

## ANNUAL REPORT FOR 1959-1960

The Council of the Institution of Telecommunication Engineers takes great pleasure in presenting the Seventh Annual Report of the Institution. During the year under review, the Institution has made great progress in all directions, thanks to the wholehearted efforts of the members and the office bearers of the Institution. Membership has gone up by 50% and the income of the Institution increased by Rs 6,000/- over the last years, and a new magazine—Student's Journal—added to the publication of the Institution. Government's recognition of the Graduateship examination of the Institution has no doubt played an important role in the progress of the Institution, but the target of 2,000 members has not yet been reached and continued efforts are called for greater and greater progress of the Institution.

The Council of the Institution for the year 1959-60 consists of the following members.

- Aiya, S.V. Chandrasekhar (Prof.), Head of the Department of Electrical Communication Engineering, Indian Institute of Science, Bangalore.
- Agerwala, P.M. Chief Engineer, Posts and Telegraphs, New Delhi.
- Agarwal, S.M. District Manager, Delhi Telephones, Eastern Court New Delhi.
- Baliga, B.V. Managing Director, Bharat Electronics Limited, Bangalore.
- Chakravarti, S.P. (Prof.) Deputy Chief Scientific Officer, Research and Development Organisation, Ministry of Defence, New Delhi.
- Chandra, H. (Wg. Cdr.), Deputy Director of Signals, Air Headquarters, New Delhi.
- Iyappa, A.C. (Maj. Gen.) Director of Signals, Army Headquarters, New Delhi.
- Joseph, K.A. (Gr. Capt.), Chief Signal Officer, Operational Command, Headquarters, Indian Air Force, Palam, Delhi Cant.
- Jagdeesh Prasad, Managing Director, Indian Telephone Industries Ltd, Duravani Nagar, Bangalore.
- Kanjilal, S. K., Deputy Director General, Posts & Telegraphs, New Delhi.
- Kalra, S.N. Deputy Director General (TFC), Overseas Communications Service, Radio House, Apollo Bunder, Bombay.
- Mehta, K.K. (Col.) Inspectorate of Electronic Equipment, Ministry of Defence (CGDH), Government of India, Bangalore.
- Rajamanikam, T. Research Engineer, All India, Radio, Akashwani Bhavan, New Delhi.
- Ramchandani, A.C. Chief Engineer, All India Radio, Broadcasting House, New Delhi.



Ramamurthy T.V. Technical Secretary, National Physical Laboratory,  
Hillside Road, New Delhi.

Rau, B.S. Officer-on Special Duty, Teleprinter Factory, C/o P & T  
Directorate, Parliament Street, New Delhi.

Sarwate, M.B. (Dr.) Deputy Secretary General, International Tele-  
communication Union, Palais Wilson, Geneva.

Sen Gupta, N.K. Managing Director, Hindustan Cables Ltd., Dist.  
Burdwan, West Bengal.

Shenoi, N.V. General Manager, Indian Telephone Industries Ltd.,  
Duravani Nagar, Bangalore.

Sreenivasan, K. Prof. Director, Madras Institute of Technology,  
Chromepet, Madras.

Talwar, K.N. (Lt. Col.), School of Signals, Mhow.

Uma Shankar, General Manager, Bombay Telephones, Telephone  
Bhavan, Colaba, Bombay.

Vasudevan, C.P. Director of Telecommunication Research, Telecom-  
munication Research Centre, P & T Directorate, New Delhi.

Verman, Lal C. (Dr.) Director, Indian Standards Institution, Manak  
Bhavan, Mathura Road, New Delhi.

**Staff and Finance Committee**

Aiya, Chandrasekhar, S.V. Chairman  
Joseph, K.A. (Gr. Capt.)  
Kanjilal, S.K.  
Rajamanikam, T.  
Ramchandani, A.C.  
Verman, Lal C. (Dr.)

**Membership Committee**

Joseph, K.A. (Gr. Capt.) Chairman  
Agarwal, S.M.  
Gadadhar, N.V.  
Kanjilal, S.K.  
Kapre, P.K. (Dr.)  
Rajamanikam, T.

**Editorial Committee**

Verman, Lal, C. (Dr.) Chairman  
Baliga, B.V.  
Datta, Saroj (Dr.)  
Jagdeesh Prasad  
Mittra, S.N.  
Rajamanikam, T.  
Ramamurthi, T.V.  
Rau, B.S.  
Seshasayee, R.  
Subba Rao, H.S. (Maj.)

**Examinations Committee**

Ramchandani, A.C. Chairman  
Chakravarti, S.P. (Prof.)  
Chandra, H. (Wg. Cdr.)  
Iyengar, K.R.K.  
Vasudevan, C.P.



A detailed progress of the Institution and its activities are described in this report.

### MEMBERSHIP

The statement of membership given below is indicative of a steady progress of the Institution during the year under review. 701 applications were received for elections during the year out of which 558 were elected. Out of 558, 487 joined during the year as members by remitting the fees. Unfortunately in accordance with the Byelaw 29, the names of 85 members had to be removed from the rolls for non-payment of their membership fees for the past two years. After taking into account, the addition of 487 new members and the deletion of 85 defaulters, the total number of membership stands at 1456 on 30th September 1960. This is still far below the target. All-out efforts by all the members of the Institution are required for increasing the membership. The statement showing the position of membership in the different categories is given below.

|   | H.F. | F. | M. | A.M. | S.M. | A. | G.  | S.  | Total |
|---|------|----|----|------|------|----|-----|-----|-------|
| Membership as on 1-10-59  | 5    | 1  | 36 | 248  | 13   | 45 | 457 | 238 | 1,043 |
| Less Written off as on 30-9-1960  | —    | —  | 2  | 6    | 1    | 10 | 32  | 34  | 85    |
|   | 5    | 1  | 34 | 242  | 12   | 35 | 425 | 204 | 958   |
| Additions during the year   | —    | —  | —  | 22   | 1    | 3  | 61  | 411 | 498*  |
|   | 5    | 1  | 34 | 264  | 13   | 38 | 486 | 615 | 1,456 |
| Taking into account the transfers from one category to another, the membership as on 30th September 1960 is |      |    |    |      |      |    |     |     |       |
|   | 5    | 3  | 35 | 273  | 13   | 36 | 484 | 607 | 1,456 |

The above statement clearly shows the increase in Student members during the year under review by as much as 371. Small increases have also been registered in the categories for Graduates and Associate Members. With the recognition of the Graduateship examination of the Institution it is anticipated that the number of Student members will be continually on the increase. In all the advertisements by the Union Public Service Commission and other similar organisations where telecommunication engineers are required, a pass in the Graduateship examination of the Institution has been recognised as a due qualification for all such applications.

\*This includes 11 members who have joined by remitting the arrears for 2 years.



