

ANNUAL REPORT

1962-63

Indian Institute of Technology

MADRAS

Annual Report

1962-63

INDIAN INSTITUTE OF TECHNOLOGY

MADRAS

FOURTH ANNUAL REPORT

1962-63

GENERAL

The Indian Institute of Technology, Madras, entered the fourth year of its existence during 1962-63. The year under report was marked by a vigorous tempo in construction activity and setting up of laboratories and workshops. The most memorable day of the year under report was the 3rd December 1962 when His Excellency Dr. Heinrich Luebke, President of the Federal Republic of Germany, visited the Institute and laid the foundation stone of the Institute as a symbol of Indo-German collaboration. The function was held in the Open Air Theatre of the Institute where Dr. Luebke was extended a warm welcome by Prof. Humayun Kabir, Union Minister for Scientific Research and Cultural Affairs, Dr. A. L. Mudaliar, Chairman of the Board of Governors, Prof. B. Sengupto, Director and Shri R. Natarajan, Registrar. It is proposed to bring out a Souvenir Volume commemorating the visit of Dr. Luebke.

2. Statutes

The Statutes of the Indian Institutes of Technology came into force with effect from the 6th November 1962.

3. Academic Session

The academic session commenced on the 3rd July 1962 and ended on the 16th May 1963.

4. Meetings of Authorities

The various authorities of the Institute met during the year under report as noted below :

- (a) Board of Governors—4 times.
- (b) Senate—5 times.

The old Academic Council was redesignated as Senate under the new Statutes and reconstructed.

I. *The members of the BOARD OF GOVERNORS were as follows :*

Chairman

Dr. A. L. Mudaliar (Vice-Chancellor, University of Madras).

Members

1. Prof. B. Sengupto, Director, I.I.T., Madras-36.
2. Dr. Rajah Muthiah Chettiar, Chettinad House, Adyar, Madras-28.

3. Shri P. M. Reddy, General Manager, Hindustan Aircraft Ltd., Bangalore-17.
4. Shri K. Srinivasan, Director of South India Textile Research Association, Coimbatore.
5. Shri Mir Akbar Ali Khan, Member of Parliament, Stone House, Saifabad, Hyderabad. (Andhra Pradesh).
6. Shri A. Abdul Rahim, M.L.A., Correspondent, T.K.M. Engineering College, Quilon.
7. Shri S. Rajaraman, Director of Technical Education, Government of Kerala, Trivandrum.
8. Shri I. M. Magdum, Director of Technical Education, Government of Mysore, Bangalore.
9. Dr. Y. Nayudamma, Director, Central Leather Research Institute, Madras.
10. Prof. R. G. Narayanamurthi, Head of the Department of Mechanical Engineering, I.I.T., Madras-36.
11. Dr. P. Venkata Rao, Head of the Department of Electrical Engineering, I.I.T., Madras-36.
12. Shri R. Natarajan, I.A.S., (Registrar), Secretary.

II. *The members of the SENATE were the following :*

- Prof. B. Sengupto, Director .. Chairman (*ex officio*).
 Shri R. Natarajan, I.A.S., Registrar .. Secretary (*ex officio*).

Members

- Prof. R. G. Narayanamurthi .. Head of the Department of Mechanical Engineering.
 Dr. P. Venkata Rao .. Head of the Department of Electrical Engineering.
 Dr. E. G. Ramachandran .. Head of the Department of Metallurgy.
 Dr. M. V. C. Sastry .. Head of the Department of Chemistry.
 Prof. S. Sampath .. Professor of Electrical Engineering.
 Dr. P. C. Varghese .. Head of the Department of Civil Engineering.
 Prof. R. Krishnamurthi .. Head of the Department of Humanities.
 Dr. S. Ramaseshan .. Head of the Department of Physics.
 Dr. S. K. Srinivasan .. Head of the Department of Mathematics.
 Dr. D. Venkateswarlu .. Head of the Department of Chemical Engineering.
 Dr. I. R. Rao .. Professor of Mechanical Engineering.
 Dr. W. Koch .. Professor of Physics.
 Dr. W. Scheer .. Professor of Engineering Drawing.
 Dr. N. Klein .. Professor of German.
 Dr. K. W. Haug .. Professor of Applied Mechanics.
 Dr. Gerhard Rouve .. Professor of Civil Engineering.
 Dr. G. Stahl .. Professor of Mechanical Engineering.
 Dr. Seigfreid Seinecke .. Associate Professor of Electrical Engineering.
 Dr. Heitland .. Professor of Mechanical Engineering.
 Dr. C. Ramasastry .. Senior Warden.
 Dr. D. V. Reddy .. Asst. Professor of Applied Mechanics.

EXTERNAL EXPERTS

Humanities

Prof. T. Balakrishnan Nayar
Principal,
Tagore Memorial College,
Pondicherry.

Science

Dr. P. L. Bhatnagar
Head of the Department of Mathe-
matics,
Indian Institute of Science,
Bangalore-12.

Engineering

Dr. G. S. Laddha,
Director,
Alagappa Chettiar College of Technology,
Madras-25.

5. Admissions

The Institute made the following admissions during the year :—

<i>Course</i>	<i>No. admitted</i>
(1) 5 year B.Tech. Degree Course :—	
(a) I year ..	211
(b) II year—Direct Entrants ..	19
(2) M.Sc. Degree Course :—	
(a) Mathematics Branch	5
(b) Physics Branch	11
(3) Ph.D. Degree Course :—	
Physics Branch	4

Details regarding the number of students who appeared for the Joint Entrance Examination, number interviewed, number selected etc. will be found in *Appendix I*.

6. Scholarships

The Board of Governors decided to grant scholarships to all the students admitted to the M.Sc. and Ph.D. Degree Courses.

Scholarships and Free Studentships to the undergraduate students were awarded by the Institute as in previous years. The total amount spent on scholarships for the year is Rs. 1,13,457.

Scholarships were also awarded by the Government of India, State Governments, private trusts, etc.

Details about the award of scholarships are furnished in *Appendix II*.

7. Examinations

The examinations for the different years of the 5-year Integrated B.Tech. Degree Course were conducted as usual and the results were very satisfactory as may be seen from the following statement :—

<i>Class</i>	<i>No. appeared</i>	<i>No. Passed</i>	<i>No. failed</i>	<i>Percentage of pass</i>
I Year	203	173	30	86
II Year	154	130	24	84
III Year	137	118	19	86
IV Year	94	92	2	98

Our system of holding class periodical examinations and taking 50% as their weightage along with 50% weightage awarded to the annual examination enabled the teachers to watch the progress of their students at periodical intervals, correct their deficiencies, if any, then and there while being beneficial to the students in catching up with the class and not subjecting them to the chances of a solitary final examination. Merit prizes were awarded for proficiency in different branches of study. Details are given in *Appendix III*.

8. Joint Entrance Examinations

For the first time the Institute undertook the conduct of Joint Entrance Examination for admission to the first and second years of the undergraduate course. Examinations were held at different centres all over India. A committee to carry on the work in this regard was constituted with Prof. S. Sampath as the Chairman and Dr. S. K. Srinivasan as the Secretary. The examinations were conducted smoothly and the results announced promptly.

9. Acceleration of B.Tech. Degree Course

Owing to the national emergency, the fourth and fifth years of the classes for the 5-year B. Tech. Degree Course were accelerated in order to meet the nation's demand for more engineers. The final year students will complete the course in February 1964, while the fourth year students will finish their final year of study by the end of 1964.

10. Institution of 3-year B.Tech. Degree Course

The same consideration of national emergency made the Institute decide to organize in Chemical, Civil, Electrical, Mechanical and Metallurgical Engineering a 3-year B.Tech. Degree Course for B.Sc. Degree holders from the academic year 1963-64.

11. Introduction of M.Sc. Degree Course

The Institute made a start with post-graduate courses in Science subjects leading to the M.Sc. Degree, with admissions in Physics and Mathematics Branches. The M.Sc. Degree Course in Chemistry and the M.Tech. Degree Courses will be instituted in the next academic year.

12. Introduction of Ph.D. Degree Course

Scholars were registered for doing research work in the fields of Mathematics and Physics for the Ph. D. Degree Course. Academic staff members of the Institute were also permitted to register themselves for the Ph.D. without detriment to their normal work at the Institute.

13. Practical training and Study Tours

In-plant training was given to some of the students during the vacation, wherever training facilities were available. Practical training was undergone by students in well-known institutions like : (1) The Hindustan Aircraft Limited, Bangalore, (2) The Fertilizer Corporation of India Limited, Nangal, (3) Delhi Telephones, Delhi, (4) Ordnance Factory, Muradnagar, (5) Binny's Engineering Works, Madras, (6) Railway Mechanical Workshops at Perambur, Tiruchi, Hubli, Delhi, Kharagpur, etc. and (7) the Loco Works at Chittaranjan.

Study tours were undertaken during the year to enable the students to see the industries and big projects at work. Major engineering projects in South India such as the Kundah Hydro-Electric Project, the Parambikulam-Aliyar Project, the Neyveli Lignite Corporation etc., were visited. Students were also taken on local inspection to places like the Madras Harbour, Poondi Irrigation Research Station, Meenam-bakkam Meteorological Station, etc.

Our study tours also included visits to the Industrial Estate, Guindy, the Integral Coach Factory, Perambur, the Insulator Factory, Vandalur, and the Transformer & Switchgears, Adyar. It is expected that more study tours will come off in the next academic year as soon as the emergency ceases.

14. Research Work by Departments

The research work done by the Departments and the publications of the results of the research work are set out in the departmental reports. The facilities for research were considerably increased during the year by the erection of new workshops and laboratories and equipping them, enabling the Institute to make a beginning with post-graduate Degree Courses. It is expected that full facilities for research work will be available in a year or two.

15. Finances of the Institute

The income and expenditure statement for the year ending 31st March 1963 is given in *Appendix IV*.

16. Visitors

Distinguished scientists, industrialists and others visited the Institute. Prominent among these were :

His Excellency Shri Medhi Nawaz Jung, Governor of Gujarat ; Dr. A. N. Khosla, Governor of Orissa ; Lord Bridges, Chairman, British Council ; Shri Christopher Cox, Educational Adviser, Department of Technical Education, London ; Dr. H. G. Taylor, Director, Electrical Research Association, London.

The names of the other notable visitors may be seen in *Appendix V*.

17. Staff of the Institute

Prof. B. Sengupto and Shri R. Natarajan, I.A.S., continued to be the Director and Registrar of the Institute respectively. The following Professors, Indian and German, joined the Institute during the year.

<i>Name</i>	<i>Designation</i>	<i>Department</i>
Dr. P. C. Varghese	Professor	Civil Engineering.
Dr. S. Ramaseshan	Professor	Physics.
Dr. I. Ramakrishna Rao	Professor	Mechanical Engineering.
Prof. R. Krishnamurthi	Professor	Humanities.
Dr. G. Stahl	Professor	Mechanical Engineering.

The names of teachers and other staff who joined the Institute during the year and those who left are given in *Appendix VI*.

18. Construction Programme

The construction of the following residential buildings was completed with all services and occupied by the members of staff.

- Director's quarters—1 No.
- Professors' quarters—20 Nos.
- Asst. Professors' quarters—10 Nos.
- Lecturers' quarters—24 Nos.
- Asst. Lecturers' and S.T.As' quarters—42 Nos.
- Junior Technical Assistants' quarters—66 Nos.
- Class IV staff quarters—60 Nos.

The Guest House and the Shopping Centre were also completed. The Stores building and three more workshop-type laboratories were completed and put to use. Besides the above, the Electrical and Mechanical Sciences Blocks and the Science and Humanities Block registered perceptible progress and the completed portions were handed over to the respective departments for conducting classes. One more students' hostel and the Officers' Hostel were commissioned. The main pump-house housing two 30 h.p. pumps to feed the completed service reservoirs of a capacity of 1,50,000 gallons and 50,000 gallons respectively have been completed. The chlorination plant is also being installed. The temporary water supply system has been reinforced with additional two 10 h.p. pumps which cater to the needs of the expanding campus. The distribution system to receive and distribute water from the Urur foreshore was also completed.

A building for Primary School with Kindergarten Section was completed to enable the functioning of the school from 1963-64 onwards. The highlight of the activities of the current year is the quick construction of an Open Air Theatre to accommodate over 5000 people. The work

was started in September 1962 and completed by the end of November 1962. The function of laying the foundation stone for the Administrative Block by the West German President took place in the newly constructed Open Air Theatre on the 3rd December 1962.

Most of the services like roads and paths, pipe lines, sewer lines, oxidation pond and street lighting have been completed.

A Post Office and a branch of the State Bank of India have started functioning in the Campus of the Institute.

In addition to the above, the Engineering unit of the Institute has also taken on itself the manufacture of the entire furniture requirements of the offices, hostels, residences and class rooms, on considerations of quality, durability and economy. The tempo of construction activity was sustained at a high pitch in spite of the emergency.

19. Hostels

The two hostels, Kaveri and Krishna, continued to function during the year under review.

The Narmada Hostel started functioning from the beginning of July 1962. Students admitted to the first year of the 5-year B.Tech. Degree Course were housed in this hostel.

Two more hostels will be commissioned during the next academic year to cope up with the increased intake of students.

20. Equipment

Major items of equipment procured during the year under report are set out in the departmental reports.

The value of German equipment received during the year under report is Rs. 23,79,792. In addition to this, indigenous equipment to the value of Rs. 7,52,918 and furniture worth about Rs. 3,75,462 were obtained for the different departments and library of the Institute.

21. Institute Gymkhana

The Institute Gymkhana continued to render yeoman service to the extra-curricular part of student activity in the Institute campus. The Gymkhana activities for the year were inaugurated on the 26th July 1962 by Dr. R. A. Kraus, Adviser to the Government of India for the I.I.T., Madras.

There was no part of student activity which was left untouched by the Gymkhana on the extra-curricular side. The sectors covered were: music and fine arts; literature and dramatics; sports and games; entertainments and films; photography and out-door activities like mountaineering, etc. This intense interest taken by the Gymkhana was richly rewarded with laurels in all-India debates and Inter-Collegiate competitions. The I.I.T., Madras, annexed the Sarojini Naidu Memorial

Trophy and the B.E. College, Sibpur Trophy for All-India debates in English. The Institute also annexed the Gordon Mathews Inter-Collegiate Cup for English debate, the Law College Trophy for Debate in English, Dr. Klein's Trophy for Inter-Collegiate German Recitation and Dr. M. V. C. Sastri's Cup for Inter-Collegiate Group Discussion.

In the sports arena, the Institute annexed the Principal's Cup at the Bertram Table Tennis Tournament and the Krishnaswamy Iyer Memorial Cup of the Loyola College. The Senior Fours Challenge Cup and Maidens Sculls and Maiden Pairs Cups in the regatta organised by the Madras Boat Club were also annexed by the Institute.

The crowning event of Gymkhana activity was the successful celebration of the Institute Day on the 11th July 1963 with Shri Bishmuram Medhi, the then Governor of Madras, as the Chief Guest. The names of members of the various committees and the names of the prize winners in literary activities are given in *Appendix VII*.

22. N.C.C. Rifles

The National Cadet Corps activities of the year got into their stride from July itself. The total strength of the two companies reached a maximum of 360. The companies were in the charge of 2/Lt. G. V. N. Rayudu, and 2/Lt. P. Radhakrishnan.

On the occasion of the visit of Dr. Heinrich Luebke, President of the Federal Republic of Germany to the Institute, the NCCR had the privilege, with Circle Commander Commodore Heble and Major Nair, of welcoming His Excellency.

