life problems. What I am trying to drive at is that when even students who have been exposed to real problems in the classroom find it not too easy to tackle actual problems, what would be the position of students who have been used to more or less only theory in the Engineering field?

Well, having made this criticism about I. I. T., Madras, I am fully aware that it is not in the least as difficult to criticise as to make a concrete suggestion. still, I venture to make a couple of suggestions. First of all, the teachers should spend more time in the classrooms in discussing applications in Industry of the theory that is taught. Secondly, the problems of various industries in India may be discussed wherever they are relevant. The problems which the students are asked to solve may be framed in such a manner as to involve actual problems in industry. These, I trust, will at least evoke an iota of interest in the students to go out of their way to read up practical applications.

I have also one or two comments to make about the course content. I found that in some cases the same portion of a syllabus was being repeated in more than one course. This is obviously a waste of time for the teachers as well as the students. This I suppose can be remedied by better coordination during the period of drawing up the syllabus for the various courses.

Regarding the project courses and electives, I feel that more time must be allowed for the students. This may be achieved to a certain extent by letting the students choose their electives right from the fourth year onwards. This will help the students to concentrate more on the subjects of their own interest, by dropping those subjects which may not be relevant to the line which they want to pursue.

Next, I would like to comment a little on the evaluation of laboratory reports and tutorials. Students used to say in a joking fashion that the grades for these reports were directly proportional to the number of colour pencils used in preparing them! I regret to say that this was a rather serious joke; for, I found it to be true in most of the cases. As a consequence those students whose reports were of good quality except for the lack of coloured lines and decorations were penalized. And those, who decorated their reports, spent so much time in doing so that they hardly had any time or inclination for some constructive work such as extra reading. This whole phenomenon is a sheer waste of valuable time and a source of frustration to many students. It would be of great use if all the teachers concerned make it quite clear to the students that decorations carry no weightage and also practise what they say.

I would be very glad if the esteemed faculty of I. I. T., Madras find the few comments that I have put down, worthy of their consideration.

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## **BOUQUETS FOR PLACEMENT SECTION**

### **‘ Grateful ’**

Mr. D. Jawahar (B. Tech. Elec. 1970) writes :

“I am very grateful to the Alumni Placement Section for helping me procure appointments in two of the top industries in India, viz., Associated Cement Companies and Siemens India Ltd.

I am at present with Siemens India Ltd. as a Trainee Engineer in the Projects Division at the Regional Office at Madras. I appreciate the service rendered by the Alumni Placement Section and thank you and your staff for the same.

Wishing all the best for the Alumni and may the Section continue to help my friends to secure good appointments.”

### **‘ Splendid Work ’**

This is what Mr. R. Muthu Srinivasan (B. Tech Elec. 1970) has to say :

“ I sincerely thank the Alumni Placement Section for the splendid work it did in recommending students for the various Industries. I am glad to inform you that I have joined M/s. Larsen & Toubro Ltd., Powai Works, Bombay as Graduate Engineer Trainee. I once again heartily thank the Section for recommending my name to various industrial complexes.”

### **‘ Thank You ’**

In the course of his letter addressed to the Placement Section, Mr. N. Rajagopalan (B. Tech. Elec. 1970) says :

“ I am very much pleased to inform you that I have joined Hackbridge Hewettic and Easun Company as a Graduate Engineer Trainee very recently at Madras. I thank you for the services you rendered during the period of my unemployment.”

### **‘ No more application forms ’**

Mr. V. K. Viswanathan (B. Tech. Mech. 1971) writes to the placement professor :

I would like to thank you and your staff for the great help given to me to get appointed in Larsen & Toubro as a Junior Engineer. I wish to add that the alumni section need send no more application forms regarding appointments to me. I was one of the two boys selected by Larsen & Toubro Limited, Bombay for the post of Junior Engineer.

## WELL DONE !

Mr. T. T. Jagannathan, who bagged the Special Merit Prize of the Institute in 1970, writes to his Professor :

“ My apologies for not having written so long. I have been rather busy at Cornell University, adjusting to the new system of education. However, I am now completely reconciled to the environment in the US, academic or otherwise.

You must be pleased to hear that I am doing extremely well at Cornell University. I sincerely believe that after the training one receives in I. I. T., Madras, it is impossible not to do well in the U. S. All my friends from the Mechanical Engg. Dept. distributed all over the States seem to be very well too and it is not possible that this is a mere coincidence.

I have much to thank you and the other members of the Dept. and the Institute for moulding me correctly in the difficult and important period of college education. When I was in the Institute, I always felt that we were taxed more than necessary, but now looking back I am thankful for the training received there. I am very proud of my Alma Mater and am sure that it will carve out for itself a place in Indian History.”

*With the best compliments from :*

**Ram Mohan & Co Ltd.,**

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362, N. S. C. Bose Road,  
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Chamber of Commerce Buildings,  
Kempegowda Road,  
Bangalore-9  
Tel No. 74185 & 73995

## ‘ TO ALL MY FRIENDS AT MADRAS ’

Meka Papa Rao †

From the other side of the earth,  
Far away from the place of my birth,  
To remind you all, I write this verse,  
Of a forgotten yet dear friend,  
    on this side of the Universe.

I think not of me a poet or a bard,  
I write because to suppress a feeling is hard.

How much I much miss of you, alas!  
Those lovely days at Madras!

The memories of all the nice time we had  
Oh! To think I'm missing you all is sad!

As the emotions run deep  
The words become slow  
And if I begin to weep  
They cease to flow.

Oh! If only tears could write,  
This page would be all wet and white  
So, before the sadness condenses to a tear  
may I wish you all, my dear,  
“A VERY VERY HAPPY NEW YEAR\*  
AND MAY THE YEAR SEVENTY-ONE  
BRING YOU PLENTY OF FUN”

As the distance between me and you is long  
I can't say it with a flower or a fruit  
So I thought it would suit  
If I say it with a poem or a song.

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† 1970 B. Tech. (Mech.).

\*[Too late to receive the message ; is n't it?—Ed.]

The growth of a Corporation can be measured by various yardsticks—financial indices, production figures, sales turnover, new products and services, etc.

To us, in DCM, growth and development of our personnel is a significant yardstick... We would like to compare the growth of an individual in an organisation to the growth of a plant.. sufficient fresh air and water, proper soil conditions, right quantities of fertilizers, adequate sunshine and shade—these are vital for sturdy growth and beautiful bloom... Thus in DCM, through our comprehensive and integrated management development programmes on the one hand, and systematic worker and mistry training activities on the other, we try to provide the right stimulus and the proper atmosphere for the growth and development of our personnel.

In a sense, therefore, it is right to say that in DCM, we try to grow our own managers and trained personnel to meet problems of growth and change...of new products, of international marketing, of the computer, of setting up production facilities, indeed, all the challenges of tomorrow.

**DCM**

## FUN, NOVELTY AND PLEASURE

### Answers

1. In the beginning there were - 4 coconuts. Let us see how neatly this works out.

The first sailor approaches the pile of -4 coconuts, throws a positive coconut to the monkey (it does not matter whether the monkey is given his coconut before or after the division into fifths) thus leaving five negative coconuts. These he divides into five piles with a negative coconut in each. After he has hidden one pile, four negative coconuts remain – exactly the same number that was there at the start! The other sailors go through the same ghostly ritual, the entire procedure ending with each sailor in possession of two negative coconuts, and the monkey, who fares best in this inverted operation, scurrying off happily with six positive coconuts.