## JOURNAL

The Journal of the Institution of Telecommunication Engineers continued to live up to its standard. The Journal was a quarterly one till the September 1959 issue. It was felt that four issues a year are not adequate to publish all the articles received and to continue to keep the Journal as a quarterly would result in unavoidable delay in publishing many of the papers. The Editorial Committee recommended that to cope up with the pending research papers and to meet the steady influx of contributions, the Journal should be converted into a bi-monthly one from the first issue of the year under review. Six issues have been published during the year containing 34 articles. In the previous years, the total number of papers appeared was : 14 in 1955 ; 25 in 1956 ; 28 in 1957 ; 27 in 1958 and 28 in 1959. Since the frequency of the Journal has been increased the annual subscription of the Journal has also been raised from Rs. 15.00 to Rs. 25.00 taking due account of the increase in the cost of production. It is now proposed to convert the year of the Journal to calendar year. In this way we shall be able to fall in line with the practice of most of the other similar Journals published in the world.

During the year under review 52 articles were received for publication but of these, 34 articles were published, 11 were rejected as unsuitable for publication and the rest are being processed.

There has been a steady increase in the number of subscribers to the Journal. It has risen from 174 in the previous year to 196 during the current year. About 80 copies of the Journal are exchanged with overseas as well as local technical journals. The Council wishes to gratefully acknowledge the annual grant of Rs. 500/- from the National Institute of Sciences of India for publication of the Journal.

The Journal continues to maintain its standard both in its get-up and contents. Advertisers are continuing to extend their support to the Journal and the Council wishes to express their thanks at this juncture for their unstinted support.

The list of papers published during the year are given below.

### DECEMBER 1959

Weather Radar Organisation and Some Observations in India  
by L. S. Mathur.

On the Polarization of Sources of Solar Activity on 3 cm. Wavelength  
by M. R. Kundu & J. L. Steinberg.

Astigmatism in Cathode Ray Tubes  
by N. Patla.

Microwave Properties of Metal-flake Artificial Dielectrics  
by Krishnaji & Shanker Swarup.



Effects of Obstacles and Reflections on the Propagation of V.H.F. Television Signals

by B. Chatterjee.

Nomogram for Determination of Audio Power in Indoor Public Address System

by N. K. D. Choudhury.

#### FEBRUARY 1960

Standard Frequency and Time Transmission Centre, ATA, Delhi  
by C. S. Rangan.

Transistors in Community Receivers  
by M. V. Joshi and T. V. Ramamurti.

Conducting Hard Rubber and Its Use as Composition Resistor  
by Lt Col. S. Mishra.

Metal Disc Delay Dielectrics  
by (Miss) C. Dhanalakshmi & S. K. Chatterjee.

Transistors in Magnetic Matrix Memory Systems  
by M. M. Farooqui

Geomagnetic Field and Ionospheric Drift  
by S. N. Mitra and K. K. Vij.

#### APRIL 1960

Training of Personnel for Telecommunication Engineering  
by D. C. Bhattacharji.

Analysis and Design of a Moving-Coil Microphone  
by D. L. Subrahmanyam & K. D. Pavate

Sound Insulation and Noise Control in Broadcast Studios  
by N. K. D. Choudhury and S. N. Salgarkar.

Some considerations in the Design of the Horizontal Rhombic Antenna  
by K. L. Rao.

Analysis of Some Non-uniform Electric Transmission Lines Using Laplacian Transformation  
by V. M. Bhise.

F. S. K. Facsimile Transmission  
by V. Ramakrishnan and S. Ramachandran

#### JUNE 1960

Some Theoretical Investigations on Metal Disc Delay Dielectrics  
by S. K. Chatterjee and (Miss.) C. Dhanalakshmi.

The Resonator and Output Couplers for a Wide Tuning Range Inverted Magnetron

by Amarjit Singh, N. C. Vaidya, R. A. Rao, K. Chandra and G. S. Siddhu.



Ionosphere Over Trivandrum—Part I

by C. S. R. Rao and T. N. Ranganathan

Some Investigations at Microwave Frequencies

by S. K. Chatterjee and (Mrs.) R. Chatterjee.

A General Theory and Oscilloscopic Study of Single Sideband  
Generation by Weaver's Method

by S. Ramachandran.

AUGUST 1960

Miniaturization

by S. V. Chandrasekhar Aiya

Planning of Telecommunication Engineering Education for Bachelor's  
Degree

by Lt. Col. S. Mishra.

Design of Optimum Filters

by N. K. Sinha.

Flutter Fading of Short-wave Radio Signals in Equatorial Regions and  
Its Connection with Spread Echoes, Magnetic Storms and the Radiation  
Belt

by Chaman Lal.

Design and Performance of V.H.F. Receiving Equipment for Reception  
of Extremely Weak Signals of Solar and Galactic Origin in the Metre  
Wavelength Region

by B. N. Bhargava and A. P. Jayarajan.

OCTOBER 1960

Design and Fabrication of Electron Guns with Dispenser Cathodes

by L. Torstensson, N. V. Vaidya, K. Chandra, and  
S. Rama Gopal.

Space Communication—Effect of Microwave Absorption by Water  
Vapour in Earth's Atmosphere

by Suresh Chandra.

A Wireless Remote Control Unit

by M. K. Rao.

Classification of the Waveforms of Atmospherics

by S. R. Khastgir & R. S. Srivastava

A Simple Versatile Electronic Relay for Temperature Control

by S. Ramaswamy and C. L. Rao.

Isolation Networks in Throw-in and for Feeding Two Transmitters to  
the Same Aerial in Medium Wave Band

by B. C. Das and K. P. Ramaswamy.



### ITE AWARD

The standard of some of the articles received for publication in the Journal has often been observed to be quite poor and many of them had to be rejected. This is not due to dearth of good research articles in this country but authors usually try to get their papers published in foreign Journals. It was felt that some incentive should be created to attract good research workers to contribute their articles to the Journal of the Institution so that the standard of the Journal goes up and its reputation as an organ of original and good research papers enhanced in the outside world. On the recommendation of the Editorial Committee, the Council decided to award one prize of Rs. 500/- during each calendar year to the best contributor. The first award will be announced at the ensuing Annual General Meeting for the best contributor of research paper from the Journals published during March 1955 to December 1959. However, papers contributed only by the members of the Institution will be considered for this award.

The articles published in the Institution's Journal are now being abstracted by almost all the leading abstracting agencies in the world like the Institution of Radio Engineers (America); Institution of Electrical Engineers (England), Institute of Physics (England), etc. Recently there was a request from a Russian Publishing Agency for permission to abstract the papers of our Journal.

### STUDENTS' JOURNAL

A notable addition to the publication of the Institution during the year is a Students' Quarterly first published in December 1959. The Council, in its annual report for 1958-59, expressed its desire to bring out a Journal of Students' standard catering to the specific needs of the Student members appearing for the Graduateship examination of the Institution. The Council successfully launched this programme at the beginning of this year and so far three issues have already been brought out. The fourth issue of the Student's Journal is under print. A series of articles in the following subjects are being contributed to this Journal for the benefit of Student members keeping in view the syllabus and the available literature for the Graduateship examination : (a) Propagation, (b) Antenna (c) Modulation Systems and (d) Telegraph and Telephony. From the September 1960 issue another topic on Television System is being introduced. The articles that have been published so far in the Students' Quarterly are given below :

#### DECEMBER 1959

The Telephone Exchange—Basic Idea and General Principles  
by S. C. Mishra.