In view of the emergency, NCC training has been intensified from November 1962. We are happy to record that our Cadets decided unanimously to forego their parade refreshments and make the money available for the National Defence Fund. All in all, the NCC had to its credit a year of useful and distinguished service.

23. Library

The Library completed one more year of useful service and has already earned the name of being one of the most modern libraries in the Madras City. During the year under review about 5000 books were added to the Library. The inter-library loan system was extended to Insidic, New Delhi, and Max Mueller Bhavan, Madras. The expenditure on books and periodicals for the year was Rs. 1,54,880.

24. I.I.T. Co-operative Stores

The I.I.T. Co-operative Stores Ltd., Madras, which was registered in April 1962, commenced functioning from the 9th July 1962.

With 231 members and a paid-up share capital of Rs. 4,750, the stores procures and supplies books, drawing instruments, stationery articles, toilet items, etc., to the staff and student-residents of the Campus.

25. Conclusion

In the year under review, the close collaboration between the German Government and the Institute was further cemented by the visit of Dr. Luebke, President of the Federal Republic of Germany, to the Institute in December 1962. Dr. Kraus, Adviser to the Government of India from the German side, took keen interest in the development of the Institute by arranging to get the required technical personnel and valuable equipment from Germany expeditiously. The introduction of the M.Sc. Degree Courses in Physics and Mathematics and Ph.D. Degree course constituted an important landmark on the road to making this Institute a higher post-graduate institution with accent on research. The unprovoked aggression by China on our Northern borders posed a grim challenge to the country and institutions like the I.I.T., Madras. We are happy to record that the Institute, in its own humble way, rose to the occasion gamely. NCC training was made compulsory for certain years of the B.Tech. Degree course so as to ensure disciplined military training to the youth in the context of the Chinese menace. The Five Year Degree course was accelerated in order to turn out more engineers in response to the call of the country. It was decided to institute a 3-year B.Tech. Degree course for B.Sc. Degree holders to meet the nation's need for technical personnel.

Construction activity went on with sustained tempo. More instructional buildings and workshops were erected and commissioned. Laboratories were put up and fitted up to enable the inauguration of post-graduate courses and research work.

We look forward to 1963-64 with confidence and hope, propped up by our past performance.

REPORTS FROM THE DEPARTMENTS
DEPARTMENT OF APPLIED MECHANICS

Staff Position as on 30th June 1963

	<i>Nos.</i>
Professors —
German Professors .. .. .	.. 1
German Foremen —
Assistant Professors .. .. .	.. 3
Lecturers .. .. .	.. 4
Associate Lecturers .. .. .	.. 1
Senior Technical Assistants .. .. .	.. 1
Junior Technical Assistants —

In August 1963, Dr. D. V. Reddy went on leave for a year as Asst. Professor in Civil Engineering at the University of Illinois. Shri S. Venketesan joined the department in October 1963.

1. Teaching

The academic session started from July 1962 and along with the usual courses handled by this department, a special course of lectures on Machine Tool Vibrations was given to the final year B. Tech. students. This subject was handled by Dr. B. V. A. Rao who joined the department from the I.I.T., Bombay. The department is also giving courses on Elasticity, Theoretical Hydrodynamics, Mechanism, Lubrication and Vibrations for the M. Tech. courses started this year.

During the academic year 1962-1963 the Department gave courses in Statics and Strength of Materials for the 2nd year class Dynamics, Fluid Mechanics, and Strength of Materials for the 3rd year class and Theory of Machines, and Vibrations for the 4th year class of the B. Tech. Degree Course.

2. Laboratories/Workshops

This department has three laboratories, viz.

- (a) Elasticity Laboratory.
- (b) Fluid Mechanics.
- (c) Mechanism and Vibrations.

- (a) *Elasticity Laboratory* : Under the guidance of Dr. . . . an analogue computer was constructed on which several . . . were fed. Equipment and instruments needed for con- . . . experiments were purchased from the local market.
- (b) *Fluid Mechanics Laboratory* : Experimental set-ups were undertaken and completed for the purposes of carrying out experiments by the students.
- (c) *Mechanism & Vibrations Laboratory* : A number of mechanism models were presented by the German Government to this section and they are nearly 130 in number. Many models were purchased from the local market too. In order to set up a Universal Bearing Testing Machine, equipment needed were ordered through the Institute. Automobile parts were purchased from junk and they were utilised in preparing nice models for demonstration. So far, the electronic equipment and instruments needed by the vibrations laboratory have not been received and Dr. K. W. Haug is pursuing the matter with his Government in this connection.

3. Seminars/Colloquia/Special Lectures

A special feature in the activities of the Department is a series of seminars given by the departmental staff on various topics every fortnight. One seminar was started with the lecture by Shri N. V. C. Swamy on *Boundary Layer Stability*. This was followed by Dr. B. V. A. Rao who gave a talk on *A New Type of Vibrations Due to Oil Film Elasticity*. The next lecture was by Shri R. S. Alwar who spoke on *Beams on Elastic Foundation*. This was followed by Shri N. R. Rajappa who discussed the *Exact Solutions of Vibration Problems of Orthotropic Plates* and Shri M. A. Veluswamy who spoke on *Introduction to Computing Mechanisms*.

The staff members engaged themselves in research work in addition to their teaching work. The main fields in which research was conducted are *Structures and Fluid Mechanics*.

4. Research Done

Along with their teaching work, the staff members of the Department engaged themselves in research in the fields of Structures and Fluid Mechanics and published several papers in standard journals in India and abroad. The detailed list of publications is given in para (5) below. Dr. D. V. Reddy represented the Institute at the Summer School in Civil Engineering held in Srinagar and gave a course of lectures in the Analysis of Interconnected Beam Systems.

5. List of Publications

<i>Author</i>	<i>Title of Paper</i>	<i>Name of the Journal</i>
<i>Structures</i>		
1. Dr. D. V. Reddy & Shri A. C. Gangadharan	Hentenyi's Method of initial conditions for the Analysis of Beams.	The Indian Concrete Journal, Aug. 1962
2. Dr. D. V. Reddy & Dr. A. W. Hendry	Minimum weight Analysis of Interconnected Beam Systems.	Proc. of 7th Congress of theoretical and App. Mech.
3. Shri N. R. Rajappa & Dr. D. V. Reddy	Analysis of an Orthotropic Plate by Meclaurin's Series.	Journal of the Royal Aeronautical Soc. London, Feb. 1963, pp. 126-127.
4. Shri N. R. Rajappa	On the Analogy between vibration and Buckling Phenomena of Rectangular Orthotropic Plates.	Journal of the Physical Society of Japan, April 1963, p. 588.
5. Shri N. R. Rajappa & Dr. D. V. Reddy	Flexural vibration of a Circular Orthotropic Plate clamped along the boundary.	Engineering and Science, Oct. 1962.
<i>Fluid Mechanics</i>		
6. Shri N. V. Chandrasekharaswamy	Length of the Hydraulic Jump.	Engineering and Science, Oct. 1962.
7. Shri N. R. Rajappa	Two Dimensional Compressible Flow Past a Solid Body Placed in a Stream Bounded by a Plane Wall.	Journal of the Aeronautical Society of India, Aug. 1962.

DEPARTMENT OF CHEMICAL ENGINEERING

Staff Position as on 30th June 1963

	<i>Nos.</i>
Professors --
German Professors --
German Foremen --
Assistant Professors .. .. .	.. 2
Lecturers .. .. .	.. 7
Associate Lecturers .. .. .	.. 2
Senior Technical Assistants .. .. .	.. 4
Junior Technical Assistants .. .. .	.. 3

1. Teaching

The Department took lectures and laboratory classes in the following subjects of the B. Tech. Degree Course:—

1. Chemistry of Engineering Materials for II year students.
2. Fuels and Ore Dressing classes for IV year students of the Metallurgy Branch.
3. Chemical Engineering subjects for IV year students of the Chemical Engineering Branch.

2. Laboratories/Workshops

As all the equipment required for Chemical Engineering laboratory classes were not received from Germany, experiments in Fluid Flow and Mechanical Operations were set up utilising equipment fabricated in departmental workshop with materials locally available.

Commissioning of the Departmental Workshop was completed.

Laboratories for Chemical Technology and Technical Analysis continued to function in the Civil Engineering Block.

3. Educational Tours

IV B. Tech. Chemical Engineering students accompanied by staff members visited the following factories :

1. Messrs. East Asiatic Company.
2. „ Indian Oxygen.
3. „ K.C.P. Ltd.
4. „ Ennore Fertilisers.
5. „ Neyveli Lignite Corporation.

4. Seminars/Colloquia/Special Lectures

The following lectures were arranged by the Department :

1. *Desalination of Miner Matter* by Dr. S. Sourirajan (National Research Council, Canada).
2. *Oil Pipe Design* by Shri K. S. Raghavan, Oil Refinery, Gujarat.
3. *Design of Pilot Plants and Scaling up* by Shri P. Srinivasamurthi (Humphreys and Glasgow (P) Ltd., Bombay).
4. *Chemical Engineering Profession* by Shri M. L. Seth, General Manager, D.C.M. Chemicals Ltd., Delhi.

5. Major Equipment Procured

The following major equipment were received from West Germany :

1. Climatic Chamber.
2. Profilograph, Surface Roughness Recorder.
3. Recording Camera and Oscilloscope.
4. Carl Zeiss Spectrophotometer.

The following machinery were obtained locally for the Departmental Workshop :

1. Investa capsten lathe.
2. Investa drilling machine.
3. Coopers shaping machine.
4. Power saw.

6. Research Done

The following Research Projects were undertaken :

1. Fluid Energy Grinding,
2. Compaction of Solid Powders.
3. Studies in Phase Equilibria.

7. List of Publications

1. *Prediction of Azeotropic Conditions in Binary Systems.* Shri R. Nagarajan, Shri C. Sivaprasada Rao & Dr. M. Satyanarayana. Chemical Age of India 13, 352 (1962).
2. *Salt and its byproducts and Fertilisers.* Shri C. Sivaprasada Rao. Chemical Age of India 13, 196 (1962).

DEPARTMENT OF CIVIL ENGINEERING

Staff Position as on 30th June 1963

	<i>Nos.</i>
Professors .. .. .	.. 1
German Professors .. .. .	.. 1
German Foremen —
Assistant Professors .. .. .	.. 2
Lecturers .. .. .	.. 7
Associate Lecturers .. .. .	.. 2
Senior Technical Assistants —
Junior Technical Assitants .. .. .	.. 4
	<hr style="width: 100%; border: 0.5px solid black;"/>
	17
	<hr style="width: 100%; border: 0.5px solid black;"/>

1. Teaching

Civil Engineering subjects for II, III & IV year B. Tech. classes were taught.

2. Laboratories/Workshops

As per the recommendations of the Committee, a departmental workshop was set up. Planning of the hydraulic laboratory was completed. Public Health Engineering laboratory is being set up. Materials used in the construction works in the campus were tested for suitability in the concrete laboratory.

3. Educational tours

Fourth year Civil students were taken on tour. Major civil engineering projects in South India such as Kundah Hydro-electric Project, Parambikulam-Aliyar Project, Neyveli Lignite Corporation, etc. were visited. In addition, students were taken on local inspection to places like Madras Harbour, Poondi Irrigation Research Station, Meenam-bakkam Meteorological Station, etc.

4. Major Equipment Procured

The following equipment were procured :

Concrete Laboratory :

Proving rings, Electric furnace, Presso vac pump and hy vac pump, Heat of hydration apparatus, etc.

Structures Laboratory :

A Calculating machine.

Soil Mechanics Laboratory :

Soil testing apparatus like Soil Hydrometer, Linear shrinkage Modulus, Bearing value apparatus, etc.

Hydraulic Laboratory :

Workshop tools.

Public Health Engineering Laboratory :

Electrical centrifuge, Muffle Furnace and Direct reading Colorimeter.

Survey Laboratory :

Camp equipment.

5. Research done

The following studies were undertaken in the Concrete Laboratory :

1. A study on the evaluation of relation between rebound number and compressive strength.
2. A study on the pores and the increased absorption by bricks.

6. Publications

1. Submitted for publication in the Central Board of Irrigation and Power Journal: *Uplift on Hydraulic Structure*. By Shri M. H. Abdul Khader.
2. Published in Institution of Engineers (India): *A study of the pores and the increased absorption by bricks*. By Shri D. Johnson Victor.

DEPARTMENT OF ELECTRICAL ENGINEERING

Staff Position as on 30th June 1963

	Nos.
Professors	2
German Professors	—
German Foremen	—
Assistant Professors	3
Lecturers	11
Associate Lecturers	1
Senior Technical Assistants	3
Junior Technical Assistants	2
	22

1. Teaching

Courses in Electrical Engineering for the Third and Fourth year B. Tech. students.

2. Laboratories/Workshop

Electrical Machinery, Electronics and Measurements Laboratories were set up.

3. Educational Tours

Transformer and Switchgear, Adyar; Industrial Estate, Guindy; Central Telegraph Office, Mount Road; Integral Coach Factory, Perambur; Neyveli Lignite Project; Insulator Factory, Vandalur.

4. Major Equipment Procured

Measuring instruments, Oscilloscopes, d.c. high current generator, etc.

5. Research Work

- (1) C.S.I.R. Scheme on design and construction of Servo Analyzer/Synthesiser.
- (2) Studies in Servo Systems.

6. List of Papers Read

(1) Dr. P. Venkata Rao attended a Symposium on Automatic Control Systems held at the Bihar Institute of Technology, (February, 22-29, 1963), and read a paper entitled *Transformer Analogue Harmonic Analyzer*. Dr. Rao also presided over one of the sessions.

(2) A paper by Prof. S. Sampath and Shri K. Venkataramanan (Birla College of Engineering, Pilani), on *Design of Triode Receiving Type Tubes*, was presented at the Annual Technical Convention of the Institution of Telecommunication Engineers held in New Delhi on 8th and 9th December, 1962.

(3) Prof. S. Sampath read a paper on *A Review of Design Procedures for Receiving Type Electron Tubes* at the Symposium on *Electron Devices* organised by the Central Electronic Engineering Research Institute in Pilani, Rajasthan, on 26th December, 1962. Prof. Sampath presided over the session on *Vacuum Devices* at this Symposium.

7. Publications

(1) *Design of Triode Receiving Type Tubes* by Prof. S. Sampath, & Shri K. Venkataramanan, Jour. I.T.E., Vol. 9, No. 2, PP. 122-139, (March, 1963).

(2) *High Voltage D.C. Transmission* by Shri M. Ramamoorthy, Indian Journal of Power & River Valley Development, October 1962.

DEPARTMENT OF MECHANICAL ENGINEERING

Staff Position as on 30th June 1963

Professors	..	..	..	..	..	2
German Professors	..	..	..	..	..	2
German Foremen	..	..	..	..	..	5
Assistant Professors	..	..	..	..	..	1
Lecturers	..	..	..	..	..	13
Associate Lecturers	..	..	..	..	..	1
Senior Technical Assistants	..	..	..	..	..	3
Junior Technical Assistants	..	..	..	..	..	—
						27

1. Academic Instructional Activities

Instructions in Mechanical Engineering subjects for the II, III and IV B. Tech. classes were given.

Planning for the instruction of V B. Tech. classes was taken up.

2. Laboratories

The General Machines Laboratory was installed, temporarily, in one of the bays of the Workshops and an intensive two-week course was given to the III B. Tech. students. The Metrology laboratory was installed, temporarily, in the Internal Combustion Engines Laboratory and instructions given to the III B. Tech. Mech. students in planning of the Internal Combustion Engines, Steam Laboratory, Turbomachines, Metrology, Materials Handling, Machine Tool, Production Engineering and Instruments were continued.