2. The diameter of the log makes no difference. Let  $x$  = number of feet the boy travelled. Use the Pythagorean formula:

$$x^2 = 84^2 + 13^2$$

$$x^2 = 7056 + 169$$

$$x^2 = 7225$$

$$x = 85$$

The boy travelled 85 feet.

### 3. Before and After

1. The one you did after the one you did before this one IS this one. In other words:

2. “.....the puzzle you solved after you solved the puzzle you solved before you solved this one” IS this one.

3. Hence the question may be rephrased this way: “If the puzzle you solved before this one was harder than THIS ONE, was the puzzle you solved before this one harder than THIS ONE?”

Obviously the answer to this question is just YES.

### 4. Steppe by Steppe

FROM OMSK TO MINSK..... 10 miles

FROM UMSK TO MUNSK..... 10 miles.

The people of our land vary in customs, habits, traditions and costumes as much as our scenery and climate. And yet, the cementing bonds of centuries-old culture transform the apparent diversity into a living harmony.

Knitting this vast and varied country together and sustaining its social and economic edifice are the INDIAN RAILWAYS - Asia's largest and the World's Second largest single Railway System, thus contributing to National Integration.

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If you start your diagram from the statements in 3 and 4, you'll draw two lines of undetermined length, one north and south, the other east and west, with MONSK at their intersection. Then MINSK is below, UMSK is above, and OMSK is to the left (west) with MUNSK to the right (east).

Statements 5 and 6 locate AMSK and MANSK and provide a scale of miles to work with, while Statements 1 and 2 reveal that you are dealing with the equal diagonals of perfect squares, which have a common corner at MONSK.

Your diagram will further show that the squares are at right angles to each other, with a 6 mile side of one perpendicular to an 8 mile side of the other. Hence the required distances can be easily found.

## 5. Hear Ye! Hear Ye!

1. They are not pleased (see below)
2. The Court of Appeals must now hear the appeal.

### Explanation of Steps in Solving:

a. (Starting from the end) Evidently the Comptroller General refused to audit a claim of the Sanka Steel Corporation against the United States.

b. The Steel Corporation then obtained an injunction in the District Court (D. C.) which had the effect of forcing him to audit this claim.

c. The Comptroller General appealed from this decision to the court of Appeals of the District of Columbia.

d. This Court, Pending a hearing of this appeal, granted the Comptroller General a stay of the order of the lower (District) Court. That is, it told him he needn't audit the claim for the time being. (The Steel Corporation then asked the same Court to vacate the stay - a fact which is not written, but implied, since)

e. The Court of Appeals denied this motion. (The Steel Corporation then applied to the U. S. Supreme Court, and)

f. The Supreme Court granted a writ of certiorari to review the above action of the Court of Appeals. (This, of course, pleased the Steel Corporation.)

g. (Later, however) The Supreme Court vacated its own writ of certiorari (as improvidently granted). In other words, it decided that the Comptroller General wouldn't have to audit the claim until after his appeal was heard, if at all. (This displeased the Steel Corporation)

# INDUSTRIAL & AGRICULTURAL MACHINE KNIVES

Such as

Shear Blades,  
Guillotine Knives  
Rotary Knives  
Banner Bias knives for the  
Tyre Industry,

Veneer Knife  
Circular saws,  
Slitting saws  
Segmental saws,

Spare segments,  
Paper cutting knives and wood plan-  
ning knives Etc, Etc, as per cus-  
tomers specification with blue print.

## INDUSTRIAL MACHINE KNIVES OF EVERY DESCRIPTION

SUCH AS: ENGINEERING, WOODWORKING, PAPER, PLASTIC, PRINTING INK, PRINTING PRESS,  
LEATHER & TYRE

SHEAR BLADES



GUILLOTINE KNIVES



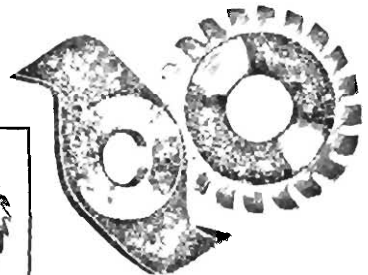
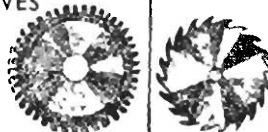
VENEERKNIVE



ROTARY KNIVES



BANNER BIAS KNIVES  
FOR THE TYRE  
INDUSTRY



CONTACT: H. MANILAL, 119, ANNAPILLAI ST. MADRAS 1. PHONE  
GRAMS: ATLANTIC



## EXCERPTS FROM CAMPASTIMES

**September, 1970**

### **Pentagon Parade**

No report of the Convocation is complete without a mention of these objects. At a first glance, one makes them out to be rather irregular; but then, they are decorative. They come in two shades, pink and blue, and are painted up a few days before the Convocation. When the OAT is rigged up, and the pathways swept, one finds them by the roadside wearing that way-out, made-for-the-occasion look. Gone are the days when flags of all colours used to dot the landscape by the dozen on such a ceremonious occasion, and the Engineering Unit must be given due credit for innovating an unique, original and imaginative way of decorating OAT. Considering the number of functions held there, it is rather unfair on their part to allow us such a visual treat only once a year. Too much, they say, is cloying, and our maroon stage is a good example. The pentagons do look a sight better than the rest of the chrysanthemums and it is a pity that everyone takes them for granted. But to the aesthetically-minded IITian, it is a long wait till the next Convocation.

### **Technicare—Prize-winning entry**

Last summer, the 4/5 Chemicals went on a factory-visiting tour to Bombay.

One of the factories visited was the Calico Chemical plant where PVC is manufactured starting from acetylene. The man was telling the students of the uses of PVC when one of the students enquired :

‘ Do you get acetylene from Union Carbide ?’

‘ No,’ came the reply, ‘ We get acetylene from calcium carbide.’

**November, 1970**

### **Film Club**

*See the crowd,*

*They are all clapping and cheering.*

*Why are they clapping and cheering?*

*It's another of Dean's movies.*

*Guns, guts, gals and sex.*

*Do IITians clap and cheer for Dean's movies?*

*No, the guys clapping and cheering are all from Velacheri.*

*The IITians have gone to see the Velacheri movie.*

### Over a Cup of Aye Aye Tea

If you ever get around to writing 'The Decline and Fall of IIT, Madras,' you could do an entire chapter on this annual gala. I don't know what the three-day binge is in aid of. One very original thinker has claimed that new talent finds inspiration there. If the inter-hostel affair is any measure of IITian talents, it's time for sack-cloth and ashes. The only thing that it does is force our Social secretaries into some action and produce an ultra-dull thirty-five minutes of 'entertainment'. Every hostel finally ends with some sickening skit and even more sickening 'bhaila'. The idea of creativeness is to put up a Tamil-English skit or light a fire on stage.

### Caricature

When Mutts first joined IIT, he had short hair—no sideburns—a quiet manner—in fact, the very qualities of a perfect 'chickna'. Then the seniors started getting fresh, and that spoilt his concentration in studies. He couldn't beat them, so he just plain joined them. He sprouted hair, grew muscles, got the ol' mean and hungry look, started boxing and soon made quite a name for himself. The strong and silent type. That was Mutts alright!

