

TECHSTRUM



Jaffna College
Institute Of Technology
Vaddukoddai
Sri Lanka



December 1987

Nos. 5 & 6

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TECHSTRUM
A TECHNOLOGICAL SPECTRUM
OF THE
JAFFNA COLLEGE INSTITUTE OF TECHNOLOGY
VADDUKODDAI - SRI LANKA

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1987

Nos 5, 6

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— 'Technical competence is the key to economic self-reliance' —

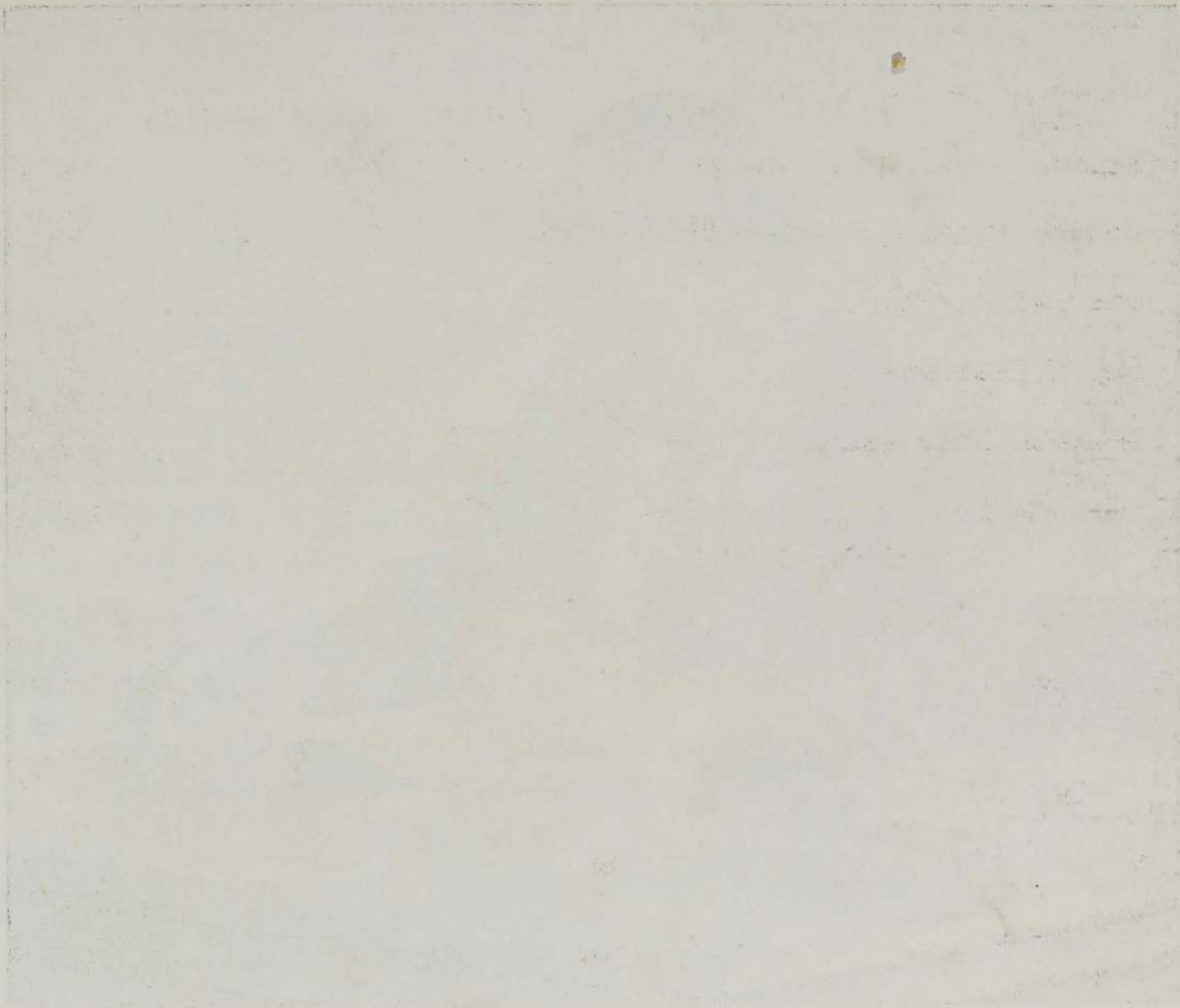
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THE DIRECTOR



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THE DIRECTOR



A Study in Concentration

The Director — on the band wagon for Further Studies

After a remarkable and strenuous spell of over seven years in the seat of administration of this institution during its teething period as a Technical Institute and then seeing it rise to the stature of an Institute of Technology, Mr. M. G. Pillainayagam leaves by the end of the year to read for his Master's degree in Education at the Bowling Green State University, Ohio, U. S. A. We fervently hope and wish that he will take this opportunity to work on his thesis for the Doctorate in Mechanical Engineering or any other discipline that has caught his fancy.

Today, the institution, by whatever nomenclature it may be called, is playing a definite role in the life of the community, and this is the measure of Mr. Pillainayagam's success. In the expansion and growth of its academic, cultural, social and other activities, and, in the creation of that peculiar atmosphere which, above all, betokens an ideal technical or technological institution, he has truly and honestly left an indelible mark. The institution stands out alone, towering over the palmyrah groves in the countryside around, as a beacon of light.

His peregrinations so far include Thailand, South Korea, Japan, India, the Philippines and the United Kingdom. It is no wonder that God out of His wisdom and in His time had destined that Mr. Pillainayagam should also move out to the land of promise, plenty and progress.

This was the human dynamo that filled the Director's chair for well over seven long and hectic years. And, this, in brief, is a humble meed of praise we owe him for the present.

We wish him success in his mission abroad and a speedy return as Dr. M. G. Pillainayagam.

- Scribbler -

EDITORIAL

Liaison with the Jaffna University — a point of view

The major barrier we face in a rapidly changing world is the lack of access to knowledge of modern technologies. 'Knowledge is power' the saying goes. It is not an end in itself: it is a means to an end. Nor is it static! It grows, expands and changes direction as a product of human thought, giving rise to technologies which when exploited open up new avenues of employment and generate quality commodities.

The Arthur Clarke Centre, set up not long ago in Moratuwa, plans to create a high - technology knowledge base in collaboration with the Moratuwa University Complex. It has been established to meet an important need for the acceleration of the introduction of modern technologies in Sri Lanka, particularly, in the fields of communication, space and computer science, with a view to bringing the benefits of these technologies to the people, especially, in the rural areas and to raising the standards of living in general.

A realistic joint partnership of this magnitude, it is hoped, will dawn the entry of a 'High - Technology' environment in the main-stream activities of the Centre and will serve to provide the kinds of knowledge necessary to produce the appropriate form of development. The nurturing of such kinds of knowledge, namely, Technology, can only be in an environment designed to promote the processes of knowledge itself. Thus, the Centre will constitute the most suitable base from which to transfer the vital segments of modern technologies that can have profound influences upon industrial development and economic resurgence.

Our institution holds a pre-eminent position in the North as a broadly-based Institute of Technology. Today it has grown to its full stature and can hold its own favourably with institutions of its like, both at home and abroad. Knowledgeable circles are of the opinion that the time is opportune for us to reflect on our past, to re - assess our goals and re - order our priorities in the present, and to re - think our plans for the future on the lines of the Arthur Clarke Centre — Moratuwa University Complex accord. The Institute in close liaison with the Jaffna University could, in some fields like Bio-technology and Computer technology, launch out a worthwhile institutional framework to lead our youth into the technological age.

In this context, we presume, it will be apposite to refer to a prophetic utterance made by Professor K. Balasubramaniam, B. Sc (Cey), PhD (Indiana), FNAS (Sri-Lanka), Head, Department of Biochemistry, University of Jaffna, in the course of his Address at the Institute Day celebrations on 19th September 1987:

“Without Research and Development, no institution can progress; no institution can attract staff and students; and, above all, no institution is worthy of its name. The Department of Biochemistry had initiated an M. Sc. course in Biotechnology in November 1986. I take this opportunity to thank this Institute for offering their services to conduct the course on ‘Bioprocess and Instrumentation’ to our Biotechnology students and, in addition, fabricate the necessary machinery and equipment for pilot plants. This association between our University and your Institute could form the corner stone for the development of the Biotechnology - based Industries of the 21st century”. *

Professor Balasubramaniam accepts our point of view in no uncertain terms.

Thus, there is certainly much to be said for the establishment of a close and effective joint enterprise between the Jaffna University and the Institute of Technology, with the latter as the base of operations, in the not too distant future.

(* *Full Text of Professor Balasubramaniam's Address appears elsewhere in this publication.*)

NOTES & COMMENTS

The Techstrum

An unbroken stretch of trauma and travail of various forms and shapes relentlessly dogged our path in bringing out the Techstrum as programmed. A switch in its publication from an Academic to a Calendar year in December has been found desirable so as to tow the line with the semester system of instruction and this will be made effective from December 1988. This step is purely experimental.

This issue will, nonetheless, cover the period from July 1986 to December 1987, a mixed brew of the old and new.

A dream comes true, and looking forward !

We are proud to record in these columns that the hope we expressed in our last issue has directly caught the attention of the Argus-eyed Council of Management.

From PHASE I as a Technical Institute we have entered into PHASE II as an Institute of Technology. The history of this institution is one of noble ideals and high endeavour, of astounding achievements and of bewildering set-backs. The pioneers who established this great institution and all those who are maintaining it today deserve well of the community. Their path-breaking efforts and the wonderful leadership provided by Directors of the personality and calibre of Mr. S. Rasanayagam, Mr. George Somasundaram and Mr. M. G. Pillainayagam in developing facilities and in setting academic standards had climaxed to a point where, in so short a space of time, it can vie with the more developed and much older institutions in the country.

We are looking forward to the day when the expansion of the institution will not stop at PHASE II but will go on to PHASE III of its development wherein, as an Institute of Technology, it will function as an autonomous body, shorn of its shackles and appendages, and embark upon further fields, training in the process the very vital man-power for technologically - based development programmes.

Our Acting Director

We take this opportunity to offer our congratulations to Mr. S. A. P. Thurai-
tnam, B. Sc. Eng. (Hon), M. I. E. (SL), C. Eng., Senior Lecturer & Head, Depart-
ment of Mechanical Engineering, on his appointment as Acting Director of the
Institute during the period of absence on study leave of our Director, Mr. M.
George Pillainayagam.

We welcome the decision of the Council of Management and are confident that he
will be equal to the task of guiding the institution through a very critical tran-
sitional period of its existence.

We wish him every success.

Exodus of Brain Power

The Exodus of man-power at all levels of employment in Health, Education,
Technology, Engineering and in the Administrative Services where technical exper-
tise is needed has, by and large, reduced the people of the land to masses
living virtually in a technical stone age.

We, too, have had a fair share of the teaching staff who gave all hopes of
serving the institution for longer periods with devotion and loyalty and, having
gained experience and training through their teaching assignments, sufficient for
the purpose, suddenly leaving us for pastures new in foreign climes. This vani-
shing trick has been a regular feature, the reasons adduced are invariably to
seek refuge from the rising tide of violence and fear of an uncertain future in
their country of origin. But our sleuths on the trail tell us that the Institute
is being flagrantly treated as a launching pad in their take-off for the attractions
of the glittering nuggets at the end of the flight !

Past Students

It gives us much satisfaction to include in this publication an article from our
former Instructor in Computer Studies, Mr. M. C. R. Perinpanayagam, writing to
us from London on the subject 'The Computer Age'. We thank him for the
kind thought.

Mr. Perinpanayagam's contribution has given us the cue to appeal to our Past
Students for articles relating to careers they have adopted — not only because of

the delight and the joy the response will give us to follow up the progress of a past student but because of the valuable guidance this supplies to those present students in their chosen fields of study.

Our Contributors

Mrs. Mallika Rasaratnam, M. Sc. (Arch), Chartered Architect, a former member of our Visiting Staff and a prolific writer, is no stranger to these columns. In her article " 'Think Sessions' to develop arts and ideas," she examines in lucid and precise terms the need to channel the extraordinary potential of the mind that is essentially creative into wholesome ventures through 'think sessions'. The concept, though not altogether novel, corresponds to the 'Brain Tanks' set up in several prestigious industrial combines in the West and the 'Meditation Centres' in the East, does give the individual food for thought. We feel convinced that our readers will find the article useful.

Dr. T. Vinayagalingam, B. Sc. Eng (Hon), M. Sc, Phd (Birm.), M.ASME, M.AIAA (USA), formerly of the University of the West Indies, St. Augustine, Trinidad, is now our Assistant Director & Dean of Studies. His research paper titled 'Autonomous Solar Thermo Pump for Lift Irrigation' is re-produced with his kind permission and by kind courtesy of the American Institute of Aeronautics and Astronautics. Dr. Vinayagalingam makes a strong plea for the utilization of the readily available solar energy in the dry regions of the Third World for irrigation purposes. He outlines an easy-to-fabricate and in-expensive design of a solar water pumping scheme that can offset the many shortcomings hitherto encountered. We commend the learned paper to those involved in the specialized field of irrigation and are committed to introducing new technologies.

Mr. S. B. Dhivakaran, ACSI (India) and Miss. Mathini Appathurai B.A. (Madras), now Mrs. Dhivakaran, are members of the Teaching Staff. Their articles on 'Word Processing' and 'The Importance of English in Technical & Engineering Studies' respectively should be of special interest to those engaged in the allied fields.

We include an article under the caption 'வார்ப்பு வேலையும் அதன் அவசியமும்' by Mr. S. Tharmalingam of the Visiting Staff. It will appeal to youth waiting desperately to choose a career in a craft or a trade to match their abilities.

We thank them all for their valuable contributions.

Students' Section

This Section has not come up to our expectations. We received very little support from the students whose interest this publication substantially serves. Their apathy is a matter for deep regret.

One wonders whether the present instructional system which seems to place a premium on examinations is responsible for this lack of creative effort. Many times over the attention of students was drawn through the available media to the truism that the continued turn out of the TECHSTRUM and its success depended on their unstinted co-operation.

What is lacking perhaps is the right spirit and a recognition on the part of all students that the full value of their studies can only be derived through the power of the pen. Just as in other spheres of activity they have enthusiastically plunged themselves, let us hope that by their contributions to future issues, they will bring to light their innate talents in the art of writing as well, and give to the reading public, in a tangible form, a glimpse of what their Institute of Technology represents and offers in its multi-programmed packages.

It is for the students to make the maximum use of the benefits the Library provides — rare in any institution of its kind in the land of their birth.

Appointment to the Board of Editors

We gladly welcome the appointment of Mrs. Mathini Dhivakaran of the Department of English to the Board of Editors. With her natural love for literature — both English and Tamil, and a flair for the creative art of writing, she will prove herself adequate to the task of meeting the challenges of her new responsibility. The Techstrum has often seen her hand at work, unknown to the public eye, in its publications to which only those in her Department and Mr. A. M. Spencer of the Board of Editors can amply bear testimony.

Mrs. Dhivakaran has already made her presence felt in the life of the Institute by her loyalty, dedication and devotion. Perfection is her forte in all that she undertakes and, in her new position, we can look forward to 'great things' for the Techstrum, with, of course, the willing support of all concerned.

Acknowledgement

We thank the organisations that sent us their journals, periodicals, news sheets and bulletins and the educational institutions for their magazines.

Meet our Assistant Director & Dean of Studies

Dr. Thuraisingam Vinayagalingam, B.Sc.Eng. (Hon), M.Sc., Ph.D (Birm),
M. ASME, M. AIAA (USA)

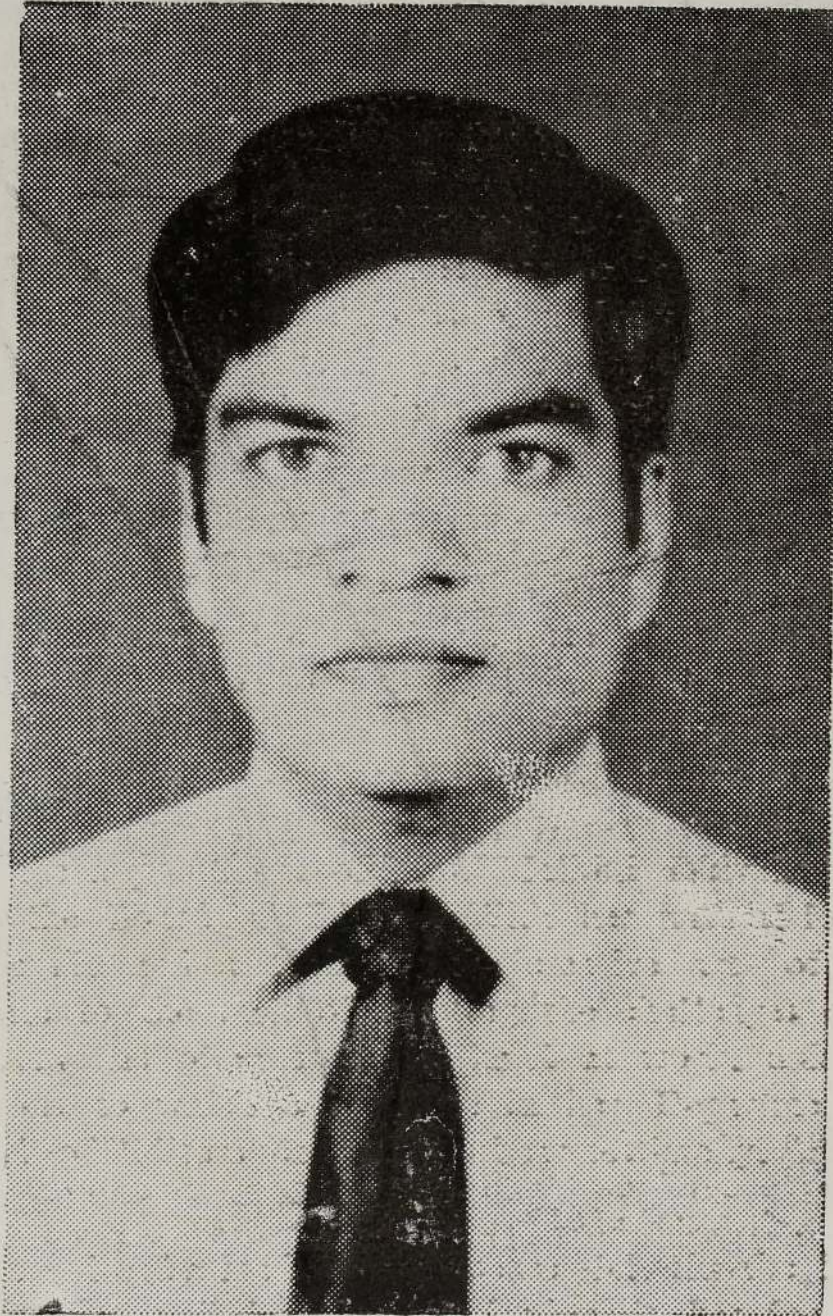
We are indeed fortunate in the appointment of Dr. T. Vinayagalingam in the dual capacity of Assistant Director & Dean of Studies of this institution, eminently qualified and providentially guided, as it were, to handle the transition from the old to the new — a Technical Institute to an Institute of Technology.

After a brilliant secondary education, Dr. Vinayagalingam entered the Faculty of Engineering, University of Ceylon, Peradeniya in 1963 with a First Division Pass at the University Entrance Examination. On the results of the First Examination in Engineering of the University in 1965, he won an Exhibition Award. In August 1968 he obtained his B. Sc. degree in Mechanical Engineering with First Class Honours. Straight away he was appointed to the Teaching Staff as Assistant Lecturer in the Department of Engineering, his duties were inter alia lecturing and organising laboratory classes in Control Engineering and Mechanics of Machines to undergraduate students. It was during these early years of teaching that he was awarded the highly coveted Commonwealth Scholarship in the United Kingdom, tenable October 1970 — September 1973. Thereafter, he joined the Department of Electronic & Electrical Engineering, University of Birmingham, England, where he acquired his Post-graduate degrees, the M. Sc. in 1971 and the Ph. D. in 1974 in the field of Control Systems.

With these laurels in his kit-bag, Dr. Vinayagalingam returned to Sri Lanka in 1974 and was back in harness at the University of Peradeniya, as Lecturer in Mechanical Engineering until 1978 when he was prompted to answer a divine call to serve as Lecturer in the Department of Mechanical Engineering, University of the West Indies, St. Augustine, Trinidad. Faithfully and truly he laboured in this distant land, in obedience to God's will, till 1986.

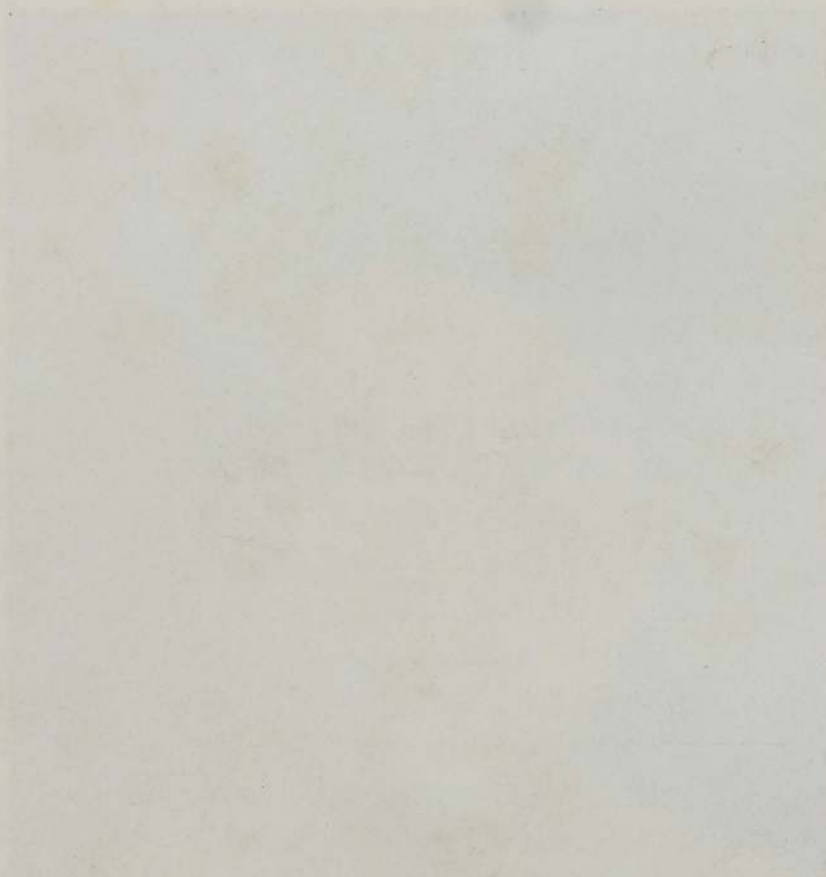
To add to his distinctions, Dr. Vinayagalingam holds professional membership of the prestigious American Society of Mechanical Engineers and the American Institute of Aeronautics and Astronautics. He has also made a special study of Computer - Aided Design and Control System Engineering.

ASST. DIRECTOR & DEAN OF STUDIES



Dr. T. Vinayagalingam

ASST. DIRECTOR & DEAN OF STUDIES



Soft - spoken, unassuming and modest almost to a fault, he has, in short, all that is noble and pleasing in human nature in abundance. For observing principles to the letter and in instilling them into his associates by example more than by precept, he excels. His attainments, expertise and experience in the fields of Mechanical Engineering and Computer Engineering will be stimuli for students, staff and all those who may come under his influence to emulate.

For him, dedication to work, we dare say from the little we have observed, is both an obsession and a pleasure. He undertakes every task with enthusiasm and accomplishes it at a pace that is phenomenal. On assumption of duties, he was given the heavy assignment of overhauling and reorientating the syllabi of the technical courses of study and the B. Engineering course. Within a few days the blue print, with statistical data, was ready for scrutiny. It was examined over a much longer period of time, approved and was put into effect.

Meetings of the Board of Studies where weighty matters are discussed are often happy occasions for bandying words or crossing swords, but never descending to the level of a free-for-all, ever sticking to the norms of professional etiquette. At such deliberations, Dr. Vinayagalingam never loses his composure nor does he compromise his views and ideals for anything against his conscience, even against the sugar-coated reasoning of senior members of the staff, who, willy-nilly, have to submit to saner counsel and sounder approach in resolving tricky issues.

We take this opportunity to extend to Dr. Vinayagalingam a very warm welcome, wishing him success and a long & pleasant stay with the institution.

Scribbler, June 87

(As we go to press, the sad news that Dr. Vinayagalingam will be laying down tools by year's end to take up appointment elsewhere makes us raise our eye-brows and ask, "Has he also used the institution as a launching pad?" cp. Notes & Comments-

We thank him for his invaluable services & wish him well.)

Scrib.

Institute — Day, 1986

Exhibition & Presentation of Awards — a resumé

The Eleventh Institute Day celebrations of the Jaffna College Technical Institute came off on the 27th of Sept, bringing to a climax the Three-day Exhibition titled TECHNO '86 towards which the staff and students had worked hard over a limited period of time. The 27th being the final day of the 'show' as well as a red-letter day for the students passing out of the Institute this year, an unusual number had gathered in the campus when the gates opened in the morning. After the final viewing of the exhibits the guests streamed into the Auditorium for refreshments at 10-00 a. m. and to prepare for the centre-piece of the day's programme — the 'Mini-Convocation'.

The colourful procession of academics, Chief Guests, the Council members and the Rt. Rev. Bishop wended its way to the Assembly Hall — Abels Auditorium — at 10-20 a. m. The Bishop, the Rt. Rev. D. J. Ambalavanar, led the devotions and the Chairman of the Council, Mr. J. M. Sabaratnam, presided and in his opening Address pinpointed the progress the Institute had made, in spite of the absence of stability and peace in this part of the island — 'thanks to the dedicated efforts of the dynamic Director, Mr. M. G. Pillainayagam, and his energetic staff'. Then the Director read his report chalking up the achievements of the Institute during the year under review, and underscored the need to update and adjust the course programmes to meet the ever-changing demands and aspirations of the society they sought to serve.

Next, Mr. C. Jeyaratnam, Principal of the Agricultural Institute, in his report observed how, due to the unstinted support of the Board of Trustees and the Chairman and members of the Council, the Institute had emerged to the present level of being a viable project after a prolonged period of trials and tribulations of trouble-torn times.

The Chief Guest, Mr. T. Joganathan, complimented the students and staff for the impressive showing at the Exhibition, congratulated the award winners on completing their respective courses successfully and lauded the Institute for training and developing the human potential, especially of the peninsula and its outskirts, to suit the modern trends not only on the pedestrian fields of crafts and vocational education but also in the sophisticated realms of electronics and computers.

Mrs. R. K. Joganathan presented the diplomas, certificates and prizes.

Mr. S. Jeyaseelan, President of the Students' Union, proposed the Vote of Thanks.

The day's proceedings drew to a close to the choric strains of 'A Hymn for Ceylon' and the solemn Benediction pronounced by the Rt. Rev. D. J. Ambalavanar.

Fellowship Lunch

Though not on the cards, an informal 'get-together' Lunch, hosted by the ever-ebullient Director of the Technical Institute, Mr. Pillainayagam, and ably assisted by his staff, appropriately topped off a crowded programme of work.

Mr. & Mrs. T. Joganathan were the Guests of Honour, and a representative gathering was in attendance.

The venue was the B. Eng. Lecture Theatre.



The Programme

9 00 am:	<i>Guests arrive and Viewing of Exhibition TECHNO '86</i>	
10 00 am:	<i>Refreshments in the Auditorium</i>	
10.15 am:	<i>Academic Staff, Members of the Council, Chief Guests, Bishops, Director & Principal form ceremonial procession in front of the Administration Block</i>	
10.20 am:	<i>Procession moves up</i>	
10 30 am:	<i>Staff, Chief Guests, Chairman, Vice Chairman, Secretary, Director, Principal & Bishops take position on the platform</i>	
10.35 am	<i>Prayer</i>	— Rt. Rev. D. J. Ambalavanar
10.40 am	<i>Chairman's Address</i>	— Mr. J. M. Sabaratnam
10 45 am	<i>Director's Report</i>	— Mr. M. G. Pillainayagam
11 00 am	<i>Principal's Report</i>	— Mr. C. Jeyaratnam
11.15 am	<i>Chief Guest's Address</i>	— Mr. T. Joganathan
11.30 am	<i>Presentation of Awards</i>	— Mrs. R. K. Joganathan,
12 00 noon	<i>Vote of Thanks</i>	— Mr. S. Jeyaseelan, President, Students' Union
12.15 pm:	<i>"A Hymn for Ceylon"</i>	— All Standing
12.30 pm:	<i>Benediction</i>	— Rt. Rev. S. Kulendran

Report of the Director, Technical Institute

Our Chief Guests, Chairman, members of the Council, Rt. Rev. Bishops, parents, alumni and friends: On behalf of this Institute I welcome you all most cordially once again to this, our annual event, the Eleventh Institute Day celebrations.

I have great pleasure in welcoming Mr. & Mrs. Joganathan and we are happy to have you both as our Chief Guests today. This is not your first visit to us for you have encouraged and patronised us on an earlier occasion, a few years ago. Indeed, I am sure you would have been very pleased to see the progress made by our staff and students during this short period of development, amidst all calamities in and around us.

Mr. Joganathan, a distinguished old boy of Jaffna College, entered the Law College after completing 10 years of education at Jaffna College. He practised as junior lawyer under the eminent advocate, Mr. E. S. S. R. Cumarasamy, for two years and joined the State Judicial Services in 1970. After serving in this district for 6 years today as District Judge in the most troubled area, you have continued to offer your services with firmness in your judgements. It is a source of encouragement to all of us. On several occasions your legal advice and guidance have helped me and your Alma Mater in many matters pertaining to the administration of these institutions. I feel certain that your presence here today and your words of wisdom will inspire our students to mould their future to the glory of their Alma Mater.

We also extend our special welcome to Mrs. Reeni Joganathan. You are not a stranger to us. After graduating with a Degree in Arts at the University of Ceylon, you have chosen a fruitful vocation and obtained a Diploma in Counselling. After a teaching spell at Ladies' College, Colombo, your services for six years in the North as a Counsellor in the family courts have caused you to get involved in several social development works concerned with the upliftment of poor and depressed families, especially, young girls and young mothers. We are, therefore, glad to have you with us today to witness our progress, wherein many young girls who have chosen their vocation in technical trades and, having graduated, are anxiously waiting to receive their awards from you.

We welcome all our visitors, friends and parents, who have had an opportunity to go round and see for themselves the development that has taken place at the Institute, a charitable Christian organization, an off-spring of Jaffna College, Vaddukoddai.

Council

The Jaffna College Technical & Agricultural Institute Council, consisting of eminent and experienced personnel, is the supreme governing body responsible for direction and management of these institutions.

There have been some changes in the Council during this reporting period.

Mr. S. S. Selladurai, retired from the post of Treasurer in March, 1986. Mr. W. N. S. Samuel, Principal Emeritus of Hartley College, now working as Director of the Christian Study Institute, Maruthanamadam, was appointed as Treasurer with effect from May, 1986.

Mr. T. Kirupaithilakan, Deputy Director of Planning, having served as a member for a short period, migrated to Australia in March, 1986. In his place, Mr. S. Raja Aseervatham was nominated as representative from the public with effect from July, 1986.

Mr. R. R. Blanchard, representative of the Methodist Church, retired from membership after serving a full period of six years. Mr. K. Pooranampillai, Principal Emeritus and present Manager, St. John's College, Jaffna, was nominated as successor by the Methodist Church and took up appointment in May, 1986.