3. Major Equipment received

Equipment for the various laboratories in the Department of Mechanical Engineering from Germany continued to arrive in a regular sequence.

4. Seminars Conducted

Three Seminars were conducted on *Units & Dimensions*.

5. Research Activities

Investigations continued on *Studies on Axial Flow Fans*.

Workshops

Instructional Activities :

Workshop instruction to the I and II B. Tech. students in the different shops was given.

The installation and commissioning of the workshop facilities in the Electrical Workshops were done during this year. Expansion of the activities in the other sections of the Workshop was carried out.

Fabrication and manufacturing activities for the Engineering unit and the Departments of Institute were carried out.

DEPARTMENT OF METALLURGY

Staff Position as on 30th June 1963

	<i>Nos.</i>
Professors	1
German Professors	—
German Foremen	—
Assisant Professors	2
Lecturers	1
Associate Lecturers	1
Senior Technical Assistants	2
Junior Technical Assistants	2
	9

1. Teaching

Instructions to the IV B. Tech. Metallurgy students besides instructions to the III B. Tech. Metallurgy, III B. Tech. (Electrical, Mechanical and Chemical students) and II B. Tech. (all branches) students. Approximately 30 hours of instructional work per week.

2. Educational Tours

About a dozen visits to local industrial establishments.

3. Seminars/Colloquia/Special Lectures

Three series of special lectures by invited experts from the National Metallurgical Laboratory, Jamshedpur, on electro-metallurgy, production of iron, and production of steel.

4. Major Equipment Procured

The Sklenar crucibleless oil fired melting furnace, a special cooler for pre-cold water for X-ray defraction, electrical instruments, galvana-

meter, resistance boxes etc. and miscellaneous opticle measuring instruments, vacuum pumps etc. were purchased.

Besides the above, considerable quantities of equipment from Germany were received as part of the German aid.

DEPARTMENT OF HUMANITIES

Staff Position as on 30th June 1963

	<i>Nos.</i>
Professors	1
German Professors	1
German Foremen	—
Assistant Professors	2
Lecturers	—
Associate Lecturers	1
Senior Technical Assistants	1
Junior Technical Assistants	1
	<hr/> 7 <hr/>

Teaching

English ..	I & II B. Tech.
German ..	II B. Tech.
Economics ..	III B. Tech.
History & Culture ..	IV B. Tech.

DEPARTMENT OF CHEMISTRY

Staff Position as on 30th June 1963

	<i>Nos.</i>
Professors	1
German Professors	—
German Foremen	—
Assistant Professors	1
Lecturers	4
Associate Lecturers	5
Senior Technical Assistants	3
Junior Technical Assistants	4
	<hr/> 18 <hr/>

1. Teaching

(a) Undergraduate :

I Year : Elementary Inorganic, Organic, Physical and General Chemistry. Also tutorial classes in the above subjects.

II Year : (Direct Entrants) An orientation course in Physical, Inorganic and Organic Chemistry.

III Year : Metallurgy : A course in Advanced Physical and Inorganic Chemistry.

Chemical Engineering : A course in Advanced Inorganic and Organic Chemistry.

IV Year : Chemical Engineering : A course in Advanced Physical Chemistry.

(b) *Post-Graduate* :

M.Sc. (Physics) I year : A course in Inorganic, Physical and Organic Chemistry.

Ph. D. : An advanced orientation course in Physical, Inorganic and Organic Chemistry for students for their Doctorate Degree.

3. **Laboratory**

I Year : Elementary exercises in Volumetric analysis and qualitative analysis of simple mixtures of salts using semi-micro methods.

III Year : Metallurgy : Exercises in Volumetric analysis and experiments in physical chemistry in the fields of reaction kinetics, phase rule, electro-chemistry etc.
Chemical Engineering : Exercises in Volumetric analysis and experiments in preparative Organic Chemistry and functional group analysis.

IV Year : Chemical Engineering : Experiments in Physical Chemistry covering the fields of reaction kinetics, phase rule, colloids and electrochemistry.

M.Sc. (Physics) I year : Exercises in Volumetric analysis and semi-micro qualitative analysis of mixtures of simple salts. Experiments in preparative Organic Chemistry and functional group analysis.

4. **Educational tours** : Nil.

5. (a) **Seminar**

The following Seminars in Chemistry were held :

	<i>Date</i>	<i>Speaker</i>	<i>Subject</i>
1.	26th July 1962	Dr. C. N. Pillai	<i>Dehydration of alcohols over Alumina.</i>
2.	24th Aug. 1962	Dr. K. V. S. Krishna-moorthy	<i>Electron-transfer reaction in aqueous solutions.</i>
3.	21st Sept. 1962	Dr. E. G. Mahadevan	<i>Production of Heavy water with special reference to Chemical Exchange Process.</i>
4.	2nd Nov. 1962	Dr. Ch. Kalidas	<i>The acidity functions and its applications to kinetics of acid catalysis.</i>

5. 28th Jan. 1963 Dr. J. C. Kuriacose *Photo oxidation of isopropanol on Zinc oxide.*
6. 29th March 1963 Shri. M. C. Upreti *Decomposition of alcohols on chromia catalyst.*

Office bearer of the Seminar : Shri R. Raghavan.

Seminars/Colloquia/Special Lectures

5. (b) Colloquia

The following colloquia were held during 1962-63 :

Date	Speaker	Subject
(i) 15th March 1962	Dr. M. S. Muthana	<i>On the Chemistry and Utilisation of Shellac.</i>
(ii) 9th August 1962	Dr. Y. Nayudamma	<i>Some aspects of Leather Science.</i>
(iii) 10th Sept. 1962	Prof. S. K. Battacharya	<i>Recent advances on some aspects of Catalysis.</i>
(iv) 10th Oct. 1962	Prof. T. R. Seshadri	<i>The Chemistry of Heartwood.</i>
v. 16th Jan. 1963	Prof. S. K. K. Jatkar	<i>Strong Electrolytes.</i>

Office bearers of the Colloquia

Ex officio Chairman : Head of the Dept. of Chemistry.

Secretaries : Shri R. Nagarajan & Dr. (Mrs.) J. Lalitha.

5. (c) Special Lectures

Eight special lectures on *Quantum theory of Valency* were given by Dr. Yedanapalli, Professor of Chemistry, Loyola College, Madras, during February-March 1963.

6. Major Equipment procured

The following equipment were procured :

1. Fractionator for Liquid nitrogen plant.
2. Precision Potentiometer.
3. Precision Conductivity meter.
4. Tablet making machine.
5. Analytical balances.
6. Fortin's Barometer.
7. Cathetometer.
8. Microscope.
9. Water recirculating pump.
10. Sieve shaking machine.

7. Research done

1. Addition of alkali to a solution containing mercuric chloride and thiourea brings about the precipitation of intermediate complexes which decompose ultimately to HgS. The hypiodite method for the

determination of thiourea accordingly requires careful manipulation in the order of addition of reagents (Dr. G. Aravamudan & Shri V. R. Satyanarayana Rao).

2. Chloramine-T oxidises thiourea quantitatively to urea and sulphate ion do not interfere in alkaline medium. (Dr. G. Aravamudan & Shri V. R. Satyanarayana.)

3. Lithium nitrate forms a dioxanate of composition, $\text{LiNO}_3 \frac{1}{2}\text{C}_4\text{H}_8\text{O}_2$. The compound separates out in needle like crystals, which belong to monoclinic or orthorhombic system, on evaporation of solutions of LiNO_3 in dioxan—Methanol solvent (Dr. G. Aravamudan).

4. Aluminium alkoxides were prepared from sec-butyl alcohol and t-butyl alcohol. The conditions for their thermal decomposition were established. Aluminium oxide and butenes were the decomposition products. (Shri C. N. Pillai and Miss Ellen Haug.)

8. List of Publications

1. Journal of Catalysis **1**, 498 (1962) : Dr. J. C. Kuriacose & Shri M. C. Markham *Conversion of Isopropyl Alcohol to Acetone on Irradiated Zinc Oxide*.

2. Indian Journal of Technology **1**, 102 (1963). *The Decomposition of Ethyl Alcohol on Chromia: Part II—Effect of Products and other surface Inhibiting Agents on the course of the Reaction*. Shri S. N. Pandao, Dr. J. C. Kuriacose and Dr. M. V. C. Sastri.

3. *The system ethium sulphate-magnesium sulphate-water at 30°C*. Dr. G. Aravamudan, Canadian Journal of Chemistry, **40**, 1035-7 (1962).

4. *The system lithium sulphate-Zinc sulphate-water at 30°C*. Canadian Journal of Chemistry, **41**, 203-4 (1963) (Dr. G. Aravamudan).

5. *The determination of thiomalic acid*. Talanta **10**, 231-33 (1963) Dr. G. Aravamudan and Shri C. Rama Rao.

6. *Alumina: Catalyst and Support XV Dehydration of 2-endo and 2-exo-Bornanol and of endo-and exo-Norbornanol over Alumina Catalyst*. By Shri K. Watanabe, Shri C. N. Pillai and Shri H. Pines, J. Am. Chem. Soc., **84**, 3934 (1962).

DEPARTMENT OF MATHEMATICS

	Staff Position as on 30th June 1963				Nos.
Professors —
German Professors —
German Foremen —
Assistant Professors 2
Lecturers 2
Associate Lecturers 2
Senior Technical Assistants	 3
Junior Technical Assistants	 1

1. Teaching

The Department undertook teaching in Mathematics for the first four years of the course leading to different disciplines in Engineering.

A Post-graduate Course in Mathematics leading to M.Sc. Degree with certain amount of bias in Applied Mathematics was inaugurated in October, 1962. Besides, the Department undertook teaching in Mathematics for the corresponding M.Sc. Degree Course in Physics.

2. Seminars/Colloquia/Special Lectures

The following Seminars were arranged in the Department in the academic year 1962-63 :

<i>Speaker</i>	<i>Subject</i>
1. Dr. S. K. Srinivasan	.. <i>Stochastic Processes Associated with Random Points on a Line.</i>
2. Dr. K. J. Srivastava	.. <i>Dynamic Programming—1.</i>
3. " "	.. <i>Dynamic Programming—2.</i>
4. " "	.. <i>Dynamic Programming—3.</i>
5. Prof. Richard K. Guy, I.I.T., Delhi	.. <i>Combinatorial Analysis.</i>

In addition, Dr. S. K. Srinivasan gave the following Seminar Lectures on Radio Astronomy in Matscience, Madras :

1. *Cosmic Radio Waves.*
2. *Nature of Galactic Radio Waves.*
3. *Spiral Structure and Radio Spectrum of the Galaxy.*

3. Conferences/Symposia & Summer Schools

Dr. S. K. Srinivasan was invited for giving 4 lectures in the Summer School of Theoretical Physics held at Kodaikanal during the summer vacation under the auspices of the Ministry of Scientific Research & Cultural Affairs. The lectures related to the recent work on Photo Production developed in the Institute.

4. Research Work

Besides normal research work carried within the Department, there was active collaboration with the Institute of Mathematical Sciences, Madras, particularly in the following Projects :

- (i) Theory of Fundamental Particles.
- (ii) Astro-Physics.
- (iii) Stochastic Processes.

5. List of Publications

List of Papers published in established Journals are given below :

Dr. S. K. Srinivasan :

Stochastic Processes

- (i) *On Katz' Model for Emulsion Polymerization*—Siam Journal, Philadelphia.
- (ii) *On a Class of Non-Markovian Stochastic Processes*—Journal of Probability and Related Topics, Vienna.
- (iii) *Random Processes Associated with Random Divisions on a Line*—Siam Journal, Philadelphia.

Theory of Fundamental Particles Interaction

- (iv) *Angular Momentum Analysis of Photoproduction of Pion Pairs from a Nucleon*—Nuclear Physics, Amsterdam.

Dr. L. V. K. V. Sarma :

Fluid Flows

- (v) *Flow of an electrically conducting rotating fluid past a sphere in a cylindrical pipe*—Journal of Engineering and Science, 1962.
- (vi) *Oscillation of Axisymmetric bodies in electrically conducting rotating fluid*—Journal of Engineering and Science, 1963.
- (vii) *Magneto-Hydrodynamic Power Generation*—Submitted for presentation at the Symposium on Industrial Research.

Dr. S. C. Das and Shri R. Subramaniam : (all joint papers)

Elasticity and Plasticity

- (viii) *Bars reinforced by Hyperboloidal Type Notches under Pure Bending*—Accepted for publication in ZAMM.
- (ix) *Composite Spheroids under Concentrated Loads*—Just now completed.

Dr. S. K. Srinivasan and Shri K. S. S. Iyer : (Joint paper)

Cosmic Rays

- (x) *Fluctuation Problem on Electro-Magaetic Cascades-2*—Zeit. Schrift fur Physik, Hydelberg.

Dr. S. K. Srinivasan, Shri K. S. S. Iyer and Shri N. V. Koteswara Rao : (Joint paper)

Stochastic Processes

- (xi) *Age Dependant Stochastic Model of Population Growth*

DEPARTMENT OF PHYSICS

Staff Position as on 30th June 1963

	<i>Nos.</i>
Professors	1
German Professors	1
German Foremen	
Assistant Professors	2
Lecturers	7
Associate Lecturers	6
Senior Technical Assistants	6
Junior Technical Assistants	4
	27

1. Teaching

The M.Sc. Degree Course in Physics was started in November 1962 and eleven students were admitted into the course. A fairly modern syllabus was tentatively formed for both lectures and laboratories. The first terminal examination was held in February 1963 and students are at present in the second term of the course.

The new IV year students of the 5-year B. Tech. Course underwent a course in Modern Physics during the year under review.

2. Workshop

A small workshop has been temporarily erected for the fabrication and repairs of instruments in the Department.

Laboratories :

The laboratories of the I and II Year B. Tech. students were shifted to the main Science and Humanities Building from their places in the C.E. Block. The present laboratory can accommodate batches of 60 students at a time for doing experiments in mechanics, heat, sound and electricity magnetism. A start has been made to set up the optics laboratory for the III year students. It is hoped that the III year students will undergo practical training in optics during the year 1963-64.

The M.Sc. laboratories have been tentatively started with indigenous equipment to do advanced experiments in mechanics, heat and electricity and optics.

Research laboratories :

Attempts have been made to set up laboratories for research in the following fields :

1. X-ray Crystallography.
2. Solid State Physics.

The laboratories are still in the process of building up.

Research done :

Active research has been started in the following fields :

- Crystal structure analysis by X-rays.
- Low temperature X-ray diffraction work.
- Theory of thermal expansion in crystals.
- Thermal conductivity and magneto optics.