### February, 1971

#### Personalities

For all the unfortunate masses who have yet to meet Mr. Balaraman, he is the grand, rolypoly, smiling Assistant Prof. from the Aero Dept., whose shirts can provide shelter for an entire pygmy tribe. Apparently, he was pretty lean till he was eight, when he had a bout of typhoid, after which he blew up like a hot-air balloon. 'I was called "Fatso" in school and, man, it hurt. The first three days I went back and cried but then I realized it wasn't much good' he said. So he decided to participate in every sport that he came across, and wound up doing the 100 m. in 22 secs. flat. But he would finish. 'I guess that's what helped me in life' he mused later. 'You could call me self-made.'

#### Letter to the Editor

*Campastimes* will die a natural death common to many magazines unless it shakes off its old-fashioned ideals set ten years back and raises itself from the rut. It is not too late and death-bed repentance is no good. Let us not waste any more time, waiting for the auspicious moment to engage in some stock-taking.

#### Letter from I.I.T., Kharagpur

Colourful, grand, spectacular or just plain preliminary to other matters on hand, the opening ceremony is like a childhood disease—inescapable. Four tense

days followed which were a culmination of hopes, speculations, and efforts. Winning or losing, each day held its own trials and tribulations. Till the last trophy was given away, there was a battle to be fought. Not till then was the Meet over and the championship lost, a tradition shed away and the bitter outcome to be faced. The days in between were pleasant and enhanced by our privileged status as guests. The food, though a fertile topic of conversation, was not of the kind to provoke violent reactions. Being typical of its location, it probably came as a nasty surprise to a few.

## Summer, 1971

### Literary and Cultural week

The annual festive gala of IIT, Madras, got under way with hectic last minute efforts by all involved. It lasted for six days, from 22nd February through 28th providing entertainment for the great unwashed, and disappointment for the elite. The rock and soul music from the Leo Ramble was the highlight of the week, with the literary and cultural talents of the collegiate crowd of Madras running a close second. Audience participation was more limited this year than the last. The secretaries did the job for them.

### Over a cup of Aye Aye Tea

My sympathy lies with the judges who had to actually keep looking at the proceedings. Thanks must go to the Leo club for the significant noise reduction at the OAT. The noise-makers were all at the Canteen.

### Caricature

Rajaram insists on attending all lecture classes which have humour. He still recollects that long ago one gentleman said,

$$\text{' Sin}^{-1} x = \frac{1}{\text{Sin } x} = \text{Cos } x \text{'}$$

Raja did not miss any of the other classes taken by this gentleman. He did benefit. The gentleman informed the class, 'You see, in the term  $\frac{A dx}{S}$ , dx being small, can be neglected.'

### Personalities

Mr. Ebert isn't Betrielsleiter for nothing...If you asked him about his love life (I didn't), his wife would probably come out a close second—to machines! After four years in a place like this, talking to a man who is really interested in his job is fantastic. After hours, he reads about aircraft, unlike us morons resorting to spicier literature. You can see the gleam in his eye when he speaks about a gear cutting machine or a universal milling machine, and you know the workshop is in capable hands. Unfortunately, as it turns out with our beautiful bureaucracy, the hands aren't exactly free.

## **GENERAL SECRETARY'S REPORT**

### **OR**

## **THE YEAR THAT WAS . . . .**

\*Presented on the Institute Twelfth Annual Day, March 20th, 1971.

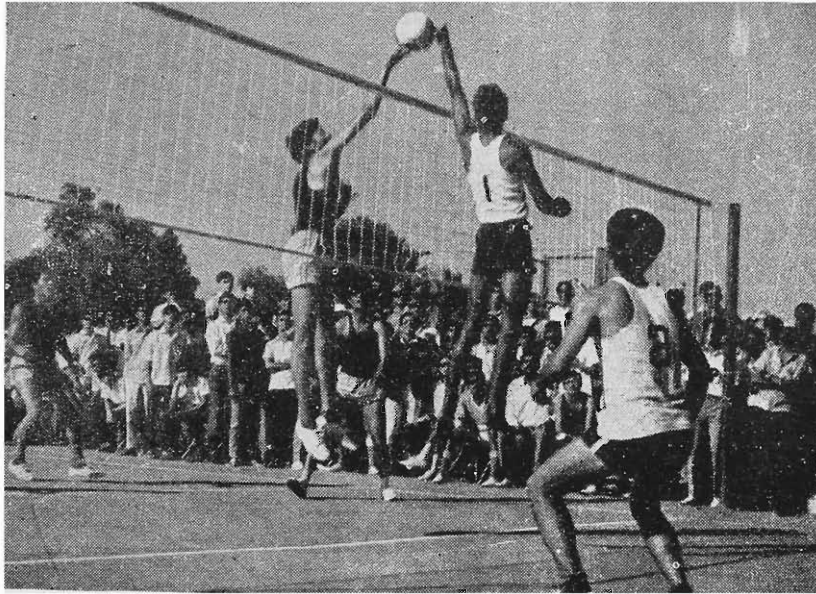
Dr. Reddy, Mrs. Reddy, Ladies and Gentlemen,

The main aim of the Gymkhana has been to promote extra-curricular activities and ensure a fuller and more whole-hearted participation in all fields of activity, and I am glad to say that this purpose had been fulfilled in a large measure.

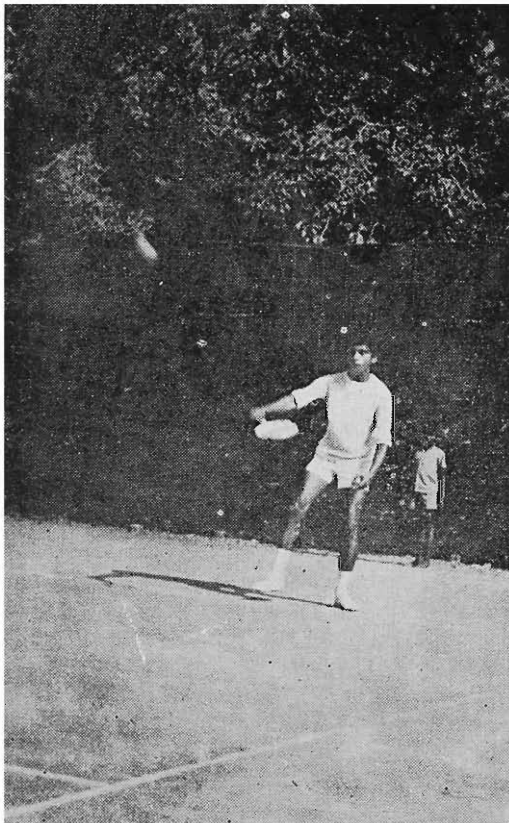
The Gymkhana was inaugurated in the traditional manner on August 20th last year. During that function, I had occasion to promise the Director, that we would maintain our reputation as the 'Best Host IIT' for the IIT Meet that was conducted in our Institute during the last week of December. But at that time, even the thought of winning the coveted General Championship Trophy was considered preposterous. Well, miracles do happen and IIT., Madras won comfortably, beating her nearest rival, IIT., Kanpur by 28 points. This achievement was made possible only by patient practice, perseverance and the determination to win. Our teams triumphed in Athletics Hockey, Basketball, Tennis and Shuttle Badminton, but were unlucky in Volleyball and Football. The Inter-IIT Meet, not only brought out brilliant talent on the Sports fields, but also in the field of Organization. Both students and the staff contributed their mite to the Organization and smooth conduct of the Meet. If nothing else, the Meet was an object lesson in cooperative effort and singleness of purpose.