Telegraph Codes and their Uses  
by P. N. Das.



Interference Effects in the Frequency Modulation System  
by S. Sampath.

Propagation of Radio Waves—I  
by (Mrs.) Nilima Mitra.

Antenna Systems—Introductory  
Contributed.

#### MARCH 1960

The Telephone Exchange—Principal Parts and Their Function  
by S. C. Mishra.

Ordinary Simplex Telegraph Systems Using 2-Condition Morse Code  
on Land Lines  
by P. N. Das.

Some Interesting Aspects of Class 'B' Amplifiers  
by R. K. Basu.

Propagation of Radio Waves—II  
by (Mrs.) Nilima Mitra.

Antenna Systems—Radiation Characteristics  
Contributed.

#### JUNE 1960

The Telephone Exchange—Principal Parts and Their Functions  
by S. C. Mishra.

Duplex and Quadruplex Systems of Telegraphy  
by P. N. Das.

Generation of Frequency and Phase Modulated Waves  
by S. Sampath.

Antenna Systems—Power Radiation and Impedance  
Contributed.

On the Use of Heaviside Formulae in the Analysis of Transients in  
Electric Circuits  
by P. Rajagopala Rao

#### SEPTEMBER 1960

The Telephone Exchange—Principal Parts and Their Functions  
by S. C. Mishra.

Submarine Telegraphy with Morse Code  
by P. N. Das.

Detection of Frequency Modulated Waves  
by S. Sampath.

Propagation of Radio Waves—III  
by (Mrs.) Nilima Mitra.

Television System—I  
Contributed.



A sum of Rs 25.00 is being given to the contributors as honorarium for the papers in the Students' Journal. The Examiners for the I.T.E. Graduateship examination are requested to keep in view the articles published in the Students' Journal when they set the question papers for the Graduateship Examination. In this way some of the specific needs of the Student members are being met and also the members are given the benefit of specialist's help in the understanding of problems for which adequate literature is not easily available.

The Council wishes to thank the members of the Editorial Committee for the success in the Institution's publications.

### EXAMINATIONS

After the recognition of the Graduateship examination by the Ministry of Scientific Research and Cultural Affairs there is a rush of applications for the examination. Out of 180 candidates who took up the examination in May 1960, nine completed the examination and 55 passed in parts. In order to accommodate the insistent request from Student members to hold the examination twice a year and keeping in view that such a system is prevailing in other sister organisations it was decided by the Council to hold the examination twice a year from this year onwards. 236 candidates have appeared for the November 1960 examination and the result is expected to be announced in the first week of January 1961. The following is the list of successful candidates who have passed the examination in full during the year.

| Roll No. | Name of the candidate   |
|----------|-------------------------|
| 121      | Ram Swarup              |
| 128      | Mool Chand Sharma       |
| 130      | S. B. Nirodi            |
| 138      | S. K. Malhotra          |
| 154      | M. K. Shah              |
| 189      | N. S. Bijurkar          |
| 202      | T. Chandrasekharan Nair |
| 226      | T. K. Viswanathan       |
| 271      | P. B. Kahetkar          |

The Institution examinations were held at Bangalore, Bombay, Calcutta, Delhi, Jabalpur, Madras and Poona. The Council desires to express its thanks to the Chairmen and the Honorary Secretaries of the local centres for their spontaneous help and assistance in conducting examinations at the local centre. The Council is grateful to the voluntary and ungrudging help from the professors of many colleges, universities and Technological Institutes and members of the profession for help in conducting these examinations.

### REFEREES

A system of refereeship has been introduced during the year under review. Eminent people in the field of telecommunications who are Corpo-



rate members of the Institution have been requested to work as referees in their particular areas for giving an unbiased opinion about the eligibility of Student members referred to them for appearing in Section B examination. Such candidates will have to work in close co-operation with those referees and be interviewed from time to time by the referees for assessing the progress of their work in their respective field. Only when the referees are satisfied that the candidates have gained enough experience and certify to that effect, the candidates will be permitted to sit for the Graduateship examination. This system of refereeship is applicable in the case of candidates who have not put in five years of experience in the field of telecommunications.

The Council wishes to thank the referees for their help and co-operation in the matter. The names of the referees in the different parts of India is given below :

#### **Andhra Pradesh**

1. Sri T. V. Balasubramaniam, Divisional Engineer (Phones), Hyderabad.
2. Prof. V. V. L. Rao, Principal, Government Engineering College, Anantapur.
3. Dr. Ram K. Vepa, Assistant Collector, Madanapali, Chittor Dist.
4. Sri P. S. Viswanathan, Station Engineer, All India Radio, Vijayawada.

#### **Assam**

Sri M. S. Muthanna, Director of Telegraphs, Assam Circle, Shillong.

#### **Bihar**

Sri G. Ramanathan, Station Engineer, All India Radio, Patna.

#### **Delhi**

1. Sri S. M. Agarwal, District Manager, Delhi Telephones, Eastern Court, New Delhi.
2. Sri S. S. Aiyar, Project Officer, Central Project Circle, All India Radio, New Delhi.
3. Brig. M. N. Batra, C/o National Defence College, New Delhi.
4. Wg. Cdr. H. Chandra, Deputy Director of Signals, Air Headquarters, Signals Directorate, New Delhi.
5. Dr. Saroj Datta, Controller, Civil Aviation Department, Safdarjung Airport, New Delhi.



Gr. Capt. K. A. Joseph, Chief Signal Officer, Operational Command, Headquarters, Indian Air Force, Palam, Delhi Cantt.

Sri M. M. Kini, Director (Planning), Posts & Telegraphs, Eastern Court, New Delhi.

Rau. B. S. Officer-on-Special Duty, Teleprinter Factory, C/o P & T Directorate, New Delhi.

#### **Gujrat**

Col. Jaswant Singh, Chief Signal Officer, Southern Command, Poona.

Sri K. M. Mehta, Engineer-in-Charge, High Power Transmitters, All India Radio, Ahmedabad.

Prof. M. G. Samant, Department of Electrical Communication, Engineering College, Poona.

#### **Kerala**

Sri A. G. John, Station Engineer, All India Radio, Trichur.

#### **Madhy Pradesh**

1. Sri A. K. Ghose, Reader in Telecommunications, Government Engineering College, Jabalpur.
2. Shr O. P. Gulati, Station Engineer, All India Radio, Bhopal.
3. Lt. Col. K. N. Talwar, School of Signals, Mhow.

#### **Madras**

1. Prof. K. S. Hegde, Professor of Telecommunications, College of Engineering, Guindy, Madras.
2. Sri K. Nageswaran, C/o RESA Company, 3/16, Mount Road, Madras 2.
3. Sri S. Pattabiraman, Installation Engineer, All India Radio, Tiruchi.
4. Sri K. K. Pitchumani, 10 Promende Road, Tiruchirapalli Cantt.
5. Maj. Y. R. Puri, Deputy Signal Officer, Headquarters, Mysore, Madras and Kerala Area, Madras.
6. Sri Rama Kant, District Manager, Madras Telephones, Madras.
7. Prof. K. Sreenivasan, Director, Madras Institute of Technology, Chromepet, Madras.

