

The Transactions of the South African Institute of Electrical Engineers

FOUNDED—JUNE, 1909

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EDITOR

A. EVERETT, B.Sc. (ENG.)

Vol. XXXI

JANUARY, 1940

Part 1

PROCEEDINGS AT ANNUAL GENERAL MEETING

25th January, 1940, at 8 p.m.

The Thirtieth Annual General Meeting of the South African Institute of Electrical Engineers was held at 8 p.m. at Kelvin House, corner Hollard and Marshall Streets, Johannesburg, on Thursday, 25th January, 1940.

Mr. C. Griffith (President) was in the chair, and there were present approximately 100 members and visitors, and the Secretary.

MINUTES.

The Minutes of the Monthly General Meetings, held on the 23rd November and 12th December, 1939, respectively, were confirmed.

MEMBERSHIP.

Messrs. E. V. Perrow and C. A. Marshall were elected scrutineers of the ballot for the election of new members, and the following gentlemen were declared duly elected, the announcement being greeted with applause:—Messrs. William Tuxford Tallent-Bateman and Joseph Monks, as Full Members, and Edward Holroyde Harwood as an Associate Member.

The Secretary announced that applications for membership were received from

the following gentlemen, that the Council had graded them as Associate Members, and that they would stand for election at the Monthly General Meeting in February:—Messrs. James Douglas Dinwoodie, Robert Rogerson Lyall, William Norman Powell and David Coote Ripley. That applications for transfer were received from the undermentioned candidates; that the Council had graded them as follows:—Mr. Elwin Eugene Schweizer (from Associate Membership to Full Membership), and Messrs. Leslie Charlton, William Denford Holmes, Julius Kaplan and Alfred Montague Kisch (from Studentship to Associateship); that Mr. Schweizer would stand for election at the Monthly General Meeting in February. That the Council had admitted Mr. Walter Neumann as an Associate of the Institute; and that, in terms of Clause 17 of the Constitution and Rules, the Council had transferred Mr. Frederick Harry Wootten (Associate Member) to Retired Membership of the Institute.

The President: I will now call upon the Secretary to read the Annual Report for 1939.

ANNUAL REPORT AND BALANCE SHEET

For the year ended 31st December, 1939.

Gentlemen,

Your Council has much pleasure in submitting the Thirtieth Annual Report of the Institute herewith.

FINANCE.

The finances of the Institute continue to

improve, and it is pleasing to report that revenue has again exceeded expenditure by an appreciable amount.

Investments.

At the close of the last financial year the Institute's investments were as follows:—

£1,300 Union Loan $3\frac{3}{4}$ per cent. Local Registered Stock, 1948/58 (at cost)	£1,277	15	6
On Current Account with the United Building Society ...	425	16	9
Building Loan to the Associated Societies	2,000	0	0
	<hr/>		
	£3,703	12	3
During the year under review, the amount on Current Account with the United Building Society was reduced by	39	0	8
	<hr/>		
	£3,664	11	7
and an amount of £700 was placed on Fixed Deposit for 12 months at 4 per cent. with the United Building Society making the total moneys invested at the 31st December, 1939	720	5	0
	<hr/>		
	£4,384	16	7

Subscriptions.

The Subscriptions for the last three years are as follows:—

1937	£1,478	13	3
1938	1,581	16	6
1939	1,644	5	6

and it is pleasing to note the marked increase each year.

Transactions.

The cost of production of the *Transactions* for the year under review was £1,223 11s. 5d., and the revenue from advertising and the sale of copies amounted to £1,315 19s. 9d., leaving a surplus of £92 8s. 4d.

This highly satisfactory position is only made possible by commercial firms using the *Journal* as an advertising medium, and your Council desires to record its appreciation of the support accorded the *Journal* in this respect.

Entrance Fees.

£123 7s. 6d. was received in respect of Entrance Fees as compared with £141 4s. 6d. in 1938.

Stationery and Printing.

An amount of £173 12s. 8d. was expended on Stationery and Printing as compared with £149 6s. 3d. for the previous year.

Assessment—Associated Societies.

£651 0s. 0d. was paid to the Associated Societies in respect of Assessment for 1939, and is an increase of £49 7s. 0d. over the amount paid for the year 1938.

Donation—Associated Societies.

The Associated Societies donated a sum of £202 2s. 6d. to the Institute, £152 5s. 0d. of which is for the purpose of assisting the Student Members.

The Institute is indebted to the Controlling Executive of the Associated Societies for this consideration.

General.

It is extremely gratifying to the Council to be in a position to submit such a favourable Income and Expenditure Account, showing a surplus of £620 13s. 8d., and it is confident that, providing no extraordinary expenditure is incurred, this satisfactory position will be maintained.

AWARDS.

V.F.P. Awards—Papers.

Class A.

- (1) Mr. A. J. E. Funke (Associate Member), £10 10s., for "The Effect of Resonant Shunts for the Elimination of Inductive Interference Due to Mercury Arc Rectifiers, with Special Reference to the Traction Systems of the S.A.R. & H." (*Journal*, April, 1938.)

Class B.

- (1) Messrs. A. J. Levy and H. G. John (Student Members), £5 5s., for "An Investigation into Safety Conditions in the Wiring of Buildings, with Special Reference to Earth Continuity." (*Journal*, September, 1938.)
- (2) Mr. J. P. de Vos (Student Member), £3 3s., for "A Consideration of Some Rectifier Transformer Connections Leading up to an Introduction to the Principles, Methods, Uses and Effects of Grid-control in the Mercury-arc Current Converter when used as a Straight Rectifier." (*Journal*, December, 1938.)

V.F.P. Awards—Contributions to Discussions.

- (1) Mr. J. Falke (Associate Member), £3 3s., for his contribution to the dis-

discussion on the paper entitled "Factors Influencing Synchronous Stability," by Professor B. L. Goodlet (Visitor). (*Journal*, July, 1938.)

- (2) Messrs. J. T. Allan, G. R. Bozzoli (Associate Members) and R. J. Garard (Student Member), £3 3s., for their joint contribution to the discussion on the paper entitled "The Effect of Resonant Shunts for the Elimination of Inductive Interference Due to Mercury-arc Rectifiers, with Special Reference to the Traction Systems of the S.A.R. & H.," by Mr. A. J. E. Funke (Associate Member). (*Journal*, May, 1938.)

South African Cable Makers' Association's Award.

- (1) Mr. S. F. Kos (Visitor), £5 5s., for "Development in Radio, Telegraph and Telephone Services in the Union of South Africa." (*Journal*, March, 1938.)

F. C. Sturrock Award.

- (1) Mr. I. A. Bird (Student Member), £3, for "Protective Equipment at the E.R.P.M. Power Station." (Read before the Students' Section of the Institute on the 13th July, 1938.)
- (2) Mr. W. G. Lumley (Student Member), £2, for "The Cathode Ray Oscillograph." (Read before the Students' Section of the Institute on the 6th October, 1938.)

The Council wishes to express its thanks to the Victoria Falls and Transvaal Power Company, Limited, for its generous Annual Donation of £25 to the Awards Fund, and a further £25 to the funds of the Institute.

The Institute is indebted to the Company for the valuable and practical interest it continues to take in the Institute's progress and work.

The Council also wishes to record its appreciation to the South African Cable Makers' Association for its Annual Award Premium of £5 5s.

PAPERS.

Papers read during the year under review dealt with a variety of subjects, and copies of the *Transactions* continue to be supplied to all parts of the world.

The following papers were read during 1939:—

- "Recent Developments in Electrical Motors," by Mr. D. B. Hoseason (Visitor). (*Journal*, February, 1939.)
- "Special Purpose Industrial Motors," by Mr. W. S. Steel (Visitor). (*Journal*, March, 1939.)
- "Recent Developments of Circuit-breakers Without Oil, and Notes on the Breaking Process of Arcs," by Mr. A. F. P. J. Heydorn (Member). (*Journal*, April, 1939.)
- "The Application of Industrial Radiography in the Inspection of Water Cooled Valves and Condensers," by Messrs. K. G. F. Collender (Member) and W. Hilarius (Associate Member). (*Journal*, May, 1939.)
- "A Summary and Discussion of Some Modern Problems in Internal Combustion Engineering," by Professor W. J. Walker (Visitor). (*Journal*, June, 1939.)
- "An Introduction to the Discussion on Domestic Electricity," by Mr. W. R. Gray (Associate Member). (*Journal*, July, 1939.)
- "An Investigation into the Resistance of Various Paints, with Special Reference to the Footing Resistance of Transmission Poles," by Messrs. G. J. N. Limebeer, H. Plen (Student Members), and V. L. Webb (Associate). (*Journal*, August, 1939.)
- "Satisfactory Intensities of Illumination from a Consideration of Visual Performance Under Different Types and Intensities of Lighting," by Messrs. H. Paynter and N. Flekser (Student Members). (*Journal*, August, 1939.)
- "Distribution Networks for Local Telephone Service in South Africa," by Mr. R. M. Travers (Visitor). (*Journal*, September, 1939.)
- "An Investigation of Some of the Problems Involved in the Measurement of High Resistance Associated with Insulating Materials; being a Critical Study of the Methods Used and Certain British Standard Specifications," by Mr. J. T. Allan (Member). (*Journal*, October, 1939.)
- "The Development of the High Rupturing Capacity Fuse," by Mr. F. R. C. Harris (Student Member). (*Journal*, October, 1939.)
- "Lead Acid Storage Batteries and their Application," by Mr. A. C. Tilley (Associate). (*Journal*, November, 1939.)