As a means of preparation for the Inter-IIT Meet our Sportsmen participated in the Inter-Collegiate tournaments but met with indifferent success. In the Bertram Tournament, however, we won the Chess Championship, and Lionel Paul repeated his earlier success by winning the Tennis Singles title. Our Shuttle Badminton team won both the singles and doubles championships at the Shuttle Badminton Tournament, held in Madurai. Our sportsmen did very creditably in the Buck Memorial Tournaments by winning the Hockey, Athletics and Ball Badminton championships. This year, there was keen competition for the 'Schroeter Cup' which symbolises the over-all supremacy in sports. Ganga Hostel were the well deserving winners of this trophy. A new trophy for Inter-departmental Cricket was instituted this year by the Final Year B. Techs. This has been won by the Metallurgy Dept.

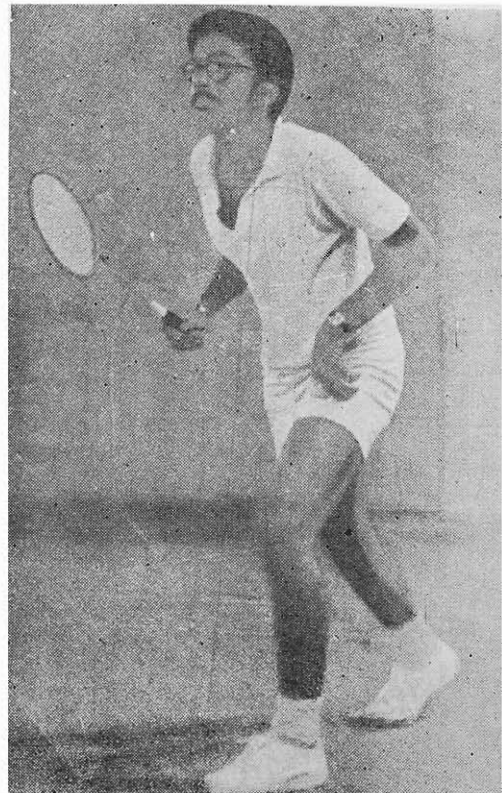
Let it not be thought that this year was dominated by Sports alone. There was remarkably good participation in the Literary field as well. A large number of enthusiasts took part in the Annual Debate and Quiz. The Open Group discussion, which is a contest peculiar to our Institute, also attracted large participation as did the English Essay writing competition and the written General Knowledge test.



**Madras Skipper Spikes... Madras lost to Kanpur in a five set final**



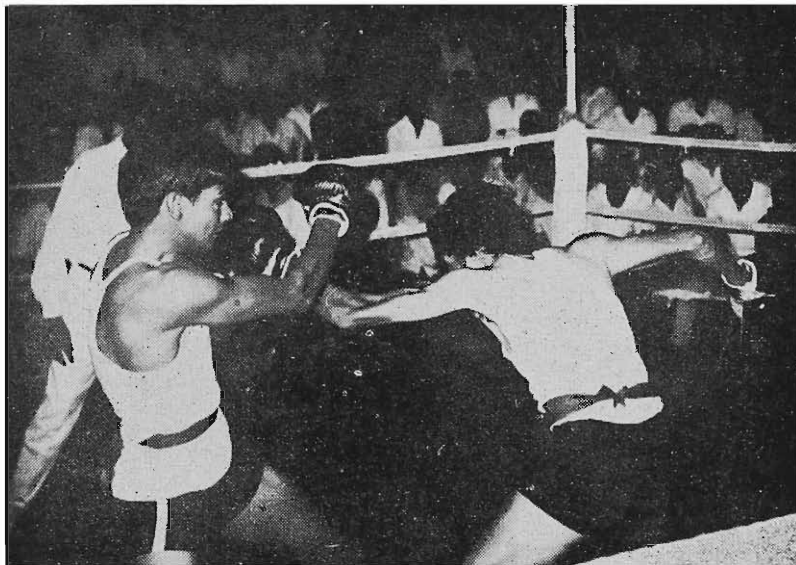
**Ram Kumar Menon led the victorious Tennis Team**



**Edwin was instrumental in our Shuttle Victory**



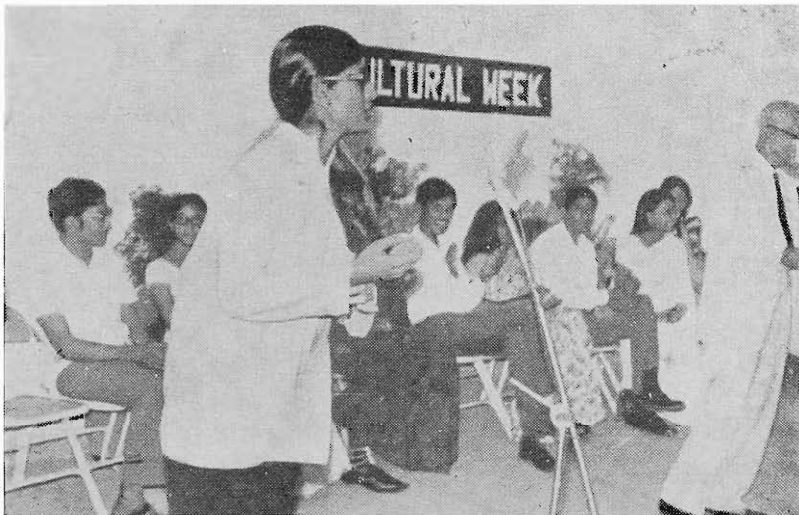
We were unlucky to lose the semifinal to Kharagpur thro' a self-goal in the extra-time



Boxing—'71



**Stella Maris at the group discussion**



**The Quiz brain from QMC**



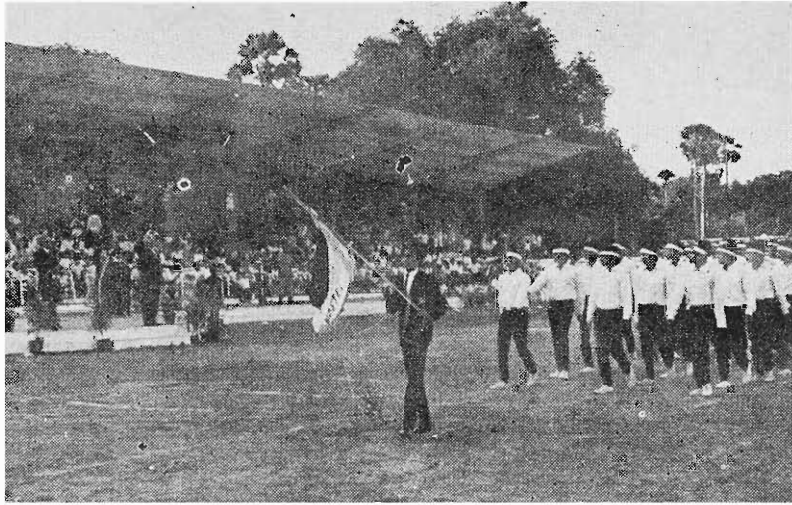


Cultural heritage!