#### **Maharashtra**

1. Sri D. D. Lakhanpal, 27, New Queen's Road, Bombay.
2. Sri G. R. S. Rao, Technical Manager, National Ekco Radio & Engineering Co Ltd. Haines Road, Mahaluxmi, Bombay.
3. Sri Uma Shankar, General Manager, Bombay Telephones, Telephone Bhavan, Bombay.



#### **Mysore**

1. Prof. S. V. Chandrasekhar Aiya, Head of the Department of Electrical Communication Engineering, Indian Institute of Science, Bangalore.
2. Col. K. K. Mehta, Inspectorate of Electronic Equipment, Ministry of Defence (CGDP), Bangalore.
3. Sri S. Sampath, Department of Electrical Communication Engineering, Indian Institute of Science, Bangalore.
4. Sri N. V. Shenoi, General Manager, Indian Telephone Industries Ltd., Bangalore.

#### **Orissa**

1. Sri A. C. Ghosh, Station Engineer, All India Radio, Cuttack.
2. Sri A. P. Mohanty, Superintendent of Police Signals, Cuttack.

#### **Punjab**

1. Brig. T. Baretto, Chief Signal Officer, Headquarters, Western Command, Simla.
2. Sri S. R. Bashyam, Post Master General, Ambala.
3. Lt. Col S. S. Bedi, Headquarters, Punjab and Himachal Pradesh Sub-Area, Ambala Cantt.

#### **Uttar Pradesh**

1. Sri C. P. Joshi, State Radio Officer, U. P. Police Radio Station, Lucknow.
2. Col. P. Madan, Officer Commanding, 509 Army Workshops, Agra.
3. Sri Shanti Swarup, Post Master General, U. P. Circle, Lucknow.

#### **West Bengal**

1. Sri A. S. Balasubramaniam, Engineer-in-Charge, All India Radio, Eden Gardens, Calcutta.
2. Dr. K. K. Bose, Assistant Professor, Department of Communication Engineering, Indian Institute of Technology, Kharagpur.
3. Sri C. A. Cornelius, General Manager, Calcutta Telephones, Telephone Bhavan, Calcutta.
4. Sri Keshava Chandra, Project Officer, All India Radio, Eastern Project Circle, Calcutta.
5. Prof. S. K. Mitra, Emeritus Professor, Institute of Radio Physics and Electronics, Calcutta University, Calcutta.



## LOCAL CENTRE

The local centres continued to maintain their activities steadily.

### DELHI

Four meetings were held in Delhi on various topics during the year. Sir Harold Bishop, Director of Engineering, British Broadcasting Corporation who was a delegate from U.K. to attend the Commonwealth Broadcasting Conference held in New Delhi addressed the members of the Institution on 2nd February 1960. He mainly dealt with the advantage of VHF Broadcasting over medium waves and the considerations that led to the choice of frequency modulation for the B.B.C.'s VHF Broadcasting Plan. (The gist of his talk is reported in February 1960 issue of the Journal).

Mr. W. L. Harrison, Chief Engineer, New Zealand Broadcasting Service who was also a delegate to the Commonwealth Broadcasting Conference, in his address gave a historic account of the developments of Broadcasting in New Zealand. He mentioned that 165 medium wave stations are operating in the country and further explained that this country being situated at quite a distant place and away from any nearby countries, medium wave broadcasting gives satisfactory service. (Details of his talk are reported in February 1960 issue of the Journal). Prof. Hammerling, Member of the Drama and Academy of Architecture of German Democratic Republic in his lecture on 8th March 1960 on 'some aspects of modern architectural acoustics' stressed the need for close co-operation between the architect and the acoustic consultant in every stage of the work—right from the designing of the shape to deciding upon to final internal decorative treatment.

Shri Chaman Lal, Deputy Chief Engineer, All India Radio, New Delhi delivered a lecture on 'Spread Echoes, Flutter Fading and Radiation Belt' on 22nd April 1960. He gave a brief history of the observations made by All India Radio over a number of years regarding the occurrence of spread echoes and flutter fading at equatorial latitudes. He offered an interesting explanation to these phenomena near the equatorial belt as due to interaction of the ionosphere with Van Allen Radiation Belt recently discovered from the exploration of space by artificial satellites. The full paper has been published in the August 1960 issue of the Journal.

### BANGALORE

Col. K. K. Metha

Chairman

Shri S. Sampath

Honorary Secretary.

Sri K. P. P. Nambiar of Bharat Electronics Ltd delivered a lecture on "Junction Transistors: Practical Design Consideration". The speaker dealt with the significance of the electrical equivalent circuit in relation to the physical mechanism of transistor action and gave a brief comparison



between the properties of valve and transistor amplifiers. In conclusion, the speaker dealt with the switching properties of the transistor and some basic considerations in the design of simple switches.

A visit to the Hindustan Aircraft Ltd. was arranged on 14th August 1960 and a lecture on 'Some Aspects of Modern Navigation Methods' was arranged under the chairmanship of Shri A. P. Srinivasan, Chief of the Instrument and Radio Section. Sri G. Krishnan, spoke about the two types of flying—contact flying and instrument flying—and discussed modern instrumentation for navigational aid of the aircraft. Shri Krishnamurthy explained how the zero reader performs as an efficient gyroscopic flight and navigational instrument. He explained how the electronic computer collects data from a number of separate flying instruments, interprets them and gives resulting information to the pilot in simple and well-defined picture.

Prof. Morton Nadler from U. S. A. gave an illuminating lecture on 'Machine Translation by Computers' on 9th September 1959. He discussed in length the problems which language computers present. He classified them into three main aspects, (i) language or linguistic problem, (ii) engineering problems and (iii) machine problem. Dealing with the language or the linguistic problems he gave a lucid explanation of the grammatical aspects of the different languages with forceful examples in the three languages—English, Russian and Czechoslovakian. He stressed the point that a particular word in one language in one context may bring out one meaning and in another context another meaning. The engineering and machine problems are by no means an easy one. The machine can be programmed to accept words as numbers, coded instruction binary or otherwise and it can be allowed to select a word from the dictionaries and the set of instruction rules of the selection. The size of the dictionaries together with the speed of translation is most important. Prof. Nadler concluded that the engineers in the U. S. A. and Soviet Russia are well advanced in this technic and the day when we could feed on one side of the machine a Russian book and take out at the other end a Japanese translation or French or English translation is not quite far off.

#### BOMBAY

D. D. Lakhanpal

Chairman

H. M. Bhatnagar

Honorary Secretary.

A visit to the A. I. R. Studios, Bombay was arranged for the benefit of the members of the local centre residing at Bombay on 3rd October 1959. Sri B. K. Gadre, Station Engineer welcomed the guests and in a short talk gave a chronological account of the progress made, particularly since independence, at the Bombay Station.