3. Seminar Lectures

	<i>Speaker</i>	<i>Subject</i>	<i>No. of lectures</i>
1.	Dr. S. K. Srinivasan ..	<i>Methods of mathematical physics. (Complex variables)</i>	6
2.	Prof. W. Koch ..	<i>Deionisation phenomena</i>	3
3.	Shri B. S. V. Gopalam ..	<i>Free electron theory of semi-conductors.</i>	2
4.	Dr. K. J. Srivastava ..	<i>Vectors analysis</i>	8
5.	Dr. C. Ramasastry ..	<i>Elements of Solid State Physics</i>	4
6.	Dr. B. V. Ramanamurthy	<i>Fundamentals of Crystallography</i>	5
7.	Dr. C. K. Narayanaswamy	<i>Infrared spectroscopy</i>	2
8.	Shri S. Srinivasan	<i>Defects in solids</i>	2
9.	Shri C. V. Ramaiah ..	<i>Imperfections in crystals</i>	2
10.	Shri Y. V. G. S. Murthy ..	<i>Crystal anisotropy</i>	4
11.	Shri S. Srinivasan ..	<i>Nuclear magnetic resonance</i>	1
	-do-	<i>Masers</i>	1
12.	Prof. S. Ramaseshan ..	<i>Galvanomagnetic effects</i>	1
13.	Prof. S. Ramaseshan ..	<i>Protein structure</i>	1
14.	Prof. S. Ramaseshan ..	<i>Fundamentals of X-ray Crystallography</i>	2
15 to 20.	Dr. R. Srinivasan ..	<i>Thermal properties of solids</i>	6
21 & 22.	Prof. W. Koch ..	<i>Mossbauer Effect</i>	1

4. Major equipment procured

Dumont Cathode Ray Oscillograph, Wave analyser, D.C. Amplifier and Electrometer, Electromagnet, Solartron Transfer Function Analyser, Swift model polarizing microscope, Abbe Refractometer, Research Spectrometer Universal Flat, Plate Camera, Goniometer head for camera, Liliput 120 monotank Industrial X-ray equipment, Nonious General purpose camera, Philips conductivity measuring bridge, Philips universal measuring bridge, Zeiss Amature astronomical telescope, Honewell Potentiomagnetic recorder, Electromagnet Research type.

5. Publications

- Dr. S. Ramaseshan .. 1. Crystal and Molecular structure of Echitamine iodide by the X-ray technique.
Zeits. fur. Krist (1962).
2. The absolute Configuration of Echitamine iodide by the X-ray technique.
Proc. Ind. Acad. Sci. (1963) **58A**, 109.
3. A back reflection X-ray Camera for thermal-expansion studies and the thermal expansion of NaCl. from 180°C to 200°C.
Zeit. fur. Krist. 1963, **119**, 79.
4. Some procedures in the Determination of the Absolute Configuration of crystals.
Crystallography and Crystal Perfection Academic Press (Lond.) 1963, p. 243.
- Shri A. K. Singh & Dr. S. Ramaseshan .. 5. An integrating Weissenberg Camera for Low and High Temperature Studies.
Crystallography and Crystal Perfection Academic Press (Lond.) 1963, p. 309.
- Dr. R. Srinivasan .. Lattice Dynamics of Cubic perovskite Crystals, in particular Sr Ti O₃.
J. Physics and Chemistry of solids, **23**, 633, 1962.
Temperature variation of the effective Gruneisen parameter in CSCI type of structures.
Proceedings of the Royal Society of London **271A**, 154, 1963.
- Dr. B. V. Ramanamurthy & Shri E. M. Gopalakrishna .. An X-ray analysis of metachloro-nitro benzene.
Zeitschrift fur Kristallographie **117**, 4, 1962, pp. 319-320.

HOSTELS

KAVERI HOSTEL

The hostel started its activities for the year 1962-63 from the 1st July, 1962.

Dr. D. V. Reddy relinquished the post of Warden in the early part of the year and Dr. P. Venkata Rao took over. Dr. K. J. Srivastava left the Hostel and Shri J. Joseph joined as Asst. Warden. Since C. S. Swamy left the Asst. Wardenship in June 1962 itself, Shri M. A. Veluswamy came to the hostel as Asst. Warden.

During the month of July 1962 itself, new mess committees were elected and the representatives took active part in running the mess smoothly and economically, in spite of the higher cost of living. It should be said to the credit of the representatives, mess staff and the Asst. Wardens, that the mess rates were controlled and kept within reasonable limits.

Special dinner and after-dinner-talks were held on numerous occasions.

Important festivals, like Ayudha Puja, Holi and Deepavali were held with the usual eclat.

KRISHNA HOSTEL

The hostel re-opened in July 1962 with Dr. C. Ramasastry and Shri D. S. Subramanyam as Warden and Assistant Warden respectively. Shri A. C. Gangadharan was posted in the place of Shri Sur who was transferred to the Narmada Hostel. During the months of July and August direct entrants of 2nd year and M.Sc. students joined the hostel.

On the 7th August, 1962 elections were held for memberships to the various committees. Independence Day was celebrated in a fitting manner. Holi and Diwali were celebrated with enthusiasm. The inmates of the hostel contributed a handsome amount towards the National Emergency Fund.

NARMADA HOSTEL

This hostel was ushered into existence on the 8th July 1962. The newly admitted students of the I year of the 5-year B. Tech. Degree Course occupied the rooms in the hostel. Professor S. Sampath of the Department of Electrical Engineering took charge as Warden of the hostel, with Shri S. Sur of the Mechanical Engineering Department

and Shri V. S. Kumar of the Humanities Department as Assistant Wardens.

Construction work continued for a few months after the inauguration of the hostel and the students cheerfully put up with some of the hardships.

Elections for the Hostel Committees and the Gymkhana Committees were duly held in August 1962. Shri Jaideep Singh was elected Hostel Secretary for the year. The Common Room, comprising a Reading Room Section and the Table Tennis Section, started functioning in November 1962.

In response to the National Emergency, the students of the hostel made a generous contribution of Rs. 7,000 and several of them donated blood.

In the Hostel Tournaments, Shri D. S. Ray and Shri Jagannathan won First Prizes for Carroms and Chess. The Table Tennis Matches generated much interest and enthusiasm. Shri Jaideep Singh won the Single's Title. The Prize Distribution ceremony was presided over by the Warden. Shri S. P. Shukla and his group won the second place in the Group Discussion Competition held by the Institute Gymkhana.

Republic Day on 26th January 1963 was celebrated with a Dinner and Entertainment Programme in the hostel. Prof. B. Sengupto and Shrimathi Sengupto graced the occasion by their presence.

The Warden and the Assistant Wardens would like to place on record their gratitude to the Director, Registrar, Superintending Engineer and all other staff-members of the Institute, who have in one way or another contributed to the successful functioning of the hostel. The hostel staff rendered excellent service during the year.

The fact that the residents of the hostel came from different parts of India and had to live under one set of environmental conditions for a common purpose helped all of them to develop a sense of unity. Food was the greatest problem of all, but with tolerance and goodwill the Hostel succeeded in putting through some measures for integration in this regard. The hostel looks forward to the future with confidence and optimism.

LIBRARY

1. Number of books added during the period

Upto the end of June 1962	..	..	..	20,508
Between July 1962 and June 1963	..	..	..	4,814
Total number of volumes acquired till the end of June 1963				25,322

2. Journals

Total number of journals received during 1962-63

No. of journals arranged department-wise

<i>S. No.</i>	<i>Department</i>	<i>No. of Journals Received</i>	<i>Gift</i>	<i>Total Received</i>
<i>Humanities :</i>				
1.	Gymkhana	8	..	8
2.	English	16	..	16
3.	Psychology .. .. .	..	..	..
4.	History & Culture	6	..	6
5.	Economics	28	1	29
6.	General	30	4	34
<i>Sciences :</i>				
7.	Mathematics	78	1	79
8.	Applied Mechanics	3	..	3
9.	Physics	79	2	81
10.	Electrical Engineering	42	1	43
11.	Mechanical Engineering	55	2	57
12.	Civil Engineering	93	1	94
13.	Chemistry	79	..	79
14.	Chemical Engineering	39	..	39
15.	Metallurgy	31	2	33
Total number of journals received ..		587	14	601

3. Binding

No. of periodicals bound during the year under Review—1962-63 and repairing damages to books, if any.

Periodicals ..	870
Books ..	769

4. Gifts

Names of organisations from where books, pamphlets, circulars and other reading materials have been received free as gifts.

Names of Organisations

1. The Institution of Chemical Engineers, London.
2. I.I.T., Kharagpur.
3. Managing of Board of Demag Aktien-gesellschaft, Duisburg.
4. Director of Coir Board, Kalavoor.
5. Ministry of Transport and Communications, Govt. of India.
6. British Information Services, Madras.
7. Head, Heat Division, Dept. of Scientific and Industrial Research, National Engineering Lab., East Kilbride, Glasgow, U.K.

8. Siemens Engineering & Manufacture Co. of India (P.) Ltd., Madras-6.
9. Federal Republic of Germany, Madras.
10. The SKF Ball Bearing Co., Bombay.
11. The Rand Corporation, California.
12. Imperial Chemical Industries, Madras-1.
13. Mr. J. S. Creig, Librarian, Engineering Library, University of Melbourne, Parkville, N2, Victoria.
14. The Secretary General, Indian National Commission for Co-operation with UNESCO, Government of India, Ministry of Education, New Delhi.
15. Die Welt, Hawburg, W. Germany.
16. C.S.I.R., New Delhi.

5. Library Co-operation

Names of Libraries from where books and journals were obtained on Inter-Library loan system :

1. INSDOC, New Delhi.
2. Max Mueller Bhavan, Madras-2.

6. Expenditure during 1962-1963

	Rs.
Books	78,430
Journals (includes cost of journals of general interest Rs. 1,328 only)	53,337
Back issues of journals	23,113
Operating cost	580
Binding charges	3,997

7. Back Volume

List of Back Volumes available and on Order will be found in *Appendix VIII*.

N.C.C. RIFLES

The N.C.C. activities got off to a flying start in July 1962, at the beginning of the academic year, with a total strength of 360 cadets. The Companies were in the over-all charge of 2/Lt. Rayudu and 2/Lt. Radhakrishnan.

The National Cadet Corps activities of the year got into their stride from July itself. The total strength of the two companies reached a maximum of 360. The companies were in the charge of 2/Lt. G. V. N. Rayudu and 2/Lt. P. Radhakrishnan.

Forty-five cadets and one officer participated in the annual training camp at Ketti, Nilgiris, during April-May, 1962. The group came out with flying colours winning the best Guard Cup and 2/Lt. Rayudu securing the third prize in the Officers' shooting competition.

Lt. Gen. Kumaramangalam visited the unit and inspected the parade on 16th October 1962. He was very much impressed by the smartness and turn-out of our cadets.

One officer and sixty-five cadets of our unit participated in the N.C.C. Day celebration on the 18th November 1962. It is worthy of note that our unit was chosen to lead 2 Madras Group N.C.C. Rifle.

On the occasion of the visit of Dr. Heinrich Luebke, President of the Federal Republic of Germany, to the Institute, the N.C.C.R. had the privilege, with Circle Commander Commodore Heble and Group Commander Major Nair, of welcoming His Excellency.

In view of the emergency, N.C.C. training has been intensified from November 1962. We are happy to record that our cadets decided unanimously to forego their parade refreshments and make the money available for the National Defence Fund.

All in all, the N.C.C. had to its credit a year of useful and distinguished service.

APPENDIX I

Details regarding the Joint Entrance Examination held in May 1962

Total number of Applications registered from the Southern Zone for the session 1962-63 (State-wise)

Madras State	..	1,105
Andhra	..	681
Kerala	..	483
Mysore	..	304
Gujarat	..	1
Delhi	..	3
Maharashtra	..	4
Assam	..	1
West Bengal	..	6
Punjab	..	2
Uttar Pradesh	..	1
Rajasthan	..	2
Madhya Pradesh	..	2
Foreign	..	8
		2,603

Number appeared for the Entrance Examination from the Southern Zone for the session 1962-63 (State-wise)

Madras	..	983
Andhra	..	570
Kerala	..	403
Mysore	..	257
Gujarat	..	1
Delhi	..	3
Maharashtra	..	2
Assam	..	1
West Bengal	..	3
Punjab	..	1
Uttar Pradesh	..	1
Rajasthan	..	2
Madhya Pradesh	..	2
Foreign	..	7
		2,236

Total number qualified at the Examination (State-wise)

Madras	..	47
Andhra	..	17
Mysore	..	27
Kerala	..	6
Delhi	..	1
Maharashtra	..	1
		99

Dates of Interview :

19th, 23rd, 24th, and 28th June, 1964.

Number appeared for Interview (State-wise)

Madras	..	46
Mysore	..	25
Andhra	..	15
Kerala	..	6
Delhi	..	1
Maharashtra	..	1
	—	94

Number Selected (State-wise)

Madras	..	45
Mysore	..	25
Andhra	..	14
Kerala	..	5
Delhi	..	1
Maharashtra	..	1
	—	91

*Number rejected : 3 (On Medical grounds)**Number admitted Institute-wise (From the Southern Zone)*

I.I.T., BOMBAY	..	8
I.I.T., KANPUR	..	1
I.I.T., KHARAGPUR	..	6
I.I.T., MADRAS	..	71
	—	86

*Total number admitted to I.I.T. Madras
(Course-wise)*

Mechanical	..	60
Electrical	..	41
Chemical	..	45
Civil	..	37
Metallurgy	..	25
	—	208

Total number admitted to I.I.T. Madras (State-wise)

Madras	..	49
Kerala	..	8
Uttar Pradesh	..	30
Punjab	..	21
Jammu & Kashmir	..	1
Bihar	..	4
Orissa	..	2
Maharashtra	..	6
Mysore	..	18
Andhra	..	12
Rajasthan	..	2
Delhi	..	38
Himachal Pradesh	..	4
West Bengal	..	11
Assam	..	1
Foreign	..	1
	—	208

For direct admission to the Second Year Class (Session 1962-63)

Number of applications received	..	274
Number admitted	..	18

APPENDIX II

Scholarships

I. Institute Scholarships

(a) <i>Undergraduate :</i>	
Merit ..	39
Merit-cum-means : ..	89
Free studentships ..	37
(b) <i>Post-graduate</i> ..	17

II. External Scholarships

<i>Sl. No.</i>	<i>Name of sanctioning authority</i>	<i>Nature of scholarships</i>	<i>No. of students</i>	<i>Value per month</i>
1.	Government of India Ministry of Education	Merit Scholarship	9	Rs. 100
2.	Director of Technical Education, Assam	Engineering Scholarships	1	Rs. 75
3.	„	„	1	Rs. 60
4.	Secretary, State Scholar- ship Board for Back- ward and other Back- ward Classes, Assam	Government of India Scholarship	3	Rs. 75
5.	Government of Orissa Public and Rural Welfare Department	Government of India Scholarship	2	Rs. 75
6.	Director of Harijan Welfare, Madras	Government of India Scholarship	5	Rs. 75
7.	„	State Scholar- ship	1	Rs. 40
8.	Director of Social Welfare, Maharashtra State	Government of India Scholarship	3	Rs. 75
9.	Director of Social Wel- fare, Andhra Pradesh	Government of India Scholarship	5	Rs. 75
10.	„	State Scholar- ship	1	Rs. 45
11.	Director of Public In- struction, Andhra Pradesh	Political sufferer's Scholarship	2	Rs. 35
12.	The Nideshak Harijan Kalyan, U.P.	Government of India Scholarship	1	Rs. 75
13.	Director of Harijan Welfare, Kerala	Government of India Scholarship	1	Rs. 75

<i>Sl. No.</i>	<i>Name of sanctioning authority</i>	<i>Nature of scholarships</i>	<i>No. of students</i>	<i>Value per month</i>
14.	Director of Tribal Welfare, West Bengal	Government of India Scholarship	2	Rs. 75
15.	Under Secretary, Administration Himachal Pradesh	Stipend	1	Rs. 60
16.	Director of Social Welfare, Mysore	Government of India Scholarship.	1	Rs. 75
17.	Director of Public Instruction, Punjab	Government of India Scholarship		Rs. 75
18.	Director of Education, Himachal Pradesh	Government of India Scholarship		Rs. 75
19.	Director of Education, Himachal Pradesh	National Scholarship	1	Rs. 55
20.	Director of Education, Gujarat State	"	1	Rs. 55
21.	Director of Public Instruction, Madras	"	2 8	Rs. 55 Rs. 110
22.	Director of Collegiate Education, Mysore	"	2 1	Rs. 110 Rs. 55
23.	Director of Public Instruction, Andhra Pradesh	"	2 2	Rs. 110 Rs. 55
24.	Director of College Education, Kerala	"	1	Rs. 110
25.	M/s. Tata Iron and Steel Co. Ltd., Jamshedpur	Jubilee Scholarship	2	Rs. 125
26.	Atomic Energy Establishment, Bombay	Undergraduate Scholarship	2	Rs. 150
27.	Prime Minister's Aid Fund	Financial Aid	3	Rs. 125
<i>Loan</i>				
28.	Orissa Loan Stipend Fund.		5	Rs. 1375 per year
29.	Loan from Government of Punjab.		1	Rs. 500 per year
30.	Loan from Government of Kashmir.		1	Rs. 1094 per year.