While thanking the out-going members for their advice and guidance given to us, we welcome the new members and thank them for their co-operation and counselling offered to us.

The Council is now constituted as follows:

Mr. J. M. Sabaratnam	— Chairman
Mr. S. M. V. Tissanayagam	— Vice Chairman
Mr. A. Kadirgamar	— Secretary
Mr. W. N. S. Samuel	— Treasurer
Mr. M. G. Pillainayagam	— Director - J. C. T. I.
Mr. C. Jeyaratnam	— Principal - J. C. A. I.
Rt. Rev. D. J. Ambalavanar	
Dr. W. D. Joshuwa	
Mr. A. C. Canagarajah	
Mr. L. S. C. Canagasingham	
Mr. K. Pooranampillai	
Dr. J. P. C. Phillips	
Prof. A. Thuraiajah	
Mr. S. Rajanayagam	
Mr. S. R. Aseervatham	

Technical Education

What type of technical education is needed in the present context in our society? Let us carefully examine the present and future needs of our youth in the process of their development into useful citizens through gainful and meaningful employment.

In the recent past our experience has been very bitter and has forced every one of us involved in this field to set out a planned programme of technical education suitable to this part of the country. During the past five years I was engaged in such experimentation and research in this venture, studying the constraints in our educational programmes.

In the Northern District alone, more than 20,000 students annually appear for the G. C. E. (O/L) examinations recognized as the necessary secondary educational qualification. They are generally in the age group, 16 to 18 years. Only 1/3rd of them, about 6,000 students, continue their senior secondary education for another two years, offering mathematics, science, arts and commerce subjects, and appear for the G. C. E. (A/L) examinations. But only 1/6th of them, about 1,000 get some opportunity to continue their education — very unlikely in their chosen fields owing to stringent standardization at the higher seats of learning in State Institutions. They constitute only 05% of the school leavers. The rest 95%, and among them 25% qualified to continue their higher education, are thrust into society annually. What happens to them, we have witnessed, is that through frustration they become depressed and fall easy victims to anti-social forces. They need patient hearing and sympathetic guidance. This group is a very potential human resource a developing country like ours can ill-afford to lose, but should be beneficially cared for and properly guided. They all should be given the opportunity to get useful training in vocational skills for employment to survive in this competitive world.

The need and the awareness to learn a life skill should be introduced in the secondary schools by organising development projects and vocational clubs, and the senior students persuaded to take part in these activities during after-school hours and holidays. It gives them the opportunity of acquiring simple manipulative skills and a sense of practical work in the process of their development at an early age. The parent-teacher co-operation is very essential in establishing and conducting such schemes of work and practical hobbies which will evoke the students' desire to develop and cultivate his/her own understanding habits, apart from the school text books. When they leave school, even if they are unsuccessful at the examinations, they would have had some interest and confidence in choosing a suitable vocation for their future.

About 60% of our population are employed in agricultural production and fishing industries. The youth from these communities should be trained to learn modern technologies and improved techniques, attractive enough to continue their parents' vocations in more fruitful ways. The savings generated through the Rural Development Banks could be utilized to establish and run village level training institutions administered by the Rural Development Societies.

A wide scope exists in our land for food processing industries, textile, fibre & garments manufacturing and consumable goods production work. A large number

of educated young girls could be trained and employed in these types of Light Engineering Industries.

Our part of the contribution to school leavers is providing technical & vocational education and life skills training in an orderly manner, and prepare them ready for employment with a sure sign of security in their future. The rapidly changing situation around us, especially affecting the youth, has forced us to update and adjust our course programmes to meet the changing needs and aspirations of the society we seek to serve. We could help only about 200 to 300 youths per year learning vocational trades from skilled craftsmen's level to the professional engineers' level.

COURSES OF STUDY

During the academic year 1985/86 we offered 13 different courses of study. All but one were conducted as full-time, two semesters/year programmes.

Professional Engineering (Part I)

This course of study offered to the G. C. E. (A/L) qualified students, generally commences in the month of January and is conducted for three semesters, preparing the students for the Engineering Council Examination (London) Part I, normally held in the month of May of the following year. In January 1985, there was poor response and this course was not conducted.

For the third batch, however, the course commenced in January, 86 with only 15 students. Now there are only 8 students remaining to complete the course in April, 1987. Others left for employment or gained admission to continue their studies at universities or had gone abroad.

Technician Diploma Courses

Four different courses of study were offered in

- | | |
|---------------------------------|---------------|
| (a) Electronics & Communication | (6 semesters) |
| (b) Electrical Engineering | (4 semesters) |
| (c) Civil & Quantity Surveying | (4 semesters) |
| (d) Mechanical Engineering | (4 semesters) |

School leavers who have passed in six subjects at G. C. E. (O/L) with credit passes in Mathematics, Science and English are admitted to follow these courses.

A one-year (2 semesters) course of study in Computer Programming was commenced in 1983, and has now become popular among school leavers. There are 10 computers. Commodore, CBM & IBM machines are used to teach BASIC & COBOL languages and the curriculum is designed based on the London City & Guilds examination syllabus.

Technician Certificate Course

Three semesters full-time course programmes are offered in Automobile Technology and Air Conditioning & Refrigeration Technology. These are more practical oriented studies to enable students to acquire skills in the application of electricity in these trades and handle allied electrical instruments & appliances. Generally, students with six passes in G. C. E. (O/L) are admitted to these courses.

Craft Courses

Four craft courses in Foundry Practice, Welding Practice, Machine Shop Practice and Electrical Installation Practice are offered in this scheme to the O/L drop-outs. They become semi-skilled workmen on completion of these courses and find employment easily in these crafts.

New Courses

E. C. E. Part II (London) Degree level

Many students who passed the Professional Engineering course (Part I) conducted by us and had subsequently passed the E. C. E (Part I) (London), found employment in the industries as mid-grade technicians. They were anxious to continue their educational career and approached us for help. With the approval of the Management Council we commenced a week-end course in February, 1986, offering Electrical & Mechanical Engineering subjects. Classes are conducted in a rented-out building in Jaffna by qualified and experienced engineers in the capacity of Visiting Lecturers.

Trade Courses

With the financial assistance received from NORAD, two trade courses of 6 months duration in Masonry and Carpentry were commenced in early September, 1986. There are ten and fifteen students respectively in these courses and they will be taught the necessary skills in these trades and be employed on construction work when the proposed buildings on the campus are begun soon.

Short Course

A short course in Computer Programming for school leavers (10 weeks / 150 hours) was commenced in September, especially to students who just sat the A/L examinations and are awaiting results. There are 21 students following the course programme.

Students

Past Performance 85/86

The total student population continuing the 11 courses of study offered at the beginning of the academic year in May, 1985 was 198. The Final examinations of the Technician Certificate courses in Automobile Technology and Air Conditioning & Refrigeration Technology were held in October, '85. The final semester examinations of the other courses were held in April, 1986. The results are as follows:

(A) Technician Diploma	Passed	Referred	Failed	Left
Electronics & Communication	12	—	—	2
Electrical Engineering	2	1	—	1
Mechanical Engineering	3	1	—	—
Civil & Q. Surveying	4	—	—	—
Computer Programming	5	7	2	1
(B) Technician Certificate				
Automobile Technology	8	—	1	1
Air Con. & Refrigeration	4	—	—	1
(C) Craft Certificate				
Machine Shop Practice	10	3	4	5
Welding Practice	4	4	1	1
Foundry Practice	1	6	1	2
Electrical Installation	8	2	—	—
	<hr/> 61	<hr/> 24	<hr/> 9	<hr/> 14

In total 61 candidates have completed their courses of study successfully and will receive their awards today. Even the referred students in Craft courses have found employment now in the rural industries. I wish all of them every success in their careers.

Present Students

When the academic year 1986 / 87 commenced in June, 1986, there were 325 students following 14 courses of study. Now with recent admissions to three short courses, the total number of students in the campus has risen to 371.

Staff

Our Institute is a type of its own, unique in this country, extending its services to a wide range of students by teaching 96 subjects in 17 different courses of

study. It appeared to be an arduous task to my staff preparing their course lessons and conducting practical training in the course studies imparted in the English medium. I appreciate with thanks the efforts and co-operation extended by my staff in motivating and training the students in their vocations.

Our repeated attempts to raise funds and provide training to our staff in "Teaching Technical Subjects" were not successful, and we continue to lose experienced staff and have to search for suitable replacements.

The following staff left the Institute during the period under review:

- 1 Mr. N. Thangarajah — Lecturer, left in November 85.
- 2 Mr. A. Rajaselvam — Lecturer, left in November 85.
- 3 Mr. S. Mahendrarajah — Visiting Instructor, left in December 85.
- 4 Mr. V. Satchithanantham — Instructor, left in March 86.
- 5 Mrs. R. Rajendra — Typist, left in February 86.
- 6 Mr. N. Satkunasivam — Library Assistant, left in March 86.
- 7 Mr. S. Sriskantharajah — Visiting Instructor, left in April 86.
- 8 Mr. T. Selvendran — Instructor, left in July 86.

The following staff were confirmed in their posts:

Messrs. E. M. Jebarajah, I. Balasubramaniam, N. Nitgunam, S. B. Dhivakaran, S. Vanadeva, S. Devanathan & Misses. V. Muttukumar and S. Gunaratnam.

The following new staff members were appointed to the vacant posts:

- 1 Mr. V. Vinayagamoorthy — B.Sc Eng., M.I.E.E. - Lecturer in Electrical Eng.
- 2 Mr. S. Subendran — B.Sc Eng. - Asst. Lecturer in Maths. & Science
- 3 Mr. K. Sureshkumar — B.Sc., E.C.E I & II - Asst. Lecturer in Maths.
- 4 Mr. S. Ayathurai — Dip. in Draughtsmanship - Instructor
- 5 Mr. C. Subramaniam — Dip. in Draughtsmanship - Instructor
- 6 Mr. S. Kantharajah — Dip. in Electronics - Instructor
- 7 Miss. M. Appadurai — B. A - Instructor
- 8 Miss. R. Thambirajah — N. D. T. (Civil) - Instructor
- 9 Miss. V. Muthukumar — Typist

Death

Mr. K. Nadesar, retired English teacher, who served this Institute for 3 years and left in 1983, passed away at his residence in Manipay after a brief illness. We convey to the bereaved family our deepest sympathies.

Staff Counselling

Senior Staff members were appointed as Sectional Heads to advise and help the students in their course programmes as tutors and the administration with the sectionnl management of their departments.

A Staff Advisory Committee, consisting of senior staff members, was appointed to help the Students' Union in their social, cultural and other Union activities in the campus.

A Welfare Committee represented by all categories of staff & students was appointed to look into the welfare services of all staff, students and minor employees of the Institute.

The staff and students were persuaded to join the Jaffna College Y. M. C. A. as members and Mr. S. A. P. Thurainatnam was appointed as co-ordinator for this programme.

Facilities

Buildings

The building construction work on Phase II of our development programme was executed with the generous aid from the Governments of The Netherlands, sponsored by I.C.C.O. This commenced in 1979 and was completed in June, 1986. A small prayer room was built in the water tower complex, dedicated and opened by the Rt. Rev. D. J. Ambalavanar on 22nd September, 1986.

A students' Common Room was designed and constructed by the final year Civil Engineering students on labour contract as their course project. It was constructed at very low cost of Rs. 96/- per sq. ft. with the participation of the other production departments. This building was opened in March, 86 for use by the Students' Union.

The Hon. High Commissioner, Australian High Commission in Sri Lanka, has gifted a token sum of money to complete the Airconditioning and Refrigeration laboratory. This building too was constructed by staff and students participation on labour contract at low cost. Our sincere thanks to The Hon. High Commissioner and the Government of Australia for their kind concern and generous help extended to us once again to develop our Institute to serve the youth.

The Norwegian Embassy also has given us another aid to construct a store and workshed to conduct trade courses in Masonry and Carpentry. The store's building has been completed and the workshed is under construction. We thank the officials of the NORAD organization and The President of R. R. F. for obtaining this aid for us.

We look forward to receiving generous support from these welfare organizations to enable us to continue to conduct these trade courses successfully in the years to come.

Equipment

We require new and improved equipment comprising testing instruments and tools to update our laboratories and conduct workshop practicals at diploma and degree levels. Only replacement items were supplied during this period and we urgently need additional funds to equip the electrical & civil engineering laboratories.

Activities

Research and Production Work

The staff and students of the Mechanical Engineering Department and workshops are involved in research, design and manufacturing of engineering components as part of the industrial level training offered at the Institute. All steel fabrication works required in the new buildings were undertaken by the Welding Department. New designs of water pumps are being manufactured in the Foundry Department. A small cast iron cupola was designed and constructed by the staff and students of this Department and it was commissioned in May, 86. A series of tests on different types of locally available moulding sands is being conducted, helping the local industries involved in foundry production work.

Agricultural machinery and equipment are designed and fabricated in the Machine Shop.

Research studies are carried out by the staff and senior students on development projects, such as Bio - gas utilization, Satellite - TV signal receiver, low cost partition wall, clay bricks, agricultural implements etc., with tests for commercial production and utilization.

A Radio Club was started by the students in the Electronics course, undertaking repairs & servicing of electronic equipment and appliances.

The Electrical Department undertakes wiring and installation work on the new buildings in the campus and at Jaffna College, as on-the-job training for craft course students.

Industry — Institute Liaison

A preliminary seminar was held in May, 1986, inviting the Principals of secondary schools, Officials from the Education Department and the Industrialists. The technical educational facilities available in the district and the need to increase the

awareness of technical and vocational education at school level were discussed. Follow-up seminars will be conducted every year to enlighten the planners and our staff on the current needs of our society in its development.

Exhibition

After a lapse of three years, the staff and students were able to organise an Exhibition in Engineering Science and Technology, displaying their achievements and skills gained in their programmes of work. The Exhibition was well-organised and we invited senior school children on the 25th and 26th of September 86 to impart to them an awareness of our services.

Prize Fund

In my last report I appealed to our past students and well-wishers for contributions to our library with books so as to build up a Prize Fund to encourage our students in their studies. A fair number of passed out students responded and our Prize Fund has increased from a meagre Rs. 300/- to Rs. 6,300/- during this year. We received fixed donations from two old boys of Jaffna College, Mr. N. K. Singham of Araly and Mr. N. Nadarajah of Karainagar. While thanking all the donors, I appeal to the members of our society for their generous contributions and prize awards to encourage our future generations — your children at the Institute.

Sports

For the first time in the history of the Institute, the students were divided into three Halls and the Inaugural Athletic Championships were held on 14th September, 1985. His Lordship the Rt. Rev. D. J. Ambalavanar & Dr. Mrs. Chandra Ambalavanar graced the occasion as the Chief Guests. All events were keenly contested and Yellow Hall emerged as Athletic Champions. The over-all Championship in Games & Athletics was won by Red Hall.

In Foot - Ball, the Institute XI played 7 matches against two Clubs and five Schools, winning one, drawing two and losing four. In Volley - Ball games, the team consisted of resident students and, therefore, performed well. Four matches were played and our team won three of them. In indoor games, tournaments were conducted in Badminton and Table - Tennis, competing with the Jaffna Y. M. C. A., Jaffna College and University of Jaffna.

Cricket was played during the second semester and of the four matches played, we won one, drew one and lost two.

I appreciate the hard work done by the Students' Sports Committee to make all these activities possible. Mr. K. N. Y. Maurice, as Sports Administrator, was a

source of courage & inspiration to the students and did another year of excellent job in organising and conducting Sports programmes. We look forward to improving our Sports facilities and set out norms for colour awards in the coming years.

We have received Trophies and Challenge Cups from many enthusiastic trade organizations and individuals to promote and encourage Sports activities among our students.

Students' Union Activities

At the beginning of the Academic Year on 10th July, 1985, the office - bearers of the Students' Union were elected on free voting.

They were:

President	— S. Sivayogam
Secretary	— R. Mohan
Treasurer	— S. Suresh
Sports Monitor	— N. Vimalaranjithan
Editor	— R. Sivakumar
Fine Arts Secretary	— S. Suthan

Mr. S. A. P. Thurairatnam was appointed as Patron of this Union. The Union held regular meetings every fortnight. Minutes were read and the Union general programmes were discussed. Guest speakers were also invited to address the students assembly on general topics. Dr. M. Theivendran, Mr. A. Kadirgamar, Mr. S. Jebanesan & Mr. T. Visvanathan were the Guest Speakers on different occasions.

A new students' programme, "Cultural Show", intended to be an annual event, was featured on 26th March, 86 under the distinguished patronage of Mr. & Mrs. T. Nithiyananthan.

An English Elocution Contest was also held on 6th November, 1985, and several students participated with keen interest. Miss. T. Gayathiri, B. Jeyaseelan and Miss. R. Vasanthy won first places in the first year, second year and third year respectively.

A debate on "Students' role in the present situation" in Tamil was organised in March 86, and the speakers presented their addresses well. Mr. B. Mohanraj was adjudged the Best Speaker by very narrow marginal points. The Union's Annual Get - Together Lunch was held on 5th April 1986. Mr. S. Sivathan, Director, Planning, & Mrs. Sivathan were the Chief Guests.

Thanks

It is my duty to thank my staff — academic, administrative & minor — who have helped me whole - heartedly in the execution of my ever - ambitious programme of work for another year.

I thank the passing out students and the present students for the co - operation extended to the Staff and the Management.

A special word of thanks to the Warden of the Hostel, Mr. M. Thayanathan, and the supervisor of the Chummary, Mr. N. Gajendran, Final Year Civil Engineering student, for their efficient management of the hostel catering services in the campus.

I thank the Chairman and members of the Council for the valuable guidance and advice given to me in the administration of the Institute.

I thank you, Ladies and Gentlemen, for your kind presence here and patient hearing of my lengthy report.

We thank God for His guidance and protection to all of us and pray for His love and care, and for peace and prosperity in this strife - torn land.

Thank you

M. G. Pillainayagam,
Director.

Report Of The Principal, Agricultural Institute

Distinguished Chief Guests, Chairman and members of the Council, Members of the Jaffna College Board of Directors, Parents, Alumni and Friends:

We of the Jaffna College Agricultural Institute extend to all of you a warm welcome to this annual event.

This is my second report, after being appointed Principal of the Agricultural Institute in September 1984. In my last report I mentioned about the reorganisation we undertook and the future programme planned out. I am happy to announce that we have progressed steadily and have now come to stay as a viable project. All of us at the Institute are grateful to the infusion given to us by the Board of Trustees and the Chairman and members of the Council, past and present, at a time when we were in great peril.

Staff

Mr. S. Arumugam, our capable English teacher, left us and migrated to Australia. Mr. Arumugam has been with us for a long time and was well liked by all the students he taught.

Mr. S. Sivagnanam, Retired Government teacher, is now appointed in place of Mr. Arumugam.

Mr. D. D. Ariaratnam, with his long years of service in various Government Departments, has now joined us as our Accounts Clerk.

Messrs. Vigneswaran and Kandasamy continue to be in charge of the Farm and School Sections respectively.

Mrs. S. T. Pakianathan takes regular lectures and practicals in Home Science.

School Section

The three months training programme has been abandoned and the former Senior Certificate in Agriculture has been replaced by the 'Diploma in Agriculture' of one year - duration.

This year 31 students were enrolled at the beginning and we are now left with 26 of them. The new batch of students will be taken in November, this year.

The students take very keen interest in their practicals. For their benefit, the following crops are cultivated during the rainy months and in summer: Potatoes, Tobacco, Groundnut, Pulses, Bombay Onions, Red Onions, Manioc, Dioscoreas, Elephant foot yam, Cabbage, Brinjals, Tomatoes, Beans and Ladies fingers.

The paddy plot of 1/8 acre was established and the variety H4 was grown successfully. Paddy, it must be mentioned, is not a crop to be recommended for the Red latosols of our area. But the idea of growing this crop is to teach the cultural and plant protection problems of this most important crop to the students. We added a Duck rearing unit this year and at present there are two breeds. This is solely to train the students on the art of Duck rearing. Next year, our addition will be Rabbit rearing.

As in the previous years the Poultry, Dairy and Piggery units are well maintained and the students get ample training in the management of these units.

Students Tour

Unlike last year, due to the unsettled conditions prevailing, the students are not taken to the Research and Training Centre at Kilinochchi. However, they were taken to the District Centres at Thirunelvely.

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Special Program

Seminars and lectures were conducted at regular intervals for the benefit of the students and farmers. We conducted seminars and demonstrations on (1) First Aid (2) Health Science (3) Plant Protection (4) Artificial and Natural breeding of cattle. A few more on Fruit trees, Care and Maintenance of Sprayers and Water pumps will be held this year.

A student of the Faculty of Agriculture, Peradeniya, is with us on a four - month special training program.

School Magazine

The students have this year formed the "Manavar Manram" and with the encouragement given by the lecturers are putting out a magazine named = ENGAL ANUPAVAM = (Our Experience). It contains a series of articles on Crop and Animal Husbandry. This magazine will be published every year by the students.

Athletics

We are thankful to the Director, Staff and Students of the Jaffna College Technical Institute for cordially inviting us to take part in their 2nd Inter-Hall Athletic Championships held from 4th to 6th September this year. Our girl students managed to get several prizes and the Challenge Cup for the best performance (Women) was awarded to our student. The following students got prizes:-

1. R. N. Susithira — 1st Place in Long Jump, 100 metres, 200 and 400 metres (New best achievement in all four items)
2. S. Vijayalatha — 1st Place in Putt Shot (New best achievement), 2nd Place in Long Jump and Discus Throw.
3. V. Jegasothy — 1st Place in Discus Throw, 2nd Place in 400 metres and 200 metres, and 3rd Place in Long Jump.
4. S. Thevarajah — 3rd Place in 1500 metres - Men

We won the 1st Place in the Tug - Of - War for Women.

Of the Staff members, Mr. T. Vigneswaran was placed 3rd in the 300 metres event for Staff. We received two Challenge Cups, both by Miss. R. N. Susithira, for the Best Performance (Women) and the Champion Athlete - Women.

Our congratulations to them.

A big 'Thank You' to Mr. K. N. Y. Maurice, the Sports Administrator, for the encouragement given to the inexperienced and rustic students of our Institute.

Farm Section

For the first time last year, our Farm which is to be an effective Teaching Aid was run at a gross profit of about Rs. 25,000/-. This year, too, up to now we are on the profit side. Unsettled conditions have affected us very badly in two ways. Firstly, we were unable to get full replacement for our Poultry Unit, thereby egg production has been lowered very much. Secondly, our crops like Red Onions and Tobacco fetched only half the price we got last year. If not for these drawbacks, our gross profit would have doubled that of last year.

Last year we promised to supply hatching eggs to the public from April this year. We have fulfilled our promise and a limited number of hatching eggs is sold every week.

Again, we wanted to have a better orchard in our farm. We have planted Sapodilla, Jumbu, Orange, Jamunarang, Avocado, Anonas and Belly in our Farm. Unfortunately in the absence of grafted or budded plants, we planted seedlings and they will take very many years to bear fruit.

Hostel

The New Hostel building will be completed in about two months. The Consultant Engineer, Mr. A. C. Canagarajah, managed to complete the building at a low cost and the savings will be made use of to do the ceiling in the office and class rooms section.

Future Program

Assistance to the farming community is one of the objectives of the Institute. At present the service rendered to them consists of the supply of seedlings and planting materials which are very scarce because of the transport problem. Hundreds of farmers have obtained these items from us. Even the supply of hatching eggs is to help them to hatch the chicks at home. No doubt, we have conducted and continue to conduct seminars on agricultural topics. Any other form of Agricultural Extension is effectively done by the Department of Agriculture which has a well-organized Extension Service to serve the farmer. For that purpose they have Village and Range level workers, Subject-Matter Specialists, Experimental and Research Officers to meet the farmers in the field and to tackle their problems and needs. Thus, the Institute need not go into the matter of farmer training.

But we have found that there is a dearth of Agricultural reading material by way of leaflets, bulletins and even books. These are badly needed for the educated unemployed youth, who are keen to take up to agriculture i. e. farming as a vocation. The two or three books that are already available are very much outdated as they have been written or compiled some ten to fifteen years back. Hence, we, at the Institute, with the help of the Research, Training & Extension Officers of the Department of Agriculture or even the staff of the Jaffna University have decided to put out a series of bulletins on Crop production, Horticulture, Irrigation and Drainage, Fertilizer use, Compost making, Paddy, Soil Science etc. This is a long-felt need for the agricultural development of the Tamil areas in the North and East and will be a boon to the youth who are going to be future farmers. This could also help the students in Secondary Schools who offer Agriculture as a subject.

Thanks

I wish to thank the Staff, students and employees for the co-operation extended to carry out the Institute's day to day activities under very difficult conditions.

A special word of thanks to the Director, Staff and students of the Technical Institute for their brotherly affection towards us and for allowing us to participate in their activities.

I thank the Chairman and members of the Council for their encouraging responses and guidance to our problems.

I thank you, Ladies and Gentlemen, for your kind presence and patient hearing.

Thank you.

C. Jeyaratnam,
Principal.

*Address by the Chief Guest, Mr. T. Joganathan,
District Judge, Point Pedro.*

The Chairman, Director, Sir, Mr. Principal, Members of the Institute Council, the Staff, Distinguished Guests, Ladies and Gentlemen, and, of course, most importantly, the students of the Jaffna College Technical and Agricultural Institutes:

Let me begin placing on record my gratitude for the privilege you have conferred on me and my wife by inviting us to be your Chief Guests this morning. I must confess to having displayed some initial reluctance when your Director spoke to me regarding this invitation, a reluctance, may I say, that sprang only from the difficulty of finding something worthwhile or useful to say to the kind of mixed audience of youth and age, of staff and students, of educational experts and laymen. You, Director, of course, would not take "no" for an answer.

So here I am still with a problem of saying something useful un-resolved. What exactly I will say to you, I do not know. I never give good advice to young people because young people are always born so much wiser than parents.

I am indeed very happy and feel greatly honoured to participate, for this occasion recalls to my mind the happy and memorable days I have spent at Jaffna College when I was a student.

I have studied the past reports of your Director with the view of assessing the progress the Institute has made. I am aware that the Jaffna College authorities had the intention of establishing a Technical Institute as far back as 1960. The main idea then was to train students in the field of Technology so that with minimum investments they could be self-employed. I am glad to be informed through your past reports of the genesis and the history of your Institute.

I understand a Board of Directors and a Special committee were set up in 1968 for reporting on the feasibility of establishing this Institute. Finally, on their recommendation this Institute was established in 1972. The programme of Technical Education was commenced in 1974 offering four different courses of two years' duration. Only 15 students were enrolled and seven of them completed the courses and received their awards on the first Institute Day in 1976. I am happy to note that at the beginning of the academic year 86/87 you had 371 students on roll and from four different courses of study you have now increased them to 17 different courses of study. This shows the tremendous progress you have made and the credit goes to your Director, Institute Council and Staff.

In the last report of your Director, he had stated that the prime objective of this Institution is to help school leavers and 'drop outs' to continue their tertiary education in Technical and Vocational skills. In my opinion, the words 'school leavers' and 'drop outs' should be left out from your dictionary. In my view, all the students of this Institute have immense potential skills which escaped the notice of parents and teachers to discover the latent talent or skill in a child and direct the child to follow the appropriate course of study. I remember when I was a student at Jaffna College, we had a vocational guidance period of 45 minutes duration every week. But during that period no guidance was given. No attempt was made to discover the latent talent or skill and direct the student to the appropriate course of study he or she should pursue. Therefore, in my view, Jaffna College should continue to have the vocational guidance period, not only at the level of the secondary school but from the primary school itself and direct the student, if he or she has the aptitude to enter the Jaffna College Technical or Agricultural Institute without waste of time.

Your Director has stated that the range of the course and curriculum cannot remain settled because with the rapidly changing situation, specially affecting youth, one has to adjust and update the activities and facilities to meet the needs and expectations of the society they seek to serve. I am in full agreement with him. This institution planned for was one which was to be worthy of the community it has to serve and one which would be second to none in this island. Judging from the progress you have made, I am sure that this Institute would serve both as a Technical Institute and a full-fledged Engineering Institute. It would not be difficult to achieve this objective because the members of the staff are highly qualified men and women, with wide experience. A student passing out of this Institute can be self-employed or be employed in this country or abroad.

The Computer Programming and Data Processing Course introduced at this Institute should receive special commendation. There is a rapid change in many aspects of life. The Computer Programming would teach you how to handle and relay information. The agricultural system of the arid zone, the varied nature of the land surface, underground water resources are now the subject-matter of computerized aerial research. On the press of a button you can get accumulated data on manufacture and production. The computer course is the key to the Economic World and would particularly help youth who seek employment abroad. In this regard, the place you have given to English in your curriculum would put you in an advantageous position.

I notice, however, an undercurrent of sadness and frustration in your reports. The place where your Technical Institute stands today was a stretch of palmyrah groves surrounded by paddy fields. Are the efforts of great and dedicated men like the late Mr. K. A. Selliah and others, who gave this Institute the grand and beautiful buildings, to end up with the brick, mortar and tiles only? The Directors of Institutes of this type have to be men of infinite capacity and infinite ingenuity.

Your Director possesses all these qualities. For in the heart-breaking conditions that he is condemned to work, it is almost an impossible task to convert, however imposing, into an institute, with an ethos, a personality of its own. Every institute must have a personality of its own. What is more important is, to have a body of students, for whom the past Directors, Principals, Lecturers and the Institute would always remain a source of inspiration throughout their lives. You have a duty to extend your fullest co-operation to the authorities while you are learning here. And maintain the highest traditions of these institutions, when you pass out and get employed so that your institutions would always be proud of their old students. Further, please remember you are getting more than what you pay for in terms of cash. (The Jaffna man always wants his money's worth.) During your study in your Technical or Agricultural Institute the expenses incurred are subsidized by some organisation for which your Directors and Management Council had worked hard to achieve.

Director, Sir, in these days of hectic speech making, I have, I think, an obligation to be brief. Being a judge, I have to avoid controversial topics, lest I appear to be publicly endorsing the policies of one party or another and politics, in general, since it now embraces nearly the whole field of human activity, leaving very little that can be called non-political. Even the subject of education is permeated with questions of political controversy. There are, however, some old truths which retain their validity. The aim of education is not merely to produce productive workers on farms and in factories or as businessmen or officials. The first duty of a teacher, it has been said, is to teach wisdom, not a trade.

True education does not end with school leaving. Over and above solid schooling, men need certain attitudes, certain traits of character and a drive to make something of their lives. Institutes cannot by themselves do much to produce these qualities. The extra-mural activities which the Institute provides must receive reinforcement from family life and background, from religion, from local traditions of enterprise and the broader life of the nation. Much of this burden must fall on parents who must be ready and willing to collaborate with the Director and Staff and also devote something of their time to their child so that he may grow up to be a full man.

Your plan for a greater show of responsibility by parents in the matter of maintaining and inculcating discipline among children will, I hope, fall on responsive ears. No nation, no institute, no family can prosper without its members being guided by a sense of responsibility and, in that regard, "Catch them young" is one of the best pieces of advice one can give. It is useless running away from truth that experience has taught us, namely, that discipline cannot be effectively inculcated into children adopting a system of rewards and punishments. By shirking their duty when the children are young, the parents are only storing up for themselves much unhappiness for the future.

Before I conclude, may I congratulate all students who are qualified to receive Diploma Certificates and awards today. I hope that you will share the wealth of experience you have gathered in these institutes with others. You are the link between yesterday that never dies and tomorrow that is not yet born.

May I conclude by congratulating the Director of the Technical Institute, the Principal of the Agricultural Institute. Staff of both Institutes, on the many achievements that the Institutes have registered in the face of great odds and at the same time wish the Institutes all success in the future.