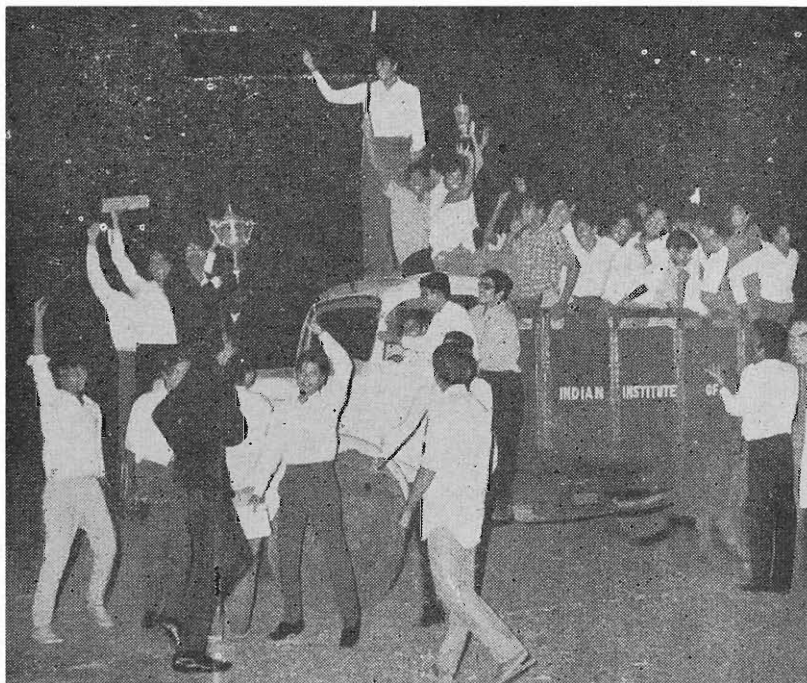


More girls than boys—An IIT Group Song

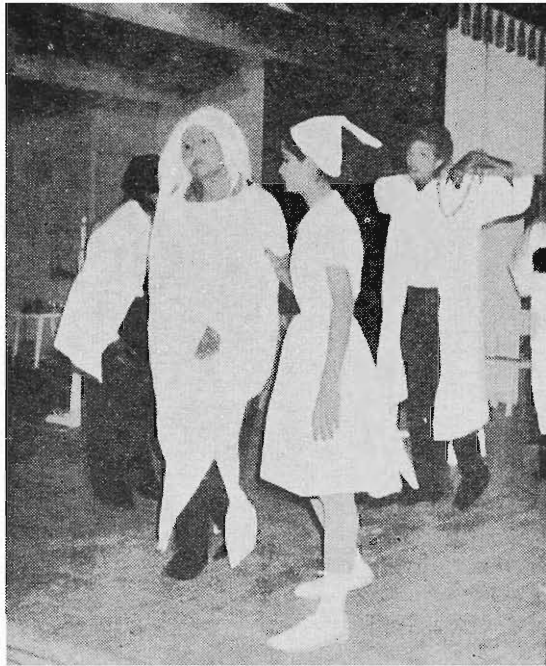




Narmada Marches past



Gangaites with the Schroeter Cup



**“PHYSICISISTS”** Institute Dramatic Club staged the Drama at the Museum Theatre, Egmore.

To provide a means of stimulating interest in the field of management, a business Sciences Study Circle was started as a new venture in addition to the already flourishing Debating Society. The Study Circle has arranged several lectures by prominent businessmen and administrators.

A new feature in the literary activities of this year was the conduct of the Inter-IIT Debate, Quiz and Group Discussion. The performances were commendable and the overwhelming response from all IITians makes a strong case for the continuation of these competitions at the Inter-IIT level.

The literary competitions held during the Cultural Week were noteworthy for the large number of contesting Colleges in the All India Debate as well as in the Inter-Collegiate Quiz and Group Discussion, and also for the high standard of the competitors. The enthusiastic turnout by the audience highlights the pressing need for an indoor auditorium with a larger seating capacity than the C.L.T.

IITians have excelled as usual in the various literary competitions held in and around Madras City. Our debators won trophies at the Inter-Collegiate debates held by Lions Club, the UN Students association of Madras, Loyola College and in the M.I.T. Cultural Week. Our Quiz brains bagged the trophies at the Quiz competitions held by M.M.C. and M.I.T.

On the basis of the tremendous interest shown in the various literary activities, it has been proposed to install a Inter-Hostel trophy for the best hostel in literary activities on the lines of the 'Schroeter Cup' for games.

The Fine Arts Committee has been more active this year than in any previous year. An Art Club was formed, which has been providing its members with valuable instructions in the various techniques of painting. In addition a Sculpture Club has also come into being and has been functioning successfully, especially during the Inter-IIT Meet, when its members turned out scrap iron models, examples of which can be seen at the Gajendra Circle and near the stadium. The Photography Club has helped to create a genuine interest in the art of photography. Members are provided with the use of a dark room, and are also given film and paper at a concessional rate. During the Cultural Week, it came as no great surprise when our students bagged most of the prizes in photography.

In an effort to help amateur painters appreciate the finer points of good painting, an art appreciation gathering was held in October. This was the first of its kind in Madras. Eminent artists were invited to discuss paintings with students from all over the city. The unprecedented success of this gathering sparked off a second art appreciation gathering which was as successful as the first. It is hoped that these

gatherings will become a regular feature at our Institute. The growing interest in art was made evident by the multitude of paintings that were exhibited during the Cultural Week. The Science Fair also attracted many entries from outside colleges, though the field was dominated by IITians.

Early this year, a challenge was thrown to the Entertainment Committee to improve the standard of entertainment in our Institute, and they picked up the gauntlet by arranging a very successful Entertainment Programme at the Inaugural function. The still-born dramatics Club was reborn this year and turned out to be a healthy wailing brat. The club was inaugurated with the staging of the play 'A pound on Demand'. A second play 'The Physicist' soon followed, and proved that IITians also are capable of good acting and can appreciate serious plays.

The Inter-Hostel Entertainment Competition held in October was a keenly contested affair, and the Hostels demonstrated their patriotic spirits in no uncertain manner. After three days of Music and Song, the Engineering Unit Trophy was awarded to Ganga hostel. Sarayu was the dark horse and sneaked away with the second place.

Participation seems to have been the key word this year. A maximum of fourteen colleges took part in the Cultural Week entertainment competition. The audience this year has been more appreciative and even tolerant and the success of the cultural week celebrations can largely be attributed to them.

In the field of entertainment, IIT-Madras won the Best Skit price at the Inter-Collegiate dramatics competition held at Guindy Engineering College. We dominated the scene at the MIT Cultural Week also, winning a great many prizes. Our students were invited to stage a Variety Entertainment-programme which was broadcast over All India Radio.

The Institute Day marks the culmination of the year's activities of the Gymkhana. Looking back at the year, I think I can confidently say, that it has been a year of intense activity and achievement, a year which will long be remembered by IITians. All this was possible only because both the staff and the students worked together, with the will to achieve. I have no doubt, that in the coming years IIT will go on to newer achievements and greater successes.

In a few weeks, many of us final year students will be leaving this Institute, perhaps never to return again. On behalf of all of them and on behalf of the Secretaries, I thank you all for everything you have done for us, and assure you that wherever we are we will follow the progress of IIT., Madras with great interest and we shall always be proud of belonging to this great Institution.