The members were then taken around and the working of the studios was explained. The different types of microphones for use in the studios, the control room installation, and the recording, editing and processing



equipment were shown. Studio acoustics, the relative merits of the F. M. link provided as a standby for the P & T lines between studios and the transmitter and the various precautions taken in storing the recorded magnetic tapes in the library were among the other topics on which there were lively discussions.

#### CALCUTTA

Sri R. R. Joneja                      Chairman  
Sri S. K. Bhattacharjee      Honorary Secretary.

#### JABALPUR

Sri C. J. Clement                      Chairman  
Sri A. K. Ghose                      Honorary Secretary.

#### MADRAS

Prof. K. S. Hegde                      Chairman & Secretary.

The Graduateship examination of the Institution of Telecommunication Engineers were held in Calcutta, Jabalpur and Madras with the kind assistance of the Chairmen and Honorary Secretaries of the local centres.

#### PRESIDENT

In accordance with the Byelaw 36, Dr. Lal C. Verman, Director, Indian Standards Institution and Vice-President of our Institution has been elected unanimously as the President for 1960-61 in succession to Prof. S. V. Chandrasekhar Aiya. The Council records its appreciation for the valuable services rendered by Prof. Aiya. The Council congratulates Dr. Verman for his election as the President. His long intimate association with the Institution from its very inception will be an inspiration to the progress of the Institution.

#### COUNCIL ELECTIONS

Nominations were invited from Corporate members in accordance with Byelaws 40 and 41 to fill up the seven vacancies arising out of retirement of seven Council members by rotation in accordance with Byelaw 39. 18 Corporate members were duly nominated and had contested the election for seven vacancies. As a result of election by secret ballot in accordance with Byelaw 42, the following seven members have been duly elected.

Sri S. S. Aiyar  
Sri N. V. Gadadhar  
Dr. P. K. Kapre  
Sri D. D. Lakhanpal  
Sri S. N. Mitra  
Lt. Col. J. N. Shahaney  
Sri R. C. Vaish.



The General Body needs no introduction to these members as the above had served the Council in the earlier years. The Council congratulates them on their election and hopes that with their co-operation it will derive added strength during the coming years.

The following Council members retired from the Council at the end of the year in accordance with Byelaw 39. The Council records its appreciation of the services rendered by them.

Sri S. M. Agarwal  
Prof. S. P. Chakravarti  
Sri Jagdeesh Prasad  
Sri S. N. Kalra  
Sri A. C. Ramchandani  
Dr. M. B. Sarwate  
Sri Uma Shankar.

#### LIBRARY

It has already been mentioned that about 80 copies of the Institution Journal are being exchanged with similar technical journals from all over the world.

#### LIST OF JOURNALS RECEIVED IN EXCHANGE OF THE JOURNAL OF THE INSTITUTION.

- A.T.E. Journal, Automatic Telephone and Electric Co. Strowger Works, Liverpool.
- A.W.A. Technical Review, Amalgamated Wireless Australasia. 554, Parramatta Road, Ashfield, New South Wales.
- Actr Polytechnica Scandinavica (Formerly: Acta Polytechnica)—Scandinavian Council for Applied Research. Stockholm 5.
- Aerial—Marconi's Wireless Telegraph Co. Ltd. Marconi House, Chelmsford, Essex.
- Alta Frequenza—Associazione Elettrotecnica Italiana, Via San Paolo 10, Milan.
- Ann. Radioelect. Annales de Radioelectricite—Compagnie Generale de T.S.F., Centre d'Information et de Documentation, 12, Rue Carducci, Paris 19.
- Annales de Telecommunication, Centre National d'Etude des Telecommunications, Paris.
- Australian Journal of Applied Science, Commonwealth Scientific and Industrial Research Organisation, 314 Albert Street, East Melbourne, C.2. Victoria.
- Australian Journal of Applied Science, Commonwealth Scientific and Industrial Research Organisation, 314 Albert Street, East Melbourne, C.2. Victoria.
- Australian Journal of Science, Australian and New Zealand Association for the Advancement of Science, Science House, 157, Gloucester Street, Sydney.



Bell Laboratories Record, Bell Telephone Laboratories, 463, West Street, New York

Birla College of Engineering Magazine, Birla College of Engineering, Pilani.

Bihar College of Engineering Magazine, Bihar College of Engineering, Patna.

Bulletin of the All India I.M.D.A., 127, Dadabhai Naoroji Street, Bombay.

Bulletin of the Institution of Engineers (India), 8, Ghohale Road, Calcutta.

Cables et Transmission, SOTELIEC, 16, Rue de la Baume, Paris 8.

Communications and Electronics, American Institute of Electrical Engineers, New York.

E.B.U. Review Part A (Technical) and Part B, (General)—Technical Centre of the European Broadcasting Union, 4, Rue de la Vallee, Brussels.

E.T.J. Japan—Electrotechnical Journal of Japan, Institute of Electrical Engineers of Japan (Denki-Gakai), Yurakucho, Chiyoda-ku, Tokyo.

Electrical Communication, International Telephone and Telegraph Corporation 67, Broad Street, New York 4, N.Y.

Electro-Technology, High Grounds, Bangalore.

Electronic Engineering, Morgan Brothers, 28, Essex Street, Strand, Strand, Landon W.C. 2.

Electronic and Radio Engineer, Iliffe and Sons, Dorset House, Stamford Street, London, S E.1.

Electrotechnics, Indian Institute of Science, Bangalore. 3.

Elektrotech. Obzor—Elektrotechnicky Obzor—Krakovska u.c. 8, Prague 2.

English Electric Journal, English Co. Stafford.

Ericsson Review, L.M, Ericsson, Stockholm 32.

G.E.C. Telecommunications, Genral Electric Co. Ltd. Telephone, Radio and Television Works, Coventry.

Hewlett-Packard Journal, Hewlett-Packard Co., 257, Page Mill Road, Palo Alto, California.

Indian Journal of Meteorology and Geophysics, Meteorological Department, Civil Lines, Delhi 8.



Indian Journal Physics and Proceedings of the Association for the Cultivation of Science, 2 and 3, Lady Wellington Road Calcutta.

Ionospheric Data, National Physical Laboratory of India, Hillside Road, New Delhi.

I.S.I. Bulletin, Indian Standards Institution, 'Manak Bhavan' Road, New Delhi.

Journal of the Acoustical Society of America, American Institute Physics, 335 East 45th Street, New York—17. N.Y.

Journal of the Aeronautical Society of India, Aeronautical Society of India, Talkatora Road, New Delhi.

Journal of the Audio Engineering Society, Post Box No. 12, Old Chelsea Station, New York 11, N.Y.

Journal of the Institution of Military Engineers, Kirkee, Poona.

Journal of the Franklin Institute, Benjamin Franklin, Parkway at Twentieth St., Philadelphia 3, Pennsylvania.

Journal of Geophysical Research—5241 Broad Road, Northwest, Washington 15.

Journal of the Indian Institute of Science, Bangalore.