Thank you.

Vote of Thanks — Mr. S. Jeyaseelan, President, Students' Union

Mr. Chairman, Guests of Honour, Mr. & Mrs. Joganathan, our Director, Ladies and Gentlemen: It's now my pleasant duty and privilege, as President of the Students' Union of this Institute, to propose the Vote of Thanks on this eventful day. At the outset, I wish to assure you that I shall not detain you long as the hour is late (and your stomachs have already started pinching), with some, I find, looking at their watches, making calculations relative to the speed of their two-wheelers or four-wheelers and the catching of buses, mini or maxi.

Mr. Chairman, Sir, we deeply appreciate the honour you have done us by your kind presence and for presiding over the function today. We take this opportunity to express our very grateful thanks to you.

We are glad to have with us as Guests of Honour, Mr. & Mrs. Joganathan, both of the legal profession, but holding different positions of responsibility, Mr. Joganathan as District Judge, Point Pedro and Mrs. Joganathan as Counsellor, Family Court, Jaffna — one complementary to the other. Theirs must have been a case of long courtship, ending in happy marriage. Should any argument arise between the two on matters legal or otherwise, I believe, they settle it out of court or in the privacy of their chambers with, of course, Mrs. Joganathan having the last word! That they should come a long way to give up a whole morning to us is a compliment they have paid us for which we are very much obliged.

We thank Mr. Joganathan for the observations he had shared with us on this occasion which, I feel certain, will stand us in good stead in the years ahead, and Mrs. Joganathan for condescending to distribute the awards with charm and acceptance — a very tiresome task, though.

It's very rarely that we, as students, have the opportunity of saying a few words about our Director, and this Institute Day is one such occasion. Through the

years he has been the live-wire of the Institute as you are all aware. We know he is modest to a fault, soft-spoken, lively and sensitive to the needs of the students. Though an Engineer by choice, he has become an Educationist through circumstances, and fully believes in the aim of education as the development of the total personality of an individual. He has provided us with facilities for our physical, intellectual and cultural development — as a look around the Campus will show — and to cap it all, he has now provided us with a prayer room for our spiritual awakening and upliftment. From the height where the prayer room is, we can for some moments forget the tumult and turmoil of the world down below and look up heaven-ward for peace and tranquility. We also know from experience that nothing done or undone within the Campus or even beyond can escape the Director's electronic eyes that often see through the open windows of his office. The exhibits you viewed and the very report he had read to you bear the stamp of a hand of perfection as in all other matters and speak eloquently of the efficiency with which the wheels of the machinery of the Institute are moving under his stewardship, in spite of set-backs, strains and stresses. We thank you, Sir, for everything.

We feel honoured today by the presence of his better-half, the spouse who makes the spices at home click, Mrs. Pillainayagam. With all her household duties, including baby-sitting, she has been kind enough to join us, and also to see that Mr. Pillainayagam is on his best behaviour. Thank you, Mrs. Pillainayagam.

May I also take this occasion to thank Mr. Jeyaratnam, Principal of the Agricultural Institute, for substantially contributing to the day's proceedings by his weighty presence and presenting a comprehensive report of the Agricultural Institute.

To the members of the Staff we say a big 'Thank You' for grooming us to face the future with courage and confidence and for the advice and guidance given freely to us at all times.

I thank you, our visitors, for the encouragement and support you have extended to us by your presence and for staying on to the end of our program. We look forward to your presence at all our functions.

My thanks are also due in a large measure to the members of the Executive Committee and the general membership of the Union for their co-operation and contribution towards the fulfilment of the entire program of work today.

Finally, I wish all recipients of awards every success in their chosen fields.

Ladies & Gentlemen, I thank you all, once again.

The Exhibition — TECHNO '86

A feature of the Eleventh Institute Day Celebrations of the J. C. T. I. was an Exhibition — TECHNO '86 — held on the 25th, 26th & 27th September. The first two days were open to the students of the G. C. E. (A/L) Science classes and teachers, and the final day to the public. Despite a spate of exhibitions at the time in the Jaffna District, large crowds thronged the various sections.

Among the exhibits on display were:

SECTION A — Electrical Power & Installation Practice:

- Power Factor improvement using capacitor bank
- Thermostat Control
- Automatic Control of Three - Phase Induction Motor by thermal relay
- Power generation methods
- Man - powered dynamo
- Staircase lighting - two-way, cross & current impulse switching
- Automatic (electronic) control of road lighting
- Operation of bi-metal principle on (a) hot plate (b) smoothing-iron
- AC. DC Conversion using full-wave rectifier
- Operation of: (a) Fluorescent Lamp (b) Mercury Vapour Lamp

SECTION B — Electronics:

- Coin Box (theft proof)
- Lamp blinker circuit
- Puzzletronic Buzzer Game
- Alarm unit
- Musical Organ

SECTION C — Civil Eng. Quantity Surveying & Draughtsmanship:

- Pre-cast beams for bridges
- Typical Roof Garden with spiral staircase
- Water pollution & sewerage disposal
- Models of completed projects — Library, Water Tower
- Models of proposed Projects — Civil Laboratory, Hostel-Complex, Girls' Hostel
- Models of steel roof trusses & Institute premises
- Surveying equipment
- Cement Test

SECTION D — Mechanical Engineering:

Russian Program on a Satellite Antenna
Chinese Dome type bio-gas plant
Pedestal Pump

SECTION E — Air Conditioning & Refrigeration

Instant water cooler
Domestic Refrigerator (freezer section)
Models of: Central Air Conditioning Plant, Cool room for
Vegetable storage

SECTION F — Crafts

Groundnut sheller; Paddy Crusher; Wind Mill Model;
Jaw Vice from Angle Iron; Drill Press from a hand drill,
Reading Stand, Cupola
Agricultural Implements

SECTION G — Computer Studies

Life Expectancy; Spelling Drill; Flasher; Printing the Date of
Birth & Sex from an individual's Identity Card No.

The Exhibition also included a Section on SPORTS to display the sports equipment turned out skilfully by the CRAFTS WORKSHOPS, with emphasis on low cost, quality and durability.

The items were:

Hurdles; High Jump Stands & Bars; Rings for Throws; Jumping boards;
Javelins; Judges' Box; Victory Stands; Flag Posts.

The Institute is in a position to take orders on request. Schools and sports organisations that are interested may contact the Sports Administrator, Mr. K. N. Y. Maurice, with their requirements.

Scribbler.



The Institute Day — 1987

The Twelfth Institute Day of the Jaffna College Institute of Technology came off on the 19th of September 1987, but the function had to be on a subdued note as the hoped-for-calm of the post - accord period was not a reality then. However, the personage of the calibre of Prof. Balasubramaniam and the presence of his spouse made up for the deficiency. It was indeed kind of him to have braved the storms of the times and contributed in no small measure to the success of the festive occasion.

It has been the tradition for the Institute laboratories and workshops to be spruced up and the exhibits to be at their bridal best so that the Chief Guests as well as the visitors and the parents of the recipients of diplomas and certificates going round the campus, could be served something of an aperitif before the repast.

After the ceremonial procession, prayer and the Chairman, Mr. J. M. Sabaratnam's address of welcome, the Director, Mr. M. G. Pillainayagam, presented his Annual Report. He pinpointed the fact that unlike the developed countries, there was in this part of the land little liaison between engineering institutes and industry. He added that this general handicap was further aggravated by the events, especially of the past five years, whereby North Ceylon had been subjected to an undeclared civil war retarding the possibility of industrial and human development. Nevertheless, he underscored the urgency of the need for a greater co-operation of educationists, technologists and industrialists to work for the salvation of the community at large. He also referred to another remarkable mile-stone in the history of the Institute in the introduction of a new course, the Bachelor of Engineering degree program, and the transformation of its status to that of a degree-awarding institution. One was able to experience the new feeling of being in a university in the Address by the Chief Guest. He not only congratulated the students who were awarded the diplomas and certificates but also the Director, Mr. Pillainayagam, for having accomplished so much in the face of dissipating, fissiparous and violent conflicts. The Professor averred that the Institute had made rapid strides towards the realization of the goal as set forth in its motto: 'Technical competence is the key to economic self-reliance'. He also observed that the Computer Department, too, had made much progress inspite of unforeseen difficulties and challenges. The Chief Guest, being a Professor of Bio-Chemistry with an international reputation, promised all possible help from his Faculty at the University for the carrying out of the Bio-gas project of the Institute.

After the inspiring exhortation by the Chief Guest, there was the presentation of awards by Mrs. Balasubramaniam. The colourful function was brought to a close with the Union President's Vote of Thanks, the Hymn for Ceylon, and the Benediction by the Rt. Rev. D. J. Ambalavanar.

Programme

- 2.00 pm: Guests' arrival and visiting laboratories
3.30 pm: Refreshments in the Auditorium
3.45 pm: Academic Staff, Members of the Council, Chief Guests & Bishop Kulendran form procession near the Office
3.50 pm: Procession moves up
4.00 pm: Staff, Chief Guests, Chairman, Vice Chairman, Secretary, Director, Principal & Bishops take position on the stage
4.05 pm: Prayer — Rt. Rev. D. J. Ambalavanar
4.10 pm: Chairman's Address — Mr. J. M. Sabaratnam
4.20 pm: Director's Report — Mr. M. G. Pillainayagam
4.35 pm: Principal's Report — Mr. C. Jeyaratnam
4.55 pm: Chief Guest's Address — Prof. K. Balasubramaniam
5.10 pm: Presentation of Awards — Mrs. A. Balasubramaniam
5.45 pm: Vote of Thanks — President, Students' Union
5.55 pm: "The Hymn for Ceylon" — All Standing
6.00 pm: Benediction — Rt. Rev. S. Kulendran

Report of the Director, Institute of Technology

Prof. Balasubramaniam, Mrs. Airanee Balasubramaniam, our Bishops, Chairman and Members of the Council, Parents, Alumni and Friends:

It gives me great pleasure to welcome you all most cordially to this, our annual event — the Twelfth Institute Day celebrations.

To Professor & Mrs. Balasubramaniam, I offer a special word of welcome.

We are indeed happy to have Professor Balasubramaniam, a brilliant Bio-technologist and a Scientist of no mean calibre, as our Chief Guest today. We are doubly proud to have you, Sir, with us on this occasion as a dedicated Professor fully involved in the development of our natural resources, entirely through a new process of your brain wave, biotechnology.

You have had splendid accomplishments as a student of St. Henry's College, Illavalai, then obtained your first degree in Science with Botany (Special) at the University of Ceylon and later a PhD in Bio-chemistry from Indiana, U. S. A and attained the pinnacle of your profession with great distinction. After serving for a brief period as Assistant Lecturer and Lecturer at the University of Ceylon,

you had been serving as research fellow at many Universities abroad — Argentina, London, Sweden and Libya, to name a few, and returned to the Chair as Associate Professor and Head, Department of Biochemistry, University of Colombo. Your lofty ideals and an insatiable thirst for serving the people with an ever-accumulating wealth of knowledge and experience gained as Biochemist all over the world had earned for you the highly esteemed position as Professor and Head, Department of Biochemistry — University of Jaffna, four years ago.

We are deeply enthralled by your dedication and commitment attributable to the Ful-bright Scholarship, WHO Fellowship, Research Fellowship and your practical approach of biotechnology for future industrial development of this country.

Your great enthusiasm, revitalized by your dynamic approach to the development of our land and people, has paved the way for the establishment of a Post-graduate degree course in Biotechnology at the Faculty of Medicine. You have impressed us by your simple, humble and unassuming ways and we are grateful to you for the warmth of friendship and concern you have already infused in us — the engineers and technician graduates — who could be ready tools of your biotechnology innovations at industrial level in your future development plans.

We are very thankful to you and your wife for your kind gesture in making yourselves available to us for this function. Your presence here today is a sign of encouragement to our staff and students and we look forward very eagerly to what you have to say to us today.

Our warm welcome to you, Mrs. Airanee Balasubramaniam, to this function, and this is perhaps your first visit to us. As Miss. Mathiaparanam, your educational career at Saiva Mangayar Kalagam, Colombo and at Ramanathan College had ended by your becoming the life-partner to the then-young Dr. Balasubramaniam. You are an energetic and magnetic wife behind all the achievements of your husband — a scientist, bio-technologist and professor — and a source of great strength and inspiration to him in the work to which he has dedicated himself. We are happy to have you with us today and thank you for your gracious acceptance to give away the awards and prizes.

Institute of Technology

I am pleased to announce that the Management Council and Board of Directors of Jaffna College had approved the change of name of this Institute to that of "Jaffna College Institute of Technology", in view of upgrading its status to a degree - awarding institution. Our motto & emblem remain unchanged.

The Management Council

The Council for the Jaffna College Institute of Technology & the Institute of Agriculture is an autonomous body functioning under its own constitution approved

by the Jaffna College Board of Directors and the Trustees. It is generally composed of persons with proven eminence in the fields of Education, Engineering, Industry, Agriculture and Administration. They provide general counselling in policy making and in guiding the executive administrators of these institutions.

There have been some changes in the Council during the Academic Year 1986/87:

The Rt. Rev. D. J. Ambalavanar, Bishop, Jaffna Diocese, C. S. I. was appointed to the Council as an ex-officio member of the Jaffna College Board of Directors in terms of an amendment to the constitution approved by the Council.

Dr. W. D. Joshuwa, a scientist by profession, served the Council for two years as a representative of the Jaffna College Board and left in January '87 on an international award offered by the FAO.

Mr. S. Rasanayagam, OBE, Director Emeritus of the Institute of Technology (formerly Technical Institute) served as a member of the Council for the full term of six years and retired in February 1987.

Dr. J. P. C. Phillips, J. P., represented the Roman Catholic Church, and having served for a period of three years, retired from the Council.

I thank the out-going members for the counselling given to us during a very difficult period of time and wish them every success in their new spheres of activity.

The following new members were appointed to the Management Council with effect from 1987:

Mr. K. Guparatnam, Attorney-at-Law, and representative of the Jaffna College Alumni Association to the Board of Directors of Jaffna College, was nominated by the Board to the Council. His leadership and services to the community of Vaddukoddai and, especially, his loyalty to Jaffna College, had earned him this appointment to the Council. His legal advice will fill a long-felt need.

Mr. S. B. Arumainayagam, Chemical Engineer by profession, having had wide experience in the Engineering industry, was nominated by the Roman Catholic Church as its representative to the Council. We are fortunate in having him during a crucial period of our development work.

We welcome the first lady representative to the Council, Miss. C. V. Selliah, B. A., M. Ed, Principal of Uduvil Girls' College as the representative of the Board to serve on the Council. Her presence in the Council will be a source of encouragement to the increasing number of female technician students and lady staff members at this institution.

Dr. M. R. R. Hoole, B. Sc. Eng., PhD, Senior Lecturer, Department of Mathematics, University of Jaffna, was appointed by the Council to serve as member from July 87. His academic achievements in the Electrical Engineering field, teaching experience in higher education and his journalistic talent with analytical approach will be assets to the development of engineering education and training programmes at our Institute of Technology.

We welcome the new members and thank all the members of the Council for the advice and guidance given to me to steer the Institute along the highway of development during the past five years of my office.

Engineering Education and Training

It is generally considered desirable that tertiary institutions of engineering education should interact closely with industry. This interaction in the advanced countries usually takes the form of industry and government-sponsored research and development activities in the institutions and consultancy work carried out by the academic staff for industry. Sometimes the institutions mount special short courses or holiday schools for the benefit of practising engineers, technicians, and even for the senior secondary school students.

Quite naturally, when engineering institutions are started in developing countries, the question of whether they, too, could emulate their counter-parts in the developed countries is raised. The value of close contact between engineering institutions and Industry is readily recognised when ultimately the graduates of the institutions must find work in industry. A close liaison between the two bodies should, therefore, benefit the institutions by making their courses more relevant to the needs of industry. Similarly, the special courses run by the institutions from time to time could meet a demand outside and be advantageous to the practising engineer and technician.

But, in the area of industry-sponsored research and consultancy services, the expectations are often disappointing in our society. The reasons are not difficult to find. The main task of engineering institutions in developing countries like ours is to train raw technicians and engineers, as it should be. The time available for serious research activities is usually curtailed by teaching responsibilities. Secondly, the infrastructure for R & D, such as good laboratories, trained technicians and suitable post-graduate programmes etc. is usually not available in our institutions but it needs careful development and support by the society.

Industries' problems are often mundane but the more, the less urgent, requiring immediate attention and solution. The academic staff should be sympathetic to these problems at the existing industry as well as in young and new industries. North Lanka was subjected to an undeclared civil war for the past four years: the industrial development was destroyed, human development was badly hampered,

financial and natural resources were affected and our lives were in jeopardy. It is no wonder that under this situation the essential aspects of co-operation between the engineering institutions for the benefit of industry were not developed but were only confined to ad hoc consultancy services.

Now the time has come for the development of engineering educational institutions and more suitable industries based on our natural resources and local products in the North for the future well-being of our people. A greater co-operation of educationist, technologist and industrialist is very imperative if we are to have quick and successful economic development in our homeland.

Technical Education

The aim of this Institute is to provide technical and vocational education and training to the youth, school leavers, and prepare them ready for employment in engineering trades and in the industry. The job opportunities or investment facilities to carry out an artisan-technician trade in this part of the country had been gradually reduced as we witnessed during the past three years.

The available resources for development and creating new employment opportunities were also affected by the unfortunate happenings around us. In this climate the needs and aspirations of our youth could hardly be met with the result that insecurity and frustration loomed largely in their minds. At the Institute we successfully continued with our educational and training programmes without encountering difficulty and produced technicians and craftsmen annually who joined the adult work force of our society.

In this situation, we, as technical educationists, were inspired to modify and improve our educational programmes so as to help all categories of school leavers seeking admission to follow various courses of study. It was found very desirable to create an awareness among the youth of the need to select suitable courses within their ability to learn the technical skills fully for future development work in our homeland, and to direct the students' responsibilities for active participation in society. In order to achieve this we have included several development projects and production work in our practical training programmes and encourage the students to practise such development work in their rural areas.

Courses of Study

The programme of technical education and vocational training was inaugurated in 1974. The Institute has now completed 13 years of service in providing tertiary education to school leavers. This year 13 full time, one to three-year duration study programmes were offered. In addition, two short term training programmes of 20 weeks duration on carpentry and masonry trades and another in computer

programming BASIC of 19 weeks duration were also provided. Further, week-end classes were conducted, teaching selected subjects for the Engineering Council Examination Part II (London), thus preparing the working students for Professional Engineering Degrees.

COURSE	No. of Students	Semester
I Degree level		
a) Professional Engineering (ECE Pt I)	7	3
b) Professional Engineering (ECE Pt II)	12	3
II Technician Diploma		
a) Electronics & Communication (3 years)	70	6
b) Electrical Power (2 years)	35	4
c) Mechanical Engineering (2 years)	17	4
d) Civil Eng. & Q. S (2 years)	38	4
e) Draughtsmanship (Civil) (1 year)	26	2
f) Computer Programming (1 year)	20	2
III Technician Certificate		
a) Automobile Technology	10	3
b) A/C & Refrigeration Technology	15	3
IV Craft Certificate		
a) Machine Shop Practice	18	2
b) Foundry Practice	14	2
c) Welding Practice	11	2
d) Electrical Installation Practice	17	2
V Short Courses		
a) Masonry	6	20 weeks
b) Carpentry	10	20 weeks
c) Computer Programming (completed)	20	10 weeks

In total, during the first semester of the academic year, July to December 86, 17 courses of study were conducted for 348 students. 23 students left the Institute during 1986, among them 10 gained admission to state institutions for higher education, others abandoned their studies.

At the beginning of the semester in June '86, six weeks of familiarization programme was conducted to the large number of students, who sought admission

to the 3-year diploma course, in order to help them in selecting suitable disciplines. However, it was found that the duration of this familiarization training offered was inadequate to the types of students who had their secondary education in the Tamil medium and commenced their tertiary education in the English medium at the Institute.

Hence, the Board of Studies had revised the Diploma course curriculum from the beginning of the next academic year 87/88 (i.e. the current session) allocating the first full semester to the fundamental studies of engineering principles, the next four semesters for specialised studies in various disciplines and the last (6th) semester for project studies in liaison with industries as in-plant training cum career development programme.

New Course

A new course, Bachelor of Engineering degree programme - B.Eng., with 8 semesters — 4 year-full time study programme — was commenced in January 87. There were 15 students registered to follow this course. The syllabus of this degree course was selectively prepared based on the syllabi of

- (a) Faculty of Engineering, Peradeniya, B. Sc. Engineering degree
- (b) Engineering Council Examination (London) Parts I & II A, B, & C
- (c) Institution of Engineers (Sri Lanka) Examinations - Parts I & II

Lectures, laboratory practicals and course work reports of this course are being carefully scrutinised by the Board of Studies and soon we will apply to the University Grants Commission for recognition of our Institute as a private Engineering degree - awarding institution in Sri Lanka. However, the students admitted to this course could appear for the full Engineering Council (London) Examination (Parts I & II A, B, & C) during their full time study programme and obtain a professional engineering degree and, in turn, gain corporate membership admission at any affiliated institution of the Engineering Council (London).

Having had four years of experience in preparing candidates for Engineering Council Examinations — Parts I & II, my staff are confident of conducting this full-fledged degree programme at this Institute using the laboratories and workshops and library facilities already available, but with gradual improvements with time.

Trade Courses

The Refugee Rehabilitation Fund - 83 organization in Jaffna obtained financial aid from the Norwegian Embassy (NORAD) and sponsored our Institute to conduct two short term training courses in Masonry & Carpentry trades. This training programme was designed for 20 weeks duration, providing semi-skilled training in these basic trades to youngsters, 16-20 years of age. The first set of courses was

commenced in September 1986 and concluded in March 87, producing only ten carpenters and six masons. The second batch commenced in April 87, in which there are ten carpentry students and four masonry students and they will be completing their training soon. These students are partly employed on our building construction work, enabling them to receive on-the-job training and earn an allowance besides.

Unfortunately, as these trades are being associated by our society with the caste systems, it failed to attract more rural students, even though we introduced modern machine tools and equipment for easy operations, reducing the human drudgery traditionally experienced by craftsmen in these trades.

Diploma Courses

Two Diploma courses of one-year — two-semester duration — in Computer Programming and Draughtsmanship (Civil) were introduced in 1984 & 1986 respectively. Students are admitted to these courses every semester — biennially. In the Computer Programming Course two Modules, I — BASIC programming and II COBOL programming — are taught on the syllabus based on City and Guilds of London Institute, “746 Computer Programming & Information Process” course. The candidates who completed this course programme could find employment easily in the modern enterprises soon becoming computerised. Besides, we have requested the Examinations Department of C & G L I - for recognition of our Institute as an additional examination centre in Sri Lanka and to grant approval to our course students to appear for the examinations.

Generally, all diploma course programmes are based on the syllabi of the National Diploma in Technology - University of Moratuwa, and the corresponding City and Guilds of London Institute courses. Several internal students have successfully passed the respective parts of London examinations and when they complete their diploma courses here, they are able to obtain full technological qualifications of the City & Guilds of London Institute subsequently.

Students Performance

There were 348 students on roll at the beginning of the Academic Year 86/87. Among them 182 were new admissions, such as 16 to B. Eng., 110 to six Diploma courses and 56 to four Craft courses. The total drop out during the first semester was 45, constituting 13% of the initial strength, 10 students gained admission to state Universities and the others abandoned their education due to loss of financial support and being displaced from their homes as refugees. During semester II of this academic year, January to May, 86 students left the Institute and the strength at the final examinations May 87 was 267. The drop out was high, 20 from the first year course of the 3 year - semester diploma programme.

The number of students who successfully completed their courses of study this academic year is as follows:

Diploma Courses	Passed	%Passed
(a) Electronics & Communication	9	
(b) Electrical Power	7	
(c) Mechanical	2	
(d) Civil Eng. & Quantity Surveying	12	
(e) Draughtsmanship	6	
(f) Computer Programming	11	
	<u>47</u>	79%
Technician Certificate Courses		
(a) Automobile	3	
(b) Air Cond. & Refrigeration	6	
	<u>9</u>	43%
Craft Courses		
(a) Machine Shop Practice	13	
(b) Welding Practice	4	
(c) Foundry Practice	10	
(d) Electrical Installation Practice	9	
	<u>36</u>	78%
Professional Engineering Course		
(a) Part I	2	40%

73% of the candidates who appeared for the final examinations were successful and will receive their awards today. They include First Class 2, Second Class Upper Division 6, Second Class Lower Division 14 and Merit Pass 5. I congratulate all passing-out graduates and wish them every success in their careers.

I am pleased to place on record that despite the numerous problems that confronted youth in the North, especially, during the past four years, we continued to progress steadfastly and produce more than fifty technicians and craftsmen every year, and today we are proud to turn out 95 graduates — the highest number as middle - level skilled personnel.

Staff Development

Up to now, I have set forth our achievements in the progressive development of the Institute and the students' performance. For this, I thank my staff who unreservedly co-operated with me in improving the Institute in all its activities and services. I would emphasize the fact that the development of this Institute

as a private charitable institution, in its subsidised fee-levying status, is largely influenced by and dependent on the quality of educational programmes offered, the skill and motivation of the teaching staff and the good rapport between staff and students.

In the past three years a large number of staff members were leaving us annually and we were hard put to find suitable replacements. It appears that we are not only training youths to acquire technical skill at the Institute but also training teachers to gain teaching experience here and leave for richer pastures elsewhere. Further-more, a systematic staff development programme is also very essential at this expanding young Engineering Educational Institute if we are to retain the services of efficient staff members and enrich the quality of our technical educational services and research and development activities.

We have been working on a suitable training programme when lack of funds and the civil disturbances forced us to postpone this very essential service from year to year. As a first step, seven instructors were offered a 3-month scholarship from May to July 87, to proceed to India and follow a training programme in "Technical Teaching Methodology", specially arranged for them at the Central Training Institute, Guindy, India by the Ministry of Labour and Employment in Delhi. Due to the explosive situation that prevailed during the month of May 87, travelling from the North was not possible and the training programme had to be put off for next year in May 88. I sincerely thank Shri M. K. Sharma, Director of Training, Ministry of Labour, India and Mr. K. Sivagnanam, Principal of CTI, Guindy for arranging this training programme and again reconfirming their offer for May / July 88 session.

The following staff members left us during the academic year:

1. Mr. N. Nitkunam, Instructor — served 3 years and left for employment in Egypt.
2. Mr. C. Subramaniam, Instructor — served $1\frac{1}{2}$ years and migrated to Australia-
3. Mr. P. Sriitharan, Instructor — served 6 years and left to join the private sector.
4. Mr. S. Baheerathan, Asst. Lecturer — served four months and left for higher studies in Norway.

New Staff

Dr. T. Vinayagalingam, B. Sc. Eng. (Hon), M. Sc., PhD., M. ASME, M. AIAA joined us in November 86 as Assistant Director and Dean of Studies. He worked as lecturer at the Engineering Faculty, Peradeniya (4 years) and as Senior Lecturer at the University of Trinidad, West Indies (8 years) before joining us. He is an eminent lecturer in Mechanical Engineering subjects, specialising in Computer Aided Design and Control System Engineering. He has taken residence in the campus and also functions as the Head of the Computer and Maths Department.

Mr. S. K. Xavier, B.Sc. Eng., who was with us during 83/84, left for evangelistic service at St. John's College and rejoined us in February 87 as Lecturer in Mechanical Engineering subjects.

Mr. C. C. Devaprasath and Mr. S. Sriranganathan joined us in February 87 as Instructors in Electronics.

Mr. T. Satkurunathan, B.Sc. Eng., M.I.C.E. (SL) joined us recently as Lecturer in Civil Engineering subjects.

Mr. N. Srisivathas, Instructor in Automobile Technology, joined us in October 86.

I welcome all new staff.

Facilities

Building: The Phase II of our development programme was initiated in 1978 with the generous aid from the Government of The Netherlands and sponsored by the Inter-Church Co-ordinating Committee for Development Projects in Zeist, Holland. The last building on this project was the Water Tower Complex completed in June 86. With great persuasion, the donors agreed to co-finance our next Phase III development programme which commenced in February 87. Under this agreement, construction work on the following buildings was started in April 87 and we expect to complete them before April 1988.

- (a) Civil Engineering Laboratory and class rooms.
- (b) Hostel, Dining Hall and Kitchen Complex, and
- (c) Staff Quarters (3 Nos)

The production workshops — Machine Shop, Welding and Carpentry — undertake fabrication of doors, windows, trusses, grills, fittings etc, while the staff and students of the Civil Engineering Department are involved in designing, drawing the plans of new buildings and supervision of construction work at site, as our contribution to this project.

A 140' long 14' wide new cycle shed was constructed to accommodate 300 of the students' bicycles during the session hours and also could serve as sports pavilion during sports and games.

Hostel: The students' demand for residential facilities within the campus is steadily increasing and we have tried our best to accommodate as many students as possible, giving priorities to those who come from far distance. The maximum capacity is for 12 male students in one hostel and 10 in one dormitory. The 5 female students and two staff members are accommodated at the Jaffna College Girls' Hostel, Howland Hall, and I thank the Principal, Mr. Kadirgamar, and their hostel Supervisor, Miss. Elias, for extending their facilities and kind co-operation to us.

Scholarship & Studentship

The tuition fees paid by the students were much less than the actual cost incurred in training them in all courses of study. It was gradually increased as the running costs were also increasing steadily. But the Management Council recommended allocating more funds to student assistance and scholarship grants to the more deserving students. In 1986/87, Semester I, 18 students received studentships and 4 students won scholarships of full tuition fees. During Semester II 18 students received studentships and 15 students received part tuition fee awards as scholarships and, in total, we granted Rs. 27,000/- from Hastings Scholarship Fund helping poor and deserving students, and displaced refugee students from other districts.

Equipment: During this period, the very essential items of laboratory equipment were added to the Electronics & Electrical Power laboratories and new computers were provided to the Computer laboratory. We thank the Trustees for their sympathetic consideration and kind concern in helping us with a special grant to purchase the equipment.

Production Work: Technical staff and senior students are always encouraged to participate in the production programmes and development projects that are being carried out at different workshops. During this academic year Rs. 18,000/- was earned as profit from the production work carried out at the workshops as on-the-job industrial level training offered to our crafts and trades students.

Development Funds: I am pleased to record that my continuous appeal to the public & well-wishers for recognition of our services and in helping our students with appropriate development funds is now beginning to be rewarded. At the end of this reporting period, the contributions received are as follows:

- a) Rs. 11,000/- as Past Students' contribution towards the Prize Fund,
- b) Rs. 5,500/- towards the Memorial Prize Fund from five donors,
- c) Rs. 4,000/- towards the Sports Fund, and d) Rs. 400/- towards the Library Fund.

I am sure to receive more contributions to encourage our students in their studies and welfare at this campus.

Gifts & Donations: We are very grateful to the Hon. High Commissioner of the British High Commission for the magnanimous gift of a latest teaching aid "Microprocessor Trainer" to our Institute. This instrument could be gainfully used by the electronics course students, learning the applications of microprocessor circuits on seven different control mechanisms widely used in the modern electronic equipment. We thank him whole-heartedly for his kind gesture for the improvement of our educational programmes.

Further, we received a token voucher from the British Council Library for purchasing new text books to our Technical Library. We thank them for the welcome gift.

We received another teaching aid "Computer Trainer" from our former staff member, Mrs. Rajavathana Sivaloganathan, from London. Her kind concern for our students and continued support given to the Institute, we appreciate, and I thank her on behalf of the staff and students.

Mr. J. Rajathurai of Uduvil donated a complete set of CBM Commodore Computers to our Computer Department in memory of his late son. Our sincere thanks to him for his generosity and well wishes.