APPENDIX III

List of Students who were awarded prizes during 1962-63

Branch	Name of student and year	Prize awarded	Value of prize
5-Year B.Tech. Degree Course			
<i>First Year</i>			
	Shri Sidhu Gurusharan Singh (1.003/62)	I	Rs. 50
	Shri Gaur Rishiraj (1.126/62)	II	Rs. 25
<i>Second Year</i>			
	Shri H. K. Vishwanatha Rao (1.131/61)	I	Rs. 50
	Shri V. Srinivasan (Venkata- raman) (1.110/61)	II	Rs. 25
<i>Third Year</i>			
Civil Engineering	Shri K. M. Kripanarayanan (1.031/60)	I	Rs. 50
Mechanical Engineering	Shri C. V. Sahasranaman (1.088/60)	II	Rs. 50
Electrical Engineering	Shri C. P. Muthukrishnan (1.051/60)	I	Rs. 50
Chemical Engineering	Shri R. V. S. Mani (1.043/60)	II	Rs. 50
Metallurgy	Shri M. Narayanankutty Menon (1.058/50)	I	Rs. 50
<i>Fourth Year</i>			
Civil Engineering	Shri B. S. Sudhir Chandra (1.078/59)	I	Rs. 50
Mechanical Engineering	Shri S. R. Thangavelu (1.081/59)	I	Rs. 50
Electrical Engineering	Shri G. N. Sarma (2.012/60)	I	Rs. 50
Chemical Engineer- ing	Shri P. S. Krishnamoorthy (1.032/59)	I	Rs. 50
Metallurgy	Shri R. Natarajan (1.047/59)	I	Rs. 50
M.Sc. Degree Course—I Year Class			
Physics	Shri R. Ramaswamy (5/M.Sc./Phy/62)	I	Rs. 50
Mathematics	Shri B. Nagabhushanam (13/M.Sc./Maths/62)	I	Rs. 50

APPENDIX IV

RECEIPTS AND PAYMENTS ACCOUNT

RECEIPTS

			Rs.	P.	Rs.	P.
A.	Opening Balance	..	..		36,54,350.	17
B.	<i>Grant from Government of India:</i>	..	..	
	(1) On Capital Account.	..	..		1,27,00,000.	00

Carried over ..

1,63,54,350.17

FOR THE YEAR 1962-1963

PAYMENTS

	Rs.	P.	Rs.	P.
A. On Capital Account :				
I. Works & Buildings :				
Works expenditure—Buildings			1,07,52,451.87	
II. Equipments, Furniture & fittings (Departments)				
Civil Engineering.	1,40,183.80			
Mechanical Engineering.	20,262.82			
Workshops	64,204.50			
Electrical Engineering	97,365.48			
Chemical Engineering	73,559.19			
Metallurgy	30,979.47			
Applied Mechanics	44,562.37			
Chemistry	71,841.44			
Physics	2,07,754.84			
Mathematics	1,588.86			
Humanities.. ..	615.59			
			<hr/>	
			7,52,918.36	
III. (1) Customs Duty on West German Equipment				
	5,91,797.63			
(2) Clearance charges etc.				
	14,590.36			
			<hr/>	
			6,06,387.99	
IV. Furniture and Fittings (Office, Library & Institute)				
			3,75,462.31	
V. (1) Hostels Utensils				
	23,177.48			
(2) Furniture & Fittings				
	53,299.36			
			<hr/>	
			76,476.84	
VI. Motor Vehicles				
	49,891.70			
Cycles	38.89			
Typewriters and duplicators	15,996.33			
			<hr/>	
			65,926.92	
VII. Books and Journals				
(1) Books	83,407.37			
(2) Back issues of journals	80,736.77			
			<hr/>	
			1,64,144.14	
Carried over			<hr/>	
			1,27,93,768.43	

Receipts and Payments Account

RECEIPTS		Rs.	P.	Rs.	P.
	Brought forward ..			1,63,54,350.17	
B.	<i>Grant from Government of India :</i>				
	(2) On Revenue Account ..				9,00,000.00
C.	<i>Academic Section :</i>				
	Tuition fee	89,150.00			
	Hostel seat rent	60,015.00			
	Athletics & Medical Fees	13,816.00			
	Fines	440.00			
				<u>1,63,421.00</u>	
D.	<i>Other Receipts :</i>				
	Application fees from students ..	28,126.00			
	-do- for advertised posts ..	12,887.30			
	Admission fees	2,740.00			
	Institute Bus collections	7,275.64			
	Gymkhana	1,219.10			
	Sale of Railway Concession forms ..	112.87			
	Library over-due charges	1,098.95			
	Sale of tender forms	761.00			
	Sale of instruction sheets	191.00			
	Hire charges of Institute vehicles ..	648.64			
	Sundry receipts	3,021.72			
	Licence fee for shops at the Shop- ping Centre	135.00			
				<u>58,217.22</u>	
E.	<i>Receipts from Buildings :</i>				
	Rent of buildings	16,056.93			
	Electricity and water supply	931.87			
				<u>16,988.80</u>	
F.	<i>Lands and Gardens :</i>				
	Auction sale of grass etc. ..				4,732.25
	Carried over ..				<u>1,74,97,709.44</u>

for the Year 1962-1963—(Contd.)

PAYMENTS

	Rs.	P.	Rs.	P.
Brought forward ..			1,27,93,768.43	
B. On Revenue Account :				
(1) Academic Sections :				
<i>Pay and allowances of Teaching staff :</i>				
Physics	83,376.66			
Civil Engineering	77,459.23			
Mechanical Engineering	1,16,105.11			
Applied Mechanics	43,679.65			
Chemical Engineering	42,678.07			
Chemistry	65,245.87			
Electrical Engineering	79,747.23			
Mathematics	41,664.97			
Metallurgy	46,543.56			
Humanities	30,480.02			
			<u>6,26,980.37</u>	
(2) Pay and allowances of Non-Teaching staff :				
Physics	46,198.94			
Civil Engineering	28,323.43			
Mechanical Engineering	19,786.09			
Applied Mechanics	9,498.69			
Chemical Engineering	38,981.05			
Chemistry	30,559.62			
Electrical Engineering	25,032.20			
Mathematics	19,490.01			
Metallurgy	20,783.08			
Humanities	12,129.52			
			<u>2,50,782.63</u>	
(3) (a) Departmental Expenses :				
Physics	14,965.22			
Civil Engineering	7,470.15			
Mechanical Engineering	16,539.15			
Applied Mechanics	9,139.53			
Chemical Engineering	1,07,126.48			
Chemistry	31,342.13			
Electrical Engineering	21,764.57			
Mathematics	115.25			
Metallurgy	22,850.27			
Humanities	20.26			
			<u>2,31,333.01</u>	
Carried over			<u>1,39,02,864.44</u>	

*Receipts and Payments Account***RECEIPTS**

	Rs.	P.
Brought forward ..	1,74,97,709.44	

Carried over

1,74,97,709.44

for the Year 1962-1963—(Contd.)

PAYMENTS

	Rs.	P.	Rs.	P.
(3) (Contd.)				
Brought forward			1,39,02,864.44	
(b) Others :				
<i>Institute scholarships :</i>				
Under-Graduate Scholarships ..	1,04,400.00			
Post-Graduate & Research scholar- ship	9,457.26			
Technical Bulletins & Journals ..	1,880.30			
N.C.C.	133.48			
Athletic & Gymkhana (including pay and allowances) ..	42,838.26			
T.A. for excursion and surveys ..	1,624.55			
Prizes	432.61			
Part-time Lecturers & visiting Professors	686.74			
	<hr/>		1,61,453.20	
(4) <i>Other Sections :</i>				
(a) <i>Central Administration :</i>				
(1) Pay and allowances—Officers, Director, etc.	64,482.95			
(2) Pay and allowances—Estab- lishment.	2,41,950.81			
	<hr/>		3,06,433.76	
(b) <i>Library (Estt.) :</i>				
Pay and allowances	30,079.76			
Contingencies (Operating cost etc.)	5,683.12			
Journals of general interest ..	294.77			
	<hr/>		36,057.65	
(5) <i>Contingencies :</i>				
Postage	13,766.43			
Entertainment	1,799.94			
Telephones	12,955.06			
Stationery	41,080.56			
Printing	4,017.69			
Advertisement	1,11,885.44			
Electricity	26,839.77			
Sundries	14,083.02			
	<hr/>		2,26,427.91	
Carried over ..			<hr/>	
			1,46,33,236.96	

Receipts and Payments Account

RECEIPTS

	Rs.	P.
Brought forward ..	1,74,97,709.44	

Carried over ..

1,74,97,709.44

for the Year 1962-1963—(contd.)

PAYMENTS		Rs.	P.	Rs.	P.
Brought forward ..				1,46,33,236.96	
 (6) <i>Other items :</i>					
Director's Discretionary Fund (Expenses)		428.85			
Oil & Petrol		9,221.50			
Furniture repairs and services		202.31			
Examination fees to examiners		9,535.24			
Transportation charges, etc.		141.94			
Duty Insurance and Road taxes		4,820.00			
Lodging allowance to German Experts		65,596.48			
Joint Entrance Examination		27,158.18			
Customs Duty on personal effects of West German Experts		72,922.45			
Repairs to and maintenance of motor vehicles and cycles		6,576.93			
Typewriters and duplicators		240.00			
Rent on Buildings		22,612.40			
Audit charges		2,700.00			
 T.A. for members of					
(a) Board of Governors		1,007.90			
(b) Staff Committee (Selection Committee)		8,156.60			
(c) Finance Committee		684.00			
(d) Candidates called for interview		23,204.89			
(e) Members of Advisory Committee/External examiners		2,223.47			
(f) Admission Committee		71.18			
(g) Scientific Congress and Seminars		2,076.05			
(h) Planning Committee & Experts Committee		2,478.06			
(i) Joint Entrance Examination		4,290.25			
		<hr/>		2,66,348.68	
 (7) <i>Stores :</i>					
Pay and allowances—Officers		8,847.79			
Establishment		28,186.15		37,033.94	
		<hr/>			
 (8) <i>Workshops :</i>					
Pay and allowances—Establishment		87,723.10			
Contingencies		52,545.93		1,40,269.03	
		<hr/>			
 (9) <i>Hostels</i>					
				27,732.38	
 Carried over ..				<hr/>	1,51,04,620.99

Receipts and Payments Account

RECEIPTS

	Rs.	P.	Rs.	P.
Brought forward ..			1,74,97,709.44	

(b) *Recovery of advances :*

(1) Motor Car and other conveyances.. ..

24,733.00

(2) Customs Duty

10,94,640.61

(3) *Others :* Festival advances ..

12,870.00

D.G.S.D. ..

54,852.42

Letters of Credit ..

1,140.86

Others

1,06,334.25

12,94,571.14

B. *Deposits received :*

(1) External Scholarship ..

68,976.92

(2) Contractors' Deposits

On works .. 4,57,763.74

Others .. 9,200.00

4,66,963.74

(3) Students' Caution Deposits ..

6,825.00

(4) Miscellaneous Deposits

C.S.I.R.

9,592.15

Miscellaneous

88,231.75

6,40,589.56

Total ..

1,94,32,870.14

for the Year 1962-1963—(contd.)

PAYMENTS

	Rs. P.	Rs. P.
Brought forward ..		1,51,04,620.99
(10) <i>Lands & Gardens :</i>		
Honorarium to Horticulturist ..	4,800.00	
Wages to daily labourers ..	10,567.00	
Purchase of seeds, plants and manures	582.44	
	<hr/>	15,949.44
(11) <i>Medical :</i>		
Honoraria and conveyance allowances to part-time Medical Officer ..	5,796.00	
Medical Dispensary	1,584.46	
Medical Aid Fund	2,653.57	
	<hr/>	10,034.03
(12) <i>Security</i>		25,706.82
(13) <i>Works and maintenance</i> ..		65,617.35
(14) <i>Contribution to C.P. Fund</i> ..		92,078.00
(15) <i>Leave salary and pension contribution</i>		5,774.44
(16) <i>Advances :</i>		
Motor car and other conveyance ad- vances	41,535.00	
Customs Duty	11,41,000.00	
Others misc. advances :		
Festival	14,044.00	
D.G.S.D.	26,274.46	
Letters of Credit	25,202.13	
Others	97,284.48	
	<hr/>	13,45,340.07
(17) <i>Refund of deposits :</i>		
External scholarships	67,555.82	
Contractors Deposits :		
Works	2,49,425.13	
Others	5,060.00	
	<hr/>	2,54,485.13
Students' Caution Deposits ..	475.00	
Miscellaneous Deposit (Other misc.) ..	42,157.29	
C.S.I.R.	6,404.00	
	<hr/>	3,71,077.24
(18) <i>Closing balance</i>		23,96,671.76
		<hr/>
Total ..		1,94,32,870.14

Balance Sheet

CAPITAL AND LIABILITIES		Rs. P.	Rs. P.
<i>Capital Fund :</i>			
Block value of German aid <i>per contra</i>			
Equipment .. .. .	..	68,34,178.20	
Technical Books and Journals ..	..	1,41,431.25	
		<hr/>	
		69,75,609.45	
Capital Grants and Surplus of income over expenditure as on 31st March 1962 ..	1,82,21,711.25		
Add : Capital Grant for 1962-1963 ..	1,27,00,000.00		
	<hr/>		
	3,09,21,711.25		
Less : Excess of Expenditure over Income ..	12,90,738.10		
	<hr/>	2,96,30,973.15	
			3,66,06,582.60
<i>Deposits :</i>			
Earnest money, Caution and other deposits			10,41,544.35
<i>Sundry Creditors :</i>			
On works account (Purchases) ..	..	2,65,415.69	
For supplies to the Departments (Bills payable) .. .. .	..	2,58,868.62	
		<hr/>	
			5,24,284.31
<i>Outstanding expenses payable :</i>			
Pay and allowances .. .. .	..	1,38,992.63	
Other allowances (Medical) .. .. .	..	371.63	
Scholarships .. .. .	..	11,575.00	
L.S. & P.C. on account of F.S. Personnel ..	..	439.54	
C.P.F. Contribution .. .. .	..	8,269.00	
Rent on buildings .. .. .	..	17,738.39	
Lodging allowances to German Experts ..	..	1,929.02	
Electricity charges .. .. .	..	6,358.47	
Telephones .. .. .	..	262.35	
N.M.R. Wages .. .. .	..	5,360.78	
Audit fees .. .. .	..	1,190.00	
		<hr/>	
			1,92,486.81
			<hr/>
			3,83,64,898.07
	Carried over ..		

as on 31st March 1963

PROPERTY AND ASSETS

	Rs. P.	Rs. P.
<i>Buildings :</i>		
Cost of completed Buildings as on 31st March 1962	42,06,448.99	
Add : Buildings completed during the year	16,19,168.87	
	<u>58,25,617.86</u>	
<i>Buildings under construction :</i>		
Expenditure as on 31st March 1962	61,15,185.21	
Add : Expenditure for the year	1,01,34,584.60	
	<u>1,62,49,769.81</u>	
Less : Transferred to completed Buildings account	16,19,168.87	
	<u>1,46,30,600.94</u>	2,04,56,218.80
<i>Equipment, Furniture and Fittings :</i>		
At cost as on 31st March 1962	16,16,516.45	
Add : Additions during the year	13,03,462.83	
	<u>29,19,979.28</u>	
Block value of equipments from Germany as on 31st March 1963	43,01,209.00	
Add : Additions during the year	25,32,969.20	
	<u>68,34,178.20</u>	
Customs Duty and Clearing charges on equipments from West Germany as on 31st March 1962	7,42,674.30	
Add : Expenditure during the year	6,09,644.94	
	<u>13,52,319.24</u>	1,11,06,476.72
Motor vehicles at cost as on 31-3-62	1,14,455.69	
Add : Additions during the year	49,891.70	
	<u>1,64,347.39</u>	
Library books and Scientific Journals at cost as on 31st March 1962	3,67,570.05	
Add : Additions during the year	1,64,515.45	
	<u>5,32,085.50</u>	3,17,27,042.91
Carried over	5,32,085.50	3,17,27,042.91

Balance Sheet

CAPITAL AND LIABILITIES

Brought forward ..