ITEM OF TECHNICAL AND GENERAL INTEREST.

- "An Electrical Device for Recording Mechanical Movement," by Mr. D. A. P. Wilson (Visitor). (*Journal*, August, 1939.)
- "Lightning Experience on the New Johannesburg—Pretoria Junction Cable," by Mr. H. Mill (Associate Member). (*Journal*, May, 1939.)

DISCUSSIONS.

The Council is pleased to record its appreciation of the number of discussions which took place on papers read before the Institute during the year, but it would be glad if more members, especially those outside the Witwatersrand area, would contribute to the discussions on the various papers.

REPRESENTATION, 1939.

- Associated Scientific and Technical Societies of South Africa.*—Members: Mr. C. Griffith and Mr. T. P. Stratton. Alternates: Mr. K. B. Findlay and Mr. E. T. Price.
- Board for the Licensing of Electricians.*—Member: Mr. J. Russell. Alternate: Mr. L. H. L. Badham.
- Rand Mutual Assurance Co., Ltd.—Prevention of Accidents Committee.*—Member: Mr. W. D. Wheeler. Alternate: Lieut.-Col. J. Stewart Ross.
- South African Standards Institution.*—Member: Mr. C. J. Monk. Alternate: Mr. J. S. Trelease.
- World Power Conferences—South African National Committee.*—Member: Mr. W. Elsdon-Dew. Alternate: Major E. F. Rendell.
- Status of the Engineer.*—Members: Mr. J. White and Mr. C. Griffith. Alternates: Mr. K. B. Findlay and Mr. T. P. Stratton.
- Safety Precautions Committee.*—Mr. J. C. Fraser, Mr. E. T. Price, Mr. W. H. Milton.

ASSOCIATED SOCIETIES.

The following are the Office-bearers of the Associated Societies:—

- President.*—Mr. T. K. Prentice.
Vice-Presidents.—Mr. Joseph White and Mr. R. J. B. Kethel.
Honorary Treasurer.—Mr. F. K. Webber.

In April, 1939, the Associated Societies offered their services to the Government in any way it may wish to indicate and mentioned that they would gladly arrange for the compilation of a register of members willing to offer their services.

The Associated Societies were thanked and informed that should it be possible to make use of their offer at a later date they would be advised.

Subsequently the Department of Defence sought the advice of the Associated Societies on two matters of a confidential nature. The Associated Societies have appointed a Technical Advisory Committee, on which all the Member Societies are represented, to deal with matters, relative to the war, that may be referred to them by the Government.

The Associated Societies have agreed to contribute £100 towards the cost of revising and republishing Lloyds List which is an index of scientific publications available in the various libraries in the Union.

It was the intention of the Controlling Executive to inaugurate the serving of lunches in Kelvin House from October, but owing to the outbreak of war it was deemed advisable not to proceed with the project.

Various other matters are receiving the attention of the Controlling Executive.

The Associated Societies continue to progress and their finances are sound.

ANNUAL BANQUET, 1939.

Owing to the war your Council decided not to hold a Banquet this year.

JOINT MEETING WITH THE UNIVERSITY OF THE WITWATERSRAND.

The Annual Joint Meeting with the University of the Witwatersrand was held in the large Chemistry Theatre at the University, Milner Park, on Thursday, 22nd June, 1939, when Professor W. J. Walker (Visitor) gave an address entitled "A Summary and Discussion of Some Modern Problems in Internal Combustion Engineering."

A vote of thanks to the author was proposed by Dr. Hans Pirow and seconded by Mr. V. Pickles.

The meeting which was attended by approximately 175 members and visitors, was an outstanding success, and the Council wishes to place on record its keen apprecia-

tion of the hospitality of the University authorities.

Prior to the meeting, the laboratories of the Departments of Mechanical Engineering and Electrical Engineering were open to visitors for inspection.

VISIT TO THE JOHANNESBURG MUNICIPAL POWER STATION.

By the courtesy of the Johannesburg City Council and the General Manager of the Electricity Department, members of the Institute and their friends paid a visit of inspection to the Johannesburg Municipal Power Station on Saturday, the 26th August, 1939. Approximately 300 members and their friends participated in this instructive excursion, and your Council wishes to express its appreciation of the opportunity afforded members of visiting the power station, and also for the hospitality extended.

SAFETY PRECAUTIONS COMMITTEE.

This Committee held several further meetings during the year, and revised the Electricity Supply Regulations to conform with the 11th Edition of the I.E.E. Regulations.

These Regulations have been handed over to the Institute, and ways and means are being considered of having them promulgated.

It is expected that copies of the Regulations will shortly be available.

Your Council wishes to record its thanks to all the members of this Committee for the valuable and useful work done by them.

ADDITIONS TO CONSTITUTION AND RULES.

At a Special General Meeting held on the 27th July, 1939, at 8 p.m., it was unanimously resolved that the following clauses be added to the Institute's Constitution and Rules:—

Clause 17. "*Life Membership.*—Any member who is in good standing, who has been a member of the Institute for not less than twenty-five years and who is no longer actively engaged in the Electrical Engineering profession shall be entitled to Life Membership of the Institute without payment of any further fees, and members so eligible should notify the Secretary of the Institute.

Life Members shall retain the privileges of their respective grades."

Clause 18. "*Retired Membership.*—Any member who is in good standing and who is no longer actively engaged in the Electrical Engineering profession may apply for Retired Membership of the Institute.

Should his application be accepted by the Council, his annual subscription shall be £1 1s., if he is resident on the Witwatersrand, and 10s. 6d., if he is resident outside the Witwatersrand.

Retired Members shall retain the privileges of their respective grades."

REMISSION OF SUBSCRIPTIONS FOR 1940—MEMBERS ON ACTIVE SERVICE.

The Council has agreed to remit the 1940 subscriptions of all members on active service.

MECHANICAL AND ELECTRICAL ENGINEERS' COMMISSION. WINDING AND LOCOMOTIVE ENGINE DRIVERS' COMMISSION.

At the request of the Government Mining Engineer, your Council submitted nominations for certain vacancies on the above Commissions.

CONFERENCE WITH THE HON. THE MINISTER OF DEFENCE AND OTHERS.

At the invitation of the Hon. the Minister of Defence, your Council delegated Mr. Joseph White to represent the Institute at a Conference held in Capetown on the 6th June, 1939, at which the Minister of Defence, members of the War Supplies and National Supplies Control Boards and representatives from various technical and other bodies were present.

Matters of National importance were dealt with at the Conference and subsequently, on the recommendation of the Institute's delegate, certain proposals were submitted to the Minister of Defence.

STUDENTS' SECTION.

The Students' Section now has a membership roll of 160.

The members of the Committee are.—

Mr. C. E. Watson (Chairman), Messrs. C. A. Martin and H. L. B. Johnson (Vice-Chairmen), Messrs. E. B. Brunner, J. P. Hall, J. R. Harmer, W. G. Lumley, E. H.

Scholes, W. H. Evans, G. S. Fainsinger, G. J. N. Limebeer.

Meetings were held regularly during the year, at which papers were read and discussed, and attendances have been most encouraging.

OBITUARY.

The Council deeply regrets to record the deaths of Messrs. J. G. Davison (Member) and W. H. Milne (Associate Member).

The sincere sympathy of the Institute has been extended to the relatives of the deceased members.

ATTENDANCE AT COUNCIL AND COMMITTEE MEETINGS.

There have been held under the 1939 Council 13 meetings of the Council, 11 of the Finance and Papers and Editorial, and 11 of the General Purposes Committees.

Attendances have been as follows:—

	Council.	Finance and Papers and Editorial.	General Purposes.
C. Griffith	13	11	—
G. Bradford	8	7	—
J. C. Fraser	11	9	—
C. A. Marshall	7	—	6
W. H. Milton	9	—	8
G. K. Nowlan	10	9	—
E. T. Price (leave granted)	5	—	4
G. J. Privett	10	—	8
T. P. Stratton (leave granted)	11	—	9
J. S. Trelease	12	10	—
W. D. Wheeler	4	—	4
J. T. Allan	11	9	—
L. H. L. Badham	11	10	—
G. Drewett	8	—	7
A. Everett (leave granted)	7	6	—
J. K. Gillett (leave granted)	9	7	—
J. Russell (leave granted)	11	—	9

MEMBERSHIP.

The Membership of the Institute as at the 31st December, 1939, is as follows:—

	Hon. Members.	Members.	Associate Members.	Associates.	Students.	Total.
As at 1st January, 1939	2	143	276	207	147	775
<i>Deductions—</i>						
Resignations	—	—	4	3	2	9
Deceased	—	1	1	—	—	2
Struck off	—	—	1	5	7	13
Transferred	—	1	4	7	14	26
Admission cancelled	—	—	—	—	1	1
	2	141	266	192	123	724
<i>Additions—</i>						
Elected	—	1	9	—	—	10
Admitted	—	—	—	22	36	58
Transferred	1	4	7	14	—	26
Reinstated	—	—	—	—	1	1
As at 31st December, 1939	3	146	282	228	160	819

Honorary Members have increased by 1, Members by 3, Associate Members by 6, Associates by 21 and Students by 13, and a net increase of 44 members is shown for the year.