Few more friends donated technical books to our library. They wish to remain anonymous. Our thanks to them, too.

Students' Union Activities 1986/87

The following students were elected to office for the period 86/87:

President	- S. Jeyaseelan
Secretary	- N. Gajendran/P. Anura (July 86- Dec. 86) (Jan. 87 - May 87)
Treasurer	- S. Sathiyaseelan
Sports Monitor	- N. Dhivakaran
Asst. Sports Monitor	- T. Vickneswaran
Editor	- B. Jeyaseelan
Fine Arts Secretary	- K. A. V. Thurairajasingham / S. Ganesha (July 86 - Dec. 86) (Jan. 87 - May 87)
Vice President	- R. R. Terrance

Mr. S. A. P. Thurairatnam continued as Vice Patron of the Union. A Staff Advisory Committee comprising the following staff members

Mr. A. M. Spencer
Mr. E. M. Jebarajah
Mr. I. Balasubramaniam
Mr. M. Thayananthan
Mr. R. S. Ratnagopal

was appointed to advise and guide the students on all Union matters.

The Union held regular meetings on Wednesdays from 11.00 a.m. to 12.00 noon. During this allocated time it had organised and conducted several programmes

like 'Kavithenral', Quiz, Kavi Arangam, etc. Two Guest speakers delivered speeches of topical interest. In addition, Rev. Bro. Robert of the Colombuthurai Seminary spoke on "Ulavial Reethiyil Manitha Nadathai." The Executive Committee and the Staff Advisory Committee met every month to review and plan out union activities. The Union organised and conducted the following special programs:

- a) Freshers' welcome was held on 9th July 1986.
- b) 2nd Inter-Hall Athletic Meet was held on 5th September 1986.
- c) A Cultural Drama 'NIRASAIGAL' enacted by the Manipal Hindu College students was presented to the public on 12th September 1986.
- d) Institute Magazine "Techstrum" was published during the month of November with the joint collaboration of staff and students.
- e) A grand Blood Donation campaign was organised at the Institute on 29-1-1987; more than 60 students donated blood.
- f) The Cultural Day was celebrated on 25th February 87. Dr. E. Balasubramaniam, Senior Lecturer, University of Sri Lanka, Jaffna Campus, graced the occasion as the Chief Guest. Many talented students participated.

The Union's Annual 'get-together' lunch could not be held as scheduled on 11th of April 1987 due to the unfavourable conditions that prevailed in the peninsula. At the English Elocution Contest held in November 1986, several students actively participated and the following students won the first place in each group:

First Year - Miss. G. Rathani

Second Year - Miss. N. Nanthini

Third Year - Mr. S. Jeyaseelan and Miss. N. Manchula

Craft Course - Mr. S. Srinagarrooban

Games and Athletics

The students did not rest complacent with what they had achieved in the field of studies but performed equally well in the field of Games and Athletics. At the 2nd Inter-Hall Athletic Championships the athletes had bettered the best performances, 12 by men and 7 by women and equalled 2 other performances recorded at the Inaugural Championships held in 1985. S. Jeyaseelan, S. Jeyakumar and Miss. R. N. Susithira stole the honours at this year's Championships. Red Hall won the Athletic Championships while Yellow Hall annexed the "Flag Trophy" for the Over-all Championships. In Football we were able to play six matches, winning two and drawing two.

Cricket occupied the entire 2nd semester. We had time to play seven matches, winning two and drawing three. S. Jeyakumar scored the first century for the Institute and he with N. Dhivakaran scored the first century partnership.

Volley-Ball and In-door Games, like Badminton and Table Tennis, were played throughout the year.

The members of the Students' Sports Committee along with the Staff Advisers Messrs. S. A. P. Thuraiaratnam, M. Thayananthan, S. Kantharajah, S. B. Dhivakaran, S. P. Raveendran, S. Devanathan and R. Ramesh assisted our Sports Administrator, Mr. K. N. Y. Maurice, in working out our programme smoothly under very hard and trying conditions.

Visitors

Several visitors from abroad have been trying to visit us but many of them could not make it. However, only Rev. Eric. A. Gass, Secretary to the Trustees & Regional Executive Secretary of UCBWM, was able to make a dashing visit to Jaffna on 12th March 1987. He reviewed the progress made at the Institute, and laid the foundation stone for the new Civil Laboratory to mark his visit to the North.

Thanks

I want to place on record my gratitude to the members of the Academic, Administrative, Minor & Visiting Staff for their useful contribution to the development of the Institute for another year.

It is my duty to thank the passing out graduates and the present students for their well disciplined behaviour and co-operation given to the staff and management during the year.

A special word of thanks to the Warden of the Hostel, Mr. M. Thayananthan, Sports Administrator, Mr. K. N. Y. Maurice, for the efficient support extended to me by organizing and managing the hostel and sports activities respectively in the campus.

I thank the Chairman and Members of the Council for the valuable advice given to me in the administration of this Institute.

Ladies and Gentlemen, I thank you all for accepting our invitation to be with us here today.

We thank God for the many mercies he had shown to us and pray for His protection to all of us, for His love and care & peace and harmony.

Thank you

M. G. Pillainayagam,

Director.

Report of the Principal, Institute of Agriculture

Distinguished Chief Guests, our Bishop, Chairman and Members of the Council, Members of the Jaffna College Board of Directors, Parents, Alumni and Friends:

We, of the Jaffna College Institute of Agriculture, extend to all of you a warm welcome to this annual event and appreciate very much your presence here.

I am happy to announce that, inspite of the several constraints placed on us during the year 1986, we have maintained steady progress and have been of much use to the farming community by supplying quality planting materials, vegetable seedlings and hatching eggs.

Staff

Mr. D. D. Ariaratnam, our Accounts clerk left us in July and Miss. J. Sivagnanam has been appointed in his place. The rest of the staff, including our regular visiting lecturers, are doing their utmost to maintain the high standard of Practical Education imparted to the students.

School Section

35 students were enrolled at the beginning and 26 of them sat the final examinations in September 1986. Though 32 students were admitted to the present batch, only 20 of them are attending classes now. The new batch will be taken in November 1987.

Most of the students travel daily and have been badly affected by the aerial harassments. Yet the attendance was very satisfactory.

For the students' practical training we continue to cultivate all the crops grown in the Northern Region, together with exotic vegetables like cabbage, carrot, beetroot and French beans.

The new hostel building for the female students has been completed and students from distant places are residing there. The hostel was dedicated and opened by the Rt. Rev. D. J. Ambalavanar on 12-2-87. A Matron has been appointed to be in charge. Many more students from the districts of Mullaittivu & Vavuniya are expected to apply for admission next year.

Students Tour

During 1986 the students did not go on their annual tour to the various Research Stations & Farms conducted by the Dept. of Agriculture.

Seminars

The following seminars were conducted:

1. Plant Protection.
2. Fruit Cultivation.
3. Milk Production & Animal Breeding.
4. Feeds & Fodder for Cattle.
5. Diseases of Poultry & Cattle.
6. First Aid & Health Care.

Farmers, Agr. Teachers & Officers of the Depts. of Agriculture and Agrarian Services attended these seminars in substantial numbers.

In - Service for Agricultural teachers of the Education Dept.

The Education Dept. (Jaffna) has thought it fit to have the In - service Training for their Agricultural teachers at the Institute. The training was held in December '86 for 3 days and over 70% of the lectures were taken by the Institute Staff.

School Magazine

Last year we published our magazine under the name 'Engal Anupavam' (Our Experience), which contained articles written by the students based on their experiences at the Institute in Crop & Animal Husbandry. This Magazine was well received by the public and several schools and village organizations requested additional copies & have been supplied. The scope of the Magazine has been widened this year, and will appear under the name 'NAM KATTAVAI' — (what we learnt). Copies will be supplied to the village organizations & schools teaching Agriculture as a subject.

Farm Section

The objective of the Farm Section is to be an effective teaching aid to acquire new skills & scientific know - how in farming. As in the previous year, we have run this section at a profit of Rs. 28,000/-, inspite of the restraints placed on marketing of our agricultural produce.

Instead of merely cultivating the various crops & rearing livestock, we have introduced some Adaptive Research, Crop Diversification & Cost of Production programs. Under Adaptive Research we tested two Fertilizer recommendations given out by the Dept. of Agriculture to find out which of these gave better yield to the Calcic, Red Latosol areas of the Jaffna peninsula.

Groundnut was cultivated from May to July under irrigation in $\frac{1}{2}$ acre to study the profit that could be obtained instead of growing red onions by all during the glut period of May to July.

In the poultry section we reared day - old cockerels and recorded data for feed intake and weight increase monthly to find out the optimum age for sale to obtain maximum profit.

These are all documented in our magazines. Last year we did the same for broiler production.

Hatching eggs are supplied daily and Quality Planting materials and Vegetable seedlings are produced & sold at reasonable prices.

Future Proposals

Steps are being taken to establish during 1988 a Soil Testing Laboratory so that the farmer could know the nutrient status of his soil and to apply fertilizers judiciously. Together with this, Water Management studies will also be undertaken for Red onions, Groundnut, Chillies and Beetroot.

Thanks

I wish to thank the staff, students and employees for the co-operation extended to carry out the schedules of the Institute under very difficult conditions.

To the Director, Staff & Students of the Technical Institute for inviting us to participate in the various functions — Sports including.

I thank the Chairman and Members of the Council for their encouraging response and guidance to our problems.

I thank you, Ladies and Gentlemen, for your kind presence and patient hearing.

Thank you

C. Jeyaratnam,
Principal.

Address by the Chief Guest, Professor K. Balasubramaniam,
Head, Dept. of Bio - Chemistry, University of Jaffna.

Chairman Mr. J. M. Sabaratnam, Director Mr. George Pillainayagam, Members of the Council, Members of the Learned Staff, Alumni, Distinguished Guests, Dear Parents and the Jaffna College Technical Institute:

We thank you for inviting us as Chief Guests for the Institute Day 1987 and the Twelfth Presentation of Diplomas and Certificates. We are very mindful both of the honour you have bestowed upon us and the duty that had been cast upon us to deliver the Institute Day Address and Present the Diplomas and Certificates. This is the Institute's biggest Annual event and we feel happy for this rare opportunity you have afforded us to mix with these graduands and share their happiness on their Graduation Day.

Life is full of events and it is a mixed bag. But today at this very moment, all of us have forgotten our worries and duties and have assembled here to share the happiness with the graduands. You, the graduands, who have successfully completed your professional, technical and vocational courses are the lucky few who were offered the opportunity among the several who wanted to enter this Institute. The time, energy and money, the staff members and this Institute had invested on you graduands far outweigh the money you had paid to receive this education at this Institute. You had the right to receive the education you wanted. Whenever we speak of our rights, we also have a duty to perform. The rights and duties are two sides of the same coin. Hence, it is incumbent on your part to perform your duties you owe to your Alma Mater, to the society and to the nation at large. The society demands the services from you and have the right to demand from you. This is a democratic society which gives you the option to decide whether you want to fulfil your obligations to the society or run away from it. It is unfortunate that many had gone and are going to the developed West and contributed and are contributing to the "Ongoing Brain Drain". As John F. Kennedy, President of the USA, said, "Please ask yourself what you can offer to your country and not what the country can offer you".

The development of a region or nation depends primarily on the wealth of talent we have. Fortunately the Tamil Nation never lacked this talent. Then, why this contradiction? Why didn't we develop for the last five hundred years? This is the result of the brain washing our parents and fore-fathers have had under the colonial rule. When I was of your age, I was advised by my parents, the relatives, and the society that I should enter the clerical service and end up as a brilliant obedient servant in the civil service. Fortunately or unfortunately I never accepted their advice and had revolted and continue to revolt against the idea of becoming an obedient servant.

Our gross National Product had been increasing by 1% over the past forty years while the population had been increasing by 2% or more up to nineteen seventies

and now by 1.7%. Our economy could not generate new employment to keep pace with the increase in population.

The colonial educational system and the imbalance between the growing population and productive capacity have probably left us to be branded as "Developing Nations". The educational system has to be changed and the production capacity has to be stepped up.

Less than 2% of the students entering the kindergarten are admitted to our Universities. This figure is the lowest even among countries in South-East Asia. Of those eligible for University admission, the percentage admitted to the University has steadily decreased from 33.7% to 12.5% between 1970 and 1980, while the number eligible for University admission has increased from 10,300 to 40,300 during the same period. A survey conducted by MARGA Institute and presented in the "University Education and Graduate Employment in Sri Lanka" shows that more than 75% of our arts and general science graduates are unemployable and end up as teachers. The total expenditure on education as a percentage of the Gross National Product (GNP) has almost remained constant over the past 7 years (Table I) and any increase in expenditure on University education may aggravate the graduate unemployment.

Table I Expenditure on Education

Year	Expenditure on Education as a percentage of (GNP) (Gross National Product)	Expenditure on Higher Education as a percentage of GNP (Gross National Product)	Expenditure on Technical Education as a percentage of Higher Education.
1979	2.46	0.29	18.7
1981	2.5	0.40	6.6
1983	2.5	0.44	9.8
1985	2.7	0.47	13.8

Statistical Hand Book 1985. University Grants Commission, Sri Lanka.

The investment on Technical education has not increased during this same period. But those eligible for University admission between 1970 and 1980 had increased by four-fold and more than 30,000 students who are qualified for higher studies and who have spent 13 years or more of their life towards it are denied higher education. Besides this 30,000, there are more than a 100,000 students who have sat the GCE (A/L) and have obtained various degrees of proficiency. How can there be development in Sri Lanka if this pool of talent is not properly harnessed and utilized? In my opinion, the answer lies in developing the technical education and promoting the growth of industries to add value to local agricultural products.

The trade pattern has not changed for the last few years. The colonial rulers purchased our raw materials and used the colonies for the sale of the finished product. We have gained independence. All the South-East Asian countries, African countries and Latin American countries have attained independence. But the pattern of trade has not changed. The colonial rulers have all ganged together and are continuing to exploit their old colonies as their preferential market for the sale of the finished products. The UNCATD, and several other organisations had tried to change the old order, but in vain.

In this context, the decision of this Council to establish this Institute way back in 1972 was laudable. I am sure that this institution would play the necessary catalytic role in promoting the industrial and technological revolution that is required to increase the productivity and raise the standard of living of the people.

Technical education cannot be dissociated from work experience. In the medical education, teaching hospitals are a part and parcel of the Medical Faculty. Likewise, this Jaffna College Institute of Technology should have its own workplaces or factories where the students could get their work experience or apprenticeship during the course and for defined periods after their graduation. The Zhejiang University in China, established in 1897, has six factories of its own for mechanical, electrical, chemical and optical engineering as well as for semi-conductors and radio. These factories would help not only to produce better engineers, technicians and craftsmen but also produce quality goods, the sale of which would augment the funds of this Institute and raise the standard of living of the people.

Although your Institute is young, it had already established some good traditions. I had the opportunity to visit your Institute towards the end of 1986 and was very pleased to note the research undertaken by the students under the able guidance of your staff. Without Research and Development, no institution can attract staff and students; and, above all, no institution is worthy of its name. The Department of Biochemistry, University of Jaffna, had initiated an M. Sc. course in Biotechnology in November 1986. I take this opportunity to thank this Institute for offering their services to conduct the course on "Bioprocess and Instrumentation" to our Biotechnology students and, in addition, fabricate the necessary machinery and equipment for pilot plants. This association between our University and your Institute could form the corner-stone for the development of the Biotechnology - Based Industries of the 21st century.

The Director of your Institute, Mr. George Pillainayagam, is a dynamic person with a vision and a mission in life and your Institute is fortunate to have him as its head since 1981. The number of courses offered in Technical education had increased from 4 in 1974 to 17 or more in 1987 with the student enrollment increasing from 15 to 400 during the same period. The first Professional Engineering

course leading to a degree of the Engineering Council Education (London) was initiated in 1983. Many had passed Part I and many are following the Part II course started in February 1986. It is gratifying to hear from students that a very high standard of teaching is being maintained at this Institute and students are attracted to this Institute even from Colombo. The credit goes to the Director and the academic staff who had given their best even during this period of turmoil. The Institute had matured academically in the last 12 years to the level of a Technical University. I urge that the Council of this Institute should leave no stone unturned to build up the staff and get this Institute recognized as an Institution of Higher Studies. In the field of Higher Education, Jaffna College had contributed in no small measure for the last few decades. There was no parallel to Jaffna College in the whole of Sri Lanka and probably in South-East Asia. The only College in Sri Lanka that had an undergraduate Department preparing students for London degrees was Jaffna College. I am sure that the Jaffna College Institute of Technology will live up to its expectations, get the necessary recognition as an Institute of Higher Studies and grant its own degrees. I am aware that the Council, Director and staff are moving in this direction and wish them all luck. The change in name from Jaffna College Technical Institute to that of Jaffna College Institute of Technology is no mistake and I am putting it to the Council for their consideration.

We once again thank the Council, Director and staff for inviting us as Chief Guests. My thanks to you all for giving me this opportunity to share my thoughts with you.

Vote of Thanks — Mr. L. Theivendarajah,

President, Students' Union

Mr. Chairman, our Guests of Honour, Professor and Mrs. Balasubramaniam, the Director and the Principal, Ladies and Gentlemen — It's now my pleasant duty as President of the Students' Union to propose the Vote of Thanks on this happy occasion. At the outset, however, I wish to assure all that the time I shall take to deliver will be in direct proportion to my physical size.

Mr. Chairman, Sir, we extend to you our grateful thanks for your kind presence and for doing us the honour of initiating the programme today.

To Professor and Mrs. Balasubramaniam, we are deeply obliged for consenting to spend an entire evening with us, having set aside many an important engagement. We are, indeed, fortunate in having you, Sir, as the central figure of this solemn ceremony. Your scholarly attainments are a pride to the youthful minds and are worthy of emulation. The observations you have made offer us hope and confi-

dence, and the much-needed release from the strain and stress we have been living through. We thank you, Sir, very sincerely.

I thank Mrs. Airanee Balasubramaniam for the compliment she has paid us by her gracious presence and for performing the arduous task of distributing the awards with a special charm and acceptance.

The live-wire of the Institute, as you are all aware, is our Director. Time does not permit me to say all that we, as students, wish to elaborate on about him. Nonetheless, the most striking feature of his brief stewardship is the rise in stature of this institution from being a Technical Institute to that of an Institute of Technology. This in itself will speak volumes about his efficiency, hard work, dedication, faith, conviction, vision and the determination and will to achieve. Thank you, Sir, and our best wishes to you.

His counterpart, Mr. Jeyaratnam, has already made his presence felt in his special field and to him our thanks and best wishes are due. I envy him and our Director for their ample proportions. I wonder how the Council of Management had so fittingly and nicely chosen them to master-mind the two institutions.

To the members of the staff, I make bold to say a big "Thank you" for the advice and guidance given us at all times and to the Executive Committee of the Union and the membership, too, for their willing co-operation.

We take this opportunity to thank you, our guests, for the support you have extended to us by your presence. Please do meet us again.

Finally, I congratulate the recipients of awards and wish them success.

Thank you.

* * *

'Think Sessions' to develop arts and ideas

**Mallika Rasaratnam, M. Sc. (Arch); Chartered Architect
Examiner, Jaffna College Institute of Technology**

An expert on Home Decoration, asked what he would suggest as the first step to begin in decorating a newly-built house, explained:

"Well, the first step is a 'think session.' How you will be living — dining, entertaining, working, relaxing — determines the furnishings you must have. So, before you buy anything, make a floor plan drawn to scale and try some furniture arrangements with cut-out furniture shapes also drawn to scale. This shows you what can be appropriately placed in the space you have. Your house is not just made of rooms. Regard it as a place to be occupied by growing children and aging elders, rooms with a future."

For architects, the most disgusting moments come when they have to discuss house plans with clients who have no idea of what they want. A 'think session' for a client is a 'must' and even the exacting client will be an exhilarating person if he or she has the requirements ready and preferences clarified.

An architect is determined to create new forms for his new ideas and any unrelated 'second thought' suggestions would throw the scheme into confusion. An architect is not a mere craftsman, who supplies just a commodity. He is an artist and he always insists on his rights as an artist.

Artists, architects, music composers never get tired of assessing their creations even after the creations have become stale and musty. Stendhal tells how Michelangelo, as an old man, wandered through the ruins of the Goethe "to lift his soul to the pitch required to feel the beauties and defects of his own design of St. Peter's dome." It was the 'think session' of Michelangelo, subsequent to creation.

The old-fashioned Sabbath is really an Israelites' version of a 'think session.' The discordant pressures of life tend to throw people out of gear and a 'think session' is a 'must' to help people fit exactly into the situations around them. A weekly day of 'think session' should be made mandatory for all.

Vacation is just another name for an action that takes you away from the usual. A 'think session' is a vacation that takes you away from the usual world of work and repetitions. During a 'think session' one may be able to explore the many faces of our own self and the tangle of circumstances in which we are placed.

The mind is capable of deep vision — mind can gain entrance into the innermost nature of things. It is essentially creative. We have not yet had time to exploit this extraordinary potential of the human being.

“Picasso stood before the canvas for three or four hours at a stretch and made almost no superfluous gestures”, says Francoise Gilot, the painter’s companion. She writes, “I asked him if it didn’t tire him to stand so long in one spot”. He shook his head. “No,” he said. “That is why painters live so long. While I work, I leave my body outside the door, the way Muslims take off their shoes before entering the mosque.” It was of the ‘think session’ the painter was speaking.

Mark Twain said: “Life does not consist mainly — or even largely — of facts and happenings. It consists mainly of the storm of thoughts that is forever blowing through one’s head.”

Students and even growing up people must learn to respect their own thoughts. Usually, we dismiss without notice our thoughts because they are ours. We should learn to detect and watch that gleam of light which flashes across our minds from within. In every work of genius we recognize our own rejected thoughts: they come back to us with a certain alienated majesty. We are on several occasions forced with shame to take our own opinion from another, and sometimes to pay for it.

People all over the world are becoming future-conscious. The public ask questions about new inventions before they arrive, instead of after. This is a healthy sign. But for this a much-needed ‘think session’ should come before so that we can guide technology into more humane channels.

Politicians as architects of the nation’s fortune should make parliamentary sessions ‘think sessions’, instead of ‘debating sessions’. In the technological systems of tomorrow, machines will increasingly perform the routine tasks: men, the intellectual and creative tasks.

Alvin Toffler, author of ‘Future Shock’, writing about the schools for the future, said, “Tens of millions of children today are forced by law to spend precious hours of their lives grinding away at material whose future utility is highly questionable. Why, for example, must teaching be organized around such fixed disciplines as English, Economics, Mathematics and Biology? Why not around stages of the human life cycle? or, around contemporary social problems? or, around the future of the family or life-styles of tomorrow?”

Well! these topics cannot be taught and learnt. There should be ‘sessions of thinking’ rather than ‘periods of teaching’.

Autonomous Solar Thermo Pump for Lift Irrigation

Dr. T. Vinayagalingam — Asst. Director

Formerly, Senior Lecturer, University of Trinidad, West Indies

Nomenclature

h	= enthalpy, J/kg
p	= pressure, N/m ²
t	= temperature, °C
v	= specific volume, m ³ /kg
η_{co}	= solar collector efficiency, %
η_{sys}	= system efficiency, %
η_{th}	= thermal efficiency, %

Introduction

In the less-developed, arid plains of the Third World where agriculture depends to a large extent on lift irrigation, the sun shines almost invariably whenever water is needed for irrigation, and it seems only proper to utilize this nondepletable source of energy for priming irrigation pumps. The demand in these regions for small-and medium-sized solar-driven water pumps, in the kilowatt range, would be enormous if only they could be manufactured cheaply enough. Water pumps may be operated with solar energy directly converted into electricity, or by using heat engines run by the sun's thermal energy suitably trapped in flat-plate or concentrating collectors. While direct conversion of solar energy into electrical energy is not considered economically viable in the context of water pumping, a variety of solar thermal water pumping devices have been developed and demonstrated over the years in several countries, notably in France and the U. S. These are essentially of the heat-engine type, operating between a hot reservoir supplied by the solar collector and a cold reservoir supplied by the ambient air or pumped water. Conventional Rankine cycle power units ranging in power from fractions of a kilowatt to several kilowatts are in limited commercial production in some industrially advanced countries, but their costs are very high. Extensive research and development are underway to bring the costs down. In recent years, increased attention is also being given to the development of simple and special designs of solar water pumps which could be manufactured inexpensively in the developing countries. This paper reports on one such design currently being developed at the St. Augustine Campus of the University of the West Indies, Trinidad.

Working Principle

A flow diagram of the proposed solar-operated water pumping scheme is given in Fig. I. The work tank, T, is partitioned into two chambers by means of a rubber diaphragm, D, placed across the tank's cross section. The lower chamber, L, together with the diaphragm and two nonreturn valves, V_1 and V_2 , comprises the water pump. Thermal energy trapped in a flat-plate solar collector, C, is transferred continuously to suitable heat-carrier liquid contained in the upper chamber, U, by thermosyphon circulation.

At the beginning of the cycle, exhaust valve V_3 , and metering unit charge valve, V_4 , are closed. Metering unit discharge valve, V_5 , is then opened to let the working liquid contained in the metering unit, M, run down by gravity into the upper chamber. The working liquid should 1) have a boiling point at atmospheric pressure slightly higher than the ambient temperature, 2) be slightly heavier than the heat-carrier liquid, and 3) be immiscible with it. As the working liquid seeps through the heat-carrier liquid, it receives heat energy and begins to vaporize. Consequently, the diaphragm is pushed down which in turn pumps out the water in the lower chamber. When the diaphragm reaches the bottom of its travel, valve V_3 is opened and the vapor escapes into the water-cooled condenser, R. When the pressures inside the condenser and the upper chamber equalize, valve V_5 is closed and V_4 opened. Vapor trapped inside the metering unit then escapes into the condenser through V_4 while working liquid from the bottom of the condenser runs down by gravity and fills the metering unit. At the same time the diaphragm moves up, fresh water is drawn into the lower chamber, and the system is ready for the next cycle. Any carrier liquid which finds its way into the condenser is bypassed into the upper chamber via V_6 .

In the proposed scheme all the valves are operated automatically. This is accomplished by utilizing 1) changing liquid level in the upper chamber, 2) pressure differentials occurring across the valves, 3) displacement of the diaphragm, and 4) gravity, as will be described in detail in the following section.

Automatic Operation of the Valves

Valve V_3 is formed by the circular port, P_3 , which may be covered or uncovered by the float, F_3 , as shown in Fig. 2. At the beginning of the cycle the heat-carrier liquid will be at its highest level inside the upper chamber and the float, F_3 , rises to close the port, P_3 . During the expansion stroke the pressure inside the upper chamber increases and the differential pressure acting on the float will hold it pressed against the port even when the liquid recedes inside the upper chamber. A light inelastic string, S, is tied to the bottom of the float at one end, and to the centre of the diaphragm at the other. The length of the string is so adjusted that it remains slack except when the diaphragm reaches its lowest position at the

end of expansion. At this point the diaphragm will pull the float off the port thereby letting the vapor escape into the condenser. The float will remain in the open position until the liquid level rises and lifts it again at the return stroke.

At the beginning of the cycle valve V_4 should be closed at about the same time valve V_3 is closed. Valve V_5 should be opened only after valve V_4 is closed. The correct sequence is accomplished by means of the overlapped spool valve shown in Fig. 2. The spool-valve piston is carried on float F_4 . When the liquid level inside the upper chamber rises, float F_4 lifts the piston, first closing port P_4 in the spool, then opening port P_5 , and eventually closing port P'_4 . The differential pressure acting on the piston keeps it pressed against the port P'_4 during expansion. Once valve V_5 is opened at the end of expansion and the pressures in the condenser and the upper chamber are equalized, the piston drops down due to its own weight closing ports P_5 and P'_5 , and opening P'_4 and P_4 .

Thermodynamic Efficiency

Neglecting clearance volume within chamber U, the volume of water that can be pumped per unit mass of working liquid evaporated is v_2 and the net work done is $(p_2 - p_1) v_2$. The corresponding heat energy requirement of the working fluid is $h_2 - h_1$, and the thermodynamic efficiency is,

$$\eta_{th} = \frac{100 (p_2 - p_1) v_2}{(h_2 - h_1)} \%$$

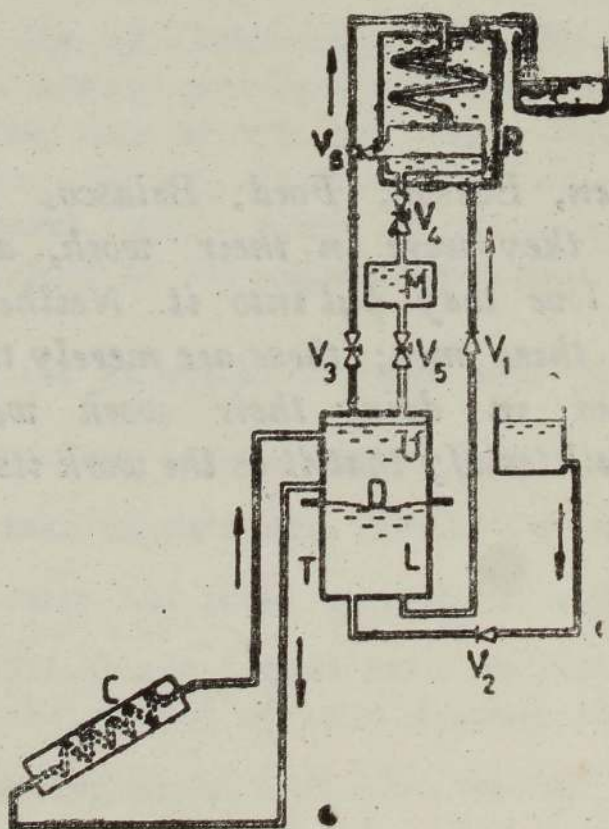


Fig. 1 Flow diagram of the solar water pumping scheme.

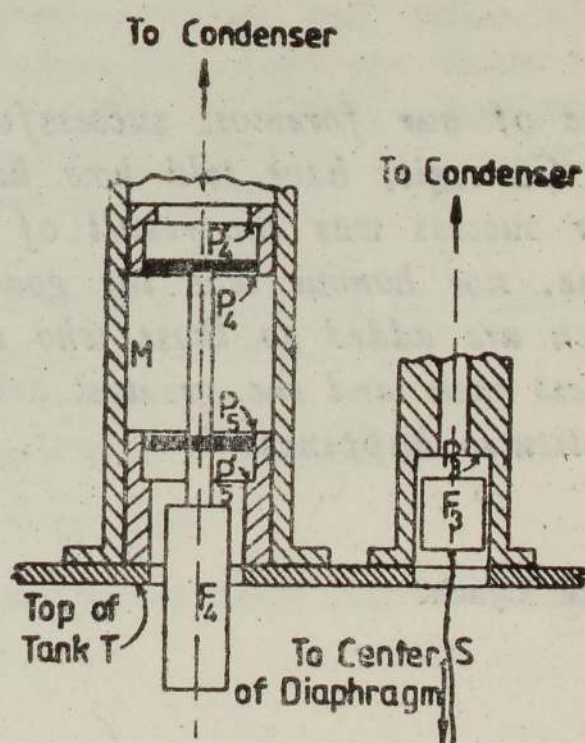


Fig. 2 Details of the valves.