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## RAM RAJYA

By : T. S. Ananthu\*

I am getting quite tired of cynics in our midst who keep repeating that we are living in Kaliyug, that society is not what it should be, that we are far removed from the idealistic vision of equality, justice, fairplay and humanism for all ; in short, that we have failed to establish the Ram Rajya of our dreams, the Ram Rajya that we aimed for when we attained independence.

Take a look around yourself carefully, and you will be convinced, as I have been, that we have indeed succeeded in establishing Ram Rajya and are, believe it or not, living in such a Rajya. After all, how do you define "Ram Rajya"?—A regime that is governed by the principles expounded by Ram, where Ram is the supreme ruler, where everything is in Ram's power. This is very much the case today. Our Government is, in fact, entirely in the hands of Ram, and there are three such types of Rams—Aya Ram, Gaya Ram and Jaya Ram.

I am not joking. I am being very serious. Before making this attempt to convince you of the existence of Ram Rajya in our midst, I had made efforts to convince myself thoroughly. Living in Delhi as I do, I probably had less difficulty in doing so than my fellow IITians in other parts of the country and the world. To accomplish my purpose, I paid visits to each of the Rams' bungalows here in Delhi.

Aya Ram was extremely logical.

"Who says the living standard of the average man has not gone up since independence?" he thundered, "Take, for example, my own case..."

A glance at the carpets, the chandeliers and the wall papering in the drawing room was enough to convince me of the powerfulness of his argument.

"And when my standard of living has gone up", Aya Ram continued his irrefutable logic," so has everyone else's ; for, after all, we are living in a socialistic age, and so everyone in the society progresses at the same rate. We have discarded the decadent capitalistic system, where some can be rich and others poor. My party has irrevocably adopted the principles of Ram Rajya, it stands for socialism, for democracy, for eradication of poverty, for upliftment of the masses, for making all men equal".

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\*Batch of '65 (accelerated to '64!)

“But”, I intervened, “the opposition party also swears by the same principles”.

“They are hypocrites”, his voice soared beyond what some define as the ‘hysterical pitch’ at the very mention of his sworn enemies, “They say one thing, and do quite the opposite. They preach secularism, but form alliances with communal forces. They advocate the use of Indian languages, but send their own children to English medium schools. They talk of simple living and high thinking, but indulge in high living and simple thinking.”

While we were thus engrossed, preparations for a cocktail party in the adjoining room were in full swing. With his “I insist”, Aya Ram overpersuaded me to join in the evening’s gathering.

Now, I have to admit that in spite of over four years’ stay abroad and persistent attempts to get “used” to drinks, all liquor is still very much like cod liver oil to me. The net result was that I had to put off my planned visit to Gaya Ram that night.

The next morning, after overpowering the initial spell of laziness—cum-drowsiness, I rang up Telephone Enquiries to find out the number and address of Gaya Ram. Imagine my surprise, when I was supplied with exactly the same address that I had been to the previous day!

“But then”, I reasoned with myself, “it is only appropriate that in Ram Rajya leaders of opposing parties should reside in the same premises”

However, as I discovered when I reached there, not only was the address the same, the personalities were identical too.

“So”, I told the former Aya Ram, “you have defected to the opposition, is it?”

“No, no, no”, protested Gaya Ram, “don’t call it defection. It is merely following the dictates of one’s conscience. At the party last night—the one from which you departed rather early—leaders of the opposition convinced me that my principles really coincided with theirs. And now I will tell you a secret. All along, my principles, my views and my ideology have really been more identical with that of the opposition. To tell you the truth, this had been weighing heavily on my conscience for a very long time, and last night I finally decided to bow to the will of my conscience”.

“But”, I remarked, “only last night you were bitterly denouncing the opposition”.

“You see, my friend”, Gaya Ram explained ruefully, putting a delicate, perfumed hand over my shoulder,” I regard duty as above everything else, and I was merely performing my duty as a loyal member of the party to which I belonged at that moment. My real views I concealed, and you can’t imagine what a sacrifice and mental torture was involved in that...”

He almost broke down and wept at this stage; there could be no doubting his sincerity, his genuineness, his deep dedication first to his duty and later on to his conscience.

My encounter with Jaya Ram was quite dramatic. I spotted him getting out (with quite some difficulty) of his limousine, and reverentially greeted him with a “Ram Ram Ji”. And that gave him the opportunity he was looking for in order to make a speech :

“I know it is a tradition in this country to greet others in the name of Lord Ram, as if he is the greatest one that ever lived. But don’t forget that the Ram Rajya that we are establishing today is, in several ways, far superior to the Ram Rajya that existed in Lord Rama’s time. For example, Lord Rama certainly did not do as much as he should have for the Harijans. Why, he didn’t even have a Harijan as his most important Cabinet Minister. If only he had made the leader of the Harijans a Cabinet Minister as well as leader of the ruling party, all Harijans would have been automatically emancipated. Nothing more needs to be done for Harijans beyond that. This is exactly what we have done today. Of course, I don’t say we couldn’t perform better, we could, for example, make the leader of the Harijans our President. And, more important, we should have a law forbidding any public hue and cry about the forgetfulness of Ministers, especially if they are also leaders of the Harijans. Oh, I forgot in Lord Rama’s time, see how miserably women were treated. Sita sacrificed all she had for her husband’s sake, and still her husband got all the credit. How unfair! But in our Rajya, it is the women who get all the credit and advantage unfairly! A lady is given the honour of presiding over the Cabinet-mind you, even presiding over the leader of the Harijans - just because she happens to be the daughter of her father. Can Lord Rama boast of such a place of honour for women in his time?”

“Then, Sir”, I began, not without a touch of fear at interrupting the speech of the Almighty, “would it be more appropriate to refer to our era as Sita Rajya?”

He glared, and then gave me a scornful look.

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# They saved the ancient banyan tree and now their daring knows no bounds

'Let it stand,' someone said of the banyan tree as the site was being cleared for the Hindustan Lever Research Centre, at Andheri.

So the tree still stands—and it stands for quite a lot. For one thing, the tree signifies that we can't easily get away from what is home-grown. Appropriately, therefore, the Centre will tackle problems rooted in India—the kind that can only be solved here:

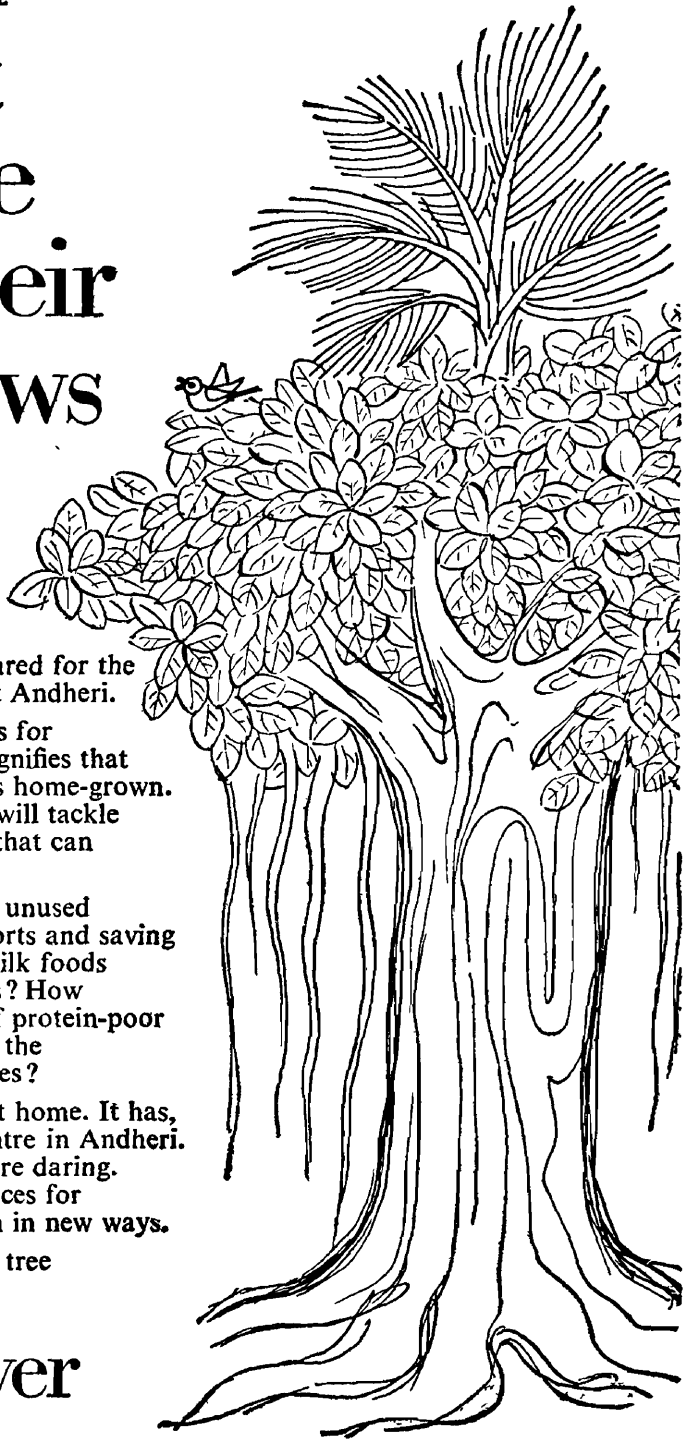
Can we discover and exploit hitherto unused *local* sources of oil, thus cutting imports and saving foreign exchange? Can we develop milk foods that are ideally suited to *Indian* needs? How can we improve the nutritive value of protein-poor foods? Can we develop processes for the preservation of Indian type food dishes?

Research on all this can only begin at home. It has, at the Hindustan Lever Research Centre in Andheri. The sweep and thrust of the studies are daring. The scientists are producing new devices for old, making traditional things happen in new ways.

They have, of course, left the banyan tree alone to grow by itself.

## Hindustan Lever

Lintas-HLL/PR. 9A-140





## RANDOM HARVEST

T. VARADARAJAN\*

“ It was a delicious summer morning. The hazy shadows of the trees were still long on the earth which seemed to have had a bath of the dew overnight. The silken thread of the rays of the rising sun through the woods cast a golden shine on the greens, in an attempt to devour the cool and sylvan setting and emitting warmth as the hour grew. The chirpings of the birds from atop the blooming trees were vibrant with youth and seemed to echo the pristine glory of Mother Earth in all her manifestations”.

This is how one can commence his writing.

“ The other day, the Secretary of the Alumni Association exploded a naxalite bomb on me. ‘You have to write an article for the *Pradeep*, he demanded. ‘I will collect it tomorrow, O.K.?’ and he left. Well, I was quite unprepared for the onslaught. Anyhow, now that there is no escape, I have decided to write, but am still wondering what to write about...”

This is yet another way to start.

But I am not going to do either way.

Perhaps you may think that a man’s worst difficulties begin when he is able to do as he likes. I want to disprove this. Having decided to contribute to *Pradeep* myself, it is going to be your worst difficulty if you dare to go through this to the end.

There is no doubt that Youth is a wonderful thing. But I do not understand why it should be wasted on youngsters. Having done that, one is obliged to agree with the famous declaration of Mr. Pakeshere that the three stages of man are:

20 — 30 : TRI-WEEKLY

30 — 40 : TRY-WEEKLY

40 — 50 : TRY-WEAKLY

Recently I had a lively discussion with my friend who is a Chemical Engineer. He has specialised in non-Newtonian fluids and process dynamics while I am interested in gardening and classical music. Therefore it was but natural that whenever we met we used to talk about sociology with special reference to South Madras Tribes.

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\*Placement Section

On a late evening, after supper, when we were sitting on the lawns of Gajendra Circle, engrossed in our favourite topic, we were disturbed by the following conversation from behind one of the elephants on the other side,

“Our teachers don’t know a thing. Why - not many of them could teach anywhere else and get away with it. There ought to be a whole new teaching staff...”

The other guy reacted quickly to this: “Yeah, Yeah! I too failed in two subjects.”

My friend told me “See, the future is going to depend not so much on what happens in outer space as on what happens in inner space - the space between our ears. I had to agree with him. I said “Don’t we see that whenever science makes a discovery, the devil grabs it while the angels are debating the best way to use it? But does that stop the progress of research?. Why - only a few years ago the moon was an inspiration to lovers and poets. A few years from now, it will be just another airport”.

On that day it was past twelve O’ clock when I returned home from Gajendra Circle. In spite of my tiredness, I could not sleep. Of course it is no small art to sleep; to achieve it one must keep awake all day.

\* \* \* \*

My friend - the Chemical Engineer - was on vacation. He was not one of those who take their holidays late in the season to avoid the rush of people taking their holidays early in the season to avoid the rush. He was really worried about the way in which things happened in the world to-day. I used to agree with his statement that money saved for a rainy day buys a much smaller umbrella than it used to.

But what on earth could he do while he himself was to suffer from rheumatism? We went to see the doctor. The doctor wrote a prescription and as we were getting out of his room said to my friend, “Let me know if that does you any good. I have been troubled myself with rheumatism lately”.

When we come out I asked my friend with a grin “Well, what do you say? Where do we go?” He was agitated. “To hell with science and technology! I do not think we will be able to make a mark even in medicine. We go nowhere, sure, take it from me”.

I took the bottle from his hand. “I was not discussing philosophy now. I only asked you where do we go now - home or Knick Knack?”.

On our way to the restaurant I told my friend : “ No doubt the strides science has made are magnificent. Why, even now when I read about the marvels of electricity it makes me stop and think !” My friend lost no time in having a dig at me. “ Imagine that ; isn’t it wonderful what electricity can do ? ”.

At the restaurant the waiter, to our annoyance kept scratching his forearm and when I asked him “ Do you have eczema ? ”, he replied “ No special orders Sir, just what is on the menu ”.

We were not as much perplexed as the Sardarji in Delhi who did not have a TV set, but drilled a hole through his neighbour’s apartment and watched wrestling everynight until he found out that they had no TV set either.

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There are many styles in modern writing to conclude a write-up. The latest one—specially when you don’t know where and when to stop writing—is very simple. All you have to say is THE END.

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**ALUMNI ASSOCIATION**  
**INDIAN INSTITUTE OF TECHNOLOGY, MADRAS**  
**ANNUAL REPORT FOR THE YEAR 1970-1971**

It is my proud privilege now, as Secretary of the Alumni Association, to report home the activities of the Association for the year 1970-71. At the outset, let me confess that this report will, in no way, be different from those in previous years, but then, one cannot expect it to be different as our activities are of the routine type.