PUBLICATIONS RECEIVED.

The following publications were received during 1939:—

American Exporter.
 A.S.E.A. Journal.
 Automobile Topics.
 Board of Trade Journal.
 British Engineers' Export Journal.
 Brown Boveri Review.
 Electrical Communication.
 Electrical Review, The.
 Electrical Times, The.
 Electrician, The.
 Electricity Supply Commission—Library Extracts.
 Electricity Supply Commission—Engineering Index No. 9.
 Engineering.
 Ericsson Review.
 Hardware Trade Journal.
 E.T.T. Elektroteknisk Tidsskrift.
 Heaton Works Summer Journal.
 Journal, Chemical, Metallurgical and Mining Society of South Africa.
 Journal, English Electric Co., Ltd.
 Journal, General Electric Company, Ltd.
 Journal, Institution of Certificated Engineers, South Africa.
 Journal, Institution of Electrical Engineers, London.
 Journal, Institution of Engineers, Australia.
 Journal, Institution of Post Office Electrical Engineers.
 Journal, Mine Surface Officials' Association of South Africa.
 Journal, South African Chemical Institute.
 Journal, South African Institution of Engineers.
 Live Wire, The.
 M.S.O.A. Journal.
 Metropolitan-Vickers' Gazette (English and South Africa).

Mining and Industrial Magazine of South Africa.

Mining Electrical Engineer, The.

Morris Owner, The.

Oxy-Acetylene News.

Reef, The.

Report on Accidents due to Explosives—1939.

Safety in Mines Research Board, Lists 133 and 137.

Science Abstracts.

Siemens' Review.

South African Engineering and Electrical Review.

South African Engineering.

South African Railways and Harbours Magazine.

South African Railways and Harbours Report for 1939.

Swedish Economic Review No. 3.

South African Standards Institution—Minutes.

Transactions of the Institution of Engineers, Australia.

United States Department of the Interior—Technical Paper.

Wireless World, The.

GENERAL.

In general, the year 1939 must be regarded as highly satisfactory.

The finances of the Institute continue to improve and the membership, which now totals 819, is the highest figure reached since the inception of the Institute.

The attendance at Monthly General Meetings, which averaged 79, reflects the interest taken in the Institute's proceedings.

The Council looks forward to the coming year with every confidence in the Institute's continued progress and usefulness.

On behalf of the Council,

C. GRIFFITH, *President*.

A. J. ADAMS, *Secretary*.

JOHANNESBURG,

4th January, 1940.

THE SOUTH AFRICAN INSTITUTE OF ELECTRICAL ENGINEERS

(INCORPORATED 1909)

Dr. Cr.
BALANCE SHEET as at 31st DECEMBER, 1939.

<p>To V.F.P. AWARDS FUND</p> <p> Balance at 31st December, 1939</p> <p> Add: Awards unclaimed</p> <p> F. C. STURROCK AWARD</p> <p> SUBSCRIPTIONS PAID IN ADVANCE</p> <p> SUNDRY CREDITORS</p> <p> ANNUAL BANQUET RESERVE</p> <p> ACCUMULATED FUND</p> <p> Balance at 31st December, 1938</p> <p> Add: Excess of Income over Expenditure for the year 1939</p>	<p>£64 8 7</p> <p>£25 15 0</p> <p>38 13 7</p> <p>15 0 0</p> <p>26 7 8</p> <p>134 19 10</p> <p>87 1 1</p> <p>4,671 4 6</p> <p>4,050 10 10</p> <p>620 13 8</p>	<p>BY INVESTMENTS</p> <p> £1,300 Union Loan 3½ per cent. Local Registered Stock, 1948/58 at cost</p> <p> Building Loan—Associated Scientific and Technical Societies of S.A. ...</p> <p> Fixed Deposit at United Building Society with interest accrued ...</p> <p> V.F.P. AWARDS</p> <p> At United Building Society with interest accrued.</p> <p> FURNITURE AND FITTINGS</p> <p> SUNDRY DEBTORS</p> <p> Subscriptions in arrear</p> <p> Advertisers</p> <p> CASH</p> <p> At United Building Society with interest accrued</p> <p> At Bank</p>	<p>£3,998 0 6</p> <p>£1,277 15 6</p> <p>2,000 0 0</p> <p>720 5 0</p> <p>60 0 7</p> <p>1 0 0</p> <p>397 17 6</p> <p>542 3 1</p> <p>386 16 1</p> <p>155 7 0</p> <p>£4,999 1 8</p>
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ASSOCIATED SCIENTIFIC AND TECHNICAL SOCIETIES OF SOUTH AFRICA,
Secretaries.

Per A. J. ADAMS.

We have audited the Balance Sheet of the **South African Institute of Electrical Engineers**, dated 31st December, 1939, above set forth and have obtained all the information and explanations we have required. Proper books and records have been kept by the Institute. In our opinion, such Balance Sheet is properly drawn up so as to exhibit a true and correct view of the state of the affairs of the Institute according to the information and explanations given us and as shown by the books of the Institute.

JOHANNESBURG,
4th January, 1940.

G. K. TUCKER & WILSON,
Incorporated Accountants.

THE SOUTH AFRICAN INSTITUTE OF ELECTRICAL ENGINEERS

(INCORPORATED 1909)

£r.

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31st DECEMBER, 1939.

<p>TO SECRETARIAL FEES AND RENT</p> <p>" STATIONERY AND PRINTING</p> <p>" POSTAGES</p> <p>" GENERAL EXPENSES</p> <p>" ASSESSMENT—ASSOCIATED SOCIETIES</p> <p>" CERTIFICATES</p> <p>" SUBSCRIPTIONS WRITTEN OFF</p> <p>" AUDIT FEE</p> <p>" BINDING OF "TRANSACTIONS"</p> <p>" LIGHTNING INVESTIGATION FUND</p> <p>" LIBRARY</p> <p>" BALANCE—being excess of Income over Expenditure carried to Accumulated Fund</p>	<p>£555 0 0</p> <p>173 12 8</p> <p>64 0 8</p> <p>108 6 10</p> <p>651 0 0</p> <p>18 12 6</p> <p>35 14 0</p> <p>21 0 0</p> <p>3 10 0</p> <p>0 19 10</p> <p>18 17 0</p> <p>620 13 8</p> <hr/> <p>£2,271 7 2</p>
<p>By SUBSCRIPTIONS</p> <p>" ENTRANCE FEES</p> <p>" EXAMINATION FEES</p> <p>" DONATIONS</p> <p>V.F.P. Company, Ltd.</p> <p>Associated Scientific and Technical Societies of South Africa</p> <p>INTEREST ON INVESTMENTS</p> <p>" "TRANSACTIONS"</p> <p>Advertising and Sales</p> <p>Less: Cost of Printing, Commission on Advertisements, etc.</p>	<p>£1,644 5 6</p> <p>123 7 6</p> <p>4 4 0</p> <p>227 2 6</p> <p>£25 0 0</p> <p>202 2 6</p> <p>179 19 4</p> <p>92 8 4</p> <p>1,315 19 9</p> <p>1,223 11 5</p> <hr/> <p>£2,271 7 2</p>

The President: Gentlemen, you have heard the Annual Report. I would like formally to move its adoption, and will call upon Mr. Rodwell to second the motion.

Mr. A. T. Rodwell (Past President): Mr. President and gentlemen, the past year has been one of anxiety and stress for most of us, and it is well that we should come together at this Annual Meeting to review the splendid work of our Institute during the preceding year.

Taking into account the unsettled conditions throughout the world, our appreciation of the work of our Institute and all kindred societies, with their steady effect and message of hope for the future, is very sincere indeed. During these trying times I consider that this and similar organisations should function fully for the advancement of science and, so far as they are able, the betterment of the peoples of the earth.

The Annual Report submitted gives a concise but comprehensive review of the Institute's activities during the year; therefore, I will be very brief in my remarks in this connection.

The excellent results shown are attained by excellent organising, enthusiastic effort and unremitting attention on the part of the President, his Council, the Secretary and all those members who have co-operated so heartily to make the year a success.

The growth of the Institute in the whole of its activities is shown to have been truly remarkable.

The first item dealt with in the report is that of Finance, but I understand that our Honorary Treasurer, Mr. Cocks, who is partly responsible for the ever-increasing surplus, will deal with this aspect, but I cannot refrain from remarking on one section of this item. Members read with certain pleasurable anticipation that rules had been added to the constitution to permit those with 25 years membership to retain membership without payment of further fees. By careful scrutiny it may be seen that this applies only to those not actively engaged. Whoever heard of an inactive electrical engineer?