Rs. P.

3,83,64,898.07

Total

3,83,64,898.07

as on 31st March 1963—(contd.)

PROPERTY AND ASSETS

		Rs. P.	Rs. P.
Brought forward ..		5,32,085.50	3,17,27,042.91
<i>Library—(Contd.)</i>			
Block value of Technical books and journals from West Germany as on 31st March 1962 ..	1,21,231.25		
<i>Add: Additions during the year</i> ..	<u>20,200.00</u>	1,41,431.25	6,73,516.75
<i>Typewriters and duplicators :</i>			
At cost as on 31st March 1962 ..		30,043.77	
<i>Add: Additions during the year</i> ..		<u>15,996.33</u>	46,040.10
Cycles at cost as on 31st March 1962 ..		1,142.97	
<i>Add: Additions during the year</i> ..		<u>38.89</u>	1,181.86
Stock of stationery articles as on 31st March 1963 ..			12,433.23
Stock of consumable stores (with departments) as on 31st March 1963 ..			3,88,123.21
Stock of construction (works materials, etc.) ..			10,69,428.32
Fees receivable ..			2,944.00
Rent recoverable ..			1,269.60
Stamps on hand ..			6,955.90
<i>Advances and Deposits :</i>			
Works advances ..		15,45,752.93	
Others (General) ..		<u>4,93,037.50</u>	20,38,790.43
<i>Closing balances :</i>			
Office Imprest Cash ..		500.00	
Cash on hand (including temporary advances) ..		18,318.04	
With State Bank of India, Saidapet ..		<u>23,78,353.72</u>	23,97,171.76
Total ..			<u><u>3,83,64,898.07</u></u>

for the Year ended 31st March 1963

INCOME

	Rs.	P.	Rs.	P.
A. Grant from Government of India on Revenue Account			9,00,000.00	
 B. General Income :				
Tuition fees	90,400.00			
Seat Rent in Hostels	60,865.00			
Admission fees	2,740.00			
Athletic and Gymkhana fees	13,816.00			
Application fees	28,126.00			
Application fees for appointment	12,887.30			
Fines	440.00			
			<u>2,09,274.30</u>	
 C. Miscellaneous Receipts :				
<i>Buildings</i> : Rent for quarters etc.	17,326.53			
Electricity and Water charges	931.87			
Gymkhana Fund	1,219.10			
Institute Bus Collections	7,275.64			
Hire of Institute vehicles	648.64			
Library over-due collections	1,098.95			
Sale of instruction sheets	191.00			
Tender forms	761.00			
Auction sale of grass etc.	4,732.25			
Other sundry receipts	3,289.59			
			<u>37,474.57</u>	
Excess of expenditure over income			12,90,738.10	

Carried over ..

24,37,486.97

Income and Expenditure Account

EXPENDITURE

	Rs.	P.	Rs.	P.
Brought forward	4,77,207.25		9,22,744.57	
<i>Departmental Expenses—(Contd.)</i>				
Less : Cost of consumable stores as on 31st March 1963	3,88,123.21		89,084.04	
B. Other Expenses :				
<i>Institute Scholarships :</i>				
P.G. Scholarships	11,657.26			
U.G. Scholarships	1,06,350.00			
Technical Bulletins and Journals	1,880.30			
N.C.C.	283.48			
Athletic & Gymkhana	43,385.25			
Excursions and Surveys	1,624.55			
Prizes	432.61			
Visiting Professors	686.74			
			<u>1,66,300.19</u>	
C. Other Sections :				
<i>(a) Central Administration :</i>				
(1) Pay and allowances—Director & other officers	66,093.96			
(2) -do- Administrative staff	2,45,979.02			
			<u>3,12,072.98</u>	
<i>(b) Library :</i>				
Pay and allowances	30,864.90			
Contingencies	5,683.12			
Purchase of journals of general interest	294.77			
			<u>36,842.79</u>	
<i>(c) Contingencies :</i>				
Postage	10,375.29			
Entertainment	1,799.94			
Telephones	12,475.69			
Stationery—Purchase for the year .. 39,606.90				
Less : Cost of stock as on 31st March 1963 .. 12,433.23				
			<u>27,173.67</u>	
Printing	2,059.61			
Advertisement	1,10,925.32			
Electricity	25,024.84			
Sundries	14,914.98			
			<u>2,04,747.34</u>	
Carried over			<u>17,31,791.91</u>	

for the Year ended 31st March 1963—(contd.)

INCOME

Rs. P.

Rs. P.
24,37,486.97

Carried over ..

24,37,486.97

Income and Expenditure Account

EXPENDITURE

	Rs.	P.	Rs.	P.
Brought forward ..			17,31,	791.91
D. Other items :				
Director's discretionary fund ..	428.85			
Oil & Petrol	8,397.67			
Furniture Repairs and Services ..	202.31			
Examination fees to examiners ..	9,535.24			
Duty, Insurance and Road taxes ..	4,820.00			
Maintenance of Motor vehicles and cycles	6,347.80			
Repairs to typewriters and Duplicators ..	240.00			
Transportation charges	141.94			
Lodging allowance to West German Experts	61,989.22			
Customs duty on personal effects of West German Experts	72,922.45			
Rent on Buildings	20,643.17			
Joint Entrance Examination	27,158.18			
<i>Travelling Allowances :</i>				
Members of the Board of Governors	1,007.90			
Staff Selection Committee	8,156.60			
Finance Committee	684.00			
Members of Advisory Committee and External Examiners	2,223.47			
Planning Committee	2,478.06			
Admission Committee	71.18			
Joint Entrance Examination	4,290.25			
Scientific Congress and Conferences	2,076.05			
			20,987.51	
Trainfare to candidates called for interview			23,204.89	
			<u>2,57,019.23</u>	
E. Stores :				
Pay and allowances—Officers	8,857.51			
-do- Establishment	28,824.19			
			<u>37,681.70</u>	
F. Workshops :				
Pay and allowances	88,787.07			
Contingencies	74,232.93			
			<u>1,63,020.00</u>	
Carried over			<u>21,89,512.84</u>	

for the Year ended 31st March 1963—(contd.)

INCOME

Rs. P.

Brought forward

24,37,486.97

Carried over

24,37,486.97

Income and Expenditure Account

EXPENDITURE		Rs.	P.	Rs.	P.
	Brought forward			21,89,512.8	
G.	Lands and Gardens :				
	Honorarium to Horticulturist ..	4,800.00			
	Wages to daily Labourers ..	11,939.80			
	Seeds, Plants and Manures ..	582.44			
				<u>17,322.24</u>	
H.	Medical :				
	Honoraria and conveyance allowance to Medical officer	5,796.00			
	Medical Aid Fund (Expenses) ..	2,653.57			
	Medical Dispensary	1,584.46			
				<u>10,034.03</u>	
I.	Security :			28,612.32	
J.	Contribution to C. P. Fund			88,485.00	
K.	Leave salary and Pension Contribution for Foreign Service Personnel			4,573.57	
L.	Hostels			32,139.62	
M.	Works and Maintenance			65,617.35	
N.	Audit Fees			1,190.00	
	Total			<u>24,37,486.97</u>	

for the Year ended 31st March 1963—(contd.)

INCOME

Brought forward ..

Rs. P.
24,37,486.97

.. Total

24,37,486.97

APPENDIX V
DISTINGUISHED VISITORS TO THE INSTITUTE
IN 1962-1963

- July 1962.. Mr. E. Lenzlinger,
Swiss Engineer.
Count and Countess Keyserling of West Germany.
Messrs. Oliver, C. Dunn and George R. Meluch,
USAID.
- August 1962.. Shri Medhi Nawaz Jung,
Governor of Gujarat.
Dr. A. N. Khosla,
Governor of Orissa.
- September 1962.. Dr. S. R. Sen Gupta,
Director, I.I.T., Kharagpur.
Brig. S. K. Bose, Director, I.I.T., Bombay.
Dr. P. K. Kelkar,
Director, I.I.T., Kanpur.
Prof. R. N. Dogra,
Principal, College of Engineering & Technology,
New Delhi.
- October 1962.. Dr. Krill Capello,
Representative,
German Academic Exchange Service, Bonn.
Dr. H. G. Taylor,
Director,
Electrical Research Association, London.
- December 1962.. His Excellency Dr. Heinrich Luebke,
President of the Federal Republic of Germany.
Mrs. Wilhelmine Luebke.
Mrs. Brigitte Schroeder.
Mr. Hans Heinrich von Herwarth,
State Secretary, Federal Republic of Germany.
Prof. Humayun Kabir,
Union Minister for Scientific Research & Cultural
Affairs, New Delhi.
Mr. George F. Duckwitz,
Ambassador of the Federal Republic of Germany in
India,
New Delhi.
Shri P. A. Menon, Indian Ambassador in Bonn.
- January 1963.. Dr. D. M. A. Leggett,
Principal, Battersea College of Advanced Technology,
Britain.
Prof. I. L. Kaganov,
Soviet Specialist in Electronics, Moscow.

- February 1963.. Lord Bridges,
Chairman, British Council.
- Mr. Croom-Johnson,
All-India Representative, British Council.
- Prof. Emil Lehnartz,
President, German Academic Exchange Service, Bonn.
- Shri N. G. Dewan,
Chief Engineer, Central P.W.D., New Delhi.
- Mr. Dean W. L. Everitt,
College of Engineering, University of Illinois, U.S.A.
- Shri Tarlok Singh,
Member, Planning Commission.
- Sir Adetokunbo Ademola
Chief Justice, Federal Supreme Court, Nigeria,
and Lady Ademola.
- Sir Christopher Cox,
Educational Adviser,
Department of Technical Education,
London.
- Dr. Berger,
Foreign Office, Bonn.
- April 1963.. Prof. Gerhard Derge,
I.I.T., Kanpur.
- Shri B. S. Nanjundiah,
Secretary, Association of Mysore Engineers, Madras.
- Madame Mednikova,
Chief, Laboratory on Ionosphere
Research, Phora, USSR.
- Mr. Poscheyrov,
Director, Leningrad Branch of the Institute of Physics,
USSR.
- Mr. Robert R. Worth,
Editorial Director, W. A. Benjamin Inc.,
New York.
- May 1963.. Mr. Lal C. Verman,
Director, Indian Standards Institution, New Delhi.
- Shri A. Bose,
Officer-in-charge,
Birla Industrial and Technological Museum, Calcutta.
- Brig. B. M. Chakravarti,
Director,
Electronic and Radar Development Establishment,
Bangalore.

APPENDIX VI

Staff Appointments during the Year Under Review

Professors

1. Dr. P. C. Varghese.
2. Dr. S. Ramaseshan.
3. Sri R. Krishnamurthi,
(Hon. Professor).

Asst. Professors

1. Dr. S. C. Das.
2. Dr. J. C. Kuriacose.
3. Dr. M. S. Vairana Pillai.
4. Dr. Kotra V. S. Krishnamurti.
5. Dr. V. Sethuraman.
6. Dr. R. Srinivasan.
7. Dr. M. Venugopal.
8. Dr. P. Bhimeswara Rao.
9. Dr. B. V. Aswathanarayana Rao.

Lecturers

1. Shri N. R. Rajappa.
2. Shri V. M. Radhakrishnan.
3. Shri K. V. Gopalakrishna.
4. Dr. C. Narayana Pillai.
5. Miss Mira Ziauddin.
6. Shri M. Ramamoorthy.
7. Shri M. H. Abdul Khader.
8. Shri D. Prithviraj.
9. Shri K. V. Kameswara Rao.
10. Shri A. L. Abdus Sattar.
11. Dr. Chatty Kalidas.
12. Dr. J. Sobhanadri.
13. Shri B. B. Bhattacharya.
14. Dr. S. Swaminathan.
15. Shri M. S. R. Sarma.
16. Shri R. S. Alwar.
17. Dr. T. S. Govindan.
18. Dr. K. Subbaraju.
19. Shri N. Subramanian.
20. Shri V. Subrahmanyam.

Associate Lecturers

1. Shri Y. V. G. Sathyanarayana
murthi.
2. Shri S. Srinivasan.
3. Dr. (Mrs.) Jayanthi Lalitha.
4. Shri R. Nagarajan.
5. Shri C. Sivaprasada Rao.

6. Shri D. S. Subramanyam.
7. Shri P. Kalyanasundaram.
8. Shri A. Ramamohana Rao.
9. Shri K. Narayanan.
10. Dr. H. S. Paul.
11. Shri N. Rajagopalan Nair.
12. Shri J. Rajaram.
13. Shri K. S. Kamalakar Rao.
14. Shri R. Ramji Rao.
15. Shri V. Ramabhadran.
16. Shri G. V. Yagnavalkya.

Senior Technical Assistants

1. Shri N. V. Koteeswara Rao.
2. Shri U. Bhaskar Rao.
3. Shri M. N. Sampath.
4. Shri P. Kotiveeraiah.
5. Shri S. Ramaswamy.
6. Shri I. Suryanarayanamurthi.
7. Shri J. Joseph.
8. Shri K. Jayasimhalu.
9. Shri S. Srinivasan.
10. Shri V. R. Satyanarayana Rao.
11. Shri B. S. V. S. Ramachandra-
charyulu.
12. Shri A. V. Ramani.
13. Shri R. Vedaraman.
14. Shri K. J. Janakar.
15. Shri R. Ramaswamy.
16. Shri V. C. Kannan.
17. Shri G. N. Krishna Iyengar.
18. Shri S. K. Bhatnagar.
19. Shri D. V. Ramana.
20. Shri P. Achuthan.
21. Shri V. R. Asokan.
22. Shri K. Padmanabhaswamy.
23. Shri S. R. Narayanan.

Junior Technical Assistants

1. Kum. Jagathambal Srinivasan.
2. Shri V. Kannan.
3. Shri V. Raman.
4. Shri M. Innaci.
5. Shri R. Raghavan.
6. Shri Kulwant Singh Bhatia.
7. Shri A. P. Venugopal.
8. Shri U. N. Srivastava.