Journal of the Institute of Electrical Communication Engineers of Japan, 2-8 Fujimicho Chiyoda-ku, Tokyo.

Journal of the Institution of Engineers India, 8 Gohale Road, Calcutta.

Journal of the Radio Research Laboratories, Ministry of Posts & Telecommunications, Kokubunji P.O. Kitatama-gun, Tokyo.

Journal of Research of the National Bureau of Standards, U.S. Government Printing Office, Washington 25, D.C.

Journal of Scientific and Industrial Research, A (General) and B (Physical Sciences) Council of Scientific and Industrial Research, Old Mill Road, New Delhi.

Journal of the Society of Motion Picture and Television Engineers, 55, West 42nd Street, New York 36, N.Y.

Journal of the University of Bombay, Fort, Bombay 1.

Jodrell Bank Annals (Astronomical Contributions from the University of Manchester) Jodrell Bank Experimental Station, Lower Withington, Macclesfield, Cheshire.



Marconi Review, Marconi's Wireless Telegraph Company, Marconi House, Chelmsford.

Memoirs of Scientific and Industrial Research, Osaka University, Osaka, Japan.

New Zealand Journal of Science, Department of Scientific and Industrial Research, Post Box No. 8018, Wellington.

Noise Control, Published for the Accoustical Society of America by the American Institute of Physics, 335, East 45th Street, New York, 17, N.Y.

Onde Electrique, l'Onde Electrique, Societe des Radioelectriciens, 10, Avenue Prierre Larousse, Malakoff (Seine).

P.T.T. Bedrijf, Direction Centrale des P.T.T. 12, Kortenarkade, The Hague.

Pakistan Journal of Science, Pakistan Association for the Advancement of Science, University Institute of Chemistry, Lahore.

Pakistan Journal of Scientific Research, Pakistan Association for the Advancement of Science, University Institute of Chemistry, Lahore.

Philips Technical Review, Philips, Gloeilampenfabrieken, Eindhoven.

Philips Telecommunication Review, Philips' Gloeilamfabrieken, Eindhoven.

Post Office Electrical Engineers' Journal, Institution of Post Office Electrical Engineers. G.P.O. 2-12, Gresham Street, E. C. 2.

Proceedings of the Cambridge Philosophical Society, Free School Lane Cambridge.

Proceedings of the Institution of Electrical Engineers—Part B (Radio and Electronic Engineering), Savoy Place, London W.C.2.

Proceedings of the Institution of Radio Engineers Australia, Science House, Gloucester Street, Sydney.

Q.S.T. American Radio Relay League, 38, La Salle Road, West Hartford Connecticut.

R.C.A. Review, Radio Corporation of America, R.C.A. Laboratories Division, Princeton, New Jersey.

Radio Man, Radio Place, Chandni, Chowk Delhi.

Radio Television, Radio Place, Chandni Chowk, Delhi.



Radio TV News (Now: Electronic World), Ziff-Davis Publishing Co.  
434 S. Wabash Ave. Chicago 5, Illinois.

Radio Times of India, 27 New Queens' Road, Bombay.

Rundfunktechnische Mitteilungen, Institute für Rundfunktechnik,  
Mittelweg 113, Hamburg 13.

Revista Electrotecnica, Association Argentina de Electrotecnicos,  
Posadas 1657, Buenos Aires,

Review of Scientific Instruments, American Institute of Physics, 335,  
East 45th Street, New York 17, N.Y.

Revue Technique de la Compagnie Francaise Thomson-Houston, 173,  
Bd. Haussmann, Paris 8.

Revista de Telecomunicacion, Consejo Technico de Telecomunicacion,  
Palacio de Comunicaciones, Madrid.

Rohde und Schwarz Mitteilungen, Munich 8.

Rozprawy Elektrotechniczne, Panstwowe Wydawnictwo Naukowe,  
Krakowskie Przedmiescie 79, Warsaw.

Slaboproudy Obzor, Krakovska 8, Prague II.

Sound Recording & Reproduction 3, Coombe Gardens, New Malden,  
Surrey.

Technische Mitteilungen P.T.T., Schweizerische Post-Telegraphen und  
Telephonverwaltung, Speicher gasse 6, Bern.

Telecommunications, Ridge Road, Jabalpur.

U.S.R.I. Information Bulletin, 7, Place Emile Danco Brussels.

Wireless World, Iliffe and Sons., Dorset House, Stamford Street,  
London S.E.1.

During the year under review 28 books have been received in the Institution for the purpose of review and publication of review in the Journal. These have been duly acknowledged and entered into the library accession book. The reviewers were specifically requested to donate the books to the Institution after review. This request was made with a view to increasing the number of books and publications in the Institution's library and the Council wishes to thank the reviewers for their kind co-operation and donation.



LIST OF BOOKS AVAILABLE FOR CIRCULATION AT THE  
LIBRARY OF THE I.T.E.

Practical Electroacoustics by Michael Rettinger  
Low Frequency Amplification by Dr. N.A.J. Voorhoeve  
Television by F. Kerkhof W. Werner  
Radar Beacons by Arthur Roberts  
Radar Aids to Navigation by John S. Hall  
Fundamentals of Electrical Engineering by Edward Hughes.  
Yagi-Uda Antenna by Dr. Shintaro Uda and Dr. Mushiake  
Television Engineering—Vol. I, II and III, by S.W. Amos and D.C. Birkinshaw  
Wireless and Electrical Trader Year Book—1956, 1957, 1958, 1959 and 1960  
Wireless Servicing Manual by W.T. Cocking.  
Memoris of Raman Research Institute-Vol. II, III, IV, V, VI and VII  
Radio Instrument and Measurement by U.S. Department of Commerce  
Analysis of Bistable Multivibrator Operation by P.A. Neeteson  
Fundamentals of Radio Valve Technique by J. Deketh  
Foundations of Wireless by M.G. Scroggie.  
Television Explained by W.E. Miller  
Television Receiving Equipment by W.T. Cocking  
Abacs or Nomograms by A. Giet  
Electronic Computers by T.E. Ivall  
Engineering Inspection Manual by Henry A. Roy  
Tube Selection Guide 1956-57 by Th. J. Kroes  
U.H.F. Tubes for Communication and Measuring Equipment by Philips Electronic Division  
Basic Mathematics for Radio and Electronics by F.M. Colebrook and J. W. Head  
Transistor A.F. Amplifiers by D.D. Jones and R.A. Hilbourne  
Telecommunication Economics by T.J. Morgan



Tubes for Computers by Members of the Philips Electron Tube Division

Electrical Discharges in Gases by F.M. Penning

Basic Automatic Control Theory by Gordon J. Murphy

Transistor Electronics by David Dewitt and A.L. Rossoff

Geometry of Engineering Drawing by George J. Hood and S. Palmerlee

Tube and Semi-Conductor Selection Guide 1958-59 compiled by Th. J. Kroes

Radio Circuits by W.E. Miller and E.A.W. Spreadbury

Principles of Radio Circuits by A. W. Amos

Magnetic Sound Recording by D.A. Snel

Basic Electronics by Bernard Grob

Non-linear Analysis by W.J. Cunningham

Multivibrator Circuits by A.H. Bruinsma

Practical ROBOT Circuits by A.H. Bruinsma

Principles of Circuit Synthesis by E.S. Kuh and D.O. Pedarson

Engineering Education in Russia by S.P. Timoshenko

Modern Network Analysis by F.M. Reza and Samuel Seely

Servomechanism Fundamentals by Ben Zeines

From Microphone to Ear by G. Slot

Two Way Radio by Allan Lytel

Electron Tube Handbook by Brown Boveri Co. Ltd.