In ordinary everyday life, treasurers are nice gentlemanly fellows, but when dealing with finances, one hand appears to take that which the other hand gives. The

work profit is unknown to treasurers. They talk and deal in *surpluses or excesses of income over expenditure*. We know, however, that whatever term is used to denote the extraction of the greatest possible profit from both private and public electricity undertakings. The position here is different, the excess over expenditure obtained by our Treasurer and our Secretary is highly desirable, as it accrues to the Institute and builds up our reserve funds.

The objects of the Institute and the reason for its existence, which is to promote electrical science and its application to engineering and to provide facilities for the presentation, discussion and recording of papers, has been worthily maintained throughout the year. The standard of the papers read has been of a high order, and this is reflected in the awards to be made to-night.

I would like to voice my opinion that the amount of discussion on the excellent papers presented still leaves much to be desired, and if it is possible for our country members to provide written contributions for publication, this would stimulate a greater interest and keenness in those who are unable to attend our meetings, owing to distance. I feel somewhat guilty, I should admit that when this thought occurred to me I examined the matter and found that I have failed to contribute to last year's discussions.

It is pleasing to find an increase in membership of 44 for the year, giving a total membership of no less than 819.

Looking to the future it is still more gratifying that there are now 160 student members, and that this section, under the Student Chairman and Committee, is progressing so favourably. I feel that special credit is due to our student members in submitting contributions of sterling quality.

Our thanks are due to Mr. Joseph White for so ably representing the Institute at the Conference with the Minister of Defence, War Supplies, and National Supplies Control Boards. The Associated Societies are to be congratulated on their early offer to the Government of their services in these difficult times, which has resulted in the appointment of a Technical Advisory Committee which will assist in any matter referred to them by the Government.

Mr. President and gentlemen, I have much pleasure in seconding the adoption of the Annual Report.

The President: Gentlemen, it has been proposed and seconded that the Annual Report be adopted. Before I formally put that to the meeting, would any member like to comment in any way on the Report? If not, is it agreed that the Report be adopted?—Agreed.

I will now call upon Mr. C. T. Cocks to propose the adoption of the Statement of Accounts.

Mr. C. T. Cocks (Hon. Treasurer and Past President): In presenting the Balance Sheet and Income and Expenditure Account for the year ended 31st December, 1939, I would draw your attention to the remarkable stable financial position in which the Institute now finds itself.

It will be noted that the total now received from subscriptions equals £1,644, while that for 1929 shows a total of £1,060, representing an increase of approximately 64 per cent.

Our total assets equal £4,999, which with certain negligible commitments, such as arrear subscriptions, may be looked upon as wholly gilt-edged.

The excess of income over expenditure for the year under review again shows a comfortable increase over the preceding year. The whole presents a very pleasing picture of the remarkable progress that has been made by the Institute.

The considerable increase of the work of the Secretary, which such progress has involved, is being met by a negligible increase in the Secretarial Fees and rent. This fact leads one to realise the highly efficient manner in which Mr. Adams and his staff have taken care of the affairs of the Institute. My intimate contact, as your Honorary Treasurer, with Mr. Adams has made me realise more and more the keen personal interest he takes in our affairs, the result being that the work of the Honorary Treasurer is comparatively simple.

When an institution grows with the rapidity with which this Institute has grown, possibly few of us realise the

enormous increase in the work of our secretarial staff, and, in this connection—I have said it many times before, and I will say it again—it simply proves that a negligible increase in cost to our Institute shows the added efficiency of our Secretary, Mr. Adams, and his staff in looking after the affairs of our Institute. (Applause.) I would add, gentlemen, that, for keenness, you would think he was almost an electrical engineer, for it was he who put me up to this about the excess expenditure, and I warned him that my chief might come along with some nasty remarks; but it has been a pleasurable task to perform the duties of Honorary Treasurer; it has been a very simple one—thanks again to Mr. Adams.

I have much pleasure, Mr. President, in moving the adoption of the Balance Sheet and the Income and Expenditure Account for the year ended 31st December, 1939. (Applause.)

The President: Mr. White, will you kindly second the motion.

Mr. Joseph White (Past President): Mr. President and gentlemen, I would like to say that Accounts which show a profit of £620 13s. 8d. do not require an orator to explain them; they speak for themselves, and our thanks are due to the Council for this excellent showing in 1939.

I suppose many of you are thinking along the same lines as myself, namely, that a surplus such as this cannot be expected to continue, under existing conditions, and for a reason with which all of us will agree. I refer, of course, to the decision of the Council to remit the subscriptions of all members on active service. On behalf of the rank and file, I would like to congratulate the Council on their decision.

With these few words, I have very great pleasure in seconding the adoption of the Balance Sheet and Income and Expenditure Account for the year ended 31st December, 1939.

The President: Gentlemen, you have heard the motion, and you have heard the words of the seconder. Before I put the motion to the meeting, would anyone present like to comment on the Statement. If not, is it agreed that it be accepted?

The Balance Sheet and Income and Expenditure Account for the year ended 31st December, 1939, were unanimously adopted.

The President: The next item on our Agenda, gentlemen, is the declaration of the election of Vice-President and Members of Council for 1940. It gives me very great pleasure indeed to record that the total poll was 202, representing exactly 50 per cent. of the number eligible to vote. (Applause.) This, I think, Mr. Secretary, is almost a record. (The Secretary: I think so.) It gives me equally great pleasure to advise you that Mr. C. A. Marshall has been elected, unopposed, a Vice-President of the Institute. (Applause.) I think the members have been very wise in their decision. (Hear, hear.) There were five Members of Council to be elected, and the gentlemen elected are Messrs. L. H. L. Badham, J. C. Fraser, J. T. Allen, G. K. Nowlen and G. J. Privett. There are three Associate Members. The gentlemen elected are Messrs. G. A. Dalton, George Drewett and W. Hilarius. There was one spoilt paper. (Applause.)

Certain gentlemen interested themselves this afternoon in looking after the ballot papers, and I will ask Mr. Marshall if he will be so good as to propose a vote of thanks to the scrutineers.

Mr. C. A. Marshall (newly-elected Vice-President): Mr. President and gentlemen, I take great pleasure this evening in proposing a vote of thanks to those gentlemen who so generously offered their services as scrutineers this afternoon. I believe they were here at about half-past two and did not finish their work until after 5 p.m. The gentlemen who carried out these duties were Messrs. C. Griffith, T. P. Stratten, K. B. Findlay, E. V. Perrow, J. Stewart-Ross, C. T. Cocks and Joseph White.

I wish to take this opportunity of expressing my thanks to the Institute for electing me as Vice-President. I feel that a great honour has been conferred on me, and I shall do my utmost to carry out, to the best of my ability, the duties of that office and to uphold the dignity of the Institute. I hope that I shall carry out my duties as Vice-Presidents in the past have done. Having been on the Council for a few years and it is a great pleasure to attend the meetings and take part in the

work of the Institute. It is quite an inspiration to be associated with the Council of this Institute. Gentlemen, I am deeply grateful and I thank you again. (Applause.)

Mr. J. C. Fraser (Member): I have very much pleasure, Mr. President and gentlemen, in seconding the vote of thanks to the scrutineers.

The President: Will the scrutineers kindly note it.

I will now ask Mr. Cocks if he will propose the election of

AUDITORS.

Mr. C. T. Cocks (Past President): I have much pleasure in proposing that Messrs. G. K. Tucker & Wilson be re-elected the Institute's Auditors for 1940, at the same fee as for last year.

Mr. J. T. Allen (Member): I have great pleasure in seconding that proposal.

Carried unanimously.

HONORARY LEGAL ADVISERS.

Mr. W. H. Milton (Member): I propose that Messrs. Stegman & Able be re-elected the Institute's Honorary Legal Advisers for the ensuing year.

Mr. L. H. L. Badham (Member): I second that.

Carried nem. con.

The President: The next item on the Agenda is a very pleasant one, gentlemen, that is the

PRESENTATION OF AWARD CERTIFICATES

by Dr. Dobson. I am very grateful that Dr. Dobson is performing this duty tonight, because, if it had been an outsider, it would have been necessary for me to make some introductory remarks. Dr. Dobson is so well known to you that it is not necessary for me to make any comments whatsoever. So I will just ask him to come forward and do the needful.

(**Dr. J. H. Dobson** (Past President) then presented the Award Certificates to the following, congratulating each, in turn, on his success:—Messrs. A. J. Levy and H. G. John; J. Falke; J. T. Allan, G. R. Bozzoli and R. J. Garrard; S. F. Kos; I. A. Bird; W. G. Lumley.)

The President: Thank you very much, Dr. Dobson.

Dr. J. H. Dobson (Past President): Mr. President and gentlemen, for many years now it has been a great pleasure to me to be present at the annual meetings of our Institute of Electrical Engineers, and incidentally I have enjoyed the kind hospitality to-night to dine with Mr. C. Griffiths, our Retiring President and esteemed Chief Engineer of our Union Government Posts and Telegraphs Department.

On this occasion, however, I have been specially honoured by your Council in being asked to distribute the prizes to-night to those who have been fortunate in the awards that have been made to them.

This Institute of Electrical Engineers affords inducements and encouragement in many ways to its members, not only by the personal relationships created between members at our monthly meetings such as this one, and at visits to industrial undertakings, etc., but also by the publication of the papers in the monthly Journals which provide opportunities for carefully studying the written communications of authors and contributors in the discussions.