9. Shri C. S. Venkatachalam.
10. Shri Y. Syamasundara Rao.
11. Shri R. Nagarajan.
12. Shri D. Venkatasubba Reddy.
13. Shri D. Raja Rao.
14. Shri S. K. V. K. Sobhanadra Chary.
15. Shri S. Varadachari.
16. Shri N. Venkataraman.
17. Shri T. N. Venugopal.
18. Shri B. Raghunatha Rao.
19. Shri N. T. Kumaraswamy.

Foremen

1. Shri V. Sankaran.
2. Shri B. V. Sreeramulu.
3. Shri B. N. Somasekharan.

Mechanic 'A'

1. Shri R. G. Thiagarajan.
2. Shri S. Selvaraj.
3. Shri G. P. Ramiah Raju.
4. Shri T. S. Aiyaswamy.
5. Shri R. Viswanathan.
6. Shri P. B. Thomas.
7. Mohd. Maqdoom Ali Quraishi.
8. Shri P. Krishnan.
9. Shri A. Toner.
10. Shri M. Govindaswamy.
11. Shri P. K. Sali.
12. Shri N. Chellappan.
13. Shri T. Ramachandran.
14. Shri R. Solomon.
15. Shri K. K. Narayana Menon.

Mechanic 'B'

1. Shri V. Sankaran.
2. Shri D. Krishnan.
3. Shri J. Vedanayagam.
4. Shri S. V. Sankaran.
5. Shri M. I. Thomas.
6. Shri S. V. Subbarayudu.
7. Shri Tarapada Pramanik.
8. Shri M. Appavoo.
9. Shri V. Periaswamy.
10. Shri R. Parthasarathy.
11. Shri M. Panneerselvan.
12. Shri G. Babu.
13. Shri Joseph Angelos.
14. Shri V. Sivaraman.
15. Shri P. Sukumaran Nair.
16. Shri K. George.
17. Shri G. Kondayya.
18. Shri D. Ramakrishnan.

Mechanic 'C'

1. Shri T. S. Krishnamani.
2. Shri S. Selvarajan.
3. Shri C. Kuppuswami.
4. Shri V. Lakshmiopathy.
5. Shri Abubacker.
6. Shri N. Krishnan.
7. Shri M. Ramanunni.
8. Shri M. Unnikrishnan.
9. Shri S. Jaganmohanakrishnan.
10. Shri K. Velayudhan Asari.
11. Shri P. Padmanabhan.
12. Shri P. Chitti Babu.
13. Shri N. A. Somasundaram.
14. Shri D. Ramachandran.
15. Shri N. Munuswamy.
16. Shri V. Babu.
18. Shri P. J. John.
19. Shri K. Sudarsanam.
20. Shri K. M. Kanagasundaram.
21. Shri M. S. Elumalai.
22. Shri P. V. Raghavan.
23. Shri D. Justian.

Draughtsman

1. Shri G. Balasubramanian.
2. Shri A. Sebastian.
3. Shri M. S. Ramakrishnan.
4. Shri S. Thiruvengadam.
5. Shri K. Krishnaswamy.
6. Shri M. Krishnaswamy.

Blue Print Operator

1. Shri K. Ramanujam.
2. Shri M. Ishtalingam.
3. Shri K. Gangadharan.

Tracer

Shri S. Muthukrishnan.

Asst. Registrar (Admn.)

Shri T. S. Rajagopalan.

Asst. Registrar (Acad.)

Shri K. Sampath Kumaran.

Medical Officer

Dr. A. Isaac.

Superintendent (Admn.)

Shri W. Hanumesi Rao.

Junior Superintendent

Shri O. A. Govindarajan.

Assistants

1. Shri V. Ramakrishna Iyer.
2. Shri V. K. Vaidyanathan.

Cashiers

1. Shri C. S. Paramaguru.
2. Shri K. Prabhakaran.

Asst. Accountant

1. Shri S. Ananthan.

Storekeepers

1. Shri K. Raghavan.
2. Shri M. Adaikalaswamy.
3. Shri P. Satyanarayana.
4. Shri S. Rajendran.
5. Shri P. Vasudevan.
6. Shri C. V. Ranganathan.
7. Shri T. S. Kuppaswami.

Stock Verifier

Shri V. M. Menon.

Upper Division Clerks

1. Shri K. V. Bharatharajan.
2. Shri R. Krishna.
3. Shri K. V. Venkateswaran.
4. Shri B. V. Shivasankariah.
5. Shri T. V. Srinivasan.
6. Shri D. Raghavan.
7. Shri K. R. Raghavan.
8. Shri Joseph C. S. Venkatarangam.
9. Shri G. Anantharaman.
10. Shri K. R. Rajaram.
11. Shri P. N. Sethuraman.
12. Shri K. V. Santhanam.
13. Shri N. Swaminathan.
14. Shri E. R. Narasimhan.
15. Shri D. Padmaraj.
16. Shri S. Srikant.
17. Shri M. K. Ranga.
18. Shri K. V. Raghavachari.
19. Md. Yacoob Nizami.
20. Shri E. V. Prabhakaran.

Steno-typists

1. Kum. S. Mangalam.
2. Kum. K. S. Savithri.

Lower Division Clerks

1. Shri G. Balasubramanian.
2. Shri K. S. Narasimhan.
3. Shri K. Seshadri.
4. Smt. Shobha Sekhar.
5. Shri S. K. Thanikachalam.
6. Shri A. Janakiraman.
7. Shri N. Rajagopalan.
8. Shri R. Chandrasekharan.
9. Shri T. Krishnaswami.
10. Shri K. Ramarathnam.
11. Shri R. Vijayasekhar.
12. Shri R. Yegnanarayanan.
13. Shri K. Venkatachari.
14. Kum. P. Usha Kumari.
15. Kum. M. C. Thangam.
16. Kum. K. Saroja.
17. Kum. A. Jothimathi.
18. Shri C. J. Santhinathan.
19. Shri K. V. Pasupatheeswaran.

Compounders

1. Shri T. S. Muthappangar.
2. Shri G. Prabhudas.

Drivers

1. Shri C. Sankaran.
2. Shri P. Vaiyapuri.
3. Shri A. Balakrishnan.
4. Shri N. Veeraraghavan.
5. Shri S. Mahadevan.
6. Shri M. K. Raghavan Pillai.
7. Shri M. S. Kesavan Nair.
8. Shri D. Radhakrishnan.

Gestetner Operator Gr. I

Shri D. S. Srinivasan.

Laboratory Attendants

1. Shri Shaik Mohammed.
2. Shri A. Samuel.
3. Shri K. Krishnan.
4. Shri K. G. Kothandan.
5. Shri K. Vasudevan.
6. Shri K. Buchi Babu.
7. Shri V. Narasimhan.
8. Shri Y. B. Ramanamurthy.
9. Shri G. Velayudhan.
10. Shri K. Jayaraman.
11. Shri P. M. Pushparaj.
12. Shri L. A. Balasubramanian.
13. Shri A. S. Victor John.
14. Shri M. Dorairaj.
15. Shri R. Raja Naidu Robert.

16. Shri S. Balasubramanian.
17. Shri D. N. Rajasekaran.
18. Shri N. Krishnan.
19. Shri M. Shanmugan.
20. Shri V. Anandan.
21. Shri Damodaran Raman Nair.
22. Shri R. A. Thambidorai.
23. Shri D. Kumaraswamy.
24. Shri V. R. Kannappan.
25. Shri V. Narayanan.

Store Attendants

1. Shri K. S. Krishnamurthy.
2. Shri P. Mohanasundaram.
3. Shri S. Subramanian.
4. Shri N. Prabhakaran.
5. Shri B. Srinivasan.
6. Shri R. Nesa Rajan.
7. Shri A. Vasudevan.
8. Shri K. Manickam.
9. Shri S. P. Vellaichamy.
10. Shri V. S. Radhakrishnan.

Gestetner Operator Gr. II

Shri A. K. Badrinarayanan.

Peons

1. Shri K. Sangaliar.
2. Shri G. Damodaran.
3. Shri N. Ganesan.
4. Shri A. Krishnan.
5. Shri G. Gopalakrishnan.
6. Shri E. Vidyadharan Nair.
7. Shri K. Mani.
8. Shri K. Ranga Reddy.
9. Shri A. Alphonse.
10. Shri A. Raman.
11. Shri P. T. Janarthanam.
12. Shri D. Malli.
13. Shri G. M. Sundaram.
14. Shri O. R. Krishnan Nair.
15. Shri T. Dasarathan.
16. Shri E. Kannappan.

Chowkidar

Shri P. Munuswamy.

Sweepers

1. Shri M. Ganesan.
2. Shri N. Thirumaliah.

STAFF RESIGNATIONS DURING THE YEAR UNDER REVIEW

Asst. Professor

Dr. Kotra V. S. Krishnamurthi.

Lecturers

1. Dr. C. V. Seshadri.
2. Miss Mira Ziauddin.
3. Dr. K. V. Kameswara Rao.

Associate Lecturers

1. Shri N. Rajagopalan Nair.
2. Shri K. S. Kamalakar Rao.

Senior Technical Assistants

Shri K. J. Janakar.
Shri U. Bhaskara Rao.
Shri V. C. Kannan.

Storekeepers

1. Shri K. J. Mathews.
2. Shri K. Raghavan.
3. Shri R. Ramanathan.

Upper Division Clerks

1. Shri P. Krishna Rao.
2. Shri K. Mahadevan.
3. Shri A. Narayana Rao.
4. Shri S. Arunachalam.
5. Shri K. V. Venkateswaran.
6. Shri T. V. Srinivasan.
7. Md. Yacoob Nizami.

Lower Division Clerks

1. Shri D. Gurusurthi.
2. Shri R. Venkataraman.

Compounder

1. Shri T. S. Muthappangar.

Drivers

1. Shri M. M. Muthu.
2. Shri M. Murugesan.
3. Shri D. W. Mason Kelly.
4. Shri C. R. Thangappan.
5. Shri C. C. Abraham, (Truck driver)

**Appointments made in the Engineering Unit/Gymkhana during
the period 1st June 1962—31st May 1963**

<i>S. No.</i>	<i>Name</i>	<i>Designation</i>	<i>Date of appointment</i>
1.	Shri N. Krishnaswamy	Executive Engineer (Elect.)	29-3-1963
2.	„ T. V. Narayanarao	Asst. Engineer on deputation from P.W.D. Madras	31-10-1962
3.	„ N. R. Wadhwa	Asst. Engineer	8-4-1963
4.	„ Franklin Dorairaj	Junior Engineer	21-6-1962
5.	„ Ch. Arabindoo	-do-	4-7-1962
6.	„ B. S. Venkatarao	-do-	27-8-1962
7.	„ S. G. Prakash	-do-	2-11-1962
8.	„ R. Sethunarayanan	Supervisor	19-4-1963
9.	„ S. Sundaramoorthy	Work subordinate	18-6-1962
10.	„ C. S. Mahadevan	-do-	21-6-1962
11.	„ T. V. Balasubramaniam	-do-	19-10-1962
12.	„ K. Venkatasubramaniam	-do-	22-10-1962
13.	„ T. Seshan	-do-	23-10-1962
14.	„ R. Ravindran	-do-	23-10-1962
15.	„ K. R. Natarajan	-do-	29-11-1962
16.	„ N. D. Logasundaram	-do-	16-4-1963
17.	„ J. C. Jinadoss	-do-	18-4-1963
18.	„ C. S. Krishnan	-do-	29-4-1963
19.	„ K. Balan	-do-	27-5-1963
20.	„ A. Raman	Maistry Gr. I (Carp.)	7-6-1962
21.	„ T. H. Thangamani	-do-	13-7-1962
22.	„ B. Damodaran	Maistry Gr. II	11-6-1962AN
23.	„ N. Chellam	-do-	9-8-1962
24.	„ N. Masilamani	Draughtsman	8-5-1963
25.	„ K. B. Morachan	-do-	27-8-1962
26.	„ T. Govindaraju	Tracer	26-12-1962
27.	„ S. D. Shanmugham	Blue Print Operator	23-7-1962
28.	„ M. Sarvotham	Physical Trg. Instr.	29-10-1962
29.	„ P. K. Jacob	-do-	9-11-1962
30.	„ K. S. Krishnaswamy	Supervisor	15-9-1962AN
31.	„ S. Srinivasan	-do-	15-9-1962AN
32.	„ R. Mahalingham	-do-	15-9-1962AN
33.	„ R. Sankaran	-do-	12-11-1962
34.	„ R. Jambunathan	-do-	1-5-1963
35.	„ V. Mohan	Head Cooly	3-4-1963
36.	„ S. Kathavarayan	-do-	3-4-1963
37.	„ D. Chidambaram	-do-	11-4-1963
38.	„ C. Manoharan	-do-	4-5-1963
39.	„ A. Maduraimuthu	Ground Boy	10-9-1962
40.	„ R. Mahalingham	-do-	10-9-1962
41.	„ Peter	-do-	10-9-1962
42.	„ K. Subramaniam	Helper (Central Stores)	1-6-1962
43.	„ A. Alphonse	-do-	1-6-1962
44.	„ Palaniappan	-do-	1-6-1962
45.	„ P. Narayanaswami	-do-	1-6-1962
46.	„ R. Subramaniam	-do-	12-6-1962
47.	„ O. R. Krishnan Nair	-do-	1-8-1962
48.	„ T. Lakshmanan	-do-	10-8-1962

List of staff members, resigned during the period 1st June 1962—31st May 1963

S. No.	Name	Designation	Date of resignation
1.	Shri Merle Ray	Junior Engineer	15-3-1963
2.	„ Franklin Dorairaj	-do-	30-4-1963
3.	„ N. S. Neelakantan	Supervisor	31-5-1963
4.	„ K. Thiagarajan	-do-	31-5-1963
5.	„ K. Subramaniam	-do-	12-11-1962
6.	„ C. S. Mahadevan	Work subordinate	13-2-1963
7.	„ M. A. Subhan	Draughtsman	2-1-1963
8.	„ V. Periaswamy	Maistry Grade I	24-3-1963
9.	„ O. Ranganayakalu	Maistry Grade II	10-5-1963
10.	„ K. S. Krishnaswamy	-do-	7-7-1962
11.	„ R. Subramaniam	Helper (Central Stores)	3-7-1962 FN
12.	„ A. Alphonse	-do-	2-1-1963
13.	„ O. R. Krishnan Nair	-do-	25-3-1963
14.	„ S. Ramamurthy	Head Cooly	13-11-1962
15.	„ V. Madanan	-do-	14-12-1962
16.	„ N. Ganesan	-do-	30-12-1962
17.	„ T. P. Krishnaswamy	L.D.C. (Instt. Gymkhana)	27-5-1963

APPENDIX VII

INSTITUTE GYMKHANA

MEMBERS OF COMMITTEES

Rector : PROF. B. SENGUPTO

Gymkhana : Dr. D. Venkateswaralu (*President*), Shri R. Natarajan, I.A.S., Shri V. Srinivasan, Dr. N. Klein, Prof. S. Sampath, Shri P. N. Parthasarathy, Shri Rajendra Sirpal, Shri Prem Inder Singh, Shri George Verghese, Shri Prem Babu, Shri Ramaprakash Shetty, Shri Aravindakshan Nair, Shri Jacob Dominic, Shri S. Gopalakrishnan (*Secretary*).

Sports : Shri Y. S. Ramaswamy, Prof. R. Krishnamurthy, Prof. K. S. Sankaran, V. Sarvashri Srinivasan, S. Gopalakrishnan, Lionel Paul, S. A. Aleem, M. R. P. Shetty, George Verghese, Jacob Dominic (*Secretary*).

Literary Activities : Dr. M. S. Vairana Pillai, Sarvashri S. Ramani, M. A. A. Khader, C. M. A. Nair, R. Venkateswaran, R. A. Vaswani (*Secretary*).

Cultural Activities : Sarvashri N. V. Chandrasekharaswamy, S. R. Mazumdar, K. J. Srivastava, Prem Inder Singh, A. K. Mehrotra, M. Kalappa, Gopal Ram Chandra, K. V. Rangaswamy (*Secretary*).

Institute Magazine : Sarvashri G. Viswanathan (*Editor*), V. S. Kumar (*Associate Editor*), S. Nageshwar (*Asst. Editor*), P. Mohan, V. Koteeswaran, S. Puri, S. Naik.

Photography: Prof. M. C. Gupta, Sarvashri D. J. Victor, L. K. Sharma, J. M. Anand, P. C. Gupta, Vinay Khanna, Basu John Vetteth, K. Mahesh (*Secretary*).

Film Club: Prof. R. G. Narayanamurthi, Sarvashri H. J. Ebert, R. P. Loomba, Gyanendranath, K. Thomas, P. L. Kapur (*Secretary*).

Out-Door-Club: Dr. G. Rouve, Dr. V. Anantaraman, Sarvashri S. Balakrishnan, Rajendra Sirpal, A. Swaminathan, S. Talukdar, Basu John Vetteth (*Secretary*).

I.I.T Chronicle: Dr. N. Klein, Sarvashri U. Bhaskara Rau, Prem Babu, T. S. Ananthu, S. S. Randhava, S. Vasudevan, K. M. Kripanarayanan, M. Vikaram Rao, A. S. Bawa (*Student Editor*).

PRIZE WINNERS FOR THE LITERARY ACTIVITIES IN THE YEAR 1962-1963

Inter Collegiate Debate for Institute Trophy :

I. I.I.T., Madras.

Inter Collegiate German Recitation for Dr. Klein's Trophy :

I. I.I.T., Madras.

Inter Collegiate Quiz for Rao Bahadur Ramachandra Iyer's Trophy :

(Presented by Shri R. Natarajan, I.A.S.)

I. Engineering College, Guindy.

Inter Collegiate Group Discussion for Prof. M. V. C. Sastry's Trophy :

I. I.I.T., Madras.

Annual Debate :

I. R. A. Vaswani.

II. T. S. Ananthu.

Annual Group Discussion :

I. III year students.

II. IV year students.

Annual Quiz :

I. R. Venkateswaran.

II. V. Siddhartha and S. Nageshwar.

Annual German Recitation :

I. R. Venkateswaran.

II. C. V. Sahasranaman.

Lectures organised by the Gymkhana included the following :

1. *Steel projects in the public sector* by Shri M. Ganapathy, Retired Resident Director, Hindustan Steels.
2. Address by Dr. S. R. Sengupta, Shri S. C. Bose and Dr. P. K. Kelkar, Directors of Indian Institute of Technology at Kharagpur, Bombay and Kanpur.
3. *Bharati* by Shri K. Chandrasekaran, M.A.B.L.
4. *My impressions of Japan* by Prof. R. Krishnamurti.
5. *Rising Generation in Germany* by Prof. Dr. Elschramm, Prof. of History, Gottingen University.

APPENDIX VIII

LIBRARY

LIST OF BACK VOLUMES AVAILABLE AND ON ORDER

Department of Applied Mechanics

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	Publications of the International Association of Bridge and Structural Engineers.	V. 10-19 (1950-59)	V. 10-19 (1950-59)
2.	Journal of Mechanics and Physics of Solids.	V. 1-7 (1952-59)	V. 1-7 (1952-59)
3.	Journal of Fluid Mechanics.	V. 1-7 (1956-59)	V. 1-7 (1956-59)
4.	ACIER-Stah—Steel, Belgium.	V. 15-26 (1950-59)	V. 15-26 (1950-59)
5.	Physics of Fluids.	V. 1-2 (1958-59)	V. 1-2 (1958-59)
6.	Quarterly of Applied Mathematics.	V. 8-17 (1950-59)	V. 8-17 (1950-59)
7.	Applied Mechanics Reviews.	V. 1-11 (1948-59)	..
8.	Franklin Institute Journal.	V. 249-266 (1950-58)	V. 249-266 (1950-58)
9.	American Concrete Institute Proceedings.	V. 45-56 (Without Index) (1948-60)	V. 45-56 except V.45 pt. 4 and V. 51 pt. 5.
10.	American Society of Mechanical Engineers including Journal of Applied Mechanics.	(1950-58)	..
11.	Quarterly Journal of Mechanics and Applied Mathematics.	V. 7 and 8. (1954 and 1955)	V. 7 and 8 (1954-1955)
	-do-	1952, 1953 1956-1958	..
12.	Aeronautical Quarterly 1956-1959.	1956-1959	..
13.	Journal of Aerospace Sciences (New York).	V. 24-27 (1957-60)	..
14.	Journal of Aeronautical Sciences (New York).	V. 19-23 (1952-56)	..
15.	Aeronautical Quarterly (London).	V. 2-6 (lacking issues)	..
16.	Quarterly Journal of Mechanics and Applied Mathematics (London) Paperbound (reprint)	V. 3-4 (1950-51)	..

Department of Chemical Engineering

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	Industrial and Engineering Chemistry.	V. 1-50 (1909-58)	V. 1-50 (1909-58)
2.	Institute of Chemical Engineers Transactions.	V. 1-36 (1923-58)	V. 1-36 (1923-58)
3.	Indian Institute of Chemical Engineers Transactions.	V. 1-10 (1947-58) except V. 4, 7, 8-10	V. 1-10 (1947-58) V. 4 & 8 pt. 1 4, 7, 8-10
4.	Chemical Age of India.	V. 7-9 (Nos. 1-4)	V. 7 (Nos. 1-4)
5.	American Institute of Chemical Engineers. (<i>contd.</i>) as Chemical Engineering Progress Transactions.	V. 13-55 (1920-59)	V. 13-55 (1920-59)
6.	American Institute of Chemical Journal.	V. 1-3 (1955-57)	V. 1-3 (1955-57)
7.	Chemical Engineering Science.	V. 1-10 (1951-59)	V. 1-10 (1951-59)
8.	Journal of Chemical and Engineering Data.	V. 1-4 (1956-59)	V. 1-4 (1956-59)
9.	Petroleum Refiner.	V. 32-38 (1953-59)	V. 32-38 (1953-59)
10.	Chemical Engineering.	V. 57-66 (1950-59)	V. 57-66 (1950-59)
11.	Combustion and Flame.	V. 1-5 (1957-61) except V. 2. Nos. 3 & 4 of 1958	V. 1-5 (1957-61) except V. 2. Nos. 3 & 4 of 1958
12.	Engineering Index.	19 vols. (1940-58)	19 vols. (1940-58)

Department of Civil Engineering

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	American Society of Civil Engineers, Transactions.	V. 115-124 (1950-59)	V. 115-124 (1950-59)
2.	Structural Engineer.	V. 33-36 (1955-58) Except V. 34 No. 2	V. 33-36 (1955-58) Feb. 56
3.	Institute of Civil Engineers, Proceedings.	1920-58	
4.	Civil Engineering (U.S.A.)	V. 21-29 (1950-59)	V. 21-29 (1950-59)

Department of Civil Engineering—(Contd.)

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
5.	Goetechnique.	V. 6-9 (1956-59) <i>Except V. 9 October, 1959</i>	V. 6-8 (1956-58)
6.	Magazine of Concrete Research.	V. 1-11	..
7.	Engineering News Record.	V. 144-163 (1950-59)	V. 144-163 (1950-59)
8.	American Society for Testing Materials. Bulletin. Nos. 102-242 (<i>Lacks 108, 117, 120 & 114</i>).	Nos. 102-242 (1940-59)	Nos. 102-242 (1940-59) (<i>Lacks 108, 114, 117, and 120</i>)
9.	Photogrammetric Engineering.	V. 22-24 (1956-58)	V. 22-24 (1956-58)
10.	Quarterly Journal of Water Power.	1962	..

Department of Electrical Engineering

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	American Institute of Electrical Engineers. Transactions.	V. 1-10 (1884-1893)	V. 1-10 (1884-93)
	-do-	V. 49-64 (1930-45)	V. 49-64 (1930-45) except V. 54-56 61-63 which will follow
		V. 77 & 78 (1958-59) 1920-1935 & 1946-49	V. 77 & 78 (1958-1959) will follow
2.	Institute of Electrical Engineers. Proceedings. except Index for V. 103 Pt. C and Pt. 4 Institution Monographs for	V. 78-92 (1936-45) lacks 4 issues	V. 78-92 (1936-45) lacks 4 issues. (V. 88 pt. 2 No. 1 V. 90 pt. 2 Nos. 13 and 18 TPI).
3.	Bulletin of Electrical Engineering Education. (British).	V. 97-105 (1950-58) V. 98-101 (1951-54) Nos. 11-25 (1953-60) Nos. 7-10 (1951-53)	V. 97-105 (1950-58) Nos. 11-25 (1953-1960) will follow

Department of Mechanical Engineering

<i>S. No.</i>	<i>Title</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	Institution of Mechanical Engineers. Proceedings. Including Automobile Division	1920-1958	V. 120-149, V. 150-172 except V. 150, 151, 166 Nos. 4 & 6 and V. 167 Nos. 1, 4 & 10 to follow
2.	Machine Design.	V. 28-33 (1956-1961)	..

Department of Metallurgy

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	Institute of Metals Journal.	V. 76-87 (1950-58)	V. 76-87 (1950-58)
2.	Metallurgical Society of A.I.M.E. (USA). Transactions.	V. 199-219 (1954-60)	V. 199-210 (1954-60) except Nos. 201, 204, 207, 210, 213 to 219 to be supplied
3.	Acta Metallurgica. U.S.A.	V. 1-8 (1953-60)	V. 1-8 (1953-60)
4.	American Society of Metals Transactions	V. 34-51 (1945-59) 1946-55 (Index)	V. 34-51 (1945-59) 1946-55 (Index)
5.	Metallurgical Reviews.	V. 4-6 (1959-61)	V. 4-6 (1959-61)
6.	Metal Progress.	1950-1960	1950-1960
7.	Iron and Steel Institute. London, Journal.	V. 165-196 (1950-60)	V. 165-196 (1950-60)
8.	Refractories Journal.	V. 31-37 (1955-61)	..
9.	Metallurgia.	V. 1-15 (1929-43) paperbound	..
10.	Journal of the Central Glass and Ceramic Research Institute, Calcutta.	V. 1-8 (1954-61)	..
11.	TISCO Technical Journal.	1959-1961	..

Department of Chemistry

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	Chemical Abstracts.	V. 1-52 (1907-58)	V. 1-52 (1907-58)
2.	Chemical Abstracts. <i>5th Decennial Index.</i>	19 vols. (1947-56)	19 vols. (47-56)
3.	Faraday Society, Transac- tions.	V. 42-55 (1946-59)	V. 42-55 (1946-59)
4.	Faraday Society, Discus- sions.	V. 1-27 (1947-59)	V. 1-27 (1947-59)
5.	Tetrahedron.	V. 1-7 (1957-59)	V. 1-7 (1957-59)
6.	Analytical Chemistry.	1940-59	1940-59
7.	Quarterly Reviews of Chemical Society.	V. 1-12 (1947-58)	V. 1-12 (47-58)
8.	Chemical Reviews.	V. 26-58 (1940-58)	V. 26-58 (1940-58)
9.	Journal of Inorganic and Nuclear Chemistry.	V. 1-7 (1955-58)	V. 1-7 (1955-58)
10.	<i>Sixth Collective Index to Chemical Abstracts, 15.V.</i>	1957-1961	..

Department of Mathematics

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	<i>Journal of Mathematics and Mechanics</i> (Formerly Journal of Rational Mechanics and Analysis)	V. 1-8 (1952-59)	V. 1-8 (1952-59)
2.	Mathematical Reviews.	V. 1-20 (1940-58)	V. 1-20 (1940-58)
3.	Supplement of the Progress of Theoretical Physics.	Nos. 1-12 (1955-59)	Nos. 1-12 (1955-59)
4.	Physical Review Letters.	V. 1 & V. 2 Nos. 1-6 (1958-59)	..
5.	Annals of Physics.	V. 1-5 (1957-58)	..

Department of Mathematics—(Contd.)

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
6.	Journal of Mathematics and Physics. (V. 31, 34-38 (6 V) to follow).	V. 1-38 (1921-59)	V. 1-30 and 32 & 33. (1921-1951) and (1953-1955)
7.	Society for Industrial and Applied Mathematics Journal	V. 1-9 (1953-61) Lacks V. 1. No. 1	..
8.	Society for Industrial and Applied Mathematics Review (SIAM) Unbound	V. 1 (1959)	..
9.	Journal of Royal Statistical Society. Series B.	1946-1959	..
10.	Mathematics of Computation (Formerly Mathematical tables and other Aids of Computation).	V. 3, 7 and 8	..
11.	Soviet Physics, Uspekhi.	1958	..
12.	Soviet Physics, JETP	1955-1958	..

Department of Physics

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
1.	Current Science.	V. 16-27 (1947-56)	V. 16-27 (1947-56)
2.	Nuclear Physics.	V. 1. 1956	V. 1. 1956
3.	Indian Academy of Sciences	V. 38-42 & 44-48	V. 38-42 & 44-48
4.	Journal of Scientific and Industrial Research.	V. 4-17 (1946-58) except V. 16 (1957)	V. 4-17 (1946-58) except V. 16 (1957)
5.	Automation and Remote Control	V. 18 & 19 (1957-58)	V. 18 & 19 (1957-58)
6.	Instruments and Experimental Techniques.	1958	1958
7.	Science Abstracts. Section A. Section B.	1946-58 1946-59	1946-58 1946-59
8.	Review of Scientific Instruments.	V. 17-29 (1946-58)	V. 17-29 (1946-58)

Department of Physics—(Contd.)

<i>S. No.</i>	<i>Titles</i>	<i>Period of Back Volumes Ordered</i>	<i>Period of Back Volumes Available</i>
9.	Institute of Radio Engineers. Proceedings.	V. 34-42 (1946-54)	V. 34-42 (1946-54)
10.	Bell System Technical Journal	V. 25-37 (1946-58)	V. 25-37 (1946-58)
11.	Physics and Chemistry of Solids.	V. 1-4 (1956-58)	V. 1-4 (1956-58)
12.	Journal of Scientific Instruments.	V. 23-55 (1946-58)	V. 23-55 (1946-58)
13.	Zeitschrift fur Kristallographie.	V. 106-111 (1945-58)	V. 106-111 (1945-58)
14.	Universities.	V. 1 & 2 (1956-58)	V. 1 & 2 (1956-58)
15.	Canadian Journal of Physics	V. 24-36 (1946-58)	V. 24-36 (1946-58)
16.	Progress of Theoretical Physics.	V. 1-20 (1946-58)	V. 1-20 (1946-58)
17.	Proceedings of the Physical Society Sections A & B.	V. 58-72 (1946-58)	V. 58-72 (1946-58)
18.	Proceedings of the Royal Society Sec. A. Sec. B. (V. 135-138 and V. 144 and 145 to follow)	(1946-1958) V. 184-248 135-145	Sec. A.V. 184-248 (1946-58) Sec. B.V. 139-143 (5 V.)
19.	Journal of Molecular Physics.	V. 1-5 (1958-62)	..
20.	Physical Review.	V. 71-112 (1947-58)	..
21.	Journal of Applied Physics	V. 17-29 (1946-58)	..
22.	Reviews of Modern Physics.	1946-58	..

PRINTED AT THE DIOCESAN PRESS, MADRAS—1964. C2098