Electrical Noise by D.A. Bell

Principles of Frequency Modulation by B.S. Cannies

Microwave Data Tables by A.E. Booth

Resistance and Resistors by Charles L. Wellard

Vacuum Tube Circuits and Transistors by Lawrence Baker Arguimbau

Air Traffic Control by C.D. Colchester

Engineering Materials by N. Chowdhuri

Numerical Methods for High Speed Computers by G.N. Lance

Theory of Optimum Noise Immunity by V.A. Kotel'nikov

Problems in Graphical Analysis by Percy H. Hill

Introduction to Laplace Transforms by W.D. Day

ISI Handbook of Quantities, Conversion Formulae and Tables

Electronic Switching Timing and Pulse Circuit by Joseph M. Pettit

Wave Propagation in Random Medium by Lev A. Chernov

Industrial Rectifying Tubes by Members of Philips Electron Tube Division



Basic Feedback Control System Design by C.J. Savant, Jr.

Electronic Communication by Robert L. Shrader

An Approach to Electrical Science by Harry G. Booker

Electronic Semiconductors by Ebrhard Spenke

#### ACCOMMODATION

The office of the Institution continues to be housed in the one room in the Second floor of the I. E. N. S. Building at Old Mill Road. The accommodation is, however, inadequate and the problem of finding a more suitable accommodation at reasonable rent continues to exercise the minds of the Council. As a long term solution the Council has applied to the Ministry of Works, Housing and Supplies for allotment of some land for erecting a permanent building for housing the Institution. A communique has been received from the Ministry of W. H. & S. that the matter is under consideration of the Government.

#### STAFF

There has been an addition to the regular staff of the secretariat. The secretariat at present consists of one Assistant Secretary, one Stenographer, one Typist, one Accounts Clerk and a peon. The increase in the work of the Institution with the recognition of the examination and consequently the decision to hold two examinations a year and with the conversion of a quarterly Journal into a bi-monthly one have increased the day-to-day work of the Institution to a considerable extent

#### OBITUARY

The Council regrets to announce the death of Sri S. P. Patel, Member of our Institution and Sri P. Sivaraman, a Graduate member of the Institution. The Institution also lost another intimate member in the sudden death of Rev. Fr. Ralph Conesa, S. J. the former Principal, St. Xavier's College, Bombay, and an Associate Member of the Institution. He took an active part in the activities of the Institution at Bombay and helped the Institution in conducting the examination at Bombay.

#### INCOME & EXPENDITURE

The audited statement of Income & Expenditure account for the year ending 30-9-60 and the balance sheet as on 30th Sept. 1960 are given over leaf.



...the ...  
...the ...  
...the ...

...the ...  
...the ...  
...the ...

#### STAFF

...the ...  
...the ...  
...the ...

#### CONCLUSION

...the ...  
...the ...  
...the ...

#### APPENDIX

...the ...  
...the ...  
...the ...



## REPORT OF THE AUDITORS TO THE MEMBERS

We have examined the enclosed Balance Sheet of the Institution of Telecommunication Engineers New Delhi as at 30th day of September, 1960 and also the accompanying Income and Expenditure Account for the year ended on the said date in which are incorporated the returns of the centres certified by the persons in charge and have to report as follows :-

- (a) That the accounts have been properly drawn up ;
- (b) That we have obtained the information and explanations required ; and
- (c) That the said Balance Sheet exhibits a true and correct view of the state of the affairs of the Institution according to the best of our information and the explanations given to us and as shown by the books of the Institution.

Asaf Ali Road,  
New Delhi  
10th December, 1960

Sd/- KHANNA & ANNADHANAM  
Chartered Accountants



# THE INSTITUTION OF TELE- NEW

Balance Sheet as at

## LIABILITIES

| SURPLUS FUND   | Rs.    | nP. | Rs.      | nP. |
|--|--------|-----|----------|-----|
| Balance as per last Balance Sheet  | 44,491 | 35  |          |     |
| Add : Excess of Income over Expenditure<br>for the year as per annexed<br>account. | 11,951 | 03  |          |     |
|  |        |     | 56,442   | 38  |
| RESERVE FUND   |        |     |          |     |
| Balance as per last Balance Sheet  | 32,572 | 62  |          |     |
| Less : Amount refunded and adjusted for<br>Admission fees                          | 143    | 00  |          |     |
|  | 32,429 | 62  |          |     |
| Add : Admission fee  | 7,722  | 00  |          |     |
| Transfer fee   | 799    | 00  |          |     |
|  |        |     | 40,950   | 62  |
| RESERVE FOR BAD DEBTS  |        |     |          |     |
| Balance as per last Balance Sheet  | 2,093  | 50  |          |     |
| Add : Provision for the year 2,500 00  |        |     |          |     |
| Amount written off in<br>previous year received<br>during the year 626 00          |        |     |          |     |
|  | 3,126  | 00  |          |     |
|  | 5,219  | 50  |          |     |
| Less : Amount written off during the<br>year                                       | 4,113  | 89  |          |     |
|  |        |     | 1,105    | 61  |
| LIABILITIES  |        |     |          |     |
| Members at credit  | 972    | 56  |          |     |
| Journal Subscription received in Advance   | 1,652  | 69  |          |     |
| Creditors for Expenses   | 4,181  | 14  |          |     |
| Admission Fee received in advance  | 24     | 00  |          |     |
| Staff Deposit  | 120    | 00  |          |     |
| Examination fee received in advance  | 8,140  | 00  |          |     |
| Registration fee suspense  | 1,576  | 00  |          |     |
| Advertisers in Credit  | 286    | 88  |          |     |
| Application Deposit  | 14     | 10  |          |     |
|  |        |     | 16,967   | 37  |
|  |        |     | 1,15,465 | 98  |