The list of papers that have been read during the past year, as well as the discussions on them, show that a very high standard of work continues to be made by the Institute. In this connection, by the generosity of the Victoria Falls Power Company, the S.A. Cable Makers' Association and the Hon. F. C. Sturrock, our Institute is able to show its special appreciation to those authors and contributors who, in the opinion of the Awards Committee, have presented papers and contributions of exceptional merit.

On your behalf, it is now my privilege to convey our heartiest congratulations to all the recipients of prizes for the success they have attained and to hope that it will be an inspiration to still greater efforts in the future.

There are a few special points of interest in connection with the recipients of these awards. Four of them are Associate Members (Messrs. Funke, Falke, Allan and Bozzoli), six are students (Messrs.

Garard, Terry, John, de Vos, Bird and Lumley) and one was a visitor, Major S. F. Kos. There were no awards to any Full Member of the Institute, and in this sense I give a special additional word of congratulation to those who have received prizes this evening. One other comment I think is appropriate: two prizes were awarded to contributors to discussions—this shows that the Awards Committee attaches as much value to the work of contributors as that of authors.

In these very strenuous and anxious days, arising out of the present war conditions, it is impossible to conclude my comments on these Awards without expressing a few words of great sorrow and deep sympathy with all those of our technical and engineering brethren who are engaged in the process of destruction common to horrible modern warfare. We are very fortunate in this country in that, so far, awards to our fellow-engineers, such as have been made this evening, are for exceptional merit on subjects connected with usefulness to mankind in general—let us hope that the cruel war now raging in Europe will come to a speedy termination and that the brains of the technical and engineering world will be applied more generally towards uplifting the conditions and happiness of human beings in the future.

In conclusion, allow me to thank your Council for inviting me to present the prizes. I would also like to take this opportunity to thank our retiring President (Mr. C. Griffiths) and the outgoing Council for their very successful efforts during the past year, and to offer our congratulations to our incoming President (Mr. T. P. Stratten) and to Messrs. Price and Marshall (Vice-Presidents)—I wish them and their Council colleagues a happy and successful year of office.

The President: Thank you very much indeed, Dr. Dobson, for those words. The next item on the Agenda, gentlemen, I think is the most important of the evening—that is, the

INDUCTION OF PRESIDENT.

It is my very pleasant duty to congratulate Mr. Stratten on his election to this office. Equally, I should like to con-

gratulate the Institute, because Mr. Stratten, who is very well known to the majority of you, is a very capable and ardent worker, who can only add lustre to this presidential chair, which I will now ask him to assume. Mr. Stratten, I would like to wish you a very, very successful year of office. (Applause.)

Mr. T. P. Stratten (newly-elected President): Mr. Griffith, gentlemen, as I have to address you at our next meeting, I do not want to say more than a few words to-night, but I would like to take this early opportunity of thanking you for the honour you are doing me by putting me into this presidential chair. To be elected President of this Institute is an honour which I appreciate very much, and I can only say that, during the coming year, it is my intention to carry on the work of the Institute in the same high tradition as you, Mr. Griffith, have done during the past twelve months, and as our other Past Presidents have done in years gone by. I would also like to say what an encouragement it is to a new President to find so many of our Past Presidents still taking so keen an interest in the activities of our Institute—(hear, hear). I thank you very much. (Applause.)

It is now my pleasant duty, gentlemen, to ask our senior Vice-President, Mr. E. T. Price, to take his seat upon my right, and to ask our newly-elected Vice-President, Mr. C. A. Marshall, to assume his seat on the rostrum. (Applause.)

GENERAL BUSINESS.

Welcome to Visitors.

The President: Under the heading of "General Business," I have much pleasure in welcoming this evening our visitors. We are always very pleased to have visitors at our meetings. This evening we are particularly pleased to have with us Mr. T. K. Prentice, as President of the Associated Scientific and Technical Societies of South Africa; Mr. V. Pickles, as President of the South African Institution of Engineers; Mr. E. H. A. Joseph, as President of the Chemical, Metallurgical and Mining Society of South Africa, and Mr. A. Nimmo, as President of the Institution of Certificated Engineers, South Africa.

I will now call upon Mr. Prentice to say a few words.

Mr. T. K. Prentice (President, Associated Scientific and Technical Societies of South Africa): Mr. President and gentlemen, I am here this evening as President of the Associated Scientific and Technical Societies, but, notwithstanding that fact, when I come amongst electrical engineers, and particularly eminent engineers, I get a feeling of inferiority complex, due perhaps to my prodigious ignorance of matters electrical. It rather reminds me of an electrician on one of our mines, who was very keen to become an electrical engineer. He studied hard and eventually entered for the Electrical Engineer's Certificate. On receipt of the examination paper, he realised he knew nothing about it, and thought there was not much use in staying there. So he wrote on the paper: "God knows everything; I know nothing. A merry Christmas." (Loud laughter.) In due course, he got a reply from the secretary of the Examination Board to the effect that: "God gets 100 per cent.; you get nothing. A happy New Year." (Renewed laughter.)

I should mention that if my knowledge of electricity were not such as it is, I might have been able to mend the electric motor which has broken down to-night, and is thus depriving us of air conditioning in this room. (Laughter.)

As a visitor to this Institute, I have listened with a great deal of interest to your Annual Report. I have noticed you have made a profit of £92 on the *Journal*. Then there is that remarkable plus difference between Expenditure and Revenue of £620. And there is one item that pleases me very much indeed, and that is, an amount of £651 which you have contributed to the Associated Societies.

I noticed also the high quality of the papers which have been presented before your Institute, and the considerable amount of discussion that has taken place thereon, indicating the live nature of your Institute and the very great work that it is doing.

I notice, too, that, in your Students' Section, you have a membership of 160; and, not only have you that membership, but you have an active lot of members amongst them.

Then, passing on, I see further evidence of the healthy state of your Institute; that

your membership has improved from 775 to 819; and that the attendance at your Monthly Meetings averages the high figure of 79.

All these things indicate the very healthy condition of your Institute, and I think that congratulations are due to the outgoing President, Mr. Griffith, and his Council for that exceptionally good state of affairs.

To-night, there was a reference, by Mr. Rodwell, to the activities of the Associated Societies. I particularly appreciate his remarks, and would say that you need not worry about the future of the Associated Societies. Your representatives play a very big part in our activities, and, in the incoming year—actually, the year 1940—you will be represented by Mr. Joseph White, as the President of the Associated Societies. (Applause.) That, of course, indicates that I have not long to go as President, and perhaps I should wish you, sir, good luck, as I wave you goodbye, and convey, on behalf of the Associated Societies, our very best wishes for the year 1940. I feel sure that, in your capable hands, the Institute is bound to prosper. I thank you. (Applause.)

Mr. V. Pickles (Past President, South African Institution of Engineers): Mr. President and gentlemen, it is my duty and also my privilege, on behalf of the South African Institution of Engineers, to congratulate you, sir, on your election to the chair of this Institute. There are many items contained in your report upon which the Institute has reason to be proud, but I would specially draw attention to one, namely, the average monthly attendance at its meetings—that is 79. I think in point of attendance this number must constitute a second for any Institute of a similar association in this country.

I shall have much pleasure in reporting to the South African Institution of Engineers that we are a very flourishing body. (Laughter.)

Finally, also on behalf of the Institution, I should like to congratulate the outgoing President, Mr. Griffith, on the very successful year just completed. I think there are very few Presidents who leave office with such a good record. I personally have very much pleasure in congratulating you, Mr. Griffith, on the outstanding

achievements of the past year. (Applause.)

Mr. E. H. A. Joseph (President, Chemical, Metallurgical and Mining Society of South Africa): Mr. President and gentlemen, the two previous speakers have absolved me from the necessity of referring in any way whatsoever to your Annual Report; there is nothing left to say about it. Like Mr. Prentice, as a Mining Engineer and a layman in electrical matters, I feel very great awe in addressing Electrical Engineers. I have always looked upon them as magicians. I think that impression arises from my school days. I remember, some 40 years ago a school friend of mine, who was clever at these things, devised a wireless apparatus, and, by means of a home-made coherer, he transmitted signals the whole length of the room, without wires. That astonished us. When I compare that with our modern wireless sets and communications of all sorts, I feel that Electrical Engineers have done a very wonderful work in this short period of 40 years. I used wireless as an example, because, as I say, it impressed itself on my mind at the time. It would be wasting your time to go into the many other aspects of Electrical Engineering development for which you are responsible: but I feel I can make a suggestion to you. I, being a layman, knowing nothing of the technical difficulties and know that you have succeeded in transmitting sound without wires all round the world; I would suggest to you that you should devise a means of transmitting heat by the same means, so that, when we have a heatwave in Johannesburg, you can transmit the unwanted calories to the Maginot Line. (Laughter.) However, I am straying from my subject; I am harping on my personal reactions, when my duty as well as my very great pleasure is to convey, from the Chemical, Metallurgical and Mining Society of South Africa, its congratulations to your Institute, and to Mr. Griffith, for a most successful year just passed, and the best of good wishes to your new President, Mr. Stratten, and your Institute, for the year that is to come; and also to thank you for granting me the very great privilege of being here to-night and addressing you. (Applause.)