Typically, with Freon - 113 used as working fluid, $\eta_{th} = 6\%$ for $t_1 = 40^\circ\text{C}$ and $t_2 = 80^\circ\text{C}$. Assuming a solar collection efficiency, η_{co} , of about 30% for an ordinary flat - plate collector, the overall efficiency of the system is given by

$$\eta_{sys} = \frac{\eta_{co}\eta_{th}}{100} = \% 1.8 \%$$

Conclusions

Many factors which hinder widespread utilization of solar water pumping systems in the developing countries could be overcome with the novel design outlined in this paper. The system can be fabricated easily and inexpensively in the developing countries. There is no moving part in the pump except for the diaphragm and the valves. The working fluid is circulated within a sealed unit and consequently there will not be any loss of the liquid. The compact design ensures better system efficiency which results from reduced heat losses and reduced internal leakages of the working fluid. Besides, the system is autonomous, requires practically no maintenance, and the running cost is nil.

"Some of our foremost successful men, Edison, Ford, Belasco, Roosevelt and Carnegie, have told how happy they were in their work, and how their success was the result of the love they put into it. Neither money, fame, nor honour was the goal of these men; these are merely the things which are added to those who succeed in doing their work well. The richest men and the greatest artists all testify that it is the work itself which constitutes happiness."

Richard Lynch.

The Computer Age

M. C. R. Perinpanayagam (writes from London)

Former Instructor — Computer Studies

Today we are living in the age of the Computer. This age has also been called the Space Age, Atomic Age and by other names, indicating the important technological developments in those spheres. But the Computer is by far the most significant innovation that has its impact on almost every aspect of technological development and in our own lives too. Criteria for using computers are: the volume of data and information involved in processing, the complexity of such data and information, the degree of accuracy needed, the repetitive nature of the various tasks, and the speed with which information is required for important decision-making.

The first electronic computer went into operation about thirty-five years ago. Since then, it has undergone rapid changes both in the design of its various parts as well as in the techniques of its operation and application. Modern Computers come in a variety of sizes and forms, such as Mainframe, Mini and Micro computers. Those used extensively in business and commerce are called DIGITAL computers. They perform the basic arithmetical functions, such as addition, subtraction, multiplication and division. These computers use the binary system of numbers in machine-coded language. In addition, these computers are a vast reservoir of stored data and information which aid users, such as business firms and banks in making quick decisions and in their early execution.

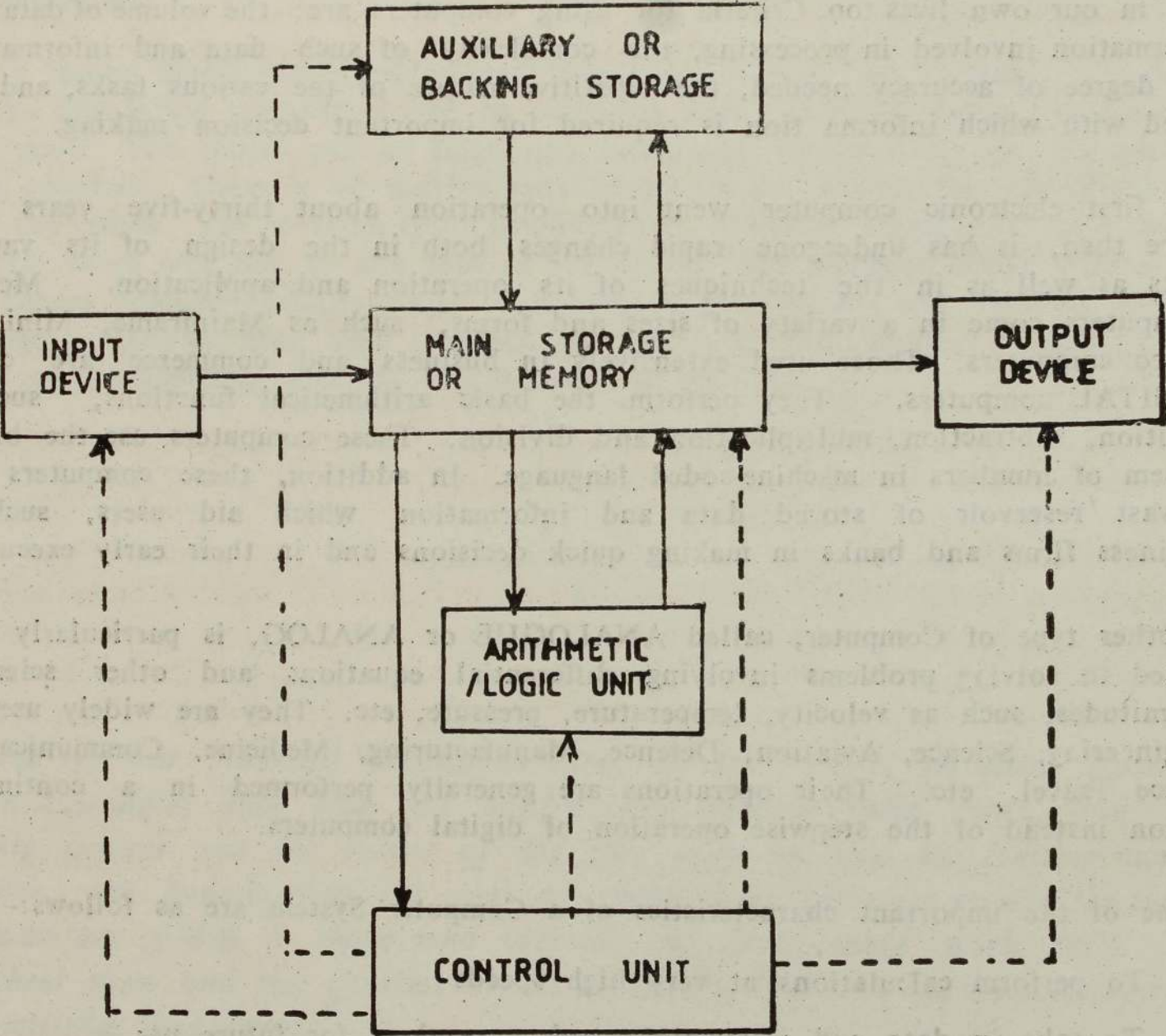
Another type of Computer, called ANALOGUE or ANALOG, is particularly well suited to solving problems involving differential equations and other scientific magnitudes, such as velocity, temperature, pressure, etc. They are widely used in Engineering, Science, Aviation, Defence, Manufacturing, Medicine, Communication, Space Travel, etc. Their operations are generally performed in a continuous action instead of the stepwise operation of digital computers.

Some of the important characteristics of a Computer System are as follows:-

- (a) To perform calculations at very high speeds
- (b) To take in data and instructions and store them for future use
- (c) To carry out these instructions and when required
- (d) To use simple logical rules to make decisions for their internal control or for the control of some external activity
- (e) To communicate with other systems
- (f) To exploit a complex internal structure of micro-electronic circuitry in a variety of ways.

The basic ELEMENTS or FUNCTIONS which make up a COMPUTER SYSTFM are not different from those found in other methods of DATA PROCESSING, such as manual and mechanical.

Briefly, these elements are: input, storage, control, computing/processing, and output. It is beyond the scope of this article to describe each of these elements in detail. The diagram below will, however, illustrate the various elements and their functions.



KEY	————→	DATA FLOW
	- - - - ->	COMMANDS / SIGNALS

Elements of a Digital Computer

- (I) The three elements, viz. Main Storage, Arithmetic/Logic Unit, and Control Unit are together called the Central Processing Unit or CPU. The others are Peripherals.
- (II) Data and instructions (INPUT) are first recorded on a suitable MEDIUM (such as, punched card, paper tape, magnetic tape, magnetic disk or magnetic drum) and fed into the computer through a DEVICE (such as Card Reader, Paper tape Reader, or "Pad" head attached to the tape Unit or Disk Unit. Some of these media are also used for OUTPUT (information) through such devices, as a Printer, the "write" head attached to the Tape Unit (VDU).
- (III) Data and instructions (PROGRAMS) enter Main storage and are held there until needed for immediate processing. Backing storage holds additional data and instructions not immediately required for processing.
- (IV) The Control Unit controls all components (HARDWARE) of the Computer System.
- (V) The computation/processing is done in the Arithmetic / Logic Unit (ALU) on instructions received from the Control Unit.

Current research and development of better and improved models of the Computer are going on at full pace. The United States and Japan as well as other western countries are spending enormous sums of money in this direction. It seems reasonable, therefore, to expect change and yet more change in the future. The Fifth Generation super-computer which is aimed to possess artificial intelligence and speeds of over a thousand times faster than the present day computers may be a reality before the end of this century, if current research and development programmes are kept to schedule. The robots of science fiction writers, like H. G. Wells, George Orwell and Arthur C. Clarke, may be science fact if these objectives are achieved.

"To be humble to superiors is duty, to equals courtesy,
to inferiors nobility".

Benjamin Franklin

Word Processing

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Economic growth in the developed countries has been closely linked with high versatile modern technology. The invention of steam - powered machinery in the early 19th century had uplifted technological growth and social development. In a similar manner what the world seems to be going through now is boosted by electronic technology, especially microelectronics.

Nowadays microelectronics has pushed a large amount of equipment to have full automation in both processing and control. Computer application to business and commerce dates back to the middle of the 60's, a decade of vigorous recovery from World War II which led to economic expansion and rapid technological development throughout the industrialised world. A micro processor - based word processing system is considered to be the most effective office equipment used for replacing the traditional typing, secretarial and clerical jobs. If we make a statistical analysis of the information handled within enterprises, roughly 30% of them will be in numerical form, the rest 70% non-numerical, such as drawings, graphs, words etc., usually turned out manually. Nowadays a microprocessor has taken over this major office job of information communication.

The various types of office equipment used in a modern office — ref. figure A below:

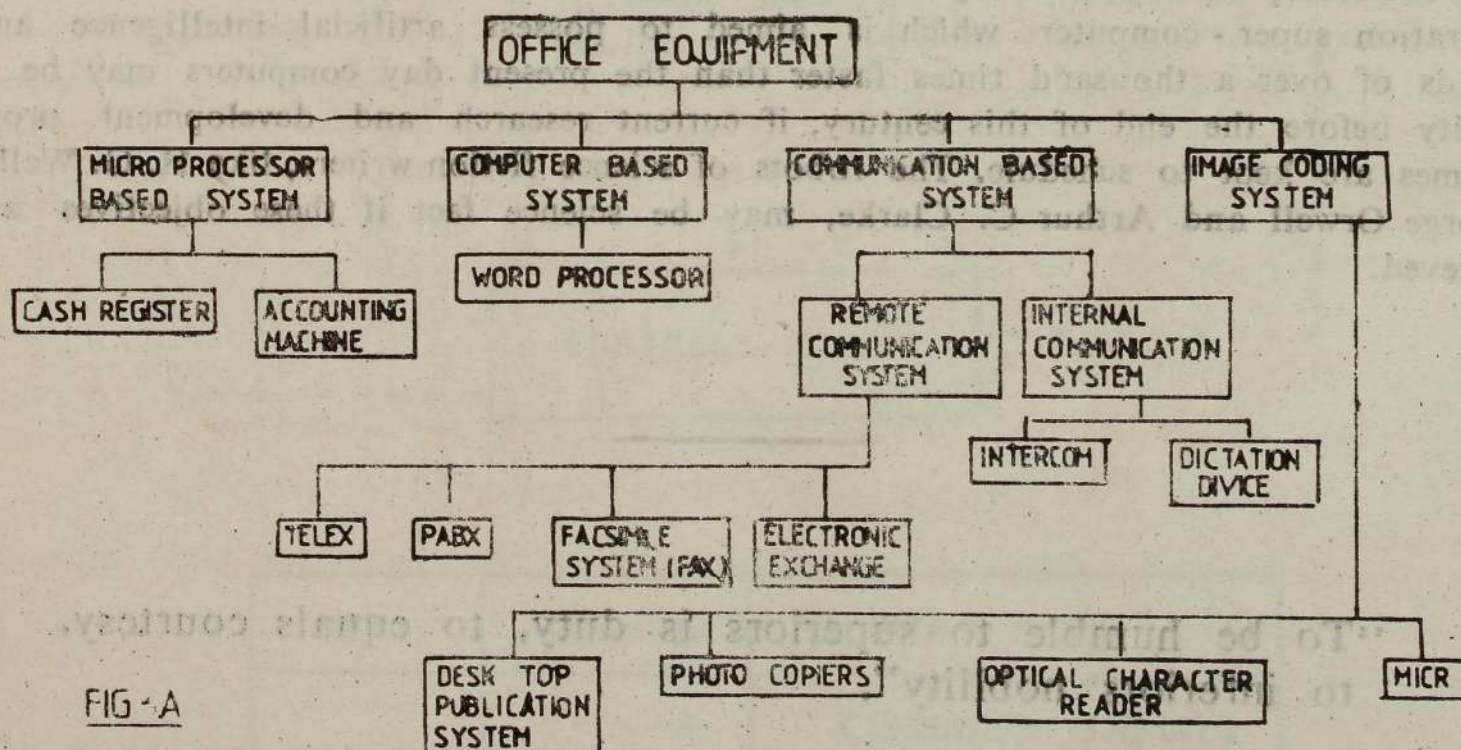


FIG - A

The first category comprises basically those using the optical system, such as photo copiers etc. Also, an optical character reader, working in conjunction with a computer and photo copier, has found good acceptance for major reprographic need of a newspaper organization or printing establishment. The second category is the communication - based system including telex, PABX, intercom etc. However, the information in graphical form cannot be transferred by this system. For this a mode of equipment called Facsimile communication system (FAX) is used. The third category consists of the micro-chip-based calculators, cash registers, accounting machines, computers etc.

Information and data can be broadly classified into numerical and text forms. Whereas processing of information in numerical form is done by the calculators, computers etc, processing of text or matters in letter form is handled by a word processor. A word processor is basically a computer system with a special software package.

The simplest model of a word processor is made up of a key board, a video display unit, a central processor unit (CPU), floppy disk drive (normally supported with additional drives), a printer or printer with graphical capabilities and a word processing soft ware. -Ref. figure B as shown below:

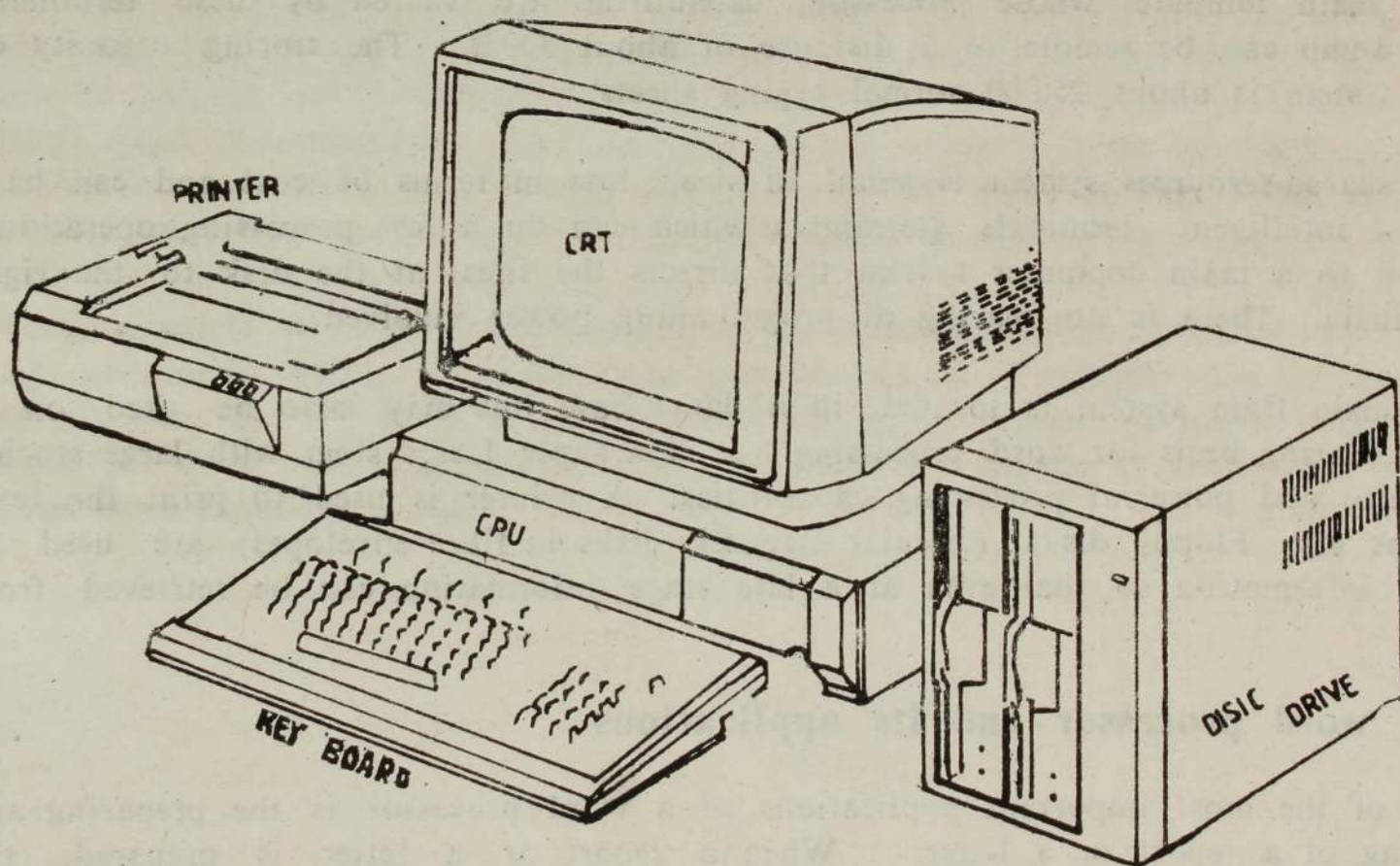


FIG B

Sub systems of a word processor

An electronic key board is a unit similar to a type writer key board but with some additional keys known as special function keys. The main function of this unit is to feed information to the system. Optical reader, light pen, mouse are also used to input information to the system. As display units a cathode ray tube or an LCD display system is used to display the information for editing of the text. A CPU is the heart of the system which handles all the processing activities. Depending on the power of the CPU, the word processor can be grouped into categories of stand-alone processor, shared - logic system, main fram system and shared-resources system.

The stand - alone word processor is independent of other systems. It does not need any support from the other computers. This system has its own internal memory and controlling soft ware which direct the flow of information from the key board to display, disk and printer. The important feature of a stand - alone word processor is programming ability. This allows the user to run some special application soft ware, apart from the standard applications.

The shared-logic word processor consists of several dump terminals (about 20) linked to a main computer whose processing capabilities are shared by these terminals. The dump can be remote to a distance of about 300m. The storing capacity of this system is about 25,000 normal typing sheets.

The shared-resources system is small in size, low in terms of cost and can have 2 to 4 intelligent terminals (terminals which can do a few processing operations) linked to a main computer system that directs the files at the disk to the right terminals. There is no sharing of programming power involved.

The main fram system is located in a data base but may also be used on a time sharing basis for word processing. It is a super fast system with large storing capacity and powerful processing capabilities. A printer is used to print the text, graphs etc. Floppy disks (circular magnetic disks in fibre envelopes) are used to store information so that even at a late stage information can be retrieved from it.

The word processor and its applications

One of the most important applications of a word processor is the preparing and editing of a report or a letter. When a report or a letter is prepared, the related data are first typed by its user on the key board. The data being the key to the system can be viewed on the display. When the document has been completed, the user may give some instructions to the system to print out the contents on the printer as it is. This may then be passed on to the person in charge for corrections. The completed version of the document is then compared

along with the display and changes, such as deletions, additions, underlining etc. may be made now. After this with some system instruction the necessary number of copies can be obtained through a printer associated with the word processor. A distinct feature of this system is that each and every word can be checked for spelling with the aid of special software containing a certain number of words, depending upon the software we buy; in some versions a good amount of additional words also can be inserted into the internal dictionary of the system. Another feature of this system is that when we prepare a report with some tables, it may so happen that the table is left unfinished on a particular page and the other lines are left to be taken over to the next page. This interseparation of lines can be adjusted properly by the system. This happening is called forming, apart from the rearranging of texts, page numbering, writing headings, variable size character printing etc. that can be achieved.

When an organization sends a memo, letter or reminder to its clients, where only a few entries like address, file number etc. need to be changed, the normal practice is to prepare cyclostyled copies of the documents and the relevant details are then typed separately. A considerable amount of time and expense can be saved by employing a word processor. The main body of a letter, for example, is stored at the memory with some special instruction. The unfilled data can be fed into the system sequentially, when, under the control of the CPU, the processor will prepare each letter with appropriate data at high speed. The letter can be printed out on computer paper (fan fold paper) or pre-printed letter head. High speed communication facilities can also be achieved when a word processor works in conjunction with a telex machine. In this instance the word processor is used to transmit documents to a remote place at high speed.

Thus, a single word processor can eliminate a large number of office staff from the traditional typing, secretarial and clerical jobs. Normally five or six typewriters can take on as many as a hundred persons, whereas a single stand-alone word processor can replace about eight typewriters. Among those affected will be both workers and managers.

The Importance of English in Technical & Engineering Studies

Mathini Appathurai, B. A.,

Instructor in English

In the last issue of the "Techstrum", it was worth noting that the Editorial Notes and Comments referred to the abysmal ignorance of the basic structures of the English language of approximately 80% of those admitted to the Institute in 1986 and consequently 'The work of the English teacher is made doubly painful'. But the editor concludes with these bright words:

'We commend through these columns the foresight and forthrightness with which the Establishment made English as a compulsory subject in the curriculum of the Institute'.

The above observations pinpoint the contrary nature of the English teacher's task. It is difficult and yet at the same time it is important. Like the facts of life, say, the flow of electricity, it comprehends the plus and the minus, the passive and the active, the dark and the bright. It is the complexity of the English teacher's task that prompted a cynic to adapt the words of the philosopher, Seneca, to describe the unhappy position of the pedagogue: "When the Gods hate a man with uncommon abhorrence, they drive him into the profession of an English teacher in Sri Lanka."

Perhaps teaching English to uncontrollable numbers in any developing country would be a heart-breaking job, especially in the context of limited resources as well as competence, and with the lack of variety in the teaching material as well as poor reference material and aids for the teachers. But the situation in the Sri Lankan schools would be a worse damper since, though English is taught as a compulsory subject up to the 'O' level, the students can afford to fail in it and still obtain the certification of general success. In other words, English is considered both as an important and at the same time an unimportant subject. At 'A' levels though, its place in the class time table is assured, its importance in the eyes of the learner is as dead as a tombstone. And when the student joins an institute like ours, the English teacher faces the unenviable task of breathing in life into the dead.

Surely, the English teacher at the Technical Institute has to be a greater expert than the one on the kiss of life. It is lucidly underscored in the editorial comment quoted at the outset: 'The English teacher has to get himself equipped in the language of the craftsman, the technician and the engineer to be in a position to revitalize the fundamentals of English and guide the learners through the various stages of learning needs in technical situations'.

To change the metaphor, the English teacher in our context has to be not only an expert in the 'Kiss of life', but perhaps be a Don Juan in love with a lady

of a foreign extraction—whom he has not actually seen, or, perhaps be a modern Don Quixote risking land mines and tilting at guerrillas he had never cast eyes upon. His job is both tragical & comical and he, as a person, is both hated and respected. To be effective, he should teach, without seeming to teach.

He has to play this paradoxical role all because of the old wench, the English language, & she claims she has a cosmic significance. Her great import or should one say universal deportment can be gauged by the following facts:

50% of the new medical literature & research findings of the world are in English.

70% of the new biological literature & research findings of the world are in English.

80% of the new Engineering & Technical lab findings of the world are in English.

In our Institute the medium of instruction is English, besides English being taught as a compulsory subject at all levels of instruction viz Degree, Diploma Technician and Crafts. English Elocution Contests are conducted regularly and prizes awarded to the winners. The Department of English has brought out a book titled "An Advanced Course in English for Technician and Engineering students" which has been introduced as a text book to the Diploma Technician classes (Final Year) and the Engineering classes. In the hands of teachers who are well acquainted with the principles and procedure of teaching a modern foreign language, this book can be an excellent instrument in helping further the progress of the pupils in the linguistic skills, reading and composition. English is given prominence and priority at all functions of the Institute. The Institute is planning to have an English Laboratory with electronic equipment and if we succeed in the venture, we will be able to prepare students for examinations, such as TOEFL & the N. C. E. We are also graciously blessed with a spacious library — a potential Technical Library. Thoughtfully a Section has been set apart for ENGLISH providing books, simplified and advanced, on the learning and teaching of the English Language to meet the requirements of the students and the teaching staff alike — with, of course, books for the delectation of the general reader.

The question, however, arises whether it is worthwhile in terms of time and cost to give every student at least an elementary knowledge of the English Language in our Institute. There is only one answer to this. English opens the door to a vast treasure-house of knowledge. The person who does not know English is forever shut out from that fount of knowledge. All the latest discoveries in the field of technology are published in the English language. If one wants to keep abreast of what is going on in different parts of the world, one must acquire a knowledge of English. English is indispensable as an international lay-out for higher research levels. If one didn't gain a fair proficiency in this language, one will be like a frog in the well.

In the words of the greatest living English grammarian and linguist, Prof. Randolff Quirk, "English has a greater world spread than any other language in recorded history". Though over 300 millions use it as their mother tongue, another 400 millions spread in all the five continents use it as a second or foreign language, isn't it strange in independent Papua, New Guinea, with the people speaking nearly 700 tribal tongues, that pidgin English is the official language? In addition, with a spread of world satellite television broadcasts, international telecommunicational links as well as travels, the use of computers on a world wide scale with English as the dominant medium, its position as the supreme world language remains unchallenged. Perhaps if one believes in life after death and the journey to go 'up' or 'down', English will surely be the open sesame, making the journey interesting, pleasant and, above all, meaningful.

So, may we at the Technical Institute, now Institute of Technology, swear to remain faithful to the strange 'English dame' who is hard to understand, and harder still, to communicate with !

Youthful Thinking

At the final examination held last April, the Technician Diploma students were asked in their English Language paper to complete certain well-known proverbs with parts left out at the beginning or at the end.

Here are a few gems:

1. Make hay, sweet heart.
2. There's no smoke in my fire.
3. Girls in glass blouses should not throw stones.
4. There's many a slip betwixt the cup and the saucer.
5. A bad workman blames his woman.

Scrib.

வார்ப்பு வேலையும் அதன் அவசியமும்

சி தருமலிங்கம்

Visiting Instructor (Foundry & Carpentry)

உளவிற்கும் தொழிலிற்கும் வந்தனை செய்வோம் என சுப்பிரமணிய பாரதியார் மனித குலத்திற்கு எடுத்து இயம்பியுள்ளார்.

உளவு விவசாயமின்றேல் மனிதஇனம் வாழ முடியாது. தொழில் இயற்கையாகவே இறைவனால் ஆக்கப்பெற்ற லோக வகை, மரவகைகளை மூலப் பொருளாகக் கொண்டு மனிதனால் ஆக்கப்பெறும் செயலே — தொழில்.

இன்று தொழில் கல்வியிலும் அதன் மூலம் உற்பத்தித்திறனையும் அடைந்துள்ள நாடுகள் அதிமுன்னேற்றம் அடைந்திருப்பதை நாம் அறிவோம். நாளாந்தம் பாவனையில் உள்ள பொருட்கள் உருவமாற்றம் பெறுவதையும் கான்கின்றோம். இவை எவற்றால் ஏற்படுவவை என்பதை சிந்திக்கும் பொழுது தொழில் கல்வியால் ஏற்படும் சிந்தனையும், உற்பத்தித்திறனுமே காரணமாக இருக்கின்றது. இத்தகைய முன்னேற்றத்தை அடைய தொழில் கல்வி அத்தியாவசியமாக அமைகின்றது. இதை உணர்ந்து போலும் தொழில் கல்வியை கட்டாய பாடமாக 1970-ம் ஆண்டு அமுலாக்கப்பட்டது.

காலம் தாழ்ந்தாலும் உணர்ந்து கொண்டமை மிகவும் வரவேற்கத் தக்கதே. எனினும் தொழில் கல்வியைக் கற்றறிய சில சிறார்கள் தயங்குகிறார்கள். காரணம் தொழில்கள் பெரும்பான்மையாக அவரவர் குலத்தொழிலாகவே செயல்பட்டு வந்தனர். அதன்காரணமாக குறிப்பிட்ட தொகையினரே தொழில் திறன் உள்ளவர்களாகவும் தொழில் செய்பவர்களாகவும் இருந்தமையால் கைத்தொழில் பரந்து விரிவடையவில்லை. இதனால் தொடர்ச்சியாக தொழில் புரிவோரின் திறனை அலட்சியம் செய்வதற்கில்லை: இதை தெளிவுபடுத்த மனோதத்துவ சான்றுகள் உள. அவற்றை வெளிப்படுத்தி வேறு கோணங்களிற்கு செல்லாது தவிர்த்துக் கொண்டு, முன்பு தொழில் ஆர்வமின்றி அரசபணியே (கிளாக்வேலை) தேவையென கங்கனம் கட்டிய இளைஞர்கள் உப்பொழுதாவது கைத்தொழிலில் ஆர்வப்பட்டமை மிகவும் விரும்பத்தக்கதே. எனினும் பல தொழிலிலும் மனத்தை செலுத்தாது தவிர்த்துக் கொள்வது அவசியம். தொழிலில் பல பிரிவுகள் உள: அதில், சிற்பவேலை (வாகனம், தேர்வேலை) சாயல் அமைத்தல் (பற்றன் மேக்கர்), தச்சவேலை (கார்பென்ரர்), போன்றவை ஒருபகுதியானவை. இது ஒரு மரத்தில் உற்பத்தியாகும் கிளைகள் போன்றவை.