***Office bearers :***

Prof. E. G. Ramachandran and Dr. G. V. N. Rayudu took over charge as President and Treasurer respectively from Prof. P. Venkata Rao and Dr. B. Ramaswami. By an amendment to the Constitution approved by the General Body at its last meeting, provision was included for nomination of an Auditor by the Patron. Mr. R. Kannan was nominated accordingly.

Prof. S. Sampath, Dr. T. Gopichand, Dr. Jens Ulrich Davids, Dr. A. V. Krishna Rao and Shri T. S. Rajagopalan were nominated to the Publication Committee.

***Membership :***

About 75% of the students who passed out this year joined the ranks of the Association taking the membership figure past the two thousand mark. The number of new members is about 280 as against 360 last year. Many reasons could be advanced for this downfall.

- i) Scrapping of the 3-year B. Tech. Degree Course
- ii) "What do we get if we join" attitude of graduands.
- iii) Our own inability to create sufficient interest among the graduands in the activities of the Association.

Many steps including making the membership compulsory was thought of; but no concrete steps in this regard could be taken.

***of the Alumni :***

A number of our alumni got good positions in top Industries in India through the good offices of the Alumni Placement Section.

I am very glad that some of our alumni responded to our frequent requests and sent us letters, articles, etc. The number of alumni who communicate with us, however, is rather small and leaves much to be desired from the rest. I need not emphasise on the need for members keeping in touch with the Alumni Association—the only link between them and their Alma Mater.

I thank on behalf of myself and all of you the outgoing president and Treasurer Prof. P. Venkata Rao and Dr. B. Ramaswami respectively for the services they have rendered to the Association.

My thanks are due to the President, Office-bearers and the alumni for their co-operation and help. Thanks are also due to Mr. Varadarajan and Mr. Rajagopal of the Alumni Placement Office. I will be failing in my duties if I do not place on record the services of the members of the Publication Committee.

The Alumni Association is still in infant stage. We are yet to achieve many of our cherished aims and objectives. For the attainment of these, a whole-hearted participation of all the members of the Association is absolutely essential. I hope these would be realised in the coming years and that the Association will grow from strength to strength.

Madras-36. }  
20-7-1971 }

GAJRAJ SINGH SACHAN  
SECRETARY



Tamil Nadu is going wet very soon. We may perhaps chance to hear interesting conversations like these:

In a car proceeding towards Gajendra Circle : “When you come to Gajendra Circle, turn left”. The other slobbers: “What are you telling me for? You are driving!”

“What time ish it?” the Velacherian queries to the hostel-man at the OAT, “Nine p.m.” was the reply.

“I musht be going crazy” the former said, “All day long I keep getting different answers!”.

T. V.

## ALUMNI PLACEMENT POSITION

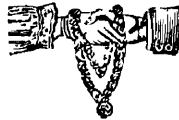
*Consolidated statement showing placement position of students  
belonging to 1964 - 1970 Batches  
(Position as on 30th June, 1971)*

Year	Total passed out	Studying in India	Studying abroad	Employed abroad	Employed in Private Sector	Employed in Public Sector	Position not known	Remarks
1964	106	12	23	5	31	35	—	—
1965	163	18	37	18	43	47	—	—
1966	246	32	44	10	82	73	4	*1 *Deceased
1967	319	57	43	6	87	66	39	1 "
1968	383	73	55	9	91	76	78	*1 "
1969	451	78	52	—	84	80	157	—
1970	540	87	85	—	87	82	199	—
	2208	357	339	48	505	479	**477	*3

\* We continue our efforts in collecting the particulars of the students whose placement position has been reported as 'Not known'



## *Wedding*



Mr. K. Satyanarayana B. Tech. (Civil 1966) with Karuna Devi on 30th April, 1971 at Guntur.

Mr. G. Satyanarayana B. Tech. (Mechanical 1967) with Shakunthala on 3rd May, 1971 at Bangalore.

Miss. N. Sitalakshmi M. Sc. (1970 Chemistry) with N. Sitaraman at Madras on 7th May, 1971.

Mr. K. Sitarama Sastry M. Tech. (1968 Chemical) with Prasoon at Guntur on 2nd June, 1971.

Mr. K. N. Mahadev M. Sc. (1970 Chemistry) with Ratnakumari at Bangalore on 13th June, 1971.

Mr. R. Natarajan B. Tech. (1964 Metallurgy) with Yamuna at Kumbakonam on 13th June, 1971.





# ALUMNI DIRECTORY

## SECTION A

(Corrected Information about members upto 1969 Batch)

### 1964 BATCH

#### B. TECH.

##### CHEMICAL ENGINEERING

#### Mr. C. P. Vijayan

is pursuing M.A.Sc. at the Department of Chemical Engineering, University of Waterloo, Ontario, Canada.

##### CIVIL ENGINEERING

#### Mr. B. S. Sudhir Chandra

Executive Engineer (Survey) E.E.N. Thiral Ghat Line Survey, Junnar, Maharashtra.

#### Mr. Madhava Sampigeethaya

Lecturer Civil Engineering Department, Manipal Engineering College, Manipal P.O., South Kanara District, Mysore.

#### Mr. K. Ramachandra

is studying M.S. at the Department of Civil Engineering, Polytechnic Institute of Brooklyn, Brooklyn, U.S.A.

##### ELECTRICAL ENGINEERING

#### Mr. R. Venkateswaran

is with International Bank for Reconstruction and Development, World Bank, Washington, U.S.A.

##### MECHANICAL ENGINEERING

#### Mr. S. Srinivasan

Data Processing Representative, I.B.M. World Trade Corporation, 1, Moore's Road, Madras-6.

#### Mr. P. Premananda Prabhu

Production Engineer, M/s. Snail Spanners (India) & Tools Limited, Kanju Village Road, Bhandup, Bombay-78.

#### Mr. V. Amudachari

Senior Foreman, M/s. Ashok Leyland Limited, Ennore, Madras-57.

#### Mr. V. S. Srivastava

Assistant Mechanical Engineer, Government Cement Factory (Quarries), Ghurma-Markundi P.O., Mirzapur District, U.P.

##### METALLURGY

#### Mr. A. C. Raghuram

Lecturer, Mechanical Engineering Department, University of Maryland, College Park, Maryland-20742, U.S.A.

#### Mr. T. Varadarajan

Reader, Department of Metallurgy, University of Roorkee, U.P.

### 1965 BATCH

##### CHEMICAL ENGINEERING

#### Mr. K. Chandrasekharan

is studying M.S. at the Department of Chemistry, Syracuse University, New York, U.S.A.

#### Mr. K. Sadasivan

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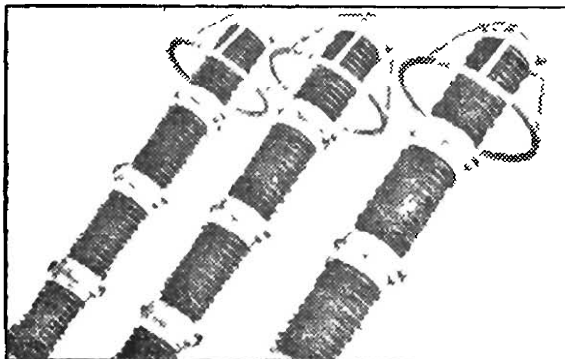
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