Asaf Ali Road,  
NEW DELHI



# **COMMUNICATION ENGINEERS DELHI**

30th September 1960

## **ASSETS**

| FIXED ASSETS  |       | Rs. | nP.    | Rs.      | nP. |
|---|-------|-----|--------|----------|-----|
| As per Schedule attached  |       |     |        | 3,824    | 41  |
| <b>CURRENT ASSETS</b>   |       |     |        |          |     |
| Stock of paper  | 2,256 | 00  |        |          |     |
| Examination Books in hand*  | 1,045 | 00  |        |          |     |
|   |       |     | 3,301  | 00       |     |
| Due from members for fee  |       |     | 4,003  | 00       |     |
| Due for Journal Subscriptions                                       |       |     | 240    | 87       |     |
| Due for Journal Advertisement                                       |       |     | 3,973  | 47       |     |
| Rent paid in Advance  |       |     | 500    | 00       |     |
| Advance to Staff  |       |     | 175    | 00       |     |
| (*As certified by Assistant Secretary)                              |       |     |        | 12,193   | 34  |
| <b>CASH &amp; BANK BALANCES</b>                                     |       |     |        |          |     |
| Cash in hand  | 113   | 43  |        |          |     |
| Postage in hand   | 46    | 59  |        |          |     |
| Cash  | 318   | 41  |        |          |     |
|   |       |     | 478    | 43       |     |
| Imprest with local centres as certified by the Honorary Secretaries |       |     | 595    | 79       |     |
| <b>CASH WITH BANKS</b>  |       |     |        |          |     |
| On Fixed Deposit  |       |     | 74,000 | 00       |     |
| On Current Accounts :   |       |     |        |          |     |
| Central Bank of India Ltd. Bangalore                                |       |     | 1,971  | 39       |     |
| Central Bank of India Ltd. New Delhi                                |       |     | 22,402 | 62       |     |
|   |       |     |        | 99,448   | 23  |
|   |       |     |        | 1,15,465 | 98  |

## **AUDITOR'S REPORT**

As per our Report to the Members attached separately

Sd/- KHANNA & ANNADHANAM

Chartered Accountants.



# THE INSTITUTION OF TELE- NEW

## Income & Expenditure Account for

### EXPENDITURE

|   | Rs.    | nP. | Rs.    | nP. |
|---|--------|-----|--------|-----|
| To Establishment  |        |     | 13,144 | 56  |
| „ Rent & Electricity  |        |     | 2,240  | 00  |
| „ Printing & Stationery   |        |     | 2,697  | 13  |
| „ Postage & Telegrams   |        |     | 2,217  | 20  |
| „ Telephone Charges   |        |     | 424    | 92  |
| „ Sundry Expenses (Net)   |        |     | 483    | 55  |
| „ Bank Charges (Net)  |        |     | 303    | 67  |
| „ Audit fees  |        |     | 250    | 00  |
| „ INSTITUTE'S JOURNAL EXPENSES  |        |     |        |     |
| Printing Charges including cost of paper consumed                               | 12,675 | 33  |        |     |
| Block making charges  | 1,976  | 40  |        |     |
| Postage and Packing   | 1,373  | 83  |        |     |
| Reprints Cost   | 939    | 64  |        |     |
|   |        |     | 16,965 | 20  |
| „ STUDENTS' JOURNAL EXPENSES  |        |     |        |     |
| Printing Charges including cost of paper  | 4,193  | 38  |        |     |
| Block making charges  | 944    | 39  |        |     |
| Postage & Packing   | 367    | 13  |        |     |
| Reprints cost   | 514    | 23  |        |     |
| Honorarium  | 500    | 00  |        |     |
|   |        |     | 6,519  | 13  |
| „ Binding Charges   |        |     | 127    | 50  |
| „ Examination Expenses  |        |     | 2,868  | 34  |
| „ Depreciation  |        |     | 348    | 02  |
| „ Reserve for Bad Debts   |        |     | 2,500  | 00  |
| „ Employers Contribution to Provident Fund                                      |        |     | 478    | 74  |
| „ Local Centre Expenses   |        |     | 260    | 35  |
| „ Travelling Expenses/Council's President                                       |        |     | 346    | 98  |
| „ Excess of Income over Expenditure for the year transferred to Surplus Account |        |     | 11,951 | 03  |
|   |        |     | 64,126 | 32  |

Asaf Ali Road,  
NEW DELHI.



# COMMUNICATION ENGINEERS DELHI

*The year ended 30th September, 1960*

## INCOME

|  | Rs.   | nP. | Rs.    | nP. |
|--|-------|-----|--------|-----|
| By Membership Fees                       |       |     | 36,734 | 00  |
| „ Sale of Institution Publications       |       |     | 1,469  | 57  |
| „ INCOME FROM INSTITUTION'<br>JOURNAL    |       |     |        |     |
| Subscriptions                            | 4,055 | 65  |        |     |
| Advertisements                           | 8,266 | 79  |        |     |
| Sale of Reprints                         | 913   | 82  |        |     |
| Grant from National Institute of Science | 500   | 00  |        |     |
|  |       |     | 13,736 | 26  |
| „ INCOME FROM STUDENTS' JOURNAL          |       |     |        |     |
| Subscriptions                            | 145   | 50  |        |     |
| Advertisements                           | 1,080 | 02  |        |     |
| Sale of Reprints                         | 44    | 40  |        |     |
|  |       |     | 1,269  | 92  |
| „ Examination fees                       |       |     | 7,065  | 50  |
| „ Interest received                      |       |     | 2,431  | 07  |
| „ Registration fees                      |       |     | 701    | 00  |
| „ Life Membership fee                    |       |     | 719    | 00  |
|  |       |     |        |     |
|  |       |     | 64,126 | 32  |

Sd. KHANNA & ANNADHANAM  
Chartered Accountants



# THE INSTITUTION OF TELE- NEW

## *Schedule of Fixed Assets as on*

| Particulars            | Cost or book<br>Value as on<br>30.9-1959 | Additions<br>during the<br>year | Total    |
|------------------------|--|---------------------------------|----------|
| 1. Typewriter          | 1,961.06                                 |                                 | 1,961.06 |
| 2. Duplicating Machine | 1,525.75                                 |                                 | 1,525.75 |
| 3. Adrema Machine      | 1,003.28                                 |                                 | 1,003.28 |
| 4. Furniture           | 1,280.75                                 | 29.00                           | 1,309.75 |
| 5. Cycle               | 279.50                                   |                                 | 279.50   |
| 6. Numbering Machine   | 45.62                                    |                                 | 45.62    |
| 7. Electric Fan        | 150.00                                   |                                 | 150.00   |
|                        | Rs. 6,245.96                             | 29.00                           | 6,274.96 |

Asaf Ali Road,  
New Delhi : 10th December 1960



**COMMUNICATION ENGINEERS  
DELHI**

*30th September 1960, Accompanying the Balance Sheet*

| Depreciation<br>written off upto<br>30-9-1959 | Depreciation<br>written off during<br>the year | Total<br>Depreciation | Net value of<br>Assets as on<br>30-9-1960 |
|---|--|-----------------------|---|
| 643.27  | 98.83  | 742.10                | 1,218.96                                  |
| 574.40  | 95.14  | 669.54                | 856.21                                    |
| 377.07  | 62.62  | 439.69                | 563.59                                    |
| 287.09  | 59.91  | 347.00                | 962.75                                    |
| 206.22  | 14.65  | 220.87                | 58.63                                     |
| 14.48   | 1.87   | 16.35                 | 29.27                                     |
|   | 15.00  | 15.00                 | 135.00                                    |
| 2,102.53                                      | 348.02   | 2,450.55              | 3,824.41                                  |

Sd/. KHANNA ANNADHANAM  
Chartered Accountants