இவ்வேலைகளும் மரத்தையே மூலப் பொருளாகக் கொண்டு செயல்படும் தொழிலாகும். இவற்றுள் சாயல் அமைத்தல் (பற்றன் மேய்க்கிங்) பகுதியை நோக்கின் இது லோகங்களில் எமக்குத் தேவையான பொருள் போன்று மரத்தில் செதுக்கி அதை மண்ணில் புதைத்து சாயலை வெளியே எடுத்தபின் அக்குளிக்குள் உருக்கப்பட்ட லோகத்தை வார்த்து ஆறியபின் வெளியே எடுத்து பாவினைக்கு எடுத்துக் கொள்ளல். இதைவேறு முறைகளிலும் வார்த்து எடுக்க இயலும். மற்றயது மெழுகில் சாயல் அமைத்து மண்ணில் புதைத்து சரிசெய்தபின் வெளிப்புறத்தில் சூடுகாட்டி உள்ளிருக்கும் மெழுகை வெளிப்படுத்தியபின் அக்குழிக்குள் உருக்கிய லோகத்தை வார்த்து எடுப்பது. இரும்பினால் செய்த அச்சுக்களின் (டைகாஸ்ரிங்) உதவி கொண்டு வார்த்தும் எடுக்கலாம். மெழுகினால் செய்யப்பட்டு வார்க்கும் முறையில் ஒரு பொருள்தான் உற்பத்தி செய்யலாம். மரத்தினால், லோகத்தினால் செய்த சாயலை வைத்து பல பொருட்களை உற்பத்தி செய்து

கொள்ளலாம் அன்றியும் பொருளின் தோற்றமும் ஒருமைப்பாடாகவும் இரக்கும். மேலும் வார்ப்பு முறை, சாயல் அமைத்தல் போன்றவை அவசியம் தானா என கேள்விகள் எல்லாம். ஆம், அவசியம் தான். ஒருலோகத்தை உருண்டைக்கம்பி+ளாக இலகுவில் வார்த்துப் போன்ற உருவங்கள் தேவைப்பட்டின் துளைக்கருவிகளின் உதவி கொண்டு தொளைத்து, எளிதில் பாவனைக்கு எடுக்க முடிகின்றது ஆனால் சதுரமான துவாரம் தேவைப்பட்டின் இலகுவில் துளைத்துவிட முடியுமா? அன்றியும் எஸ் போன்ற அல்லது பலவளைவுகள் கொண்ட பொருட்களிற்கு துவாரம் தேவைப்பட்டினும் அத்துவாரம் ஆரம்பத்தில் சிறியதாகவும் நடுப்பகுதியில் பெரியதாகவும் அமைப வேண்டியிருப்பின் என்ன ஆவது. அப்பொழுதுதான் வார்ப்படத்தின் அவசியத்தை சிந்திக்க வைக்கின்றது

இதே வேளையில் சாயல் (பற்றன் மேய்க்கிங்) அமைப்போர்க்கு சில வார்த்தைகள் :- வரைபடங்களை நுணுக்கமாக கவனித்தல், வார்ப்படம் செய்யும் லோகத்திற்கு ஏற்பகருக்க வீதத்தை கூட்டியமைத்தல், கடைதல் அராவுதல் போன்ற பகுதிகளை தேவைக்கேற்ப கூடுதலாக வைத்தல், மண்ணில் அழுக்கி எடுக்கும் பொழுது மண் உடையாவண்ணம் சாயலை இலகுவாக வெளியே எடுப்பதற்குரிய சரிவுகள் வைத்தல் போன்றவை கவனிக்கப்பட வேண்டியவையாகும். இந்த சாயல்களை உருவாக்க தேக்கமரமே மிச்சிற்றந்ததுவளையும் தன்மையற்றது. வேறு மரங்களையும் பாவிக்கலாம். சாயலை செய்வதற்கு உதவியாக சுருக்கத்திற்கு உரிய விகிதத்தையும் வெட்டுவதற்கு உரிய பகுதிகளையும் கூட்டியவரைபடமொன்று தயாரித்துக் கொள்வது அவசியமாகின்றது. சாயலில் அமைக்கப்பட்டவடிவம் தாள்வார்க்கப்படும் பொருளில் வரும். அமைக்கும் பொழுது தவறுதலாக சில பகுதிகள் அமைபடானிடின், அதை வார்த்தபின் பாவிக்க முடியாது போய்விடுகின்றது. அகற்கு பதில் கொடுக்கும் பொறுப்பு, சாயல் செய்தவரையே சாருமே தவிர மண்ணில் சாயலை அடிப்பவரையோ (மோல்டர்) உருக்கி வார்ப்பவரையோ சாராது, ஆகவே, சாயல் (பற்றன் மேக்கர்) செய்பவரிட்கே கூடிய பொறுப்பு உண்டென்பதும் வெளிப்படுகின்றது.

வார்ப்பு தொழிலை கவனிக்குமிடத்து மண்ணில் சாயலை அடிக்கும் (மோல்டர்) வேலை செய்வதற்கு ஆண்களை விட பெண்களே பொருத்தமானவர்கள் என்பது எனது துணிபு. அவர்கள் பொறுமையாகவும் நுணுக்கமாகவும் செயல்படக்கூடிய ஆற்றல் படைத்தவர்கள். இன்று படைவீரர்களிற்கே காலடிவைக்கும் தாய்க்குலம் இவைபோன்ற அமைதியாகவும் ஓரிடத்திலிருந்தே கடமை புரியும் தொழில்துறையை சிந்தனைக் கெடாததன் மர்மம் தானென்னே. அடுத்து இன்று வார்ப்புப் பொருள் நாளாந்தப் பாவனையில் எந்த அளவில் இடம் பிடித்து விட்டதென்பதை நோக்கின் நாம் வீட்டில் பாவிக்கும் சமையல் பாத்திரம் தொடக்கம் வாகனங்கள் வரை வார்ப்புப் பொருள் இடம் பெறாத இடமே இல்லையெனலாம். இதை சிலர் ஒருகடைச் சரக்காக மட்டும் கருதக்கூடும். பழுதடைந்ததும் காசைக் கொடுத்து பொருத்திக் கொள்ளலாம். சில சமயங்களில் அப்பொருள் வெளிநாட்டிலிருந்துவர தாமதம் ஏற்பட்டபின்தான் உள்ளூர் வார்ப்பின் அவசியத்தையும் விலைவிக்கத்தின் தன்மையினையும் சிந்திக்க வைக்கின்றது.

ஆதலால் விவேகிகளாகிய பயிலுனர்கள் எத்தொழிலில் தொழில் திறனும் உற்பத்திப் பெருக்கும் சந்தைப்படுத்தும் மவுசும் எது என்பதை மனதில் கொண்டு செயற்பட வேண்டும். அன்றியும் எங்களுள் தொடர்ச்சியான குறைபாடொன்று நீடித்து வருகின்றது. அது நீங்க வேண்டும்.

ஒரு தொழிலை தன்முயற்சியால் செயல்பட்டு அதில் பெரும் வெற்றியும் வருவாயையும் பெருக்கிக் கொண்டால், அதே தொழிலையே தாங்களும் பின்பற்றி அத்தொழிலின் மவுசை

யும் குறைத்து. உற்பத்திப் பெருக்கால் சந்தைப்படுத்த இயலாது விலை வீழ்ச்சிகளையும் தழுவிக்கொள்கின்றனர். ஆகவே, இந்நிலை விடுபட நாட்டிற்கு தேவையான லோகப் பொருட்களையும் நாளாந்த பாவனைப் பொருட்களையும் பல பகுதிகளாக செய்யும் திறனை கற்றுணர இளைஞர்கள் முன்வர வேண்டும். அன்றியும் நமது நாட்டில் உள்ள மூலப் பொருட்களை பயன்படுத்தி உற்பத்தியை பெருக்கி மிகுந்த லாபத்தையும் பெறமுடியுமென்பது துணிவு.

இப்படி வழிகாட்டி மரங்கள் போல எழுத்துக்களை தாங்கிக் கொண்டு நிலையாக நான்கள் நிற்கலாமே தவிர இடத்தை சென்றடையவேண்டியது கற்றுணரும் சிரூர்களே.

“எப்பொருள் யார் யார் வாய்க் கேட்பினும் அப்பொருள்
மெய்ப்பொருள் காண்பது அறிவு.”

“Culture is activity of thought and receptiveness to beauty and humane feeling. Scraps of information have nothing to do with it. A merely well informed man is the most useless bore on God's earth. What we should aim at producing is men who possess both culture and expert knowledge in some special direction. Their expert knowledge will give them the ground to start from, and their culture will lead them as deep as philosophy and as high as art”.

A. N. Whitehead

Harnessing the Power in the Wind

"The wind bloweth where it listeth, and thou hearest the sound thereof, but canst not tell whence it cometh, and whither it goeth....." John 3:8

Solar Energy – Source of Wind Energy

Solar energy represents a widely distributed and constantly incoming form of energy. Fossil fuels and atomic energy are a form of capital that will eventually be exhausted; only solar energy is constantly incoming. With variable losses due to absorption, scatter, reflection, refraction, grazing angle and blockage incurred in its transit from the outer atmosphere to the earth's surface, solar energy reaches the earth's surface in the range of 0 to 1 kW/m². The sun bestows on the earth approximately 7.45×10^{17} kW. hrs. annually, whereas the total human consumption is approximately 6×10^{13} kW.hrs. or about 0.008%.

In hydropower, we use a source that is of solar origin of recent date; however, it cannot as a source be transported to places where it is more desirable than where it is found.

The difference in solar heat at two places on the earth's surface causes air motion between these two places and creates wind energy. It has been estimated that wind energy is only 2% of the total solar energy received by the earth. This means that if wind energy were captured from 1% of the total earth's surface at 40% efficiency, it would satisfy present day global energy needs.

Economic Utilization of Wind Energy

The harnessing of wind energy is not always economically feasible as there are rapid fluctuations in wind velocity. The energy is often thinly distributed and invariably the energy gathering machines and systems will have to be huge and, therefore, very expensive. Historically, wind power had been made use of in China, Persia (Iran) and in some parts of Europe. The most important energy producing characteristic of wind, which evaluates its kinetic energy, is velocity. Under the influence of a number of meteorological factors, as well as localized conditions, wind velocity changes in both magnitude and direction at a rapid rate. As regards wind energy converters the usefulness of the wind depends on its average velocity (V_m) both with respect to time and the area swept by the windmill.

The cadastral characteristic of wind (its energy producing value) is in itself a subject requiring a detailed study. Consideration of the factors affecting the effective utilisation of wind energy suggests the following lines of development:

- (a) The construction of appropriately designed machines at an economical cost.

- (b) Wind surveys to discover the best sites on which to locate these machines.
- (c) Studies of the means of utilisation to ensure, without expensive storage, the full and effective use of all the energy which becomes available.

If the above lines of development are followed, the wind energy converter designed must do the following:

- (a) Operate at a range of velocities from V_m to $3 V_m$ as 90% of the available wind energy seems to be in this region.
- (b) Be structurally strong enough to withstand wind gusts at high velocities.
- (c) Have a cheap and efficient energy storage system whose capacity is based on confidence level estimates of the duration of calms.
- (d) Must be able to sense and track automatically the wind direction with high static stability.
- (e) Be as tall as structurally possible, or on elevated land, as the wind speed increases with height as given by the equation.

$$V = V_1 \left(\frac{h}{h_1} \right)^{1/5}$$

In conclusion, it has been found that a wind energy converter can always be justified economically for:

- (a) low power applications ($< 5 \text{ kW}$) when $V_m > 4 \text{ m/s}$,
- (b) high power applications ($> 30 \text{ kW}$) when $V_m > 6 \text{ m/s}$.

Types of Wind Energy Converters

Wind energy converters can be divided into several classes depending on their orientation to the wind stream, horizontal and vertical axis, or whether free or shrouded. A turbine's output in a uniform flowfield will be increased if the same turbine operates in a free vortex field generated by some form of shroud. However, the static stability of such shrouds presents many more problems as well as the large cost of making a shroud of any reasonable size.

Horizontal axis machines can have either high or low solidity. The low solidity designs are of the propeller type with good aerodynamic efficiency. They offer high power to weight ratios and efficiencies; also because of their high blade tip speed to wind speed ratio they are best suited for large-scale generation of electrical power. However, their static stability, high initial cost, low starting torque and high initial working wind speed V_0 , makes them applicable to only a few "ideal locations". The high solidity turbines are of the American multiblade rotor design.

These have high starting torques and good efficiencies. Although many have been built and successfully used, their performance does not always justify their cost as has been shown by the experiences of Tanzania and India.

The vertical axis type wind turbine also varies between low and high solidity designs. Two of the solidity designs are the Darrieus and Gyromill. These have rotors of airfoil section and although their tip speed ratios are low, their efficiencies are high. They compare very favourably with the propeller type horizontal axis machines at lower cost and without static stability problems. Their big disadvantage is their low starting torques; in the case of the Darrieus rotor, it is so low that the turbine is not self-starting. This limits the use of these turbines to high technology applications where the cost of starting motors can be justified along with the cost of constructing the aerofoil sectional rotor blades.

High solidity, resistance type vertical axis wind turbines, such as the Savonius rotor, the Chinese sailmill, and the Pedal wind turbine which have been reported in the literature, have high starting torques and are suited to direct mechanical applications, such as pumping water. But their constructional costs do not justify their application in most cases.

Wind Power Applications in Jaffna

Recent studies done by the Department of Irrigation (Sri Lanka) and others have indicated that tapping of wind power for irrigation purposes with existing types of wind machines will not be economical in Sri Lanka at the present time. These studies have emphasised the need to evolve simple, but elegant designs for windmills which can be fabricated with locally available materials and with local skills.

The Proposed Design

The windmill (see Figure 2) consists of a vertical shaft AA supported on bearings. The shaft supports two horizontal arms XX and YY, which in turn support a rectangular frame, PQRS, covered by a sail cloth. The rectangular frame is free to turn about one of its vertical sides, PQ, but its rotation is restricted to $\pm 45^\circ$ from the plane of the supporting arms by means of two strings s_1 and s_2 .

— Page 81.

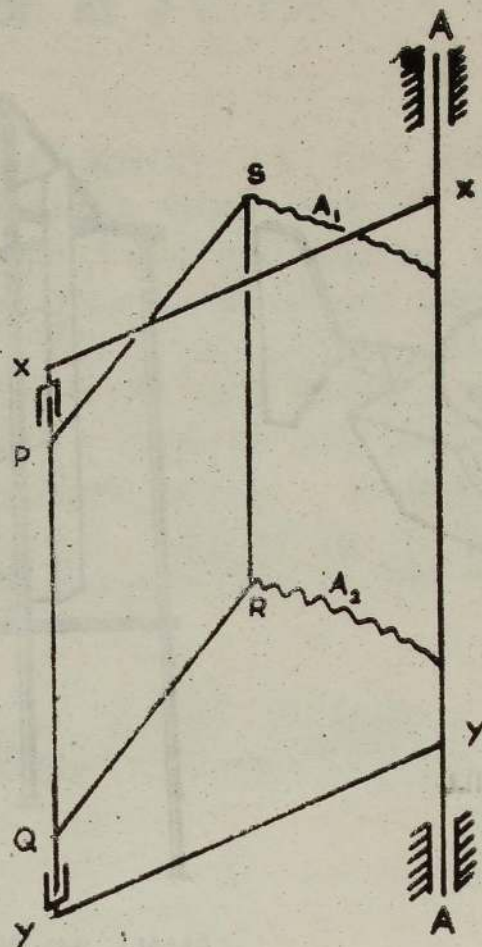


FIGURE - 2

The arms XX and YY along with the shaft AA will oscillate under the action of wind force between the extreme positions (shown in the figure 3 below.) At these positions the sail shows its edge to the wind and subsequently swings through 90° to face the wind.

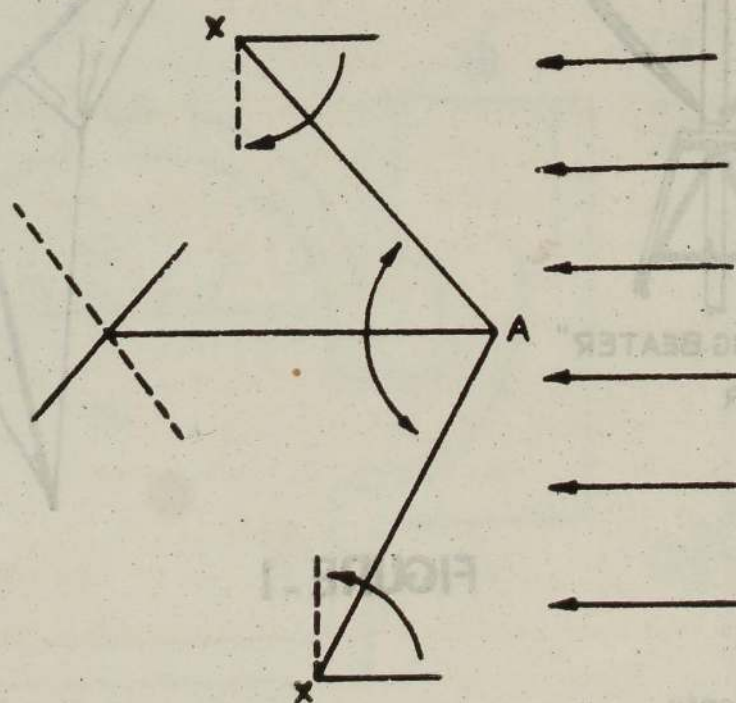
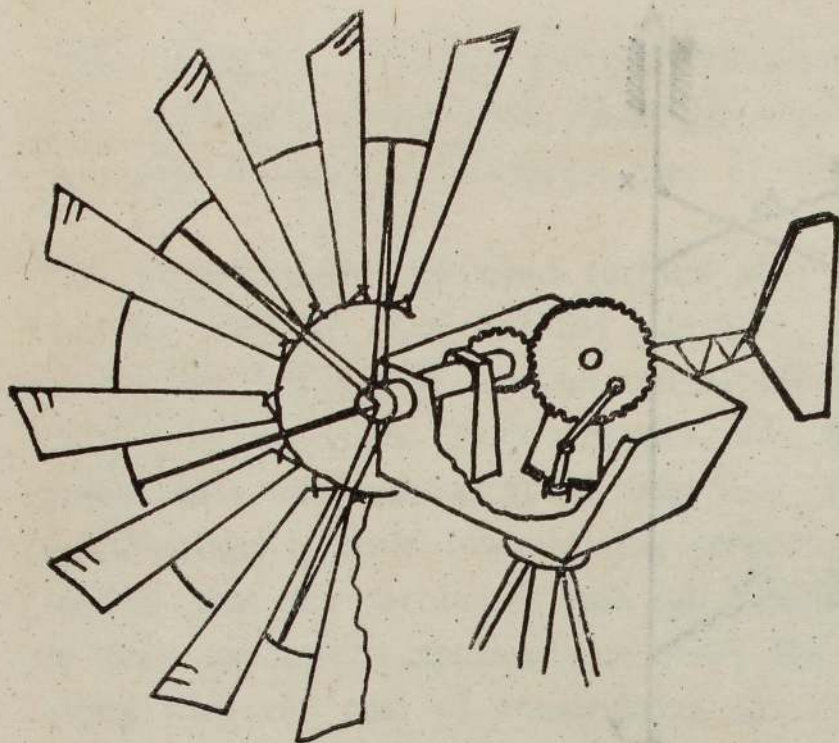
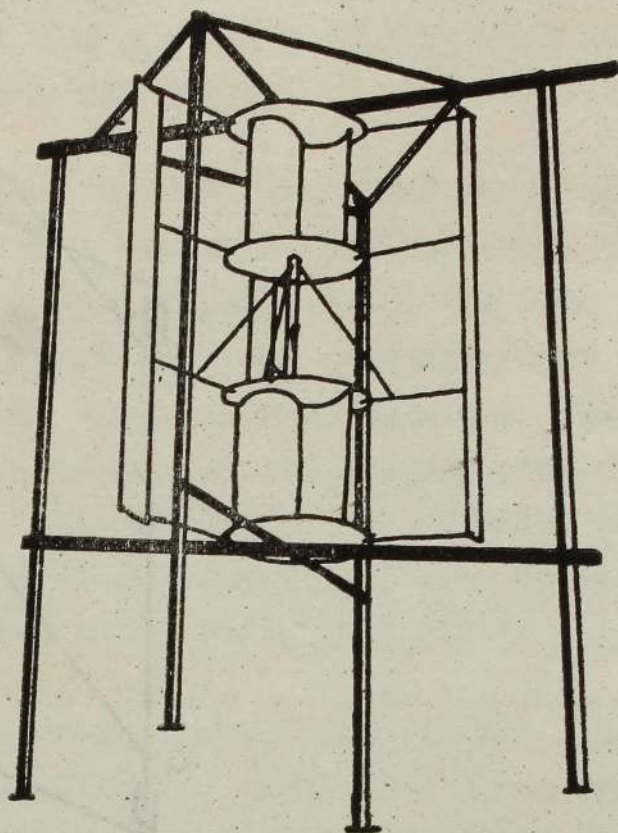


FIGURE - 3

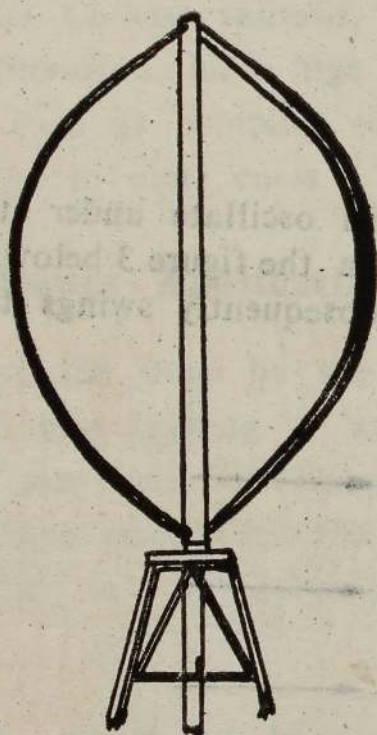
Figure 1 shows the various types of Windmills — vide page 82.



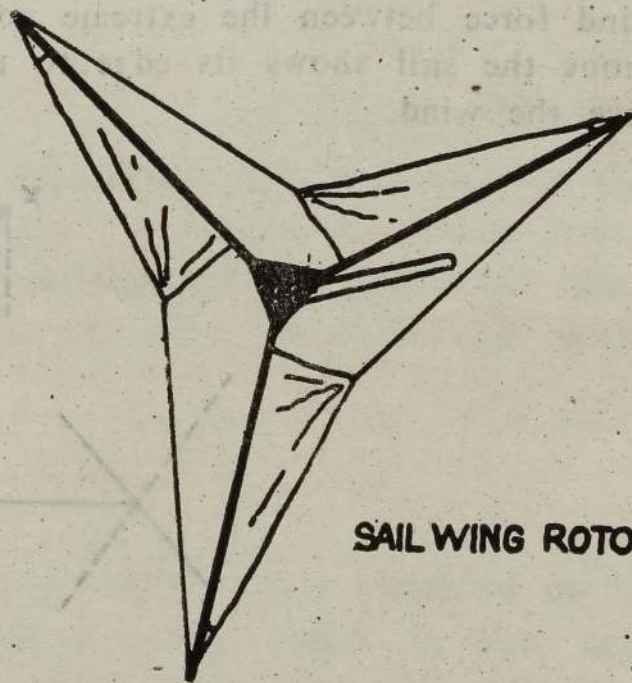
AMERICAN FARM WIND MILL



SMALL SAVONIUS ROTORS, HELP ACCELERATE THIS STRAIGHT-BLADED DARRIEUS ROTOR THROUGH THE STALL REGION



DARRIES "EGG BEATER" TYPE ROTOR



SAIL WING ROTOR

FIGURE -1

B. Eng. Course students

(A programme of study undertaken by the B. Eng. Course students under the guidance of Dr T. Vinayagalingam at the Jaffna College Institute of Technology to evolve a wind-mill which could be used for lift irrigation in the Jaffna peninsula. — Ed.)

BIO - GAS Production at J C T I

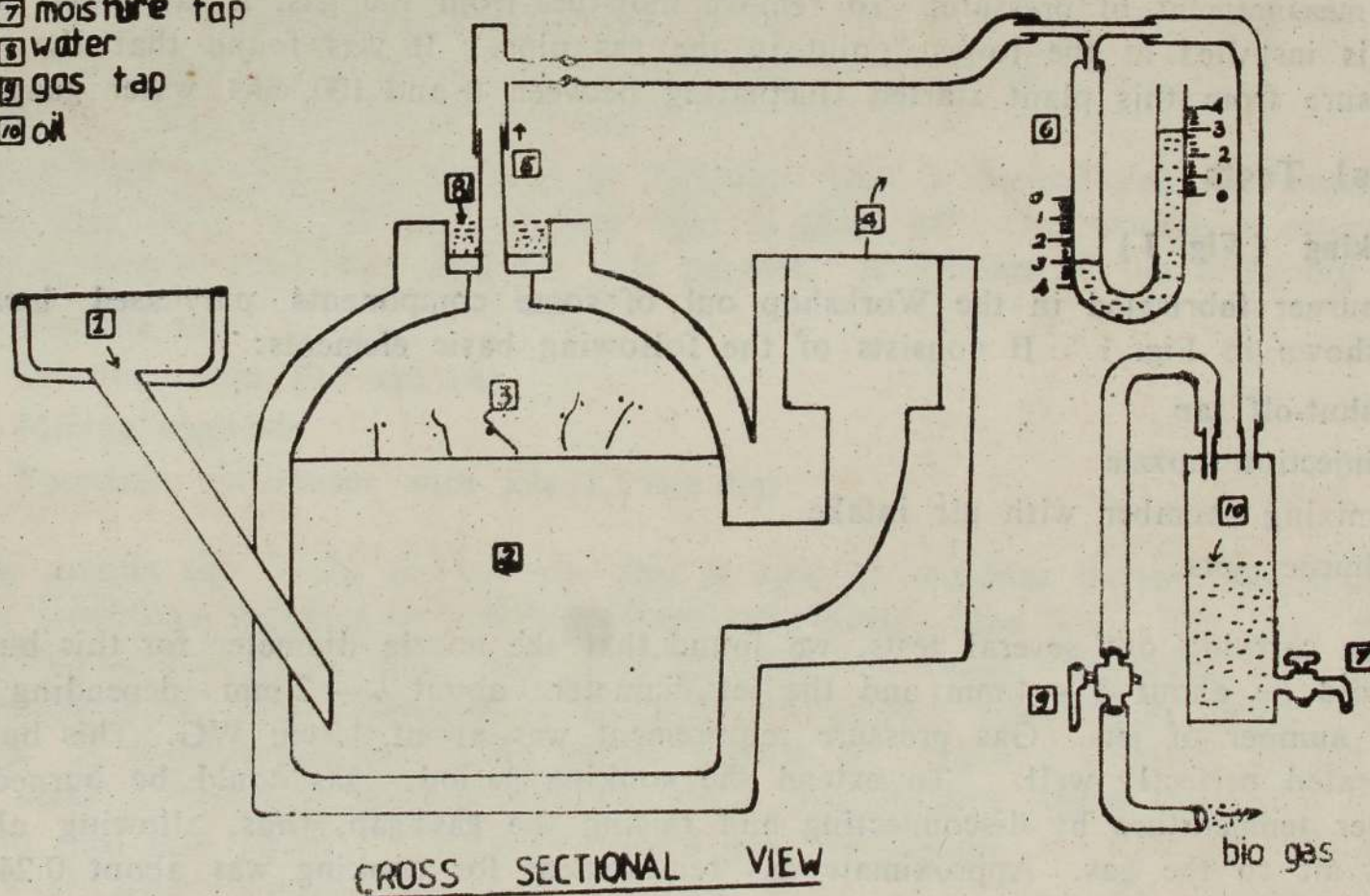
General

Bio gas is produced by the activity of tiny invisible living organisms called bacteria which decompose organic waste material in the absence of air. Since Bio gas considerably improves living and housing conditions, an ever-increasing number of people have learned to appreciate the value of this technology. Therefore, this technology should be made a part of agricultural training programmes and should be taught in the University and Technical Colleges. Long-term preparatory education should emphasise the need to include Bio gas being treated as a subject in schools for later implementation. Models of Bio gas plants should be made available in all institutes, giving the students all opportunities to gain knowledge in the theoretical and practical aspects of the Bio gas technology.

For example:

BIO GAS PLANT

- 1 filling
- 2 digester
- 3 gas dome
- 4 unloading
- 5 gas pipe
- 6 water manometer
- 7 moisture tap
- 8 water
- 9 gas tap
- 10 oil



Project Work

With this idea in mind the Jaffna College Technical Institute decided to build a Bio gas plant within the Institute premises. A Chinese dome type gas plant was selected and the final year Mechanical Engineering technician students were given the opportunity of studying and carrying out trial tests as part of their project work. The 5 cubic metre-capacity plant was built at a cost of Rs. 6,000/- within a week's time. In order to maintain a uniform temperature between 25° & 35° C and to prevent the temperature from varying, the Bio gas plant is buried in the ground. Even though all organic materials, except wood, are suitable for the Bio gas plant, we fed our plant with cow dung as it is enriched with bacteria in the cow's stomach. By using cow dung we were able to eliminate any mal-functions in the digesting process. Since this is a continuous plant, it has to be fed regularly.

The gas collector, dome and the digester form one unit. Gas is practically stored in the upper part of the digester. The construction comprises hardly any metal parts, thus, excluding the problem of corrosion. The gas produced presses the slurry into the inlet and outlet chambers. Gas pressure changes according to the gas volume inside the dome. The joints of the pipes are sealed with sealing paste. All lines were tested thoroughly for leaks with soap & water solution. The gas pipe around the dome is taken up vertically to about head height so that it cannot become blocked if the gas holder is empty. A shut-off valve is fitted at this point. A water manometer is installed between the dome and the tap point for measurement of pressure. To remove moisture from the gas, a tap filled with oil is installed at the lowest point in the gas pipe. It was found that the gas pressure from this plant started fluctuating between 0 and 100 cms water gauge.

Trial Tests

Cooking (Fig. I)

A burner fabricated in the Workshop out of some components purchased locally is shown in Fig. 1. It consists of the following basic elements:

- 1 shut-off tap
- 2 injection nozzle
- 3 mixing chamber with air intake
- 4 burner jets.

After carrying out several tests, we found that the nozzle diameter for this burner should be about 3 — 4 mm and the jet diameter about 1 — 2 mm depending on the number of jets. Gas pressure requirement was about 15 cm WG. This burner operated perfectly well. To extend the cooking period, gas could be burned at lower temperature by disconnecting and raising the gas gap, thus, allowing about 30% air to the gas. Approximate gas requirement for cooking was about 0.24 m^3 /person / day.

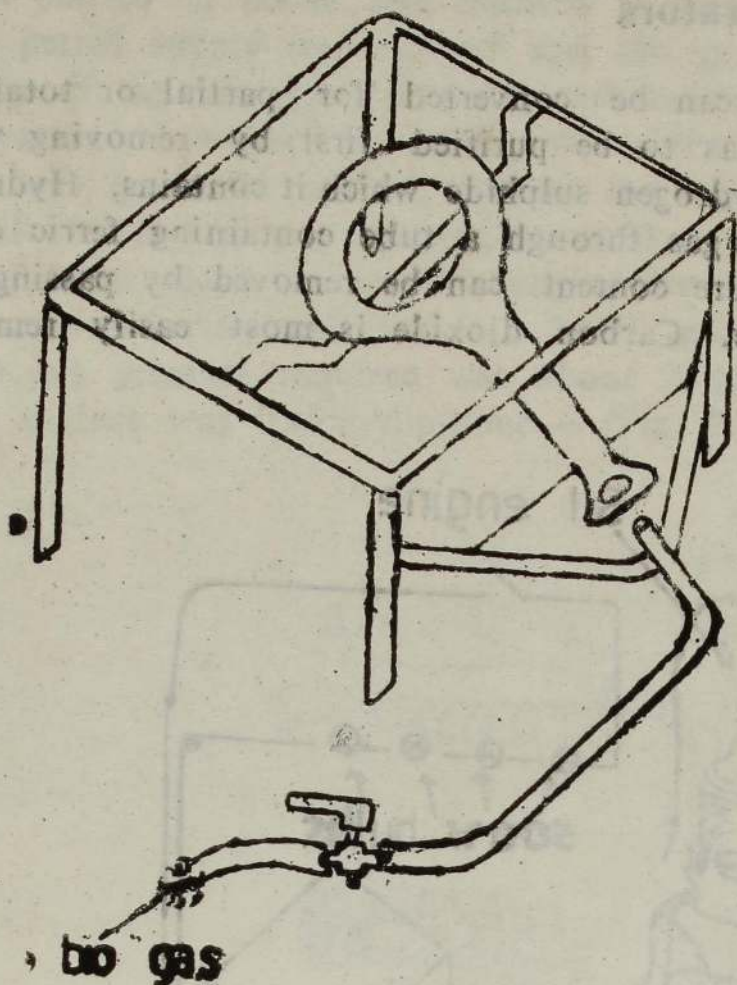


FIG-1

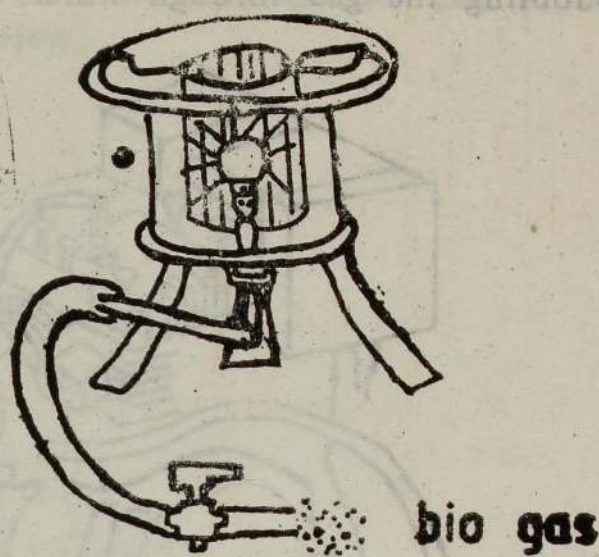


FIG II

Lighting (Fig. II)

The principle of the gas lamp is as follows: Gas is burned and the mantle of the lamp glows in the heat so that light is given off. Our workshop assembled-simple mantle lamp was used for this purpose. It consists of the following:

- 1 Shut-off tap
- 2 Injector nozzle (0.7 mm dia)
- 3 Mixing chamber
- 4 Porcelain distributor with jets (1.5 mm dia)

The mantle can be of similar type that is used in petromax lamps. The minimum gas repressure required to light this lamp was about 12cm WG. The best nozzle adjustment found by trial and error method is about 1 cm from the mixing chamber pipe. The brightness of the light was greatly improved by using a petrol trap. It enriches the gas which passes through it. Tests are being carried out to make a combined lamp & hotplate which will be very useful since they supply both heat and light. The approximate gas requirement for lighting was about $0.14 \text{ m}^3 / \text{person} / \text{day}$.