Mr. A. Nimmo (President, Institution of Certificated Engineers, South Africa):

Mr. President and gentlemen, following the lead of previous speakers, and also following good advice I received before coming to this meeting—I wish to excuse the brevity of my remarks by complaining that my thunder has already been stolen.

I wish to express my thanks for being invited to come to this meeting, and particularly, to dine with your retiring President. On looking round, I am struck by the number of my Engineering friends that I see here, particularly such men as Mr. White, Mr. Cocks, Mr. Perrow, Mr. Fraser, and others; and it reminds me of the good service these men have done not only to your Institute but also to my Institution, which of course, indicates how happy and personal are the ties between the two institutions. I would like, on behalf of our Institution, to convey our congratulations to your retiring

President and to yourselves on a very successful year, to wish your incoming President, Mr. Stratten, an equally successful year, and also to Mr. Marshall and Mr. Price on their promotion. I thank you, Mr. President. (Applause.)

The President: Gentlemen, I am sure you will wish me, on your behalf, to thank Mr. Prentice, Mr. Pickles, Mr. Joseph and Mr. Nimmo for the good wishes which they have expressed in their remarks. I would ask them to express, in return, to the institutions they represent, our thanks for the kind sentiments which they have spoken.

Is there anything else that any member wishes to bring up under the heading of "General Business"? If not, I will ask our immediate retiring President, Mr. Griffith, to present to us his—

VALEDICTORY ADDRESS

By **Mr. C. GRIFFITH, M.I.E.E.**

Mr. President and Gentlemen:

May I be permitted to preface my Valedictory Address with the remark that while the presentation of such an address has been established by custom it seems to me to be inherently incorrect. I presume that initially it was intended to cover a review of the year's activities, but this is now very admirably done in the Annual Report and there is little left for the retiring President to say on that score. Like my predecessors in office, I find the period of stock-taking somewhat painful, largely because of the sins of omission on my part. At the same time one is wholeheartedly grateful for the support which has been so ungrudgingly given by the Vice-Presidents and Members of Council, particularly as residence outside the Witwatersrand and clash of engagements has compelled me to call upon good-hearted members to deputise for me on several occasions. To all I express my profound thanks.

The opportunities which have been afforded me of participating in the gatherings—social and otherwise—of our sister societies have enabled me to understand, as never before, the unity of purpose which underlies the existence of the various societies and institutions, and if there is

one thing more than any other which has impressed me during the year it is the part which could be played by the average member in forwarding the purpose of his own institute and, incidentally, at the same time serving his own ends.

Perhaps it was the address of the retiring President of the South African Institute of Engineers (Mr. Kanthack) which most forcibly brought home to me the necessity for the engineer, no less than his colleagues in other professions, to be true to his calling. Mr. Kanthack's address was an outspoken one dealing fearlessly with certain weaknesses of engineers and the difficulties of the latter with Tender Boards composed of laymen concerned more with prices and less with quality. It is not my intention to dilate upon this latter phase, in fact, my official position precludes my doing so; nor do I propose to comment on any shortcomings which may exist on the part of electrical engineers. I am made aware, only too frequently, of the views held by certain sections of the public regarding the services for which my own Department is responsible and, while not admitting that blame for any deficiencies must necessarily or invariably be laid at the door of the engineer, knowledge of the difficulties to be overcome would

make me very chary of expressing opinions which might be regarded as reflecting adversely on the business efficiency of electrical engineers generally. I will go further and add that the services rendered to the community by electrical engineers are invaluable in every phase of its existence and are accepted by the public as being a perfectly normal state of affairs. Each new development is taken as a matter of course regardless of the amount of research and expense which has been necessary to produce the result. In short, the marvellous has become the commonplace and a sophisticated generation has no longer any inclination to marvel but merely becomes irritable when its desires are not satisfied immediately and blames the engineer for the majority, if not all, of the ills which beset humanity to-day.

So much has been written in recent years of the place of the engineer in various spheres—political, cultural, social, etc.—and the value that he is or ought to be in each that the subject is almost threadbare. More recently still, there has arisen the question of whether a closer union of scientific societies in South Africa is not desirable for certain reasons and *pros* and *cons* have been advanced by men better qualified to speak on the subject than I am. Personally, I feel that all the required machinery exists to enable societies, as societies, to accomplish all that lies in human power to accomplish, but that periodic joint meetings of allied societies, as in England, would be of great mutual advantage.

What I am more concerned with to-night is giving expression to the views I have formed over a period of years of service on the Council of your Institute, but more particularly during my period of office as President, regarding the individual unit of our own Institute. It is true that present world conditions are such that by comparison one's own affairs are more than usually insignificant, but it has been claimed so frequently that engineers can play a large part in national affairs that a few moments introspection may be well worth while, and the question I would like to put is this: Does the average member fully realise his obligations to the Institute? The more flip-pant minded will point to the extremely satisfactory balance sheet which has just been laid before you and say "Can there be any question about it?" The more serious

minded will point to the real progress which has been made in certain directions, thanks to the efforts of this Institute in collaboration with other Societies, while others again will point to the valuable papers and discussions which have been recorded in our *Transactions*.

I am not a pessimist; in fact, one of my chiefs many years ago referred to me as "that incorrigible optimist," but, notwithstanding all that has been achieved, I am satisfied it is only a fraction of what might be achieved if the average member realised fully his obligations to the Institute.

I am not disposed to be critical regarding the financial obligations of members. Human nature being what it is, the omission to meet promptly the demand for just dues is a common failing, and the position of the Institute in this respect is not worse than that of other Societies of a kindred nature. Actually, I think it is better than that of most, thanks largely to the indefatigable efforts of the Secretariate.

But one of the objects of the Institute, as stated in Clause 3 of the Constitution, is:—

"The provision of facilities for the preparation, presentation, discussion and recording of papers, treatises and works on matters pertaining to electrical and associated science and engineering," and it is in this connection that I find the average member mostly at fault.

I suppose I am not overstating the case if I say that membership of the Institute is a privilege. It is true that possession of certain qualifications is necessary before entry to one or other of the grades of membership can be secured but, because of the conditions prescribed and of insistence on their enforcement, a certain status attaches to membership which is not without value in business and other spheres. But does the average member feel that he has done his bit if he pays his subscription with reasonable promptitude, exercises his right of vote at the annual election of Members of Council and, if resident on the Witwatersrand, puts in an occasional attendance at meetings? Examination of the papers presented before the Institute, and more particularly the discussions on the papers, forces one to the conclusion that the answer to the question is in the affirmative, whereas it ought to be an emphatic negative.

Firstly, as to the papers themselves. One would imagine that the Council would be inundated with offers of papers from members anxious to place before their fellow members and give to the world generally the results of their experience in any given field of operation or research. The Institute's *Transactions* have, it is true, been the medium for recording much that is valuable but, in the main, one finds members strangely reluctant to come forward with offers of papers. Is it excessive modesty, is it the thought that their views and experience are commonplace and not of interest to their fellow men, or is it just sheer indifference or indolence? During a trip overseas some two years ago I met in New York a man who had visited South Africa and who remarked that he was struck by the fact that everyone to whom he talked out here was inclined to speak disparagingly of the country. His suggestion that if the country had so many disadvantages it would be well to find another one to live in met, however, with decided disapproval. So he thought we were a contrary kind of people. More recently a visiting pianist of international reputation speaking at a luncheon offered almost identical comments, and it would appear, therefore, that, as a people, we exhibit to the world a modesty in respect of our country and its development which is entirely unwarranted. Can it be that this same modesty afflicts electrical engineers and those engaged in the development of electrical science in South Africa? It may be so, but there is reason to doubt it. Nor do I think that our achievements in industry, etc., are so insignificant as not to be worth talking about. I am left, therefore, with the view that our members are unwilling to take up the task of setting pen to paper. Engineers generally are prone to believe themselves as "doers" not "talkers," but the nature of their training demands that they be able to express themselves concisely and logically on paper and, therefore, a presentation of facts or theories should not be a very difficult task. It may be urged that the Council is elected to do all that is required, but those who have served on the Council are only too well aware of the difficulty of securing an adequate supply of papers of sufficient merit to justify their presentation to members, and the lot of the responsible committee would be greatly eased if members would come

forward in larger numbers with offers of papers or items of interest.

What I have said in regard to the papers themselves applies with equal if not greater force to the discussions. An analysis of these shows two things: (a) that contributors to the discussions on any paper are few in number, and (b) that the discussions are confined to a very small group of members. Now, if we are inarticulate in regard to original matter, need we necessarily be so when someone has provided us with a subject to talk about or made statements with which we are not in agreement? So far as members who attend the meetings are concerned, I shall say more a little later, but the country member has in the discussions a real opportunity to demonstrate his lively interest in the activities of his Institute. How seldom he takes advantage of that opportunity is revealed by reference to the discussions. Our membership at any centre outside the Witwatersrand is, unfortunately, too small for the practice of the Home Institution to be followed, i.e., the presentation of a paper at certain local centres in turn. This is undoubtedly an incentive to discussion, but the printing and circulation of papers follows so rapidly on their presentation before this Institute that members in any part of the Union can readily submit discussions within two months if they have any desire to do so. May I, therefore, make a special appeal to members living outside the Witwatersrand to take a greater interest in discussions even if they do not feel able to offer papers for presentation. And there seems to be no reason why more papers should not come from "country" members. The term "country" is used in the sense it is used in the Constitution and not as implying to members in the Cape Peninsula, Durban, etc., a degree of rusticity to which they might reasonably object!

Reverting to the town member, he will, I think, agree that discussions come most aptly on the night of presentation and this should be aimed at wherever possible. To achieve this, however, it is desirable that advance copies of the paper be obtained. Owing to dilatory submission of papers it has frequently been very difficult to make advance copies available until a few days before the meeting, and this has undoubtedly had a prejudicial effect on discussions. Arrangements are in hand, however, which should ensure earlier submission of papers

to the Council and this, coupled with the proposed issue of a suitable notification of papers to be read during a given period should enable those who really desire to do so to obtain copies in adequate time for the preparation of contributions. May I, therefore, express the hope that more and more members who are in a position to attend the monthly meetings will participate in the discussions. Such action can only react to the benefit of members.

It may be advanced that the strained times in which we are living are not really conducive to a more active interest in the affairs of the Institute and that a retiring President might have endeavoured to give to members some lofty thoughts of an idealistic nature. I make no apology for being purely domestic, particularly as for many years I was among those who were content to leave the job to others believing that they were very capable of doing it, but neglecting to appreciate the effect on oneself and one's fellow members of taking an active part in the work.

I cannot conclude this brief address without placing on record my appreciation of the services of Mr. Adams. Without him a President is like a blind man endeavouring to find his way in "No Man's Land." With him as a guide, one is led by pleasant paths through apparent forests of difficulties and restrained from putting one's foot in the wrong place. May the Institute long have the benefit of his services. To the capable staff under him I would also like to express my thanks.

To my successor I express the wish that he may have a pleasant and successful year of office and that he will receive the measure of support from the Council and Members which has so kindly been accorded to me.

The President: I will now ask Dr. Bernard Price to move a vote of thanks.

Dr. Bernard Price (Past President): Gentlemen, everyone present here to-night will wish, I know, to join with me in extending to our retiring President a very hearty vote of thanks for the address he has just delivered to us.

Mr. Griffith opened his address by remarking that the established practice of calling for a valedictory address seemed to him to be inherently incorrect and there are, I think, many of us who share his

view. A President who at any time wishes to bring any matter to the notice of members has no difficulty in finding a suitable opportunity for doing so and there is therefore really no necessity to standardise an address on vacating office. So far as I know, the practice is not usual in other Institutions and I do feel that, having in view the increasingly heavy burden which our Presidents are called upon to carry, the Institute should avoid anything which adds unnecessarily to their duties. The presentation of an inaugural address is, I think, enough to ask from the President in the way of a special contribution to the proceedings of the Institute and we can leave it to him to bring forward, whenever he thinks fit, matters affecting the Institute and its domestic affairs.

Later in his address Mr. Griffith appealed to the average member to take a more active part in the Institute's affairs. He pointed out that this would benefit not only the Institute but also the member himself. Reluctance on the part of members to offer papers and to participate in the discussion of papers has been deplored by Past Presidents and Members of Council on many occasions, and it is disappointing to see so little improvement in this direction.

I remember when this matter was under consideration many years ago I suggested inserting, as a standing item on our Agendas "The consideration and discussion of items of technical interest," and this item has been so included ever since. My idea was that members who feel diffident about the more ambitious task of offering to present a paper might break the ice by submitting some interesting item of experience that had come to their notice. It might only involve exhibiting a breakdown or fault of some kind or submitting a brief description of some exceptional occurrence: Or an explanation might be sought for happenings for which there seemed to be no obvious cause. It has been a disappointment to me to see how seldom members avail themselves of the opening thus afforded them for contributing towards the proceedings of the Institute, and I would take this opportunity of urging members, and especially younger members, to bring forward items under this heading. Surely in connection with the installation, operation and maintenance of plant and apparatus for the mines and other industries and

undertakings in this country interesting items of practical experience must frequently arise, a consideration of which would be of value to members of this Institute.

I imagine that young engineers to-day feel no less keenly than I did 40 years ago the pressure of competition and the difficulties confronting them in their endeavour to make headway in the profession. One hears it said that "nothing succeeds like success," and there is no doubt that the hardest part of the struggle is in the early stages when so many eager young men are competing for a footing on the bottom rungs of the ladder. In this struggle advancement may well come to those who show initiative and enterprise. Participation in the proceedings of the Institute is one way in which young engineers can show their interest in wider fields than those immediately before them in the positions they happen to occupy. After all, what the man of ambition most desires is an opportunity for showing what he has in him and the floor of the Institute is one place where he can give some indication of his keenness and ability. I whole-heartedly support our Retiring President in the hope he has expressed that we shall see an increasing number of members coming forward to join in the proceedings at our meetings.

In moving this vote of thanks to Mr. Griffith for his address I should like also to add my tribute to the excellent service which Mr. Griffith has rendered to the Institute as its President during the past year. The splendid record of progress as disclosed in the Annual Report must indeed be the source of much gratification to him and he, as well as the Institute, is to be congratulated very warmly on the results achieved. Mr. Griffith has performed the onerous duties of his office most efficiently and he has worked extremely hard to ensure that all the affairs of the Institute shall receive the closest and best attention. As you will have observed from the Annual Report, Mr. Griffith has been more regular in his attendance at Meetings of Council and Committees than any other member and, bearing in mind the fact that on each occasion it has been necessary for him to make the journey from Pretoria, you will agree, I am sure, that he has taken his responsibilities most seriously and carried out his duties in a most self-sacrificing

spirit. More than this, Mr. Griffith has filled the office with characteristic charm and dignity and it will be unanimously agreed his occupation of the Presidential Chair has shed lustre upon the Institute.

It now gives me much pleasure to move a specially hearty vote of thanks to our retiring President for his address and for all he has done to further the best interests of the Institute during the past year.

Mr. A. M. Jacobs (Past President): Mr. President, Mr. Griffith and gentlemen, it gives me very great pleasure to support the vote of thanks which Dr. Bernard Price has just proposed.

If I may digress just for a moment, I would like to point out to our very good friend, Mr. White, that there is still a third method that might be adopted in this particular case—that is, the method used by the pious negro who wrote all his aspirations and repentances, and everything he wanted on a sheet of paper, hung it over his bed, knelt down at night, and pointed to it over his shoulder and said: "Lord, them's my sentiments." Loud laughter.)

There really remains very little for me to add to what Dr. Bernard Price has so ably expressed. I do feel, however, that I would be taking this honour which has been conferred on me, of supporting this vote, too lightly if I immediately sat down without also adding a tribute to the leadership and the achievements accomplished by the retiring President.

We, of the Institute, have drawn our Presidents from comparatively few sources. We have, first of all, of course, the Victoria Falls and Transvaal Power Company; we have the Municipalities; we have the Mines; we have the Engineering merchant profession, and a few other sources, including the Electricity Supply Commission—which has had the honour of furnishing a few Presidents to the Institute so far. But, as nearly as I can recollect, Mr. Griffith is the first President of the Institute to be drawn direct from the Government Service; and I think I am speaking on behalf of the Institute when I say that, if the Government Service can furnish us with such Presidents, we look forward to having more of them in the course of time. (Applause.)

Now, coming down to the suggestions and recommendations which Mr. Griffith has made, I think we must consider them

very seriously, because, after all, they are the words spoken by a man who has run the full gamut of experience from Member of Council to occupying the Presidential chair. What Mr. Griffith has said, I think, should be read carefully and followed carefully by all members of the Institute.

It is a little difficult to advance any explanation for the apparent lack of interest in the preparation of papers. Therefore, I would tackle the matter from another aspect, reducing the whole question to the lowest terms, namely, those of self-interest. Members will find that they will benefit greatly by the preparation of papers. I can say, speaking from my own experience, that it is amazing to find how little one actually knows about something that one thinks one understands well; and you do not realise that until you sit down to formulate your thoughts in an endeavour to put them across to somebody to whom the subject may be new. And again, taking part in discussions has much the same effect. Speaking of discussions reminds me of the quatrain of Omar Khayyam:—

“Myself when young did eagerly frequent

Doctor and Saint, and heard great argument

About it and about: but evermore

Came out by the same Door as in I went.”

Maybe people do not participate in discussions because they fear the same barrenness of results. But, whatever, might be the results of philosophical discussions, gentlemen, technical discussions always give one something tangible to carry home and something to add to one's sum of knowledge; and, as Dr. Bernard Price has pointed out, it is a particularly valuable asset to the young engineer who looks forward to making his way against the very strenuous competition which obtains in our

profession, and in every other profession, at the present day.

I will not detain you any longer, gentlemen, but will merely again ask you most heartily to support the vote of thanks which has already been proposed by Dr. Price.

The President: Gentlemen, before asking you to endorse the vote of thanks proposed by Dr. Bernard Price, and seconded by Mr. Jacobs, I would like, in support of their remarks, to say how much the Members of Council have enjoyed serving, during the past twelve months, under the Presidentship of Mr. Griffith. (Hear, hear.)

I will now ask you to endorse the vote of thanks to Mr. Griffith, in the usual way. (Loud applause.)

I will now ask Mr. Griffith to reply.

Mr. C. Griffith (Immediate Past President): Mr. President, Dr. Price, Mr. Jacobs, gentlemen, I feel it a matter of some little difficulty to reply adequately to the words which have been uttered in praise of myself, because, throughout the year, all I have endeavoured to do is to carry out my duty, as I saw it, to the Institute; but I do appreciate the remarks which have been made even if I feel that I do not feel that I deserve them. I would like to thank Mr. Price and Mr. Jacobs particularly for their support of the views that I have expressed in this brief Valedictory Address, and I would reiterate the appeal which I have made; not only to you gentlemen here present but to all the members throughout the Union, that they will take a much keener and more active interest in our Papers and in our Discussions. I thank you all very much indeed, gentlemen. (Applause.)

This concluded the business and the meeting terminated (9.50 p.m.).

INSTITUTE ANNOUNCEMENTS

AWARDS.

The Council is empowered each year at its discretion to award the Gold Medal of the Institute, together with a certificate and, if considered desirable, a premium not exceeding £10 10s., to a member of any grade for an original paper of outstanding merit submitted during the year.

It is also authorised to award at its discretion the Bronze Medal of the Institute, together with a certificate and, if considered desirable, a premium not exceeding £5 5s., to a member of the Student grade for an original paper of outstanding merit submitted by a member of that grade.

The Institute is indebted to the Management of the Victoria Falls and Transvaal Power Company, Limited, for an annual donation of £25 for the purpose of awarding premiums, not exceeding £10 10s. in value for any one award, for the purchase of scientific and technical books or instruments for papers and contributions to the discussion of papers, which, in the opinion of the Council, merit special recognition.

The papers and contributions of Student Members are eligible for awards both in their own Section and in the Senior Section, and all awards are at the discretion of the Council, which may vary them in amount according to the merit of the papers and contributions submitted during the year.

The Institute is also indebted to the South African Cable Makers' Association for an annual donation of £5 5s. for the purpose of awarding one or more premiums each year to the total value of £5 5s.

The conditions governing this Award are the same as those for V.F.P. Awards, with the exception that all Papers and Contributions read before the Institute are eligible for the Award irrespective of whether the authors are members of the Institute or not.

PAPERS.

Members presenting papers before the Institute are requested to forward a copy of their paper, in final form, to the Secretary at least one month before the date of the meeting at which it is to be read.

Where symbols or abbreviations are considered necessary, it is desirable that definite standards should be used.

Attention is drawn to the publications of The British Standards Institution dealing with "terms" and graphical symbols used in electrical engineering, with the suggestion that these be employed.

DIAGRAMS FOR TRANSACTIONS.

It is requested that the following rules be observed by members preparing illustrations for publication in the *Transactions*:—

Drawings accompanying papers should be made in India ink on white paper; hand sketches, if they are bold and heavy in outline, are suitable for reproduction in the *Journal*.

Drawings and photographs to be shown on the screen by means of the epidiascope should not exceed 6 in. x 6 in. in size, and slides must be 3¼ in. x 3¼ in.

All drawings and photographs require to be numbered to ensure their use in the correct order.

As it is necessary when preparing blocks for the *Journal* to reduce any diagrams used by authors to such sizes as will enable reproduction in either single- or double-column width (the former being preferable in view of cost and space), the effect of this reduction should be borne in mind when lettering diagrams. Disproportionately large lettering in disproportionately bold line is essential if the diagram, when reproduced in the *Journal*, is to contain legible printing. Lettering when reduced to block proportions should not be smaller than 1 mm. in height, the thickness of line to be at least the same as that used for outlines in the main diagram.

LETTERS OF DESIGNATION.

The attention of members is drawn to Rule 26 of the Constitution and Rules of the Institute, which reads:—

The authorised letters designating the class in the Institute to which a member belongs shall be as follows:—

For an Honorary Member,
 Hon. M.(S.A.)I.E.E.
 For a Member M.(S.A.)I.E.E.
 For an Associate Member,
 A.M.(S.A.)I.E.E.
 For an Associate, Associate (S.A.)I.E.E.
 For a Student, Student (S.A.)I.E.E.

"In each case the letters S.A. shall be in brackets and be less in size than, but not less than half, the size of the other letters."

ADDRESSES WANTED.

Addresses are wanted for the following:—

M. Barrow.	H. S. Potgieter.
R. J. S. Caldwell.	P. R. Simmonds.
L. Firbank.	G. F. Stegmann.
S. Hampton.	A. W. Stoker.
M. Havinga.	S. Suttner.
N. E. Herberg.	P. du Toit.
C. A. Mitchell.	A. H. Winchester.

Kindly communicate with the Secretary, P.O. Box 5907, Johannesburg. Telephones, 33-5248/9.

TO COUNTRY MEMBERS.

The Council is particularly desirous of receiving written contributions from members resident in the country on any of the papers up for discussion as set forth in the Agenda.

Members who are unable to attend the Ordinary General Monthly Meetings should avail themselves of this opportunity.

In this connection members should bear in mind the Institute, V.F.P., and Students' Awards which are available for members presenting a paper or contribution of sufficient merit.

Kindly address all contributions, etc., to the Secretary, P.O. Box 5907, Johannesburg.

MINUTES OF THE BRITISH STANDARDS INSTITUTION.

The Minutes of the above Institution are regularly received by the Institute, and may be obtained for reference purposes on application to the Secretary.

BRITISH STANDARDS SPECIFICATIONS.

H.M. Acting Senior Trade Commissioner, Johannesburg, has advised the Institute that he has received from the British Standards Institution, of London, a complete set of British Standards Specifications.

These Specifications are filed in his office, and may be consulted there when required.

The Specifications are for consultation only, and cannot be loaned from his office.

BOOK-PLATES.

Book-plates for publications purchased from Award Premiums may be obtained from the Secretary of the Institute.

TECHNICAL PUBLICATIONS.

By the kindness of Doctor H. J. van der Bijl, the chairman of the Electricity Supply Commission, the Institute is favoured with copies of the weekly library extracts of current technical literature prepared by the Librarian of the Commission.

The Council desires to announce that the Extracts are available for reference by members on application to the Secretary, and a copy is also available on the bookshelves in the lounge of Kelvin House.

RECIPROCITY ARRANGEMENTS.

Reciprocity arrangements exist between the South African Institute of Electrical Engineers and the Institution of Electrical Engineers, London, the American Institute of Electrical Engineers, the Société Française des Electriciens, Paris, the Association Suisse des Electriciens, Switzerland, and the Verband Deutscher Elektrotechniker, Germany. It is hoped that members proceeding overseas will avail themselves of the facilities offered. Full particulars are obtainable from the Secretary.

CLIPPINGS FROM TECHNICAL PRESS.

Members are invited to send in any clippings from the Technical Press which may have bearing on papers up for discussion, or may be of general interest. Please state source. These clippings will be submitted to the responsible editor, who will pass for publication such items as can be accommodated in the *Transactions*.

South African Institute of Electrical Engineers.

EMPLOYMENT BUREAU

Employers desirous of obtaining the services of Electrical Engineers, Electrical Tradesmen, and Men or Learners for electrical work, may specify their requirements by means of advertisements in this column, and

Members of the Institute desiring employment may advertise for suitable appointments.

APPOINTMENTS OPEN.

The charge for advertisements by employers is at the rate of 10s. 6d. per inch or part thereof. The identity of advertisers will be indicated in the advertisement by suitable numbers. All answers received will be forwarded promptly to the employers concerned.

APPOINTMENTS REQUIRED.

Suitable advertisements will be inserted from members requiring employment, and the identity of such members will also be covered by a suitable series of numbers. All answers received at the Bureau will be forwarded promptly to the applicants concerned. These advertisements will be inserted free of charge for not more than three consecutive issues, the space available not to exceed one inch per advertisement.

NOTE.—All advertisements should reach the Secretary of the Institute not later than the 15th of the month for insertion in the ensuing number of the Journal. For further particulars apply to the Secretary of the Institute, P. O. Box 5907, Johannesburg.

APPOINTMENTS REQUIRED

Electrical Engineer, A.M.(S.A.)I.E.E., University Degree, 34 years of age, large experience, Generating Stations and Distribution Systems (H.T. & L.T.), requires position.

Address: A.R. 17, care of the Secretaries, South African Institute of Electrical Engineers, P.O. Box 5907, Johannesburg.

Electrical Engineer, A.M.(S.A.)I.E.E., University Degree, and overseas training requires responsible position in Union or Rhodesias. Wide experience, and now engaged on Distribution. Age 34.

Address: A. R. 18, care of the Secretaries, South African Institute of Electrical Engineers, P.O. Box 5907, Johannesburg.

Electrical Engineer, B.Sc. (Eng.), 24 years of age, requires position. Varied experience H.T. & L.T. Distribution and Construction, Workshops, Turbo-Compressors and Turbo-Alternators and Testing.

Address: A.R. 19, care of the Secretaries, South African Institute of Electrical Engineers, P.O. Box 5907, Johannesburg.