Motive Power for Pumps & Generators

Kerosene and Petrol engines (1 to 5hp) can be converted for partial or total use with Bio gas. However, the Bio gas has to be purified first by removing water vapour, carbon dioxide and traces of hydrogen sulphide which it contains. Hydrogen sulphide can be removed by passing the gas through a tube containing ferric oxide or 30% caustic soda solution. Moisture content can be removed by passing the gas through a tube of calcium chloride. Carbon dioxide is most easily removed by bubbling the gas through water.

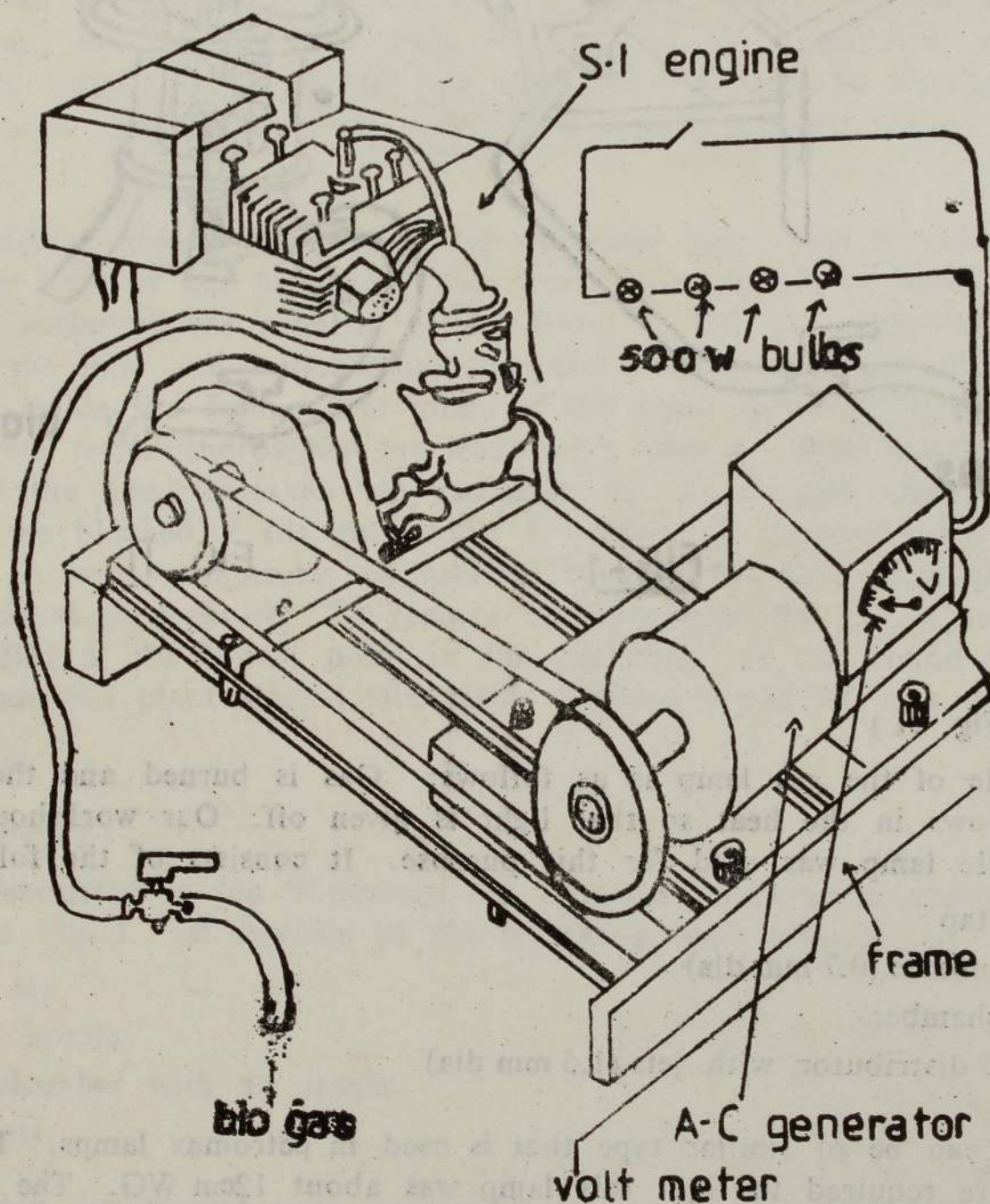


FIG - III

A partial conversion was carried out on a 3 hp petrol kerosene engine. — (Fig. III) above. The gas supply was given to the choke tube of the carburettor. The engine was

first started in petrol and allowed to run until it was smooth and warm. Then the petrol supply was cut off and the gas tap was opened slightly. The initial entry of the Bio gas into the carburettor caused some choking and irregular operation; however, by cutting down the air supply this was controlled. The gas tap was gradually opened, whilst the adjustments were made to the air supply until the engine was running smoothly. After this the engine continued to run on Bio-gas alone. Later, this engine was coupled to a water pump to pump water from the near-by well and to a 2 kW generator to produce about 180 volts supply. The gas pressure required was about 24 cm WG. The approximate gas requirement for engines was $0.45 \text{ m}^3/\text{hp}/\text{hour}$ — (Fig. IV below)

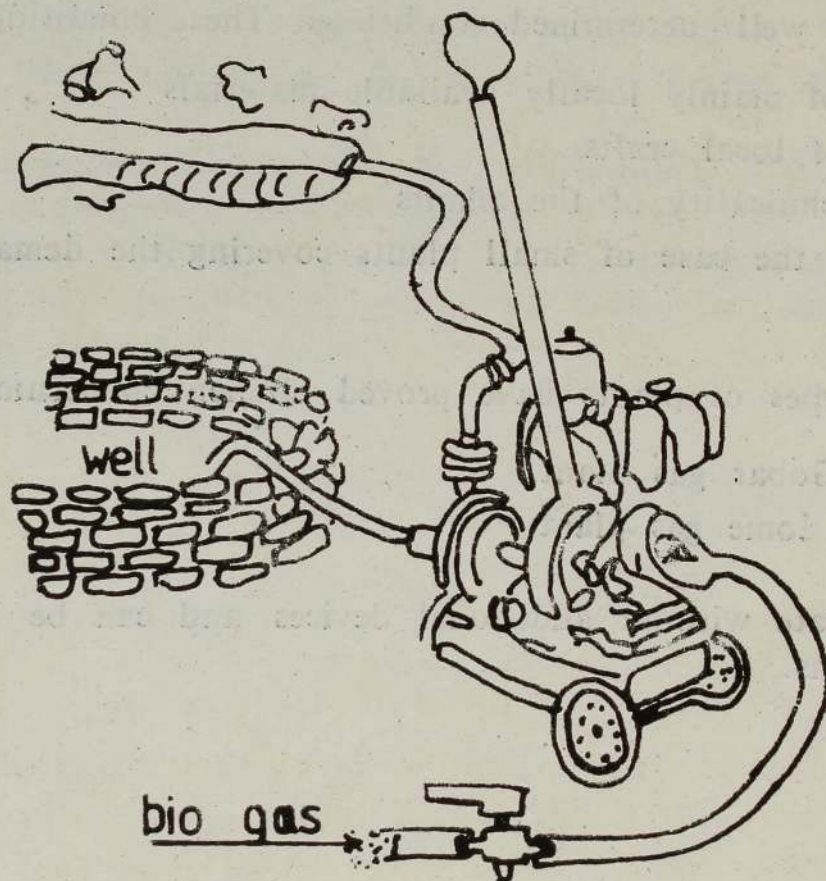


FIG - IV

Findings

The plant used for the tests is a continuous plant. Its digester was charged on alternate days and the Sp. gravity of the charge was maintained at 1.2 by the help of a hydrometer. It had been found that the rate of gas production was high between the first ten and thirty days. Mixing of the digester contents with a vertical auger for 10 minutes every one hour provided stable gas production. It was found that the optimum dung/water ratio was 1:4. The air gas mixture ratio for the best possible combustion would be approximately 4.5:1. Therefore, gas devices originally made for natural or L.P gas have to be modified for Bio gas.

For generation of electricity, bio gas plants with capacity more than 20 m³ gas production/day is recommended and the proper use of waste heat should also be taken into consideration. The subsequent change of diesel-or petrol-operated engines to bio gas can be effected without great technical efforts. Practically, only the carburettor has to be adjusted. With otto engines the carbon dioxide of the gas may lead to difficulties in ignition. The composition of the feed material has possibly to be changed in consideration of this fact.

Conclusion

Bio gas plants are of comparatively simple construction, and especially appropriate for the rural areas in the developing countries. In rural areas these plants will have to fulfil certain well - determined conditions. These conditions are:

- i) Utilization of mainly locally available materials
- ii) Utilization of local crafts
- iii) Minimum technicality of the plants
- iv) Efficiency in the case of small plants covering the demand of one or two families.

The following two types of plants have proved efficient concerning these conditions.

- i) The Indian Gobar gas plant
- ii) The Chinese dome gas plant

Both plants can operate without additional devices and can be built locally with relatively simple means.

The above article is the result of a project undertaken by Mr. S. A. P. Thuraiaratnam, Senior Lecturer & Head, Dept. of Mechanical Engineering, with the collaboration of his students, P. W. Navarajah and B. Jeyaseelan

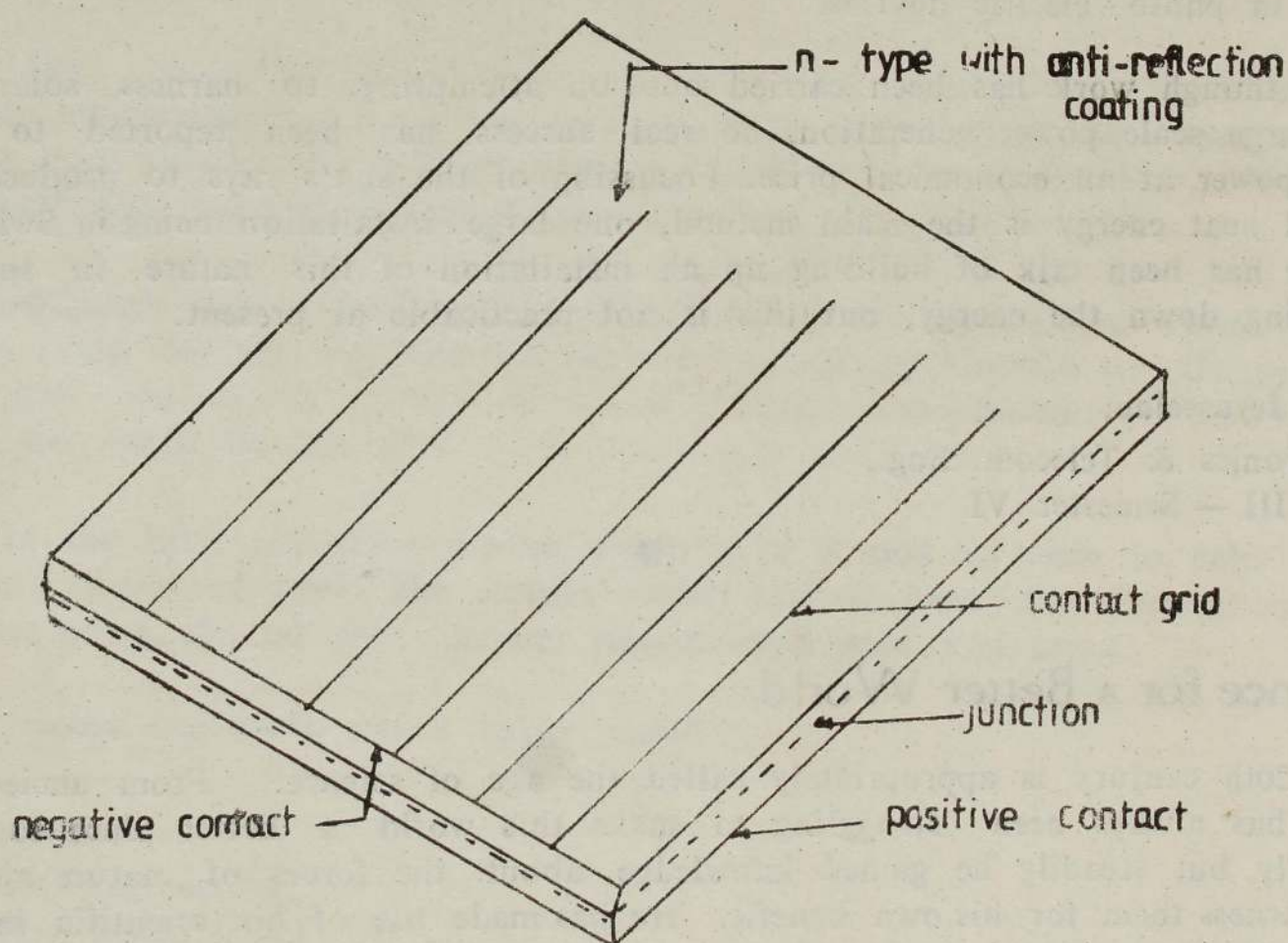
Ed.

Solar Energy

Although it has been appreciated by scientists for a very long time that solar energy represented a vast source of supply, very little has been done in the past to tap it. Within the last few years, however, interest in this field has quickened and today there are many practical devices in operation.

The main component is the solar cell. This is a thin disc of pure silicon containing a minute quantity of boron (or similar substance) to give the silicon a negative potential. A layer of P-type material — a few microns thick — is diffused on to the upper surface of the disc and the ends lapped over the perimeter. This portion is then enclosed in a containing case with a glass face, the top surface of the disc being filled with silicon grease to prevent loss by reflection.

As will be seen from the description, the arrangement, broadly speaking, is similar to that found in a transistor where electrons flowing from the n-plate to the 'holes' of the p-plate constitute a current. In the solar cell, power is produced by this process at the barrier junction. Solar energy has been the primary source of power for space craft since 1958.



The basic components of a solar cell are shown in the accompanying diagram. A slice of single crystal silicon, typically 20 mm x 200 mm and .00 μ m thick, forms the energy conversion component. In the n on p configuration a shallow

junction is formed by diffusing phosphorous into the boron-doped crystal. Metal contacts are plated or evaporated on the front and back of the cell and the active surface is coated with silicon oxide or titanium oxide anti-reflective layer.

A solar cell of this nature operating at 250°C in normal sunlight above atmosphere has a short-circuit current of 140 — 150 mA and an open-circuit voltage between 530 mV and 580 mV: the latter is independent of the area. The maximum power is between 55 mW and 65 mW and is obtained between 400 mV and 500 mV. The output falls as the cell is turned away from the sun approximately as the cosine of the angle of incidence. A rise in temperature causes a sharp fall in conversion efficiency which is about 11% maximum. An 80° rise will halve the output.

As bare silicon is a poor emitter, a cell is covered with glass or fused silica. This cover, together with a highly emissive back surface, limits the steady-state temperature of a sun orientated array to about 60°C . In space applications the cover also provides some protection against radiation and micrometeorites. Many other solar cell materials have been studied for space applications but the only serious contenders are gallium arsenide and polycrystalline cadmium sulphide. Both have failings compared with silicon. However, cadmium sulphide cells are used in photo-electric devices.

Even though work has been carried out on attempting to harness solar energy for large scale power generation, no real success has been reported to provide this power at an economical price. Focussing of the sun's rays to produce concentrated heat energy is the main method, one large installation being in Switzerland. There has been talk of building up an installation of this nature in space and beaming down the energy, but this is not practicable at present.

K. S. Jeyaseelan,

Electronics & Telecom. Eng.,
Year III — Semester VI



Science for a Better World

The 20th century is appropriately called the age of science. From ancient times man has always been struggling to make this world a better place to live in. Slowly but steadily he gained knowledge about the forces of nature and began to harness them for his own benefit. He has made use of his scientific knowledge to make this world a better place.

Science has shown man how he can apply the scientific principles he discovers to invent all sorts of gadgets, instruments and machines. From the smallest

precision instrument like a lady's wrist watch to the modern large super-sonic luxury jet air-liner, man has utilised his knowledge of science to the fullest. The wide range and variety of scientific inventions he has made are so numerous that one is lost in a world of machines and instruments.

Seated comfortably in the drawing room of our homes under an electric fan, we listen to the news from a country on the other side of the world over the radio or watch a T.V. programme eating ice-cream fresh out of the 'fridge'. The telephone rings, a long distance call comes through, you speak to a friend or a relative in another continent. You book an air - passage and take your seat in a modern luxury air - liner. You fly above the clouds, over oceans, mountains and plains enjoying a film on board or have a sumptuous meal or do a cosy nap and land in another part of the world in a few hours. Science has thus reduced time and space.

Science has made man to conquer many diseases which fifty years ago were considered fatal. The mortality rate has been lowered and the span of life increased. Medicine and surgery have advanced so much that human lives are snatched out of the very jaws of death. We are now replacing a defective organ of the human body with an artificial one or a transplant.

In the field of agriculture, science has played a great part. Machines have flattened mountains, filled up valleys, dammed up rivers and have made available to man wide acres of arable land and water all round the year. Mechanized agriculture and scientific fertilizers have increased the yield four-fold.

The instruments in the cockpit of a modern plane are marvellous. The pilot in a night flight depends one hundred per-cent on his instruments to take you safe across half the world in the midst of storms, over mountains and oceans. Science has made this possible.

Think of the little ingenious devices we have in a modern home to help us in our daily chores of work. The electric cooker and the oven; the washing machine, the water pump, the polisher, vacuum cleaner, and what you name.

Truly, science has made this a better world.

B. Jeyaseelan,

Mechanical Engineering,
Year III — Semester VI



The Centre Lathe Machine

Today our country from being agricultural in origin had developed vastly in industrialization. Its development can be seen particularly in the metal industry. Many machines are used in the metal industry. The centre lathe is one of the most important of these machines. This machine is found in different sizes and is used for different works.

The centre lathe machine consists of four important parts. They are:

- i) the bed
- ii) the head stock
- iii) the tail stock
- iv) the carriage

i) The bed is of two kinds. One is the gap bed and the other is the solid bed. A workpiece, a little longer than the solid bed lathe, can be fitted to the gap bed lathe and the turning operation can be done. The bed of a lathe is heavy-ribbed cast iron on the top 'V' type ways machined up its length to align with the head stock and tail stock and to guide the carriage along its length.

ii) The head stock is clamped on the left hand side of the bed. The head stock spindle is the main part. This is a hollow cylindrical shaft, supported by bearings which provide a drive from the motor to the work holding device. The live centre and sleeve, a face plate or a chuck can be fitted to the spindle nose to hold and drive the work. The live centre has a 30° point which provides a bearing for the work to turn between centres. The spindle can be driven either by a cone pulley and belts or by gears in the head stock. The lathe with a cone pulley drive is generally called a belt-driven lathe.

iii) The tail stock is made up of two units. The top half can be adjusted at the base by two adjusting screws for aligning the dead and live centres for parallel turning. These screws can be used for off-setting the tail stock for taper turning between centres. The tail stock can be locked in any position along the bed of the lathe by tightening the clamp lever. One end of the dead centre is tapered to fit in the tail stock spindle, while the other has a 60° point to provide a bearing support for work turning between centres. Other standard tapered tools, such as reamers and drills, can be held in the tail stock spindle. A spindle binding lever or lock handle is used to hold the tail stock spindle in a fixed position. The tail stock hand wheel moves the tail stock spindle in or out of the tail stock casting. It is also being used to provide a hand wheel for drilling and reaming operations.

- iv) The carriage supports the cutting tool and is used to move it along the bed of the lathe for turning operations. The carriage consists of two main parts — the saddle and the apron.

There are many holding devices to hold the work piece on the lathe machine, such as, the three-jaw universal, chuck, four-jaw independent chuck, combination chuck, collet, face plate magnetic chuck. They are used in different kinds of turning operations of the work piece. These holding devices are fitted to three types of head stock spindle. They are the threaded spindle nose, tapered spindle nose and the cam-lock spindle.

The three-jaw universal chuck is used to hold round and hexagonal work. It grips the work quickly and within a few thousandths of accuracy effective because the three-jaw moves together when adjusted by the chuck key.

The four-jaw independent chuck with its four jaws, each of which adjustable independently by a square end chuck wrench, is used to hold square, hexagonal and irregular shaped casting. The jaws can be reversed to hold the work by the inside diameter.

The combination chuck has the mechanical features of both the independent and universal chucks. The jaws can be operated individually by a screw or universally by turning the adjusting socket which operates the bevel gear-driven scroll. This chuck is used for the same purposes as the three-jaw universal chuck and the four-jaw independent chuck described in the foregoing.

The centre lathe machine is effective in performing a variety of functions, amongst which are parallel turning, facing, taper turning, parting, drilling, reaming, boring, screw cutting; and of these, screw cutting is the most difficult operation.

K. Srinagarrooban,
Machine Shop Practice (Craft),
Year 1 — Semester II (Final)

English Elocution Contest—1986

In the context of technological studies when active Speech Making is usually kept at a minimum and the accent more often than not is on doing, one may visualize the difficulties the organisers of a Speech Contest in English would encounter in coaxing the students to participate in oratorical or elocution contests. However, consequent on the inspiration infused by the Director and the practice initiated since 1984, we have been successful in evoking a fair response from a cross-section of the students engaged in the differens courses of study.

This year a respectable number of students came forward not only to demonstrate how they could in their own way, mouth, intone and articulate but also to reach heights that would warm the cockles of the hearts of the Apostles of not Received Pronunciation but of Sri Lankan English.

The Contest was held on the 11th of November 1986, commencing at 11 a.m. with the Students' Union in over-all charge. The students were divided into four groups according to the duration of the courses as follows :

GROUP I : First Years and One to One - and - a Half Years

GROUP II : Second Years

GROUP III: Third Years

GROUP IV: Crafts

The following members of the staff officiated as Judges :

Dr. T. Vinayagalingam

Mr. E. M. Jebarajah

Miss. M. Appathurai

Results of the Contest:

GROUP I:

First :	G. Rathani (Miss)	—	Computer Studies
Second :	K. Selvamani (Miss)	—	Computer Studies
Third :	S. Selvanayakee (Miss)	—	Computer Studies

GROUP II:

First :	N. Nanthini (Miss)	—	Electronics
Second :	K. Krishnakumar	—	Electronics
Third :	No award		

GROUP III:

First :	S. Jeyaseelan	— Electronics
Second :	{ S. Manjula (Miss) B. Jeyaseelan	— Civil Eng. — Mech. Eng.
Third :	T. Terry Jenorge	— Electronics
Commended :	N. J. Mahilrajan	— Electronics

GROUP IV:

First :	K. Sri Nagaroooban	— Machine Shop Practice
Second :	No Award	
Third :	No Award	
Commended :	K. Thevarajah	— Foundry

While we offer our congratulations to the winners of the various Groups, we also take this opportunity to thank all participants for their courage, enthusiasm and co-operation, and the Students' Union Executive Committee for its assistance in conducting the Contest.

We thank the Judges for the patience with which they sat through a four - hour ordeal and returning their verdicts in no uncertain terms.

Finally, our sincere thanks are due to the Director for his kind gesture in permitting us the use of the Assembly Hall and for his unswerving persistence in the holding of this Contest as an annual feature of the Institute.

Mathini Appathurai,

On behalf of

The Organising Committee

STUDENTS' UNION

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1986 / 1987

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S. Navendran	— Computer Programming Module I
W. S. Tharmaseelan	— Computer Programming Module II
N. Koneswaran	— Turners & Fitters
P. Gnanapiragasam	— Foundry Practice
K. P. Thirukumar	— Welding Practice
S. Suganthan	— 1st Year Mechanical Eng.
K. S. T. Pushparajah	— Bachelor of Engineering
— From Jan. 1987	
S. Nimalakumar	— Draughtsmanship I
K. Arulnesan	— Draughtsmanship II
— From Jan. 1987	
T. Santhakumar	— Electrical Installation Practice

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STUDENTS' UNION

OFFICE - BEARERS

1987 / 88

Patron	: Mr. M. G. Pillainayagam
Vice Patron	: Mr. S. A. P. Thuraiatnam
Advisory Committee	: Mr. A. M. Spencer Mr. R. S. Ratnagobal Mr. E. M. Jebarajah Mr. I. Balasubramaniam Mr. M. Thayananthan
President	: L. Theivendrarajah
Vice President	: K. Kukenthiran
Secretary	: N. Omkararuban
Asst. Secretary	: Miss. N. Nanthini
Treasurer	: T. Sriravindran
Sports Monitor	: R. Sabeswaran
Asst. Sports Monitor	: M. Thatparan
Fine Arts Society - Secretary	: S. Suganthan
Editor	: N. P. Prasanna
Sub Editor	: K. Jeyatheran
Common Room Monitor	: Miss. R. Thevagi

Course Representatives

K. Kajendrakumar	— Bachelor of Engineering
S. Satkurunathan	— Diploma 1st year
S. L. Banchanathan	— Draughtsmanship I
K. Ketheswaran	— Draughtsmanship II
V. Sugunakumar	— Computer Module I
W. S. Tharmaseelan	— Computer Module II
K. Kunarajah	— Airconditioning & Refrigeration
S. Kugathanan	— Automobile Technology
K. Ragulagaran	— Wiring Installation Practice
J. Mariaseelan	— Machine Shop
K. Thesan	— Welding
K. Kanesan	— Foundry

Reports of the Students' Union — 1986/87

[i] Semester One, July — December 1986

As Secretary, I present here my report for Semester One of the Academic year, 1986 / 87.

During the period under review regular meetings and special functions were held. These served to evoke much enthusiasm from the members and were very fruitful indeed.

A general meeting of the Union was summoned on 01.04.87 to elect the office-bearers and course representatives for the academic year, 1986/87.

The following were unanimously elected to office:

<i>President</i>	: S. Jeyaseelan
<i>Vice President</i>	: R. Reginald Terrence
<i>Secretary</i>	: N. Gajendran
<i>Asst. Secretary</i>	: P. Anura
<i>Treasurer</i>	: S. Sathiyaseelan
<i>Editor</i>	: B. Jeyaseelan
<i>Sports Monitor</i>	: N. Thivakaran
<i>Asst. Sports Monitor</i>	: T. Vickneswaran
<i>Fine Arts Secretary</i>	: K. A. V. Thurairajasingam

Besides, the Director, the Patron of the Union, appointed the following members of the staff to the Advisory Committee:

Mr. S. A. P. Thurairatnam
Mr. I. Balasubramaniam
Mr. E. M. Jebarajah
Mr. A. M. Spencer
Mr. M. Thayananthan
Mr. R. S. Ratnagopal

Mr. S. A. P. Thurairatnam was also appointed to the prestigious post of Vice Patron of the Union.

The weekly general meetings were conducted on Wednesdays from 11.00 a.m. to 12.00 noon. During this allocated time we organised debates, panel discussions, quizzes & Elocution contests. We also had the privilege of listening to a guest speaker, Mr. N. Muralitharan, who spoke on 'First Aid and Health Care'. We extend to him our very sincere thanks.

For the first time in the history of the Union, instead of the conventional 'ragging', a Freshers' Welcome in the shape of a 'get-together' Tea was introduced and it was held on 9th July '86. This innovation has proved its worth in building up the morale of the student population and the practice, we hope, will continue to stay.

We successfully conducted the 2nd Inter-Hall Athletic Championship Meet with the co-operation of the staff and the Management. Our thanks are due to the Sports Administrator, Mr. K. N. Y. Maurice, the Sports Monitor, N. Thivakaran and the Asst. Sports Monitor, T. Vickneswaran for shouldering the entire burden of organising and running the Meet. I also extend my thanks to the donors of Challenge Cups & Trophies and all those who contributed in many ways towards making the Championship Meet a spectacular show.

A Cultural Drama "Nirasaigal" was put on the boards on 12th September 1986 by the students of Manipay Hindu College. An unprecedented crowd of drama-lovers gathered in the Abels Auditorium when the doors had opened. Proceeds were in aid of the Union's programme of development.

The Eleventh Institute Day celebrations came off on the 27th of September, bringing to a climax the three-day Exhibition towards which the staff and students had worked hard. The 27th was the final day of the show for the students passing out of the Institute this year.

The 'Saraswathi Pooja' was organised and celebrated on 12th October. A special address was delivered by Mr. K. M. Selvaratnam, a teacher of Karainagar Hindu College, which was followed by a violin recital by our own Kannan Koshty, a western musical feature and an item titled 'Esaivum Asaivum' by the Fine Arts Society. We thank Mr. Selvaratnam and all others for their contributions.

It is now my pleasant task to thank all those who spared no pains in helping me in the execution of my onerous duties and the Union in its manifold activities and, in particular, I consider it a rare privilege on behalf of the members, to extend our sincere gratitude to our Patron, Mr. M. G. Pillainayagam & our Vice Patron, Mr. S. A. P. Thurairatnam, for their abiding interest in and their eternal vigilance over the affairs of the Students' Union.

Nadarajah Gajendran,

Secretary

Semester Two, January – April 1987

I have been elected Secretary to cover the period January to April 1987, Semester Two of the academic year 1986/87, on the resignation of the former Secretary in December 1986 who was elected to office for the full term of one year.

The onus of reporting the activities of the Union for this period has, in the circumstances, fallen to my lot. The Union boasts of no outstanding achievements for me to record except that its aims and objectives have been more than fulfilled.

At the general meeting held on 21st January 1987, nominations received for the vacant posts of Union Secretary, Fine Arts Society Secretary and Editor, due to resignations submitted by the holders, N. Gajendran, K. A. V. Thuraijasingam and B. Jeyaseelan respectively, were accepted. As there were no rival candidates, the following were declared elected unanimously:

<i>Secretary</i>	: P. Anura
<i>Fine Arts Society Secretary</i>	: R. S. Ganesha
<i>Editor</i>	: P. W. Navarajah

We had the opportunity of listening to two Guest Speakers. Mr. K. Vadivelu, Divisional Health Officer, Jaffna spoke on 'Blood Donation & its Urgency' and to his appeal for donation of blood made at the close of his talk, a large number of students, girls as well as boys, readily responded. Mr. K. Maheswaran, leader of a musical group in Jaffna, expatiated at length on the subject of music in general. We thank them for their useful talks.

A Cultural Programme, now an annual feature, was presented on 2nd March 1987 by the Fine Arts Society under the auspices of the Union to which we extended our fullest support.

In the field of Sport & Games, Cricket and Indoor Games played a major role.

Before I conclude, I must thank the Patron and the Vice Patron for their help and guidance, the Sports Administrator for his encouragement in our sports programmes, the members and the office-bearers for their unstinted co-operation during my brief tenure of office.

Ponnampalam Anura,
Secretary

[ii] Semester One, July – December 1987

I give here the report for Semester One, ending December 1987.

During this period regular general meetings and special functions were held.

Elections and Appointments

A general meeting was convened on 22nd July 1987 by the outgoing Secretary, N. Gajendran, to elect the office-bearers and course representatives. All office-bearers were elected unanimously as follows:

<i>President</i>	: L. Theivendrarajah
<i>Secretary</i>	: N. Omkararuban
<i>Treasurer</i>	: T. Sriravindran
<i>Sports Monitor</i>	: R. Sabeswaran
<i>Editor</i>	: N. P. Prasanna
<i>Fine Arts Society - Secretary</i>	: S. Suganthan

The Director, Mr. M. G. Pillainayagam, as Patron of the Union, re-appointed Mr. S. A. P. Thurairatnam as Vice Patron and the following members of the staff to the Advisory Committee:

Mr. I. Balasubramaniam

Mr. E. M. Jebarajah

Mr. M. Thayananthan

Mr. A. M. Spencer

Mr. R. S. Ratnakobal

Weekly General Meetings

Weekly general meetings were conducted on Wednesdays from 11.00 a.m. to 12 noon. During this time we organised a debate, a poetry recital programme titled "Kavithentral" and quiz programmes.

Special Functions

The Freshers' Welcome, now an annual feature, was held on 16th September 1987.

A shramadana campaign was organised during the period 10th - 15th September 1987 to prepare the playground for the Inter-Hall Athletic Meet and Games.

The Twelfth Institute Day was celebrated on the 19th of September. Certificates and Diplomas were awarded to the passing out members of the Union.

The Saraswathi pooja was celebrated on 2nd October with great enthusiasm.

The Third Inter-Hall Athletic Championship Meet was conducted with the co-operation of the Staff and Management.

My sincere thanks are due in a large measure to our Sports Administrator, Mr. K. N. Y. Maurice and the Sports Monitor, Mr. R. Sabeswaran. I also take this opportunity to extend my thanks to the donors of Challenge Trophies and all those who contributed in many ways to the success of the Championship Meet.

This year a new Hall was introduced to accommodate the Institute of Agriculture, thus making the total number of Halls rise to four — BLUE, GOLD, GREEN and RED.

M. Omkararuban,
Secretary

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Reports of the Fine Arts Society — 1986/87

(i) Semester One, July — December 1986

As custom demands, I submit with pleasure this report on the work of the Fine Arts Society for the period under review.

Though handicapped by the manifold activities of the Institute clashing with our schedules, we have continued to provide cultural programmes in their various forms as in previous years in close collaboration with the Students' Union. We have filled in at short notice when the regular agenda for the Wednesday assemblies had not been arranged. Our programmes from year to year have brought to the surface the hidden aesthetic talents of many students so that we are now in the happy position to form our own Orchestra or Music Group.

In the past, the Institute Day was an event we eagerly looked forward to. Our Music Group, comprising gifted vocalists and instrumentalists, produced entertainment of a high standard. This year, I feel grieved to record that we were denied this honour.

Another occasion we faithfully observe during this period is the last day of Navarathiri Festival. Uninhibited, we make our presence conspicuous by the 'throb and beat' befitting the solemnity of the occasion. This year, too, our Music Group, popularly known as 'Kannan Koshty' presented a well-programmed treat that won the applause of the audience.

Concluding this report, I would like to thank the members of the Society for their whole-hearted co-operation and to our enthusiastic Director, we express our sincere gratitude for his advice and assistance in all matters.

K. A. V. Thuraijasingam,
Secretary

Semester Two, January — April 1987

By an unhappy turn of events, I had to accept the office of Secretary of the Fine Arts Society during Semester Two, January — April 1987 consequent on the resignation of the former Secretary during the previous semester and, hence, I have to take upon myself the responsibility of placing this report before you.

Taking all the work done by the Society into consideration, I am proud to record that the period under review has been one of success.

Of special significance to all, I wish to single out, is the Cultural Show that has now become an annual event of the Society. It was featured on 2nd March 1987 under the distinguished patronage of Dr. R. Balasundaram of the University of Jaffna, Thirunelvely, on a grand note.

The items presented included:

1. Dance recitals

- (i) Patham & Thillana — Miss. P. Jeyasakthy

Accompaniments

Natuvangam	— Mrs. Menaka Ravirajah
Song	— Mrs. Jeeva Ratnasabapathy
Violin	— S. Sivasothy
Miruthangam	— K. Sivakumar

- (ii) Peacock dance — Miss. T. Vasanthathevy

Accompaniments

Natuvangam	— Miss. T. Vimalini
Song	— Miss. A. Santhanaluxmy
Violin	— S. Sivasothy
Miruthangam	— K. Sivakumar

2. Naveena Kathakalacham depicting 'ஆயிரம் தலைவாங்கிய ஆழர்வமுதலி' a burlesque:

R. S. Ganesha, J. Punitharajan and S. Premanath

3. Musical Programme

Students accompanied by K. Sivakumar of the Kokuvil Technical College

4. Playlets:

- (i) Veham (வேகம்) : Computer Programming Module II students
Written and directed by N. Navendran of the same class.
- (ii) 'அப்பு கொழும்பிலை' : Students
written by K. Sritharan (Electronics Year I) and directed by
N. Pathamanathan (B. Eng. Year I)
- (iii) 'விடை மதிப்பற்ற நகை' : Students
Written by T. Vickneswaran (Electronics Year II) and directed by
N. Pathamanathan (B. Eng. Year I)

We thank our Chief Guest, Dr. R. Balasundaram, for his very instructive talk and for his kind presence in our midst during the three-hour programme and all participants on their creditable contributions.

Special mention must be made of the willingness with which the girls and the first-year students came forward to take part in the day's programme.

Finally, may I take this opportunity to thank all those who helped me in the performance of my duties and, in particular, our Director & Patron, Mr. M. G. Pillainayagam, for the personal interest and care he always takes in the well-being of the Society.

R. S. Ganesha,
Secretary

(ii) Semester One, July — December 1987

It is with a heavy heart that I present to you my report for the period under review.

We regret very much our inability to carry out our planned programme of activities in its entirety owing to the exacting times we had to live through. However, we managed to put on the boards a variety of entertainment under the title 'Vani Vizha'. The booms and cracks around and above provided gratis the background music in their crescendo and diminuendo.

'Vani Vizha'

1. *Dance* : N. Thamayanthie
2. *Speech* : T. Vickneswaran
3. *Villuppattu* : S. Suganthan, S. Sivasothy, K. Sritharan,
R. Sriskandaram, T. Vickneswaran
4. *Musical Program* : S. Anushia (Veena), C. Umarubini (Violin),
J. Vivekanandan (Miruthangam)
5. *Playlet:*
'Isaivum Asaivum' — S. Sivasothy, S. Suganthan, K. Sritharan,
T. Vickneswaran, L. Theivendrarah
6. *Musical Program* : A. Panchanathan (Vocal) J. Vivekanandan (Miru-
thangam), W. S. Tharmaseelan (Vocal), S. Sen-
thil (Guitar), T. Tharmeswary (Vocal)
7. *Drama:*
'Kural Thantha Silai' — directed by S. Sivasothy

The Cast (Order of appearance) :

பாரதியார்	— S. Sivasothy
ஐயர்	— S. Suganthan
கனகர்	— K. Sritharan
குடிகாரன்	— A. Harristhirurajan
காதலி	— N. Nanthini
பக்கத்து வீட்டுக்காரன்	— T. Vickneswaran
குடிகாரன்	— M. Thatparan
பாட்டாளி	— K. Kuhendran
காதலன்	— K. Jeyathevan
எடுத்துரைஞ்ஞர்	— T. Pathmavathy
சிறேனிடன்	— N. Rex
எடுத்துரைஞ்ஞர்	— R. Meenalagini
மீனாட்சியின் சிறேனிடி	— S. Anushia
மீனாட்சி	— T. Tharmeswary
பாட்டாளி	— S. Mailvaganam
எடுத்துரைஞ்ஞர்	— V. Sugunakumar
எடுத்துரைஞ்ஞர்	— R. Sriskandaram
வேதக்காரன்	— S. Arunakiri

It is with great satisfaction and a sigh of relief that I am proud to record that the programme was well-received as was evidenced by the rounds of applause drawn from the audience.

Before I conclude, let me thank all the members of the Society for their co-operation, our Vice Patron, Mr. S. A. P. Thuraiaratnam for his helpful advice, the President, L. Theivendrarajah, for his assistance and the Treasurer, T. Ravindran, for refreshments.

S. Suganthan,
Secretary

Report of the Radio Club

Students of the Final Year Electronics Course felt the pressing need of a radio repair workshop to carry out extensive repair work within the Course to enable them to become familiar with the application of the theoretical knowledge received in the lectures. This need was brought to the notice of Mr. E. M. Jebarajah, Course Co-ordinator, Departments of Electronics and Electrical Power, who obtained an allocation of Rs. 7,000/- from the authorities. This contribution provided the initial outlay for equipment required for a repair work-shop, and soon wires kept humming in a room in the Electronics Laboratory.

To run this work-shop a Committee of Management was duly elected at a meeting held on 23rd July 1986. The following were elected to office:

<i>President</i>	: N. Vivekananthan
<i>Vice President</i>	: R. A. Thayaseelan
<i>Secretary</i>	: M. Thayaparan
<i>Asst. Secretary</i>	: T. Terry Jenorge
<i>Treasurer</i>	: N. J. Mahilrajan
<i>Staff Adviser</i>	: Mr. K. Sri Ranganathan

As a first step, repairs to radio sets and electrical and electronic appliances brought by the members of the Club and the staff of the Institute were undertaken. No charges for repairs were made except for the components and the spares utilised for repair with a view to advertising and attracting customers.

The attendance was chiefly maintained by four or five members who were deeply involved while others came irregularly and so upset the normal smoothness of the work schedules. It is hoped that when interest is caught among the members and consistency in the aims and objectives of the Club is improved through programmed schedules this unhappy trend will cease.

I thank the members of the Club, Mr. K. Sri Ranganathan, our Staff Adviser, Mr. E. M. Jebarajah, Co-ordinator, Departments of Electronics & Electrical Power and his Staff for giving this infant Club a flying start.

I should record here that the concept of a Radio Club was the brain-child of our Director, Mr. M. G. Pillainayagam, and to him we owe a deep debt of gratitude.

M. Thayaparan,
Secretary

Games & Athletics

(i) Report for the Year 1986/87

The year past has seen a considerable change in the Institute's sports activities. We have gone through an extremely busy period of reorganisation and recovery and, whilst there is much still to be achieved, I am pleased to report, we are in a healthier position than we have been for several years.

The year began appropriately with the satisfactory resolution of the long-awaited hope of seeing a full-year's activities. The Sports Committee members were able to concentrate upon the reorganisation of the programme and the methods of operation.

For some time past, it was thought an impossible or difficult task, with an ever-changing population of students and a technical conscious staff, to schedule a full year's activities. To-day they cover all aspects of the Institute's sports activities and should provide a valuable reference for our future progress. I am delighted to take this opportunity both to thank all those who laboured to make this year eventful and to express my best wishes for a better year to the committee that takes over the reins.

The Inter-Hall Athletic Championships Meet was held on Saturday, 6th September, 1986. Dr. & Dr. (Mrs.) V. Nithiyananthan of the University of Jaffna were the Chief Guests who graced the occasion. This was the Second Championships in the series.

In order to see that our aims materialised, the Sports Committee planned to work out the activities on a Mini-Olympic pattern and were very successful at it. Inter-Hall competitions in Cricket, Football, Volley ball, Table-Tennis, Badminton, Carrom, Chess and Tug-of-War were completed in time to permit the torchbearers to run into the track to see Dr. Nithiyananthan declare open the 2nd Inter-Hall Athletic Championships at 1-30 p.m. on 6th September 1986. Students of the Jaffna College Agricultural Institute, Maruthanamadam, participated this year.

Results of the Inter-Hall Competitions

Events	Champions	Runners-up
1. Cricket	Yellow Hall	Blue Hall
2. Football	Yellow Hall	Red Hall
3. Volley ball	Yellow Hall	Red Hall
4. Table Tennis	Red Hall	Blue Hall
5. Badminton (Men)	Red Hall	Blue Hall

6. Badminton (Women)	Red Hall	Blue Hall
7. Carrom	Yellow Hall	Red Hall
8. Chess	Blue Hall	Yellow Hall
9. Tug - of - War	Yellow Hall	Blue Hall
10. Athletics	Red Hall	Blue Hall
11. Over - all Championships	Yellow Hall	Red Hall

The Hall with the best all-round performances was awarded the "Flag" Trophy. It was won by the Yellow Hall, scoring 22 points. Red Hall was a very close second with 21 points.

S. Jeyaseelan (Red Hall) was the Champion Athlete among men while Miss. R. N. Susithira (Blue Hall) became the Women's Champion. Incidentally, Miss. R. N. Susithira is a student of the J. C. Agricultural Institute, Maruthanamadam.

S. Jeyakumar (Yellow Hall) was awarded the Best Performance Cup for Men for Throwing the Discus to a distance of 78' 3" (24.07m). Miss. R. N. Susithira was awarded the Best Performance Cup for Women for her record-breaking run in the Women's 400 metres.

Football

Football's curtain-raiser, the Techno-Techni encounter, the third in the series was played for the M. Constantine Shield on 22.10.1986, the Techni side beating Techno team by 2 goals to 1.

Thereafter, we played six matches winning two, drawing two and losing two.

Results:

Vs Silver Stars S. C	— Won	3 - 1
Vs Lanka Cement Ltd	— Lost	3 - 2
Vs Manipay Hindu College	— Lost	1 - 4
Vs Jaffna Hindu College	— Won	4 - 3
Vs Brighton Sports Club	— Drew	1 - 1
Vs Vaddu Sports Club	— Drew	0 - 0

Cricket

Cricket occupied the entire Second Semester. After seven practice matches we launched out to test our strength in both the normal and overs-limited games. The results of the matches are: won two, lost two and drew three.

Results:

- Vs Jaffna College Golds XI** — Won by 5 wickets
S. Jeyaseelan scored 41 runs
K. Jeganathan and S. Jeyaseelan bowled well, capturing 4 wickets each.
- Vs Manipay Hindu College** — Drew
S. Jeyakumar top scored with 52 runs
- Vs University of Jaffna** — Lost by 187 runs
N. Thivakaran had the best bowling figures of 3 wickets for 53 runs
- Vs Skanthavarodaya College** — Drew
S. Jeyakumar and N. Thivakaran scored 111 and 65 runs respectively.
S. Jeyakumar has written his name in letters of gold in the annals of the Institute by becoming the first to score the coveted century for the Institute.
125 runs for 4 wickets between these two players is the first century partnership.
201 runs for the loss of 5 wickets by our team is the highest total scored in an innings to date.
- Vs Jolly Stars** — Lost by 9 wickets
N. Thivakaran scored 28 runs.
K. Jeyanathan and N. Thivakaran bowled well.
- Vs Lanka Cement Ltd.** — Drew
S. Jeyaseelan and S. Jeyakumar top scored with 39 runs each.
- Vs Private Medical College** — Won by 6 wickets
N. Thivakaran scored 25 runs.
S. Jeyaseelan bowled best capturing 3 wickets.

Volley-Ball

Volley-ball was confined to Inter-Hall Competitions and a few practice matches with teams within Vaddukoddai Grama Sevake Division. We are in the transition stage as regards the type of game. We have introduced the "Set-up" type of game and hope that we could conduct all the matches in the set-up type in the future.

In-Door Games

In Badminton we are yet to prove that we are a team for recognition. We played against the Jaffna YMCA, University of Jaffna and Jaffna College teams, in addition to a few practice games we had with other teams. The Jaffna YMCA and University Teams proved too strong for us. We hope to improve in the years to come with better guidance and coaching.

In Table-Tennis we were able to play a few friendlies with teams like Jaffna College and the Jaffna Y. M. C. A.

We are in the process of team-building as regards in-door games.

The following are the members of the respective teams of the Institute for the year 1986 / 87:

Football

1. N. Thivakaran (Captain)
2. S. Jeyaseelan (V. Captain)
3. M. Paramalingam
4. M. Gnanavel
5. N. Kuhesan
6. E. Jeyanesan
7. V. Wijayananthan
8. S. Surendran
9. R. Ratnarajah
10. R. Thirukumaran
11. R. Krishnadeva
12. S. Jeyakumar
13. T. Pakirathan
14. A. Jeyaputhiran
15. V. Thurai Rajasingam
16. N. J. Mahilrajan

Volley ball

1. M. Gnanavel (Captain)
2. N. Kuhesan (V. Captain)
3. S. Sathiyalingam
4. S. Nimalakumar
5. T. Sakthivel
6. S. Segar

Cricket

1. S. Jeyaseelan (Captain)
2. N. Thivakaran (V. Captain)
3. S. Nimalakumar
4. K. Jeganathan
5. S. Jeyakumar
6. M. Thatparan
7. T. Pakirathan
8. R. Muresh
9. W. S. Tharmaseelan
10. R. Sabeswaran
11. N. Naveenthiran
12. T. Vickneswaran
13. N. J. Mahilrajan
14. R. Thirukumaran
15. R. Rajkumar
16. B. Vasudevan

Badminton

1. S. Jeyaseelan (Captain)
2. T. Vickneswaran (V. Captain)
3. R. S. Wijayakumar
4. M. Gnanavel
5. S. Sathiyalingam
6. V. Visakanathan

Athletic Team

Men

1. S. Jeyaseelan (Captain)
2. N. Thivakaran
3. S. Sathiyalingam
4. R. Sabeswaran
5. P. Radhamohan
6. G. Muhunthan
7. K. Nithiyandanan
8. K. Jeyanathan
9. N. Naveenthiran
10. R. Rajkumar
11. M. Paramalingam
12. S. Surendiran

Women

13. T. Baheerathan
 14. R. Thirukumaran
 15. V. Visakathasan
 16. S. Thavarajah
 17. S. Anandalingam
 18. M. Sivapalan
 19. P. Sasiharan
 20. S. Chandrasekaran
 21. S. Jeyakumar
 22. T. Krishnatheva
 23. S. Sivapalan
 24. N. Kuhesan
1. Miss. R. N. Susithira (Captain)
 2. Miss. R. Subanthini
 3. Miss. T. Yoganandarani
 4. Miss. V. Jegasothy
 5. Miss. S. Vijayalatha
 6. Miss. N. Manchula
 7. Miss. V. Chandravathana
 8. Miss. T. Christina Nilani

The Students' Sports Committee consists of the following members:

Sports Monitor	— N. Thivakaran
Assistant Sports Monitor	— T. Vickneswaran
Cricket Captain	— S. Jeyaseelan
Vice Captain	— N. Thivakaran
Secretary	— S. Nimalakumar
Football Captain	— N. Thivakaran
Vice Captain	— S. Jeyaseelan
Secretary	— N. Kuhesan
Volleyball Captain	— M. Gnanavel
Vice Captain	— N. Kuhesan
Secretary	— S. Sathiyalingam
Indoor Games Secretary	— T. Vickneswaran
Badminton Captain	— S. Jeyaseelan
Ground Secretary	— R. Thirukumaran

Finally, I thank the members of the Students' Sports Committee, the Sports Administrator, Mr. K. N. Y. Maurice, and the members of the staff, Messrs. S. A. P. Thurairatnam, M. Thayanathan, S. Kantharajah, S. B. Dhivakaran, S. P. Raveendran and S. Devanathan for the assistance they gave me in working out our programme smoothly under very hard and trying conditions.

I wish my successor and the students a fruitful and enjoyable time in the coming year.

N. Thivakaran,
Sports Monitor

(ii) Report for July / December 1987

This semester we expected remarkable changes in our sports activities and for the better but due to the situation prevailing in Jaffna we could not go ahead with our plans.

Students' Union's appeal to the students to clear the grounds on "Shramadana" worked well. We were able to get the ground and the athletic track in shape for the 3rd Inter - Hall Athletic Championships.

The students of the J. C. Institute of Agriculture formed the 4th Hall — Green Hall — at the Championships.

The 3rd Inter - Hall Athletic Championships got under way on the 9th October 1987. Mr. Rajan Kadirgamar, Principal of Jaffna College, and Mrs. Mahilmalar Kadirgamar were the Chief Guests.

The Championships were held on the International pattern and were completed very successfully. The Inter - Hall Competitions in Cricket, Football, Volleyball, Table Tennis, Badminton, Chess and Tug - of - War were completed in September. The Championship torch was lit by the Athletic Captain and Mr. Kadirgamar declared open the 3rd Inter - Hall Athletic Championships at 1-30 p.m. on the 9th October.

Results of the Inter - Hall Competitions:

Events	Champions	Runners - up
1. Cricket	Blue Hall	Yellow Hall
2. Football	Blue Hall	Red Hall & Yellow Hall (Tie)
3. Volley ball	Yellow Hall	Blue Hall
4. Table Tennis	Yellow Hall	Red Hall
5. Badminton (Men)	Red Hall	Yellow Hall
6. Chess	Red Hall	—
7. Tug - of - War	Blue Hall	Yellow Hall
8. Athletics	Blue Hall	Yellow Hall
9. Over - all Champions	Yellow Hall	Blue Hall & Red Hall (Tie)

The Hall with the best all - round performance was awarded the "Flag" trophy. Yellow Hall won it by collecting 20 points while Red Hall & Blue Hall tied for the runners - up position with 17 points each.

Blue Hall won the Men's Championship with 92 points while Green Hall carried away the Women's Championship with 44 points. Blue Hall won the Trophy for the Over - all Champions for Athletics.

S. Vilvarajah (Blue Hall) was the Men's Athletic Champion while Miss. S. Sarathathevi (Green Hall) became the Women's Champion.

Football

The football programme was not carried out due to the situation that was prevailing in Jaffna then.

Teams:

Athletics

Men

- | | |
|-------------------------------|------------------------|
| 1. S. Sathiyalingam (Captain) | 14. S. Selvarajah |
| 2. R. Sabeswaran | 15. T. Vivekanandan |
| 3. S. Vilvarajah | 16. K. Gowritharan |
| 4. R. Selvarajah | 17. K. Kugenthiran |
| 5. S. Kugathan | 18. K. Kunarajah |
| 6. T. Vickneswaran | 19. N. Balamurugan |
| 7. K. Nithiyanandan | 20. S. Mahendran |
| 8. M. R. Prasanna | 21. S. Mylvaganam |
| 9. W. S. Tharmaseelan | 22. S. Massilamani |
| 10. T. Sriravindran | 23. K. Sivarathan |
| 11. P. Logeswaran | 24. K. Arunakirinathan |
| 12. R. Palamurugan | 25. A. Mariyawilson |
| 13. V. T. Sathanandan | |

Women

- | | |
|---------------------------|----------------------------|
| 1. Miss. T. Yoganandarani | 7. Miss. C. Umaroobini |
| 2. Miss. N. Nanthini | 8. Miss. K. Krishnaverny |
| 3. Miss. C. Sumathy | 9. Miss. R. Thevaki |
| 4. Miss. T. Tharmeswary | 10. Miss. R. Sarathathevi |
| 5. Miss. S. Vasunthera | 11. Miss. K. Vasantharani |
| 6. Miss. R. Meera | 12. Miss. V. Varathanayagi |

Volleyball

1. S. Sathiyalingam (Captain)
2. K. Sakthivel (V. Captain)
3. T. Vickneswaran
4. E. Jeyanesan
5. K. Suthakaran
6. K. Nithiyanandan

Badminton

1. T. Vickneswaran (Captain)
2. S. Sutharsan (V. Captain)
3. S. Sathiyalingam
4. R. Muresh
5. R. Kajendrakumar
6. K. Sakthivel

Table Tennis

1. T. Vickneswaran (Captain)
2. K. Sakthivel (V. Captain)
3. K. Gowrikarn
4. M. R. Prasanna

The Students' Sports Committee consists of the following members:

Sports Monitor	— R. Sabeswaran
Assistant Sports Monitor	— M. Thatparan
Athletic Captain — Men	— S. Sathiyalingam
Women	— T. Yoganandarani, Miss.
Secretary	— K. Nithiyanandan
Football Captain —	— E. Jeyanesan
Vice Captain	— T. Vickneswaran
Secretary	— B. Vasudevan
Volleyball Captain —	— S. Sathiyalingam
Vice Captain	— K. Sakthivel
Secretary	— T. Vickneswaran
Badminton Captain —	— T. Vickneswaran
Vice Captain	— S. Sutharsan
Secretary	— S. Sathiyalingam
Table Tennis Captain —	— T. Vickneswaran
Vice Captain	— K. Sakthivel
Secretary	— S. Sathiyalingam
Net ball Captain —	— Miss. N. Nanthini
Vice Captain	— Miss. R. Thevaki
Secretary	— Miss. C. Sumathy
Indoor Games Secretary	— S. Sathiyalingam
Ground Secretary	— S. Gajadevan

I thank the members of the Students' Sports Committee, with a word of special thanks to Mr. K. N. Y. Maurice and the members of the staff — Messrs. S. A. P. Thuraiatnam, S. Kantharajah, M. Thayananthan, S. B. Dbivakaran, R. Ramesh, S. P. Raveendran and S. Devananthan for the guidance and assistance given to complete every detail of work, though very difficult, to make this semester sports & games programme end on a smooth and successful note.

I wish the Committee and the Institute a better and a more peaceful time as the year 1988 leaps out of the horizon.

R. Sabeswaran,
Sports Monitor



Overheard in an overcrowded mini-bus

Two pretty young things in jeans were elbowing their way in when one said to the other, in a voice loud enough for all to hear but to no one in particular, "Wait and see, that very handsome youth will definitely give me a seat". The response was spontaneous. All the young, and not so young, ones stood up and offered their seats.

- Anon -

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Mr. S. Kantharajah

— Tech. Dip. (Electronics)

Mr. S. B. Dhivakaran

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Miss. V. Muttucumar

— Dip. (Com. Prog)

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Diploma Courses

First Class

Mechanical: B. Jeyaseelan

Draughtsmanship : Miss. S. Srieswary

Second Class (Upper Division)

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Electrical Power: M. Gnanavel

Civil Engineering & Quantity Surveying: N. Gajendran, Miss. N. Manchula

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Electronics : T. Terry Jenorge, R. A. Thayaseelan, N. Vivekananthan,
N. Thivakaran, P. Sriharan

Electrical Power: N. Kuhesan, K. Sakthivel

Mechanical : P. W. Navarajah

Civil Engineering & Quantity Surveying: V. ThurairajasIngam,
K. Jeyachandran

Computer Programming & Data Processing : S. J. Chellathampy,
Miss. Manoranjini, Miss. G. Rathany

Draughtsmanship: Y. Kugan

Pass

Electronics: K. Nanthakumar

Electrical Power: T. Jegathasan, S. Parameswaran,
S. Sathiyaseelan, S. Kuganesan

Mechanical : N. Sivagnanakumar

Civil Engineering & Quantity Surveying: S. Gnaneswaran, S. Raguthev,
S. Harischandran, K. Kandeepan, N. Sangarasiva,
Miss. V. Srivani, K. Jenagan, S. Sekar, P. Anura

Computer Programming & Data Processing: Miss. T. Gayathiri,
Miss. K. Vasantha, Miss. S. Mathivathane,
N. Navendran, K. Raveendran, Miss S. Selvamany,
Miss. S. Selvanayakee, K. Sivasothy

Draughtsmanship: S. Sitsabesan, K. Pirapagar, R. S. Vijikumar,
S. Sureshwaran

Technician Certificate Courses

Pass (with Merit)

Air-Conditioning & Refrigeration: M. Uthayakumar,

Pass

Automobile: S. Anandakumar, S. Punitharajah, J. B. Jeganathan

Air-Conditioning & Refrigeration: S. Rajeethan, K. Bakeerathan,
N. Koneswaran, S. Thanapalan, C. R. Jeyarajah

Craft Certificate Courses

Pass (with Merit)

Machine Shop Practice: K. Srinagarrooban

Welding Practice: S. Anandalingam

Foundry Practice: R. Ganagapalan

Electrical Wiring & Installation Practice: S. Akilan

Pass

Machine Shop Practice: R. B. Jenanthan, S. Jeyaratnam, M. Banugopan,
V. Banugopan, N. Koneswaran, S. Krishnathasan,
P. Manoharan, K. Mohanathasan, R. Sivakaran,
V. Visakanathan, T. Yogalingam, K. Gunaseelan

Welding Practice: V. Visakanathan, Y. Sivachelvam, N. Thavarajah

Foundry Practice: A. Kanesan, M. Balanathan, S. Balendran,
P. Gnanapiragasam, R. Jeyarajah, S. Mangaleswaran,
A. Sivarajah, V. Sriharan, S. Paskaran

Electrical Wiring & Installation Practice: S. Skanthakumaran,
K. Kunarajah, K. Jeyaseelan, Eelakumaran,
P. Jeyakumar, N. Jeyathas, A. Murugananthan,
S. R. Nadarajah

Professional Engineering

Professional Engineering (Part I)

Second Class (Lower Division)

K. Jeyanathan

Pass

K. Jeganathan

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From the September 1986 issue.

- Ed -

Memorial Prize Awards

1. Mr. & Mrs. Thommaipillai Memorial Prize for the Best Student in Mechanical Engineering Course donated by their son, Mr. T. Rajakulendran, Oman -

Awarded to Mr. B. Jeyaseelan

2. A. S. Sangarapillai Memorial Prize for the Best Student in Electronics Engineering Course donated by Mr. V. Sooriyakumar of Karainagar -

Awarded to Miss. K. Mallikadevi

3. Best Student Prize in Civil Engineering & Quantity Surveying Course donated by Mr. N. K. Singham of Araly -

Awarded to Miss. N. Manchula

4. Mr. N. M. Soundaranayagam Memorial Prize for the Best Student in Electrical Power Engineering Course donated by his brother, Mr. M. C. R. Perinpanayagam of London -

Awarded to Mr. M. Gnanavel

5. Mr. N. Senthilnathan Memorial Prize for the Best Student in Machine Shop Practice Course -

Awarded to Mr. K. Srinagarrooban

Best Performance Prizes:

Electronics & Telecommunication Engineering

— M. Thayaparan

Civil Engineering & Quantity Surveying

— N. Gajendran

Air - Conditioning & Refrigeration Technology

— M. Uthayakumar

Welding Practice

— S. Anandalingam

Foundry Practice

— R. Ganagapalan

Electrical Installation Practice

— S. Akilan

Best All Round Student for 1986/87

The Director's Challenge Trophy

— S. Sathiyalingam

Prize Fund

Mr. A. S. Sangarapillai Memorial Prize donated by Mr. V. Sooriyakumar, Karainagar	— Rs. 500.00
Mr. N. K. Singham, Araly	— Rs. 1,000.00
Mr. N. Senthilnathan Memorial Prize donated by the parents, Mr. & Mrs. N. Nadarajah, Karainagar	— Rs. 500.00
Mr. & Mrs. Thommaipillai Memorial Prize donated by their son, Mr. T. J. Rajakulenthiran, Oman	— Rs. 2,500.00
Mr. M. N. Soundaranayagam Memorial Prize donated by his brother, Mr. M. C. R. Perinpanayagam, London	— Rs. 1,000.00
Students' contributions up to 31.7.87	— Rs. 11,810.00
	<u>17,310.00</u